AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 | 28

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
	11-Sep-2007		

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
COMMANDING GENERAL MARINE CORPS SYSTEMS COMMAND 2200 LESTER STREET QUANTICO VA 22134-6050	M67854	(b)(4)	S1005A

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		9A. AMENDMENT OF SOLICITATION NO.
(b)(4)		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. M67854-07-D-3004
CODE 16331 FACILITY CODE	X	10B. DATED (SEE ITEM 13) 07-Sep-2007

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 43.103(a)(3) and FAR 52.243-2

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: micheal073242

(b)(4)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The vendor signature required has changed from not required to required.
The number of award copies required 2 has been added.
The effective date has changed from 07-Sep-2007 to 11-Sep-2007.

SECTION B - SUPPLIES OR SERVICES AND PRICES

Global Changes

CLIN 0001 -- SUBCLIN 2604AC
The FOB has changed from Destination to Origin.

SUBCLIN 0002AB
The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancillary Prod Kit 2007	0002AB	(b)(4)		

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancillary Prod Kit 2007	0002AB	(b)(4)		

SUBCLIN 0003AB
The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2007	0003AB	(b)(4)		

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2007	0003AB	(b)(4)		

SUBCLIN 0003AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0003AC		1	Lot	UNDEFINED	UNDEFINED
	ODC/Travel AAV-RAM/RS - 2007				
	T&M				
	Non Fee Bearing				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

SUBCLIN 0004AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0004AC		1	Lot	UNDEFINED	UNDEFINED
	ODC/Travel -MTVR - 2007				
	T&M				
	Non Fee Bearing				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

CLIN 0009

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0009		UNDEFINED		UNDEFINED	UNDEFINED
	TEST SUPPORT, Field User Test				
	T&M				
	FOB: Origin				
				TOT MAX PRICE	$0.00
				CEILING PRICE	

SUBCLIN 0009AA

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0009AA		800	Hours	(b)(4)	
	Labor				
	T&M				
	Hourly Rate $155.00				
	FOB: Origin				
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0009AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0009AB		1	Lot	(b)(4)	
	Materials				
	T&M				
	FOB: Origin				
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0009AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0009AC		1	Lot	(b)(4)	

TRAVEL
T&M
(IN SUPPORT OF TEST SUPPORT CLIN 0008AA)
IAW JTR, Non Fee Bearing
FOB: Origin

TOT MAX PRICE
CEILING PRICE (b)(4)

SUBCLIN 0019AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0019AB		UNDEFINED	Each	UNDEFINED	UNDEFINED

LAV Travel - 2007
T&M
(Non Fee Bearing)

FOB: Origin

TOT MAX PRICE $0.00 TBN
CEILING PRICE

SUBCLIN 0020AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0020AB	MTVR Travel - 2007 T&M (Non Fee Bearing)	UNDEFINED	Each	UNDEFINED	UNDEFINED

FOB: Origin

TOT MAX PRICE $0.00 TBN

CEILING PRICE

SUBCLIN 0021AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0021AB	AAV - Travel 2007 T&M Annual Training Requirements (Non Fee Bearing)	UNDEFINED	Each	UNDEFINED	UNDEFINED

FOB: Origin

TOT MAX PRICE $0.00 TBN

CEILING PRICE

CLIN 0022

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0022	REFURBISHMENT AND RETROFIT T&M First Article and Field User Pre-Production Calendar Year 2008 FOB: Origin	UNDEFINED		UNDEFINED	UNDEFINED
			TOT MAX PRICE CEILING PRICE		$0.00

SUBCLIN 0022AA

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0022AA	Refurbishment and Retrofit Labor - 2008 T&M Refurbishment and Retrofit Labor FOB: Origin	12,000	Hours	(b)(4)	
			TOT MAX PRICE CEILING PRICE		(b)(4)

SUBCLIN 0022AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0022AB	Refurbishment/ Retrofit Materials - 2008 T&M Refurbishment and Retrofit - Materials FOB: Origin	UNDEFINED	Lot	UNDEFINED	UNDEFINED
			TOT MAX PRICE CEILING PRICE		$0.00 TBN

SUBCLIN 0022AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0022AC		UNDEFINED	Lot	UNDEFINED	UNDEFINED
	ODC/Travel - 2008				
	T&M				
	Refurbishment and Retrofit ODC/Travel				
	Non Fee Bearing				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

CLIN 0023

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023		UNDEFINED		UNDEFINED	UNDEFINED
	NSTALLATION SERVICES				
	T&M				
	(TIME AND MATERIALS)				
	Calendar Year 2008				
	FOB: Origin				
				TOT MAX PRICE	$0.00
				CEILING PRICE	

SUBCLIN 0023AA

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023AA	Installation Services Labor (LAV) - 2008 T&M FOB: Origin	144,000	Hours	(b)(4)	
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0023AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023AB	Installation Services Labor (AAV) - 2008 T&M FOB: Origin	144,000	Hours	(b)(4)	
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0023AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023AC	Installation Services Labor (MTVR) -2008 T&M FOB: Origin	144,000	Hours	(b)(4)	
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0023AD

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023AD		UNDEFINED	Lot	UNDEFINED	UNDEFINED
	Installation Services Materials - 2008				
	T&M				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

SUBCLIN 0023AE

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0023AE		UNDEFINED	Lot	UNDEFINED	UNDEFINED
	Installation Services ODC/Travel - 2008				
	T&M				
	Non Fee Bearing				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

CLIN 0024

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0024		UNDEFINED		UNDEFINED	UNDEFINED
	SUSTAINING ENGINEERING/TECHNICAL STUDIES T&M (SENIOR ENGINEER) Calendar Year 2007 FOB: Origin				
				TOT MAX PRICE	$0.00
				CEILING PRICE	

(b)(4)

SUBCLIN 0024AA

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0024AA		10,000	Hours	(b)(4)	
	Labor - 2007 T&M FOB: Origin				
				TOT MAX PRICE	
				CEILING PRICE	

SUBCLIN 0024AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0024AB		UNDEFINED	Lot	UNDEFINED	UNDEFINED
	Materials - 2007 T&M FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

SUBCLIN 0024AC
The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0024AC		UNDEFINED	Lot	UNDEFINED	UNDEFINED
	ODC/Travel - 2007				
	T&M				
	Non Fee Bearing				
	FOB: Origin				
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

CLIN 0026
The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0026		UNDEFINED		UNDEFINED	UNDEFINED
	POST DEPLOYMENT SOFTWARE SUPPORT				
	T&M				
	Calendar Year 2008				
	FOB: Origin				
				TOT MAX PRICE	$0.00
				CEILING PRICE	

SUBCLIN 0026AA
The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0026AA	Labor - 2008 T&M FOB: Origin	10,000	Hours	(b)(4)	
				TOT MAX PRICE	(b)(4)
				CEILING PRICE	

SUBCLIN 0026AB

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0026AB	Materials - 2008 T&M FOB: Origin	UNDEFINED	Lot	UNDEFINED	UNDEFINED
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

SUBCLIN 0026AC

The contract type has changed from FFP to T&M.

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0026AC	ODC/Travel - 2008 T&M Non Fee Bearing FOB: Origin	UNDEFINED	Lot	UNDEFINED	UNDEFINED
				TOT MAX PRICE	$0.00 TBN
				CEILING PRICE	

SUBCLIN 0201AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2008	0201AB		(b)(4)	

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2008	0201AB		(b)(4)	

SUBCLIN 0202AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2009	0202AB		(b)(4)	

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2009	0202AB		(b)(4)	

SUBCLIN 0203AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2010	0203AB		(b)(4)	

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2010	0203AB		(b)(4)	

SUBCLIN 0204AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2011	0204AB			(b)(4)

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS LAV Ancilliary Prod Kit 2011	0204AB			(b)(4)

SUBCLIN 0301AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2008	0301AB			(b)(4)

To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2008	0301AB			(b)(4)

SUBCLIN 0302AB

The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2009	0302AB			(b)(4)

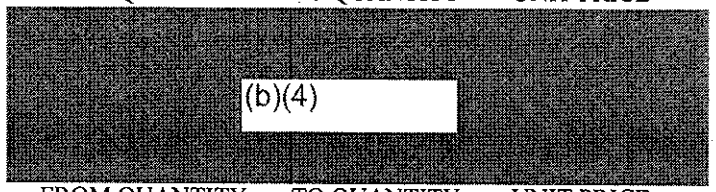
To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2009	0302AB			(b)(4)

SUBCLIN 0303AB

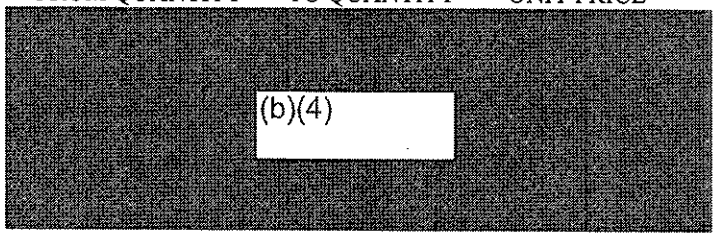
The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2010	0303AB			



To:

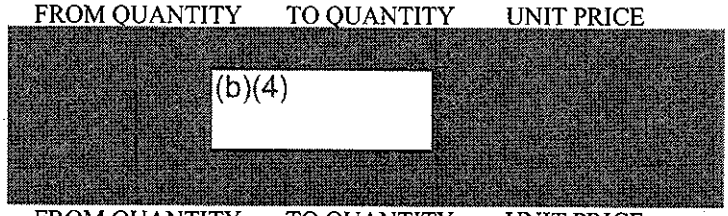
STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2010	0303AB			



SUBCLIN 0304AB

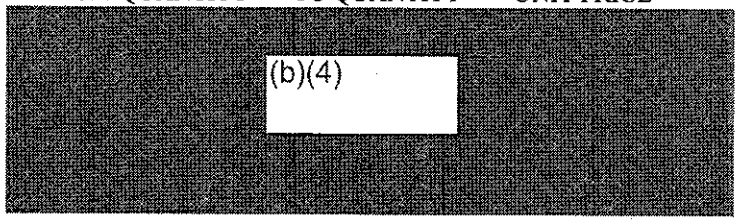
The stepladder pricing structure has changed from:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2011	0304AB			



To:

STEPLADDER NAME	ITEM NO	FROM QUANTITY	TO QUANTITY	UNIT PRICE
EPLS AAV Ancillary Kit 2011	0304AB			



SECTION F - DELIVERIES OR PERFORM

The following have been modified:

CLAUSES INCORPORATED BY REFERENCE:

Clause	Title	Date
52.242-15	Stop-Work Order	AUG 1989
52.242-17	Government Delay Of Work	APR 1984
52.247-29	F.O.B. Origin	FEB 2006

F-1 DELIVERY INSTRUCTIONS

Ship to Address: MAINTENANCE CENTER
ATTN WARREN SWINT (CODE 883)
BLDG 2235 PH X7691
MARINE CORPS LOGISTICS COMMAND

814 RADFORD BLVD STE 20325
ALBANY GA 31704-0325

CLINS: 0001AA, 0002AA, 0003AA, 0004AA – All quantities shall be delivered within 30 days after approval of the FAT report, but not later than 300 days after issuance of the order. These items may count toward the production quantity, but will be subject to production acceptance testing.

CLINS: 0001AB, 0002AB, 0003AB, 0004AB - A quantity of 42 each 0001AB, and 14 each 0002AB, 0003AB, and 0004AB shall be delivered 30 days after acceptance and approval of the FAT report but no later than 330 days after issuance of delivery order. Additional deliveries of 0001AB, 0002AB, 0003AB, and 0004AB shall begin 90 days after completion of the Field User Test and approval of the contracting officer at a rate of 600 each 0001AB, 150 each 0002AB and 0003AB, and 300 each 0004AB units per month following successful production acceptance testing. Subsequent orders shall begin 90 days after issuance of delivery order at a rate of no less than 500 units per month.

CLINS 0005 through 0018 – Commencement of CLINS will be annotated in each delivery order and shall be delivered in accordance with the DD Form 1423, Contract Data Requirements List.

CLINS 0019 – 0027 Commencement of CLINS will be annotated in each delivery order and as specified in the SOW

F-2 TECHNICAL DATA AND INFORMATION

Technical Data and Information shall be delivered in accordance with the requirements of the Contract Data Requirements List, DD Form 1423, Section J, Attachment E attached hereto, and the following:
(a) The contractor shall concurrently deliver technical data and information per DD Form 1423, Blocks 12 and 13 (date of first/subsequent submission) to all activities listed in Block 14 of the DD Form 1423 (distribution and addresses) for each item. Complete addresses for the abbreviations in Block 14 will be presented at time of award. Additionally, the technical data shall be delivered to the following cognizant codes, listed in Block 6 of the DD Form 1423.
PCO: Mr. Dwight Micheal

ACO: TBD via letter appointment after contract award.

(b) Partial delivery of data is not acceptable unless specifically authorized on the DD Form 1423, or unless approved in writing by the PCO.

(c) The Government review period provided on the DD Form 1423 for each item commences upon receipt of all required data by the technical activity designated in Block 6.

(d) A copy of all other correspondence addressed to the Contracting Officer relating to data item requirements (i.e., status of delivery) shall also be provided to the codes reflected above and the technical activity responsible for the data item per Block 6, if not one of the activities listed above.

(e) The PCO reserves the right to issue unilateral modifications to change the destination codes and addresses for all technical data and information at no additional cost to the Government.

(f) Unless otherwise specified in writing, rejected data items shall be resubmitted within thirty (30) days after receipt of notice of rejection

F.3 CDRL DELIVERY

All CDRLs for this contract will be delivered in accordance with Attachment I , CDRL Delivery Schedule, dated September 10, 2007.

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been added by full text:

MARCORSYSCOM WAWF INSTRUCTIONS TO CONTRACTORS

ELECTRONIC INVOICING PROCEDURES (MARCORSYSCOM Feb 2006)

In compliance with DFARS 252.232-7003, "Electronic Submission of Payment Request (March 2007)", the United States Marine Corps (USMC) utilizes WAWF-RA to electronically process vendor request for payment. The contractor is required to utilize this system when processing invoices and receiving reports under this contract.

The contractor shall (i) ensure an Electronic Business Point of Contract (POC) is designated in Central Contractor Registration at http://www.ccr.gov and (ii) register to use WAWF-RA at the https://wawf.eb.mil/ within ten (10) days after award of the contract or modification incorporating WAWF-RA into the contract. Step by step procedures to register are available at the https://wawf.eb.mil/.

The USMC WAWF-RA point of contact for this contract is (1)Mr. Gene Morin and can be reached on (2)703.432.3194 or via email at (3) eugene.l.morin@usmc.mil. The alternate USMC WAWF-RA point of contact is (4)Dwight B. Micheal, Sr. and can be reached on (5) 703.432.3270 or via email at (6)dwight.micheal@usmc.mil.

The contactor is directed to use the (7)Combo format when processing invoices and receiving reports. For all requirements, the contractor shall use the Marine Corps Systems Command DODAAC (M67854) as the DODAAC for all shipping addresses, even if the ship-to address is other than the Marine Corps Systems Command.

DFAS-Columbus
P.O. Box 369022
Attn:Kansas-M67443
Columbus, Ohio 43236-9022

E-Mail: CCO-KC-VPIS@DFAS.MIL
PHONE: 1-800-756-4571 #2 then #4
WAWF: https://wawf.eb.mil/
VPIS: https://www.dfas.mil/money/vendor

Data entry information in WAWF:

Payment Office DoDAAC: (8a) HQ0338
Issue By DoDAAC: (8b) M67854
Admin Office DoDAAC: (8c)S1005A
Ship To/Service Acceptor DoDAAC: (8d) See Section F/M67854 – PG16
Contract Number: (8e) M67854-07-D-3004

Before closing out of an invoice session in WAWF-RA, but after submitting your document or documents, the contractor will be prompted to send additional email notifications. The contractor shall click on " Send Additional Email Notifications" block on the page that appears. Add the primary point of contact's email address(provided above) in the first email address block and add the alternate point of contact's email address in the following block. This additional notification to the government is important to ensure the appropriate point of contact is aware that the invoice documents have been submitted into the WAWF-RA system.

NOTE: The POCs identified above are for WAWF issues only. Any other contracting questions/problems should be addressed to the POC identified in Section A of the contract.

The following have been modified:

CONTRACT ADMINISTRATION DATA

G-1 POST AWARD CONFERENCE

The Government will conduct and the contractor will host a post award conference in accordance with Federal Acquisition Regulation 42.503-1 within 30 days after contract award.

G-2 POINTS OF CONTACT

(a) The Technical Point of Contact for this contract is Mr. Eugene L. Morin Jr.

(b) The TPOC will provide technical direction and discussion, as relating exclusively to work to be performed on a time and materials basis, and will monitor the progress and quality of such work.

(c) The TPOC is not an Administrative Contracting Officer and does not have authority to take any action, either directly or indirectly, that would change the pricing, quantity, quality, place of performance, delivery schedule, or any other terms and conditions of the contract (or delivery/task order), or to direct the accomplishment of effort which goes beyond the scope of the statement of work in the contract (or delivery/task order). When, in the opinion of the contractor, the TPOC requests any of the aforementioned changes, the contractor shall promptly notify the Contracting Officer (or ordering officer, for delivery/task orders) in writing. If the contractor believes or interprets any action by the TPOC to be a change to the contract, the contractor will promptly notify the Contracting Officer in writing. Any failure by the contractor to notify the Contracting Officer in writing of any changes is an admission that the contractor is working at its own risk on a voluntary basis. No action shall be taken by the contractor under such direction until the Contracting Officer (or ordering officer) has issued a modification to the

contract (or delivery/task order) concerning the subject change(s) or has otherwise resolved the issue.

G-3 USMC WIDE AREA WORKFLOW IMPLEMENTATION (AUG 2006)

To implement DFARS 252.232-7003, "ELECTRONIC SUBMISSION OF PAYMENT REQUEST (JAN 2004)", the United States Marine Corps (USMC) utilizes Wide Area WorkFlow-Receipt and Acceptance (WAWF-RA) to electronically process vendor requests for payment. This application allows DoD vendors to submit and track Invoices and Receipt/Acceptance documents electronically.

The contractor is required to utilize this system when processing invoices and receiving reports under this contract/order, unless the provision at DFARS 252.232-7003(c) applies. The contractor shall (i) ensure an Electronic Business Point of Contact is designated in Central Contractor Registration at http://www.ccr.gov and (ii) register to use WAWF-RA at the https://wawf.eb.mil site, within ten (10) calendar days after award of this contract or modification. Step by step procedures to register are available at the https://wawf.eb.mil site.

The USMC WAWF-RA point of contact (POC) for this contract is Mr. Eugene Morin upon contract award.
The contractor is directed to use the "Combo" format when processing invoices and receiving reports.

When entering the invoice into WAWF-RA, the contractor shall fill in the following DoDAAC fields or DoDAAC extensions:
Contract Number:
Delivery Order:
Cage Code/Ext:
Pay DoDAAC:
Issue Date: See Block 3
Issue By DoDAAC: M67854
Admin by DoDAAC:
Ship to Code/Ext: M67854
Ship from Code/Ext:
LPO DoDAAC:
Acceptor Email Address:
Inspect By DoDAAC/Ext: M67854 PG16

In some situations the WAWF-RA system will pre-populate the "Issue by DoDAAC", "Admin by DoDAAC" and "Pay DoDAAC". Contractor shall verify those DoDAACs automatically entered by the WAWF-RA system match the above information. If these DoDAACs do not match, then the contractor shall correct the field(s) and notify the Contracting Officer of the discrepancy (ies). Step by step WAWF-RA invoicing procedures for "Combo," "2-in-1," and "Cost Voucher" are available at the USMC paperless site at http://www.marcorsyscom.usmc.mil/sites/pa/ under "Vendor Interface" section. On the Vendor Interface page click on "WAWF-RA" header at the top of the page. Under downloads on the

WAWF-RA page that appears, click the appropriate document either "Combo," "2-in-1," or "Cost Voucher" to download the instructions.

Before closing out of an invoice session in WAWF-RA, but after submitting the document or documents, the contractor will be prompted to send additional email notifications. Contractor shall click on "Send More Email Notification" on the page that appears. Add the acceptor's/receiver's email address (Note this address is their work email address not their WAWF-RA organizational email address) in the first email address block and add any other additional email addresses desired in the following blocks. This additional notification to the Government is important to ensure the acceptor/receiver is aware that the invoice documents have been submitted into the WAWF-RA system.

NOTE: The POCs identified above are for WAWF-RA issues only. Any other contracting questions/problems should be addressed to the Contracting Officer or other person identified in the contract to whom questions are to be addressed.

G-4 The **Remittance Address for Electronic Fund Transfers** for this contract is:

(b)(4)

G-5 CONTRACT ADMINISTRATION DATA

(a) Contract Administration Office is:

(b)(4)

SECTION H - SPECIAL CONTRACT REQUIREMENTS

(b)(4)

The following have been modified:

SPECIAL CONTRACT REQUIREMENTS

H-1 EXERCISE OF OPTION

The Government may, by unilateral modification, exercise from time to time, either in whole or in part, some or all of the Optional CLINs indicated in the schedule in accordance with the Options Clause of the contract and at the specified quantity subject to any minimum/maximum amount. The exercise period for Option CLIN 0027 is 60 months from the date of contract award.

H-2 AVAILABILITY OF UNIQUE DATA ITEM DESCRIPTIONS (UDIDs) AND DATA ITEM DESCRIPTIONS (DIDs)

(a) Ordering Procedures for Acquisition Streamlining and Standardization Information System (ASSIST). ASSIST is a database system for DOD-wide standardization document information management. The ASSIST database resides at the Department of Defense Single Stock Point for Military Specifications and Standards (DODSSP), located at DAPS, Philadelphia. ASSIST On Line provides web-based access to the ASSIST database, and is free to all registered customers. To register, visit the ASSIST-Online page (www.doddssp.daps-mil) or call the ASSIST Help Desk at: (215) 697-6257.

H-3 ENVIRONMENTAL CONTROLS

Notwithstanding that the contract may require the use of paints or coatings which do not meet state or district requirements for reduced volatile organic compounds (VOC's), the contractor must comply with all federal, state, and local regulatory requirements respecting air quality and emission limitations. It remains the contractor's responsibility to meet the requirements for reduced VOC's even where to do so will require the use of engineering controls or other special painting equipment.

H-4 TECHNICAL DATA AND COMPUTER SOFTWARE IDENTIFICATION IN ENGINEERING CHANGE PROPOSALS (ECPs)

Each Engineering Change Proposal (ECP) submitted by the contractor shall identify each item of technical data and computer software delivered by the contractor under any prior Marine Corps contract required to be revised as a result of the proposed change and shall include an estimated price and cost proposal to furnish the revisions.

H-5 NOTICE REGARDING THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA

(a) Export of information contained herein, which includes release to foreign nationals within the United Sates, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulations (ITARS), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.

(b) For violation of export laws, the contractor, its employees, officials or agents are subject to:
(1) Imprisonment and/or imposition of criminal fines; and

(2) Suspension or debarment from future Government contracting actions.

(c) The Government shall not be liable for any use or misuse of the information, technical data or specifications in this contract. The Government neither warrants the adequacy nor the completeness of the information, technical data or specifications in this contract.

(d) The contractor shall include the provisions or paragraphs (a) through (c) above in any subcontracts awarded under this contract.

H-6 GOVERNMENT PROPERTY FOR THE PERFORMANCE OF THIS CONTRACT

In accordance with DoD 5200.8-R, the contractor shall ensure physical security measures are in place to prevent unauthorized access to equipment, installations, materiel, and documents; and to safeguard them against espionage, sabotage, damage, and theft.

The Government agrees to provide the information identified below:

(a) Government Furnished Information: The EPLS Program will provide government owned technical data as listed in Section J and is not responsible for any missing or incomplete information. The government owned technical data will be made available via CD ROM no later than 5 days after release of Final RFP. Request for GFI shall be submitted to

COMMANDER
ATTN: CONTRACTS, Ms. Jessica Kriesten (Embedded Platform Logistics Systems)
RFP M67854-07-R-3004, MARINE CORPS SYSTEMS COMMAND
2200 LESTER STREET
QUANTICO, VA 22134

Or via email to jessica.kriesten.ctr@usmc.mil.

(b) Agency Peculiar Property (as defined in FAR 45.301 and DFARS 245.301):

The following terms and conditions shall be applicable to the agency peculiar property, if any, identified above:

Item Name:	NSN	COST	QTY
ASSAULT VEHICLE, FULL TRACKED, AMP	2350-01-080-9088	$840,480.00	01
TRK, WRECKER, 7-TON, W/WINCH	2320-01-465-2260	$210,000.00	01
LAV-25	2320-01-494-7606	$543,918.00	01
JTDI Server	N/A	$23,000.00	01
EMSS Kit	N/A	$7,565.03	12
RFID Reader	??	??	1
Bar Code Reader	??	??	1

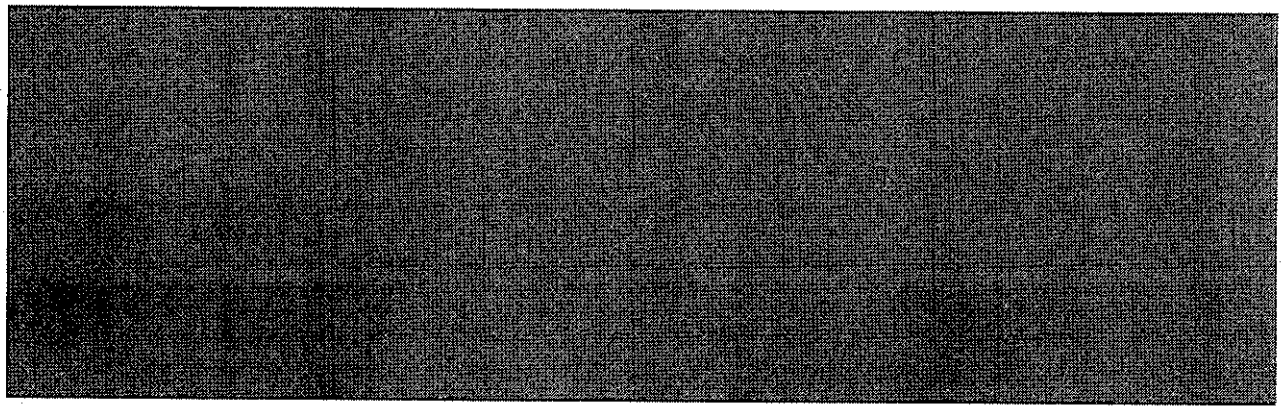
(A) Each item of agency peculiar property shall be identified by its Federal Item Identification Number and Government Nomenclature;

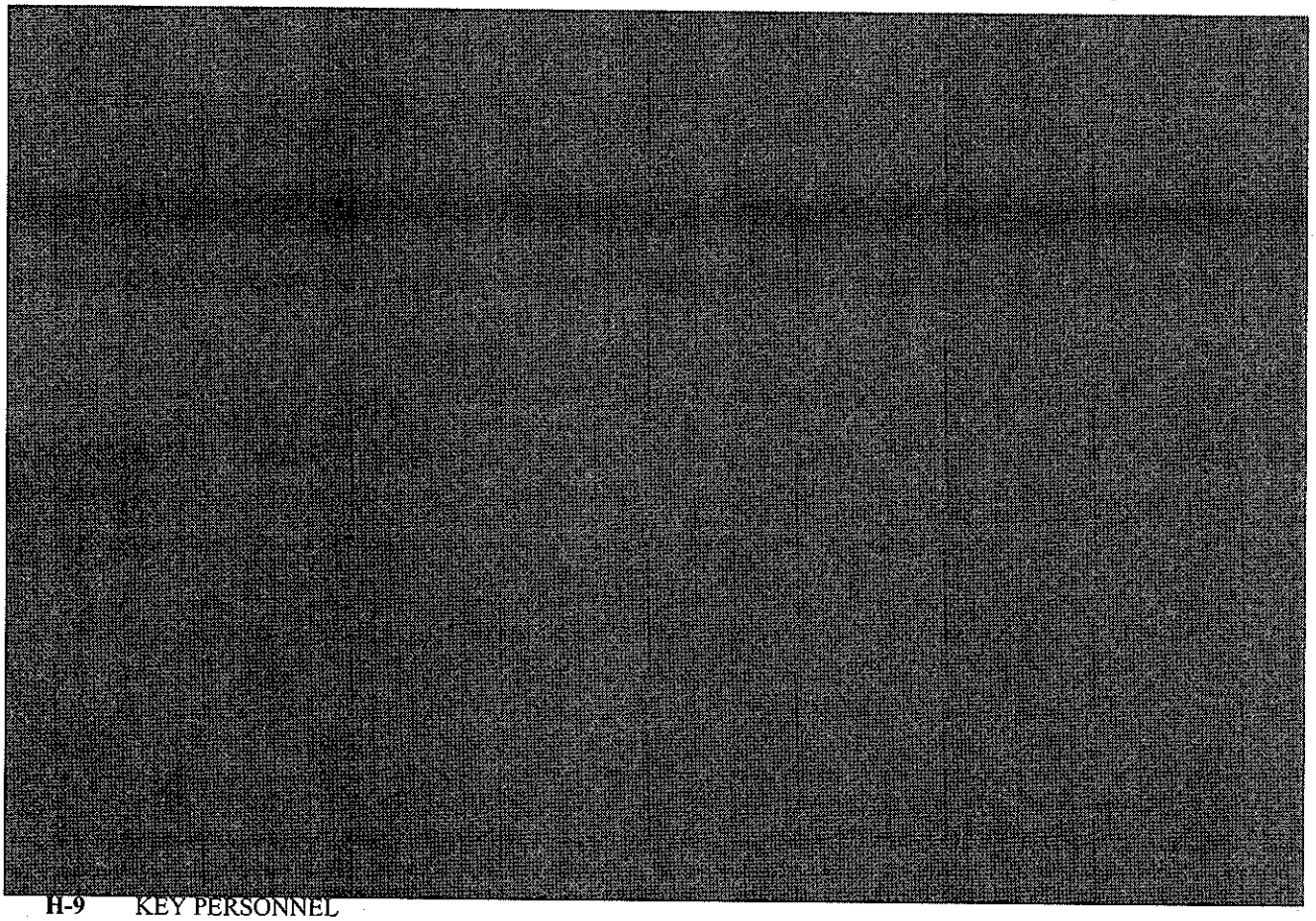
(B) The agency peculiar property shall be accounted for under this contract; and

(C) Upon completion or termination of this contract, the contractor shall request and comply with disposition instructions from the Contracting Officer.

(D) Material:N/A

(E) Delivery:All Agency Peculiar Property identified above will be delivered to the contractor's place of performance within 60 days of issuance of the first delivery order.





H-9 KEY PERSONNEL

Key personnel are understood to be those individuals for whom resumes were submitted as required by the Statement of Work.

The contractor shall designate key personnel with qualifications as stated in sections L and M of the RFP solicitation. In addition, the contractor shall ensure sustainment of personnel with the said qualifications and skill sets throughout the duration of this contract. At a minimum, the key personnel shall include:

- Program Manager.
- Systems Engineer.
- Test Engineer.
- Configuration Management (CM) Manager.
- Quality Manager.
- Integrated Logistic Support (ILS)/Warranty Administration/Customer Relation Manager.
- Training Manager.

H-10 SUBSTITUTION OF KEY PERSONNEL

The Offeror agrees to assign to the contract those persons whose resumes were submitted with this proposal who are necessary to fill requirements of the contract. No substitutions shall be made except in accordance with this clause.

The Offeror agrees that during the first one-hundred and twenty (120) days of the contract performance period, no personnel substitutions shall be permitted unless such substitutions are necessitated by an individuals' sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer in writing, and provide the information required by the paragraphs below. All proposed substitutions shall

be submitted in writing to the Contracting Officer. This written notification shall be submitted at least fifteen (15) days (thirty (30) days if a security clearance is to be obtained), in advance of the proposed substitution to the Contracting Officer. The information shall be provided that is outlined in the paragraphs below.

All requests for substitutions must provide a detailed explanation of the circumstances necessitating the proposed substitutions, a complete resume for the proposed substitute, and any other information requested by the Contracting Officer needed by him to approve or disapprove the proposed substitution. The Contractor shall submit a request for each task order personnel substitution, including those substitutions where the resumes of proposed substitutes were originally submitted in the Contractor's proposal for Solicitation M67854-07-R-3004. All proposed substitutes must have qualifications that are equal to or higher than the qualifications of the person being replaced. The Contracting Officer shall evaluate such requests and promptly notify the Contractor of his approval or disapproval thereof.

Personnel assigned by the Contractor to perform services under task orders shall be acceptable to the Government in terms of personal and professional conduct. Employment and staffing difficulties shall not be justification for failure to meet established schedules, and if such staffing difficulties impair performance, the Contractor may be subject to default. The Contractor further agrees to include the subject of this clause in any subcontract that he may award under the Contract. If a dispute arises the Contracting Officer shall have the final decision.

H-11 REIMBURSEMENT OF TRAVEL, PER DIEM, AND SPECIAL MATERIAL COSTS

(a) Area of Travel. Performance under this contract may require travel by contractor personnel. If travel, domestic or overseas, is required, the contractor is responsible for making all necessary arrangements for its personnel. These include but are not limited to: medical examinations, immunizations, passports/visas/etc., and security clearances.

(b) Travel Policy. The Government will reimburse the contractor for allowable travel costs incurred by the contractor in performance of the contract in accordance with FAR Subpart 31.2. Travel required for tasks assigned under this contract shall be governed in accordance with: Federal Travel Regulations, prescribed by the General Services Administration for travel in the conterminous 48 United States, (hereinafter the FTR); Joint Travel Regulation, Volume 2, DoD Civilian Personnel, Appendix A, prescribed by the Department of Defense, for travel in Alaska, Hawaii, The Commonwealth of Puerto Rico, and territories and possessions of the United States (hereinafter JTR); and Standardized Regulations (Government Civilians, Foreign Areas), Section 925, "Maximum Travel Per Diem Allowances for Foreign Areas," prescribed by the Department of State, for travel in areas not covered in the FTR or JTR (hereinafter the SR).
(c) Travel. Travel and subsistence are authorized for travel beyond a fifty-mile radius of the contractor's office whenever a task assignment requires work to be accomplished at a temporary alternate worksite. No travel or subsistence shall be charged for work performed within a fifty-mile radius of the contractor's office. The contractor shall not be paid for travel or subsistence for contractor personnel who reside in the metropolitan area in which the tasks are being performed. Travel performed for personal convenience, in conjunction with personal recreation, or daily travel to and from work at the contractor's facility will not be reimbursed.

(1) For travel costs other than described in paragraph (c) above, the contractor shall be paid on the basis of actual amount paid to the extent that such travel is necessary for the performance of services under the contract and is authorized by the COR in writing.

(2) When transportation by privately owned conveyance is authorized, the contractor shall be paid on a mileage basis not to exceed the applicable Government transportation rate as contained in the FTR, JTR or SR. Authorization for the use of privately owned conveyance shall be indicated in the basic contract. Distances traveled between points shall be shown on invoices as listed in standard highway mileage guides. Reimbursement will not exceed the mileage shown in the standard highway mileage guides.

(3) The contractor agrees, in the performance of necessary travel, to use the lowest cost mode commensurate with the requirements of the mission as set forth in the basic contract and in accordance with food

traffic management principles. When it is necessary to use air or rail travel, the contractor agrees to use coach, tourist class, or similar accommodations to the extent consistent with the successful and economical accomplishment of the mission for which the travel is being performed.

(4) The contractor's invoices shall include receipts or other evidence substantiating actual costs incurred for authorized travel. In no event will such payments exceed the rates of common carriers.

(d) Vehicle and/or Truck Rentals. The contractor shall be reimbursed for actual rental/lease of special vehicles and/or trucks (i.e., of a type not normally used by the contractor in the conduct of its business) only if authorized in the basic contract or upon approval by the COR. Reimbursement of such rental shall be made based on actual amounts paid by the contractor. Use of rental/lease costs of vehicles and/or trucks that are of a type normally used by the contractor in the conduct of its business are not subject to reimbursement.

(e) Car Rental. The contractor shall be reimbursed for car rental, exclusive of mileage charges, as authorized in the basic contract or upon approval by the COR, when the services are required to be performed beyond the normal commuting distance form the contractor's facilities. Car rental for a team on TDY at one site will be allowed for a minimum of four (4) persons per car, provided that such number or greater comprise the TDY team.

(f) Per Diem. The contractor shall not be paid for per diem for contractor personnel who reside in the metropolitan areas in which the tasks are being performed. Per Diem shall not be paid on services performed within a fifty-mile radius of the contractor's home office or the contractor's local office. Per Diem is authorized for contractor personnel beyond a fifty-mile radius of the contractor's home or local offices whenever a task assigned requires work to be done at a temporary alternate worksite. Per Diem shall be paid to the contractor only to the extent that overnight stay is necessary and authorized under this contract. The authorized per diem rate shall be the same as the prevailing per diem in the worksite locality. These rates will be based on rates contained in the FTR, JTR or SR. The applicable rate is authorized at a flat seventy-five (75%) percent on the day of departure from contractor's home or local office, and on the day of return. Reimbursement to the contractor for per diem shall be limited to actual payments to per diem defined herein. The contractor shall provide actual payments of per diem defined herein. The contractor shall provide supporting documentation for per diem expenses as evidence of actual payment.

(g) Special Material. "Special material" includes only the costs of material, supplies, or services which is peculiar to the ordered data and which is not suitable for use in the course of the contractor's normal business. It shall be furnished pursuant to specific authorization approved by the COR. The contractor will be required to support all material costs claimed by its costs less any applicable discounts. "Special materials" include, but are not limited to, graphic reproduction expenses, or technical illustrative or design requirements needing special processing.

H-12 ACCESS TO GOVERNMENT PROPERTY

The government shall furnish access to relevant government organizations, properties, and services to assist the contractor as required in each task order. Unless identified otherwise in each task order, the contractor shall provide all communications and office equipment, computers, and working areas for all personnel to accomplish tasks identified in this contract and each delivery order.

H-13 OPTION TO PURCHASE SPARES (OPTION CLIN 0027)

This option is executable by placing Provisioning Item Orders (PIO) to purchase spares parts in the types and quantities as are determined necessary by the Government to support end items of equipment at fair and reasonable prices mutually agreed upon by the contractor and the Procuring Contracting Officer (PCO). PIOs will be issued by the Marine Corps.

H-14 ACCESS TO GOVERNMENT FACILITIES AND WEBSITES

Performance under this contract requires access to Government facilities and websites. Upon contract award, contractors shall utilize the following URLs and websites to complete Common Access Card (CAC) Identification

applications. Completed forms shall be printed, hand-carried to and signed in the presence of the Contracting Officer or designated Government representative. Two picture I.D.s are required for processing CAC I.D. applications.

http://www.psasd.navy.mil/forms/old/dd1172-2.pdf

[redacted]

SECTION I - CONTRACT CLAUSES

The following have been added by reference:

52.217-9	Option To Extend The Term Of The Contract	MAR 2000

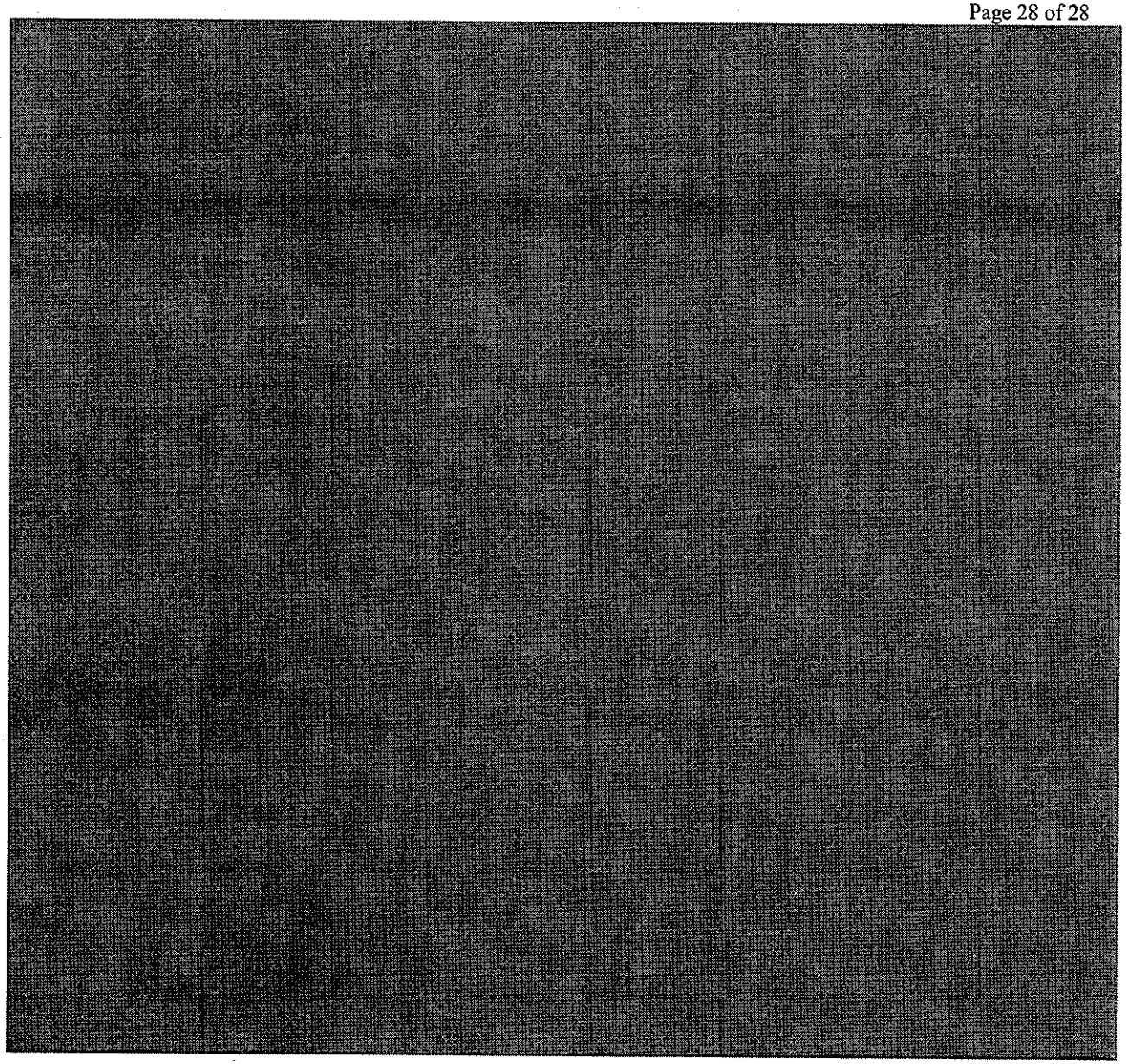
SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

[redacted]

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Attachment A	EPLS Statement of Work		31-AUG-2007
Attachment B	EPLS Performance Specification		31-AUG-2007
Attachment C	EPLS System IETM TMCR		31-AUG-2007
Attachment D	EPLS TMCR		31-AUG-2007
Attachment E	EPLS CDRL		31-AUG-2007
Attachment F	EPLS GFI		31-AUG-2007
Attachment G	EPLS Platform Performance Matrix		31-AUG-2007
Attachment H	EPLS Systems Performance Matrix		31-AUG-2007

[redacted]



CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A001	SOFTWARE DEVELOPMENT PLAN (SDP)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81427A	SOW para 3.20.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30 DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 30% complete and delivered 30 DADO or NLT PAC. The second draft shall be 65% complete and delivered 90 DADO or NLT PDR. The third draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 20 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------→	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A002	SOFTWARE TRANSITION PLAN (STrP)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81429A	SOW para 3.20.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT		ONE/R	90DADO
8. APP CODE	A	**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A003	SOFTWARE DESIGN DESCRIPTION (SDD)	ON BOARD

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81435A	SOW para 3.20.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------>	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)	*Form Approved OMB No. 0704-0188*

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A. CONTRACT LINE ITEM NO.	**B. EXHIBIT**	**C. CATEGORY:** TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM EPLS	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
1. DATA ITEM NO. A004	**2. TITLE OF DATA ITEM** SOFTWARE PRODUCT SPECIFICATION (SPS)	**3. SUBTITLE** ON BOARD
4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81441A	**5. CONTRACT REFERENCE** SOW para 3.5, 3.20.4 & 3.20.1.7	**6. REQUIRING OFFICE** MARCORSYSCOM PM TMDE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

7. DD 250 REQ DD	**9. DIST STATEMENT** A	**10. FREQUENCY** ONE/R	**12. DATE OF 1ST SUBMISSION** 90DADO	**14. DISTRIBUTION**
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ	

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The final submission of the SPS shall include 3 valid copies of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS by electronic medium, contractor discretion. Revisions shall be due for any changes in established configuration. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A005	SOFTWARE VERSION DESCRIPTION (SVD)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81442A	SOW para 3.20.5	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
PM LAV	1	1	
PM AAV	1	1	
PM MTVR	1	1	
15. TOTAL ---------→	2		2

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A006	SOFTWARE USER MANUAL (SUM)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81443A	SOW para 3.20.6	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	190DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL --------→			

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17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
A007	FIRMWARE SUPPORT MANUAL (FSM)	ON BOARD	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE	18. ESTIMATED TOTAL PRICE
DI-IPSC-81448A	SOW para 3.20.7	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	1TIME	190DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ----------→	2		2

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A008	SOFTWARE INSTALLATION PLAN (SIP)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81428A	SOW para 3.20.8	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

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a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: A009	2. TITLE OF DATA ITEM: OPERATIONAL CONCEPT DESCRIPTION (OCD)	3. SUBTITLE: ON BOARD
4. AUTHORITY (Data Acquisition Document No.): DI-IPSC-81430A	5. CONTRACT REFERENCE: SOW para 3.20.9	6. REQUIRING OFFICE: MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

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D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A010	SYSTEM/SUBSYSTEM DESIGN DESCRIPTION (SSDD)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81432A	SOW para 3.20.10	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A011	INTERFACE REQUIREMENTS SPECIFICATION (IRS)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81434A	SOW para 3.20.11	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT		ONE/R	90DADO
8. APP CODE	A	**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
A012	INTERFACE DESIGN DESCRIPTION (IDD)	ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81436A	SOW para 3.20.12	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: A013	2. TITLE OF DATA ITEM: DATABASE DESIGN DESCRIPTION (DBDD)	3. SUBTITLE: ON BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81437A	SOW para 3.20.13	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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MCSC:			
PM TMDE	1		1
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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B001	SOFTWARE DEVELOPMENT PLAN (SDP)	OFF BOARD

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81427A	SOW para 3.20.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30DADO
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14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)	*Form Approved OMB No. 0704-0188*

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
B002	SOFTWARE TRANSITION PLAN (STrP)	OFF BOARD	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE	18. ESTIMATED TOTAL PRICE
DI-IPSC-81429A	SOW para 3.20.2	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

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PM TMDE	1		1
MCLBA	1		1
15. TOTAL ---------→	2		2

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: B003	2. TITLE OF DATA ITEM: SOFTWARE DESIGN DESCRIPTION (SDD)	3. SUBTITLE: OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81435A	SOW para 3.20.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------->	2		2

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: B004	2. TITLE OF DATA ITEM: SOFTWARE PRODUCT SPECIFICATION (SPS)	3. SUBTITLE: OFF BOARD
4. AUTHORITY (Data Acquisition Document No.): DI-IPSC-81441A	5. CONTRACT REFERENCE: SOW paras 3.6, 3.20.1.7, 3.20.4	6. REQUIRING OFFICE: MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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The final submission of the SPS shall include 3 valid copies of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS by electronic medium, contractor discretion. Revisions shall be due for any changes in established configuration. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------>	2		2

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B005	SOFTWARE VERSION DESCRIPTION (SVD)	OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81442A	SOW para 3.20.5	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------→	2		2

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: B006	2. TITLE OF DATA ITEM: SOFTWARE INSTALLATION PLAN (SIP)	3. SUBTITLE: OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81428A	SOW para 3.20.8	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B007	OPERATIONAL CONCEPT DESCRIPTION (OCD)	OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81430A	SOW para 3.20.9	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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PM TMDE	1		1
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A. CONTRACT LINE ITEM NO.

B. EXHIBIT

C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM EPLS

E. CONTRACT/PR NO.

F. CONTRACTOR

1. DATA ITEM NO. B008

2. TITLE OF DATA ITEM SYSTEM/SUBSYSTEM DESIGN DESCRIPTION (SSDD)

3. SUBTITLE OFF BOARD

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81432A

5. CONTRACT REFERENCE SOW para 3.20.10

6. REQUIRING OFFICE MARCORSYSCOM PM TMDE

7. DD 250 REQ LT

8. APP CODE

9. DIST STATEMENT A

10. FREQUENCY ONE/R

11. AS OF DATE

12. DATE OF 1ST SUBMISSION 30DADO

13. DATE OF SUBSEQUENT SUBMISSION ASREQ

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a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: B009	2. TITLE OF DATA ITEM: INTERFACE REQUIREMENTS SPECIFICATION (IRS)	3. SUBTITLE: OFF BOARD
4. AUTHORITY (Data Acquisition Document No.): DI-IPSC-81434A	5. CONTRACT REFERENCE: SOW para 3.20.11	6. REQUIRING OFFICE: MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
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17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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		Reg	Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
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D. SYSTEM/ITEM	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
EPLS		

1. DATA ITEM NO.	**2. TITLE OF DATA ITEM**	**3. SUBTITLE**	**17. PRICE GROUP**
B010	INTERFACE DESIGN DESCRIPTION (IDD)	OFF BOARD	

4. AUTHORITY (Data Acquisition Document No.)	**5. CONTRACT REFERENCE**	**6. REQUIRING OFFICE**	**18. ESTIMATED TOTAL PRICE**
DI-IPSC-81436A	SOW para 3.20.12	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	**9. DIST STATEMENT**	**10. FREQUENCY**	**12. DATE OF 1ST SUBMISSION**
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

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D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B011	DATABASE DESIGN DESCRIPTION (DBDD)	OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81437A	SOW para 3.20.13	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 65% complete and delivered 90 DADO or NLT PDR. The second draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 20 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------>	2		2

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
B012	SOFTWARE USER MANUAL (SUM)	OFF BOARD

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81443A	SOW para 3.20.6	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	190DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The SUM shall be submitted 190 DADO or NLT TRR. The Government requires 20 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------→	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
C001	TECHNICAL MODIFICATION INSTRUCTIONS	LAV VARIANTS

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
MIL-DTL-28999C (CPMI)	SOW para 3.1.14	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION
A		

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 65% complete and delivered 90 DADO or NLT PDR. The second draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 170 DADO or NLT 20 days prior to TRR. The Government requires 10 working days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
PM LAV	1	1	
MCOTEA	1	1	
15. TOTAL ---------→	3	3	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
C002	TECHNICAL MODIFICATION INSTRUCTIONS	AAV VARIANTS

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
MIL-DTL-28999C (CPMI)	SOW para 3.1.14	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION
A		

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
PM AAV	1	1	
MCOTEA	1	1	
15. TOTAL ---------→	3	3	

16. REMARKS

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G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
C003	TECHNICAL MODIFICATION INSTRUCTIONS	MTVR VARIANTS

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
MIL-DTL-28999C (CPMI)	SOW para 3.1.14	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION
A		

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

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BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
PM MTVR	1	1	
MCOTEA	1	1	
15. TOTAL ---------→	3	3	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
D001	TEST PLAN	FIRST ARTICLE TEST

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80566	SOW para 3.2.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	30DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**
A			

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
PM LAV		1	
PM AAV		1	
PM MTVR		1	
MCOTEA	1	1	
15. TOTAL --------→	2	4	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 30% complete and delivered 30 DADO or NLT PAC. The second draft shall be 65% complete and delivered 90 DADO or NLT PDR. The third draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 25 days for review and comment of draft submission. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 13 - Updates required 10 days prior to each major acquisition program milestone.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
D002	TEST PROCEDURE	FIRST ARTICLE TEST

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80603(FAT)	SOW para 3.2.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	90DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ
A		

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 65% complete and delivered 90 DADO or NLT PDR. The second draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 25 days to review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable). Distribution to the DCMA will be determined at contract award.

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
DCMA			
Office TBD	1	1	
MCOTEA	1	1	
15. TOTAL ---------→	3	3	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST
(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
D003	TEST/INSPECTION REPORT	FIRST ARTICLE TEST

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80809B(FAT)	SOW para 3.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	1TIME	270DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/14 - The draft copy shall be provided immediately following completion of First Article Test (FAT) as a quick look for the Program Office. The official data deliverable shall follow 30 days after completion of the FAT.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCOTEA	1	1	
15. TOTAL ------>	1	1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
D004	SOFTWARE TEST PLAN (STP)	FIRST ARTICLE TEST

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-IPSC-81438A	SOW para 3.2.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	30DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

16. REMARKS

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14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1	1	
MCOTEA	1	1	
15. TOTAL ------>	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

CONTRACT DATA REQUIREMENTS LIST *(1 Data Item)*	*Form Approved* *OMB No. 0704-0188*

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A. CONTRACT LINE ITEM NO.	**B. EXHIBIT**	**C. CATEGORY:** TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM EPLS	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
1. DATA ITEM NO. D005	**2. TITLE OF DATA ITEM** SOFTWARE TEST DESCRIPTION (STD)	**3. SUBTITLE** FIRST ARTICLE TEST
4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81439A	**5. CONTRACT REFERENCE** SOW para3.2.3	**6. REQUIRING OFFICE** MARCORSYSCOM PM TMDE

7. DD 250 REQ LT	**9. DIST STATEMENT** A	**10. FREQUENCY** ONE/R	**12. DATE OF 1ST SUBMISSION** 90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1		1
MCOTEA	1		1
15. TOTAL ------→	2		2

16. REMARKS

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(NOTE: Consideration needs to be given to delivery of this data via electronic/digital means and/or posted to websites/online databases vice hard copy. If that is desired, here is some possible wording -

'BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and posted to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	**H. DATE**	**I. APPROVED BY**	**J. DATE**

DD Form 1423-1, JUN 90 (EG) *Previous editions are obsolete* **Page __ of __ Pages**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
D006	TEST/INSPECTION REPORT (S/W)	FIRST ARTICLE TEST

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-NDTI-80809B(S/W)	SOW para 3.2.4	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Submit reports 15 days after completion of any Software Test. Final Report due no later than 270 DADO

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCLBA		1	
MCOTEA		1	
15. TOTAL ---------→		3	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
E001	INSTRUCTIONAL PERFORMANCE REQUIREMENTS DOCUMENT	STUDNET TESTING, I&KP, AND NET

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81518B(TIN)	SOW para 3.8.2.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	190DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ
A		

16. REMARKS

BLK 4 - Only applicable paragraphs shall apply.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 30 days for review of draft. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of government signed DD 250 and transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
TECOM			
G-3 CurOps	2	1	1
15. TOTAL ------>	3	2	1

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM ___ OTHER __X__

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
E002	TRAINING CONDUCT SUPPORT DOCUMENT	TESTING, I&KP, AND NET

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81523B(TIN)	SOW para 3.8.2.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	190DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**
A			

16. REMARKS

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BLK 12 - The Government requires 30 days for review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1	1	
TECOM			
G-3 CurOps	2	1	1
15. TOTAL ------->	3	2	1

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
E003	TRAINING CONDUCT SUPPORT DOCUMENT	UNIT TRAINING

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81523B(UT)	SOW para 3.8.4.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	190DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ
A		

16. REMARKS

BLK 4 - Only applicable paragraphs shall apply.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 30 days for review of draft submission. The contractor shall submit final10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
TECOM:			
G-3 CurOps	2	1	1
15. TOTAL ------→	3	2	1

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: F001	2. TITLE OF DATA ITEM: INSTRUCTIONAL MEDIA DESIGN PACKAGE	3. SUBTITLE: COMPUTER BASED TRAINING
4. AUTHORITY (Data Acquisition Document No.): DI-SESS-81520B(CBT)	5. CONTRACT REFERENCE: SOW para 3.8.3.1	6. REQUIRING OFFICE: MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	190DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**
A			

16. REMARKS

BLK 4 - Only applicable paragraphs shall apply.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 30 days for review of draft submission. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability.

The final submission of the Computer Based Training shall include 3 valid copies of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS by electronic medium. Revisions shall be due for any changes in established configuration.

One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
TECOM			
G-3 CurOps	2	1	1
15. TOTAL ------>	3	2	1

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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(1 Data Item)

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
F002	TRAINING PROGRAM SUPPORT DOCUMENT	COMPUTER BASED TRAINING

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81521B(CBT)	SOW para 3.8.3.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	190DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION
A		ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 4 - Only applicable paragraphs shall apply.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 30 days for review of draft submission. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and applicable digital data format and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability.

The final submission of the Computer Based Training shall include 3 valid copies of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS by electronic medium. Revisions shall be due for any changes in established configuration.

One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1	1	
TECOM			
G-3 CurOps	2	1	1
15. TOTAL ------>	3	2	1

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) *Previous editions are obsolete* Page __ of __ Pages

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(1 Data Item)

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: G001	2. TITLE OF DATA ITEM: CONTRACTOR'S PROGRESS, STATUS AND MANAGEMENT REPORT	3. SUBTITLE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-80227	SOW para 3.13, 3.13.4, 3.21.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	MTHLY	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 4 - Contractor shall propose a draft format for review and approval no later than 30 DADO. Contractor's Progress, Status and Management Report format shall include updated Integrated Master Schedule (IMS) and Integrated Logistics Support Plan (ILSP) requires government approval prior to implementation. The government requires 10 days for review. The contractor has 10 days to incorporate comments and finalize the plans. The updated and approved management plans supercede plans approved upon delivery order award. Initial and updated IMS and ILSP documents shall be in MS Project.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - The reporting period will be from the first to last day of each month, beginning 45 days after delivery order award.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Government Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
15. TOTAL --------→		1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

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Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
G002	ADMINISTRATION & PROGRAM MANAGEMENT	CONFERENCE AGENDA

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ADMN-81249A	SOW paras 3.1.2, 3.1.12.4, 3.13, 3.13.4, 3.20.1.5, 3.21.2, 3.23.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Submit 7 days prior to each conference, meeting, audit, or review. The Government requires 3 days to review. The contractor shall submit final 2 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL ---------→	1	1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

NTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
G003	ADMINISTRATION & PROGRAM MANAGEMENT	CONFERENCE MINUTES

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	16. REQUIRING OFFICE
DI-ADMN-81250A	SOW paras 3.1.2, 3.1.12.4, 3.13, 3.13.4,3.20.1.5, 3.21.2 3.23.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Submit 5 days after each conference, meeting, audit or review. The Government requires 3 days to review. The contractor shall submit final 3 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

BLK 15 - Distribution 1/0 plus one copy of the final to each attendee.

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
Electronic copy to			
attendee			
15. TOTAL ---------→	1	1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
G004	RECEIPT OF GOVERNMENT MATERIAL REPORT	GOVERNMENT FURNISHED PROPERTY

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-80389B	SOW para 3.14	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	MTHLY	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION 10DARP**

16. REMARKS

BLK 4 - NOTE: This report may need to be tailored to require only what is necessary. The contractor shall propose a draft format no later than 20 days after delivery order award.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - The reporting period will be from the first to last day of each month, beginning 30 days after Delivery Order Award.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
MCLBA	1	1	
PM TMDE			1
15. TOTAL ------>	1	1	1

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) *Previous editions are obsolete* Page __ of __ Pages

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
G005	TECHNICAL AND MANAGEMENT WORK PLAN	PRODUCTION PLAN

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-81117	SOW para 3.16	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT		AS REQ	See Blk 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION See Blk 16**
	A		

16. REMARKS

BLK 12/13 - Production Plan shall be delivered 60 DADO or NLT 30 prior to PDR. Production Plan shall address the following items at a minimum: Facilities including humidity control, testing, CM, metrics, throughput, special skills, subcontractor control, long lead parts, special handling and storage, schedule definition, personnel requirements, make or buy decisions, tool plan, quality assurance, materials, operations control, manufacturing engineering, special test equipment, tin whiskers mitigation, and ESD program. Subsequently these items shall be addressed during all reviews.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL --------→	1	1	

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
H001	CONFIGURATION STATUS ACCOUNTING INFORMATION	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-81253A	SOW para 3.17.1.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	QRTLY	90DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 10 days to review. The contractor shall submit final 5 days after receipt of Government comments.

BLK 13 - Subsequent submissions shall be due quarterly starting with the first full quarter after the first submission.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCLBA	1	1	
15. TOTAL ------>	1	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

CONTRACT DATA REQUIREMENTS LIST
(1 Data Item)

Form Approved OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
H002	CONFIGURATION AUDIT SUMMARY REPORT	FUNCTIONAL	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE	18. ESTIMATED TOTAL PRICE
DI-CMAN-81022C(FCA)	SOW para 3.17.2.2	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** SEE BLK 16

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCLBA		1	
15. TOTAL --------→		2	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Submit 15 days after each audit. The Government requires10 days to review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)	*Form Approved OMB No. 0704-0188*

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
H003	CONFIGURATION AUDIT SUMMARY REPORT	PHYSICAL	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE	18. ESTIMATED TOTAL PRICE
DI-CMAN-81022C(PCA)	SOW para 3.17.2.3	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** SEE BLK 16

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Submit 15 days after each audit. The Government requires 10 days to review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCLBA		1	
15. TOTAL ------→		2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
H004	CONFIGURATION MANAGEMENT	ENGINEERING CHANGE PROPOSAL (ECP)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80639C	SOW para 3.17.5.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT		ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
	A		ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - ECP's shall be submitted for all changes which affect Government established baselines for hardware and/or software. The opportunity to submit ECP's shall extend through contract finalization. The Government requires 10 working days to review. The contractor shall submit final 5 working days after receipt of Government comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		2	
MCLBA		2	
15. TOTAL ------>		4	

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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(1 Data Item)

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
H005	CONFIGURATION MANAGEMENT	REQUEST FOR DEVIATION	18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80640C	SOW para 3.17.5.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Deviations shall be submitted for all changes which affect Government established baselines. The opportunity to submit deviations shall extend through contract finalization. In addition, deviations shall be submitted at the request of the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: Draft	Final: Reg	Final: Repro
MCSC:			
PM TMDE		2	
MCLBA		2	
15. TOTAL ------>		4	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
H006	CONFIGURATION MANAGEMENT	NOTICE OF REVISION (NOR)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-80642C	SOW para 3.17.5.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION**

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		2	
MCLBA:		2	
15. TOTAL ------>		4	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Submit notices of revision when configuration management data controlled by another activity requires revision. The Government requires 10 working days to review. The contractor shall submit final 5 working days after receipt of Government comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP _X_ TM ___ OTHER ____
D. SYSTEM/ITEM EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
J001	COMMERCIAL DRAWINGS/MODELS AND ASSOCIATED LISTS		18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81003C	SOW para 3.17.6.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**
A			

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Drawing requirement and delivery schedule shall be in accordance with DD Form 2554-3. Fiinal (regular and/or digital) submittals shall be 100% compete and delivered 190 DADO or NLT TRR.

BLK 14 - Original DD 250 to MCSC PM TMDE only; DD250 copy plus final drawings to ACQ LOG .

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of government signed DD 250 and transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION			
a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE		1	
15. TOTAL ------→		1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP _X_ TM ___ OTHER ___
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
J002	PRODUCT DRAWINGS/MODELS AND ASSOCIATED LISTS	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81000C	SOW para 3.17.6.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	C	ONE/R	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**
A			

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT C: Distribution authorized to US Government agencies and their contractors; ***fill in reason***; ***date of determination***. Other requests for this document shall be referred to ***insert name of controlling DoD office***.
WARNING: This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., sec. 2751, et seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et seq. Violation of these export laws are subject to severe criminal penalties. Disseminate in accordance with the provisions of DoD Directive 5230.25.

BLK 12/13 - In-process format review: Prior to the development of the entire drawing package, the contractor shall submit a sample of the various types of drawings (assembly, control, detail, etc.) and lists (parts, data, index) which will be furnished in the final drawing package. The drawing samples shall be submitted within 60 days after delivery order award. When digital data is ordered, the format review drawings shall be submitted in digital format and on hard copy. All other drawings developed under this contract shall adhere to the format approved by the Government.

In-process technical review: The contractor shall submit a copy of the completed drawing package no later than 60 days prior to the Physical Configuration Audit. Comments resulting from the Government in-process technical review will be furnished within 45 days of receipt of the drawing package. The contractor shall review the Government comments, make all corrections to the entire drawing package and resubmit all new and revised drawings within 15 days of receipt of Government comments. Government comments, whether directed against a specific drawing or made as a general comment, may apply to other drawings, which have not been reviewed by the Government. Resubmitted drawings and other drawings not previously reviewed will be subjected to another technical review by the Government. Any additional comments generated as a result of subsequent technical reviews will also be furnished to the contractor for action. This process will be repeated as necessary until the drawing package is accepted by the Government. Response time for each submittal and review thereafter will be 15 days.

Final Delivery: Shall be submitted 15 days after Government request.

BLK 14 - In-process format review: 1 set each of Digital Data format and Blue/Black line format ***(in accordance with the Attachments to this CDRL)***. In-process technical review: Blue/Black line ***(in accordance with the Attachments to this CDRL)***. The initial in-process technical review submittal shall be by Letter.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
In Process			
Format Review			
PM TMDE	1	1	
PM LAV	1	1	
PM AAV	1	1	
PM MTVR	1	1	
MCLBA	1	1	
In Process			
Tech. Review			
PM TMDE	1	1	
PM LAV	1	1	
PM AAV	1	1	
PM MTVR	1	1	
MCLBA	1	1	
Final			
PM TMDE	1	1	
PM LAV	1	1	
PM AAV	1	1	
PM MTVR	1	1	
MCLBA	1	1	
15. TOTAL ------→	15	15	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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(1 Data Item)

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
J003	BAR CODE IDENTIFICATION REPORT	UID DATA FOR EMBEDDED COMPONENTS	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE	18. ESTIMATED TOTAL PRICE
DI-MGMT-80177B	SOW para 3.18.1	MARCORSYSCOM PM TMDE	

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	270DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCLBA		1	
15. TOTAL -------->		2	

16. REMARKS

BLK 4 - Tailoring of DID Requirements:
- Paragraph 10.2. Delete magnetic tape media format. Use DoD electronic commerce methods.
- Paragraph 10.2.1-10.2.15. Reorder/rename fields for UID data elements.

10.2.1 UID of the item delivered that contains the embedded subassembly, component or part
10.2.2 UID of the embedded subassembly, component or part
10.2.3 UID type
10.2.4 Issuing Agency Code
10.2.5 Enterprise Identifier
10.2.6 Original part number
10.2.7 Serial number
10.2.8 Unit of Measure
10.2.9 Description
10.2.10-10.2.15 Not used

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Concurrent with associated end item delivery.

BLK 14 - One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST
(1 Data Item)

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A. CONTRACT LINE ITEM NO.	**B. EXHIBIT**	**C. CATEGORY:** TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM EPLS	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
1. DATA ITEM NO. K001	**2. TITLE OF DATA ITEM** TEST PROCEDURE	**3. SUBTITLE** PRODUCTION ACCEPTANCE TEST
4. AUTHORITY (Data Acquisition Document No.) DI-NDTI-80603(PAT)	**5. CONTRACT REFERENCE** SOW para 3.19	**6. REQUIRING OFFICE** MARCORSYSCOM PM TMDE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

7. DD 250 REQ DD	**9. DIST STATEMENT** A	**10. FREQUENCY** ONE/R	**12. DATE OF 1ST SUBMISSION** 150DADO
8. APP CODE A		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 30% complete and delivered 150 DADO or NLT CDR. The second draft shall be 65% complete and delivered 190 DADO or NLT TRR. The third draft shall be 90% complete and delivered 270 DADO or NLT FAT Report. The final submission shall be 100% compete and delivered 420 DADO or NLT Production starts. The Government requires 25 days for review and comment of draft submission. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
DCMA			
Office	1	1	
MCOTEA	1	1	
15. TOTAL →	3	3	

G. PREPARED BY	**H. DATE**	**I. APPROVED BY**	**J. DATE**

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO.	**B. EXHIBIT**	**C. CATEGORY:** TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM EPLS	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
1. DATA ITEM NO. K002	**2. TITLE OF DATA ITEM** TEST/INSPECTION REPORT	**3. SUBTITLE** PRODUCTION ACCEPTANCE TEST
4. AUTHORITY (Data Acquisition Document No.) DI-NDTI-80809B(PAT)	**5. CONTRACT REFERENCE** SOW para 3.19	**6. REQUIRING OFFICE** MARCORSYSCOM PM TMDE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

7. DD 250 REQ LT	**9. DIST STATEMENT** A	**10. FREQUENCY** 1TIME	**12. DATE OF 1ST SUBMISSION** SEE BLK 16	**14. DISTRIBUTION**
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - PAT Report shall be submitted NLT 10 days after PAT.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE		1	
MCOTEA		1	
15. TOTAL ------→		2	

G. PREPARED BY	**H. DATE**	**I. APPROVED BY**	**J. DATE**

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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(1 Data Item)

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM _X_ OTHER ____

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
L001	TECHNICAL MANUAL CONTRACT REQUIREMENT	SYSTEM INTERACTIVE ELECTRONIC TECHNICAL MANUAL (SIETM)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
TMCR-NDMS-070025-000 (IETM)	SOW para 3.25.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16
A		

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 4 - Access to TMCR via Naval Systems Data Support Activity (NSDSA) website (https://nsdsa2.phdnswc.navy.mil/tmhtml/h070025000.htm) requires a Common Access Card (CAC) I.D and card reader.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 Submit draft at 40% and 80% completion levels during In Process Review. Submit complete SIETM 270 DADO or NLT FAT Report submission. The Government requires 10 working days to review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 13 - Submit final, by DD-250, concurrent with delivery of first system. Specific delivery instructions and media formats are identified in the TMCR.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability.

The final submission of the IETM shall include 3 valid copies of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS by electronic medium. Revisions shall be due for any changes in established configuration.

One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1	1	
MCOTEA	1	1	
15. TOTAL ------→	3	3	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM _X_ OTHER ____

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
L002	COMMERCIAL-OFF-THE-SHELF (COTS) MANUAL AND ASSOCIATED SUPPLEMENTAL DATA	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-TMSS-80527B(COTS)	SOW para 3.25.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16
A		

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL ------>	1	1	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 – Submit COTS manuals 270 DADO or NLT FAT Report submission The Government requires 10 working days for review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 13 - Should supplementation be required, the contractor shall brief supplemental data at SIETM IPRs. The contractor shall provide final supplemental data within 10 days of IPR. The Government requires 15 days to review supplementation. Final supplemental data shall be submitted 10 days after receipt and incorporation of Government comments.

BLK 14 - Over pack one hard copy with each end item delivered.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM _X_ OTHER ____
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: L003	2. TITLE OF DATA ITEM: TECHNICAL MANUAL CONTRACT REQUIREMENT	3. SUBTITLE: CHANGE PAGES

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
TMCR-NDMS-070033(CP)	SOW para 3.25.4	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
A			ASREQ

16. REMARKS

BLK 4 - Access to TMCR via Naval Systems Data Support Activity (NSDSA) website (https://nsdsa2.phdnswc.navy.mil/tmhtml/h070033000.htm) requires a Common Access Card (CAC) I.D and card reader.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Submit 15 days after approved changes to the Government established baseline system. The Government requires 10 working days to review. The contractor shall submit final 5 working days after receipt of Government comments. This review cycle shall continue until the contractor receives acceptance from the Government

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCOTEA	1	1	
15. TOTAL ------->	2	2	

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
M001	SAFETY ASSESSMENT REPORT (SAR)	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SAFT-80102B	SOW para 3.1.12.3 & 3.24.1.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
Safety-SWG		1	
15. TOTAL ---------→	1	2	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 65% complete and delivered 90 DADO or NLT PDR. The second draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 25 days to review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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(1 Data Item)

Form Approved
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A. CONTRACT LINE ITEM NO.	**B. EXHIBIT**	**C. CATEGORY:** TDP X TM ___ OTHER ___
D. SYSTEM/ITEM EPLS	**E. CONTRACT/PR NO.**	**F. CONTRACTOR**
1. DATA ITEM NO. M002	**2. TITLE OF DATA ITEM** MAINTENANCE, TEST AND SUPPORT EQUIPMENT REQUIREMENTS LIST	**3. SUBTITLE**
4. AUTHORITY (Data Acquisition Document No.) DI-ILSS-80294A(GPSE)	**5. CONTRACT REFERENCE** SOW para 3.26.1	**6. REQUIRING OFFICE** MARCORSYSCOM PM TMDE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

7. DD 250 REQ LT	**9. DIST STATEMENT** A	**10. FREQUENCY** ASREQ	**12. DATE OF 1ST SUBMISSION** SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION** ASREQ

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL →	1	1	

16. REMARKS

BLK 4 - Any reference to military documents may be used for guidance only.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - First submission due 90 days after Government approval of support equipment recommendation data. The Government requires 45 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 15 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	**H. DATE**	**I. APPROVED BY**	**J. DATE**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
M003	CALIBRATION AND MEASUREMENT REQUIREMENTS SUMMARY (CMRS)	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-QCIC-80278A(BIT/BITE)	SOW para 3.26.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL ——→	1	1	

16. REMARKS

BLK 4 - Any reference to military documents may be used for guidance.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 65% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 25 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
M004	WARRANTY PERFORMANCE REPORT	

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-SESS-81639	SOW PARA 3.12.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ASREQ	190DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
A			ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 45 days for review. The contractor shall submit final 30 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
MCSC:			
PM	1	1	
MCLBA	1	1	
15. TOTAL ------→	2	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE	17. PRICE GROUP
M005	Hazardous Materials Management Program (HMMP) Plan		18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MGMT-81398	SOW para 3.1.13	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	90DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 50% complete and delivered 90 DADO or NLT PDR. The second draft shall be 90% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 190 DADO or NLT TRR. The Government requires 20 days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1		1
MCLBA	1		1
15. TOTAL ------>	2		2

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.

B. EXHIBIT

C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM EPLS

E. CONTRACT/PR NO.

F. CONTRACTOR

1. DATA ITEM NO. N001

2. TITLE OF DATA ITEM SUPPLY SUPPORT

3. SUBTITLE LOGISTICS MANAGEMENT INFORMATION (LMI) DATA PRODUCT PROVISIONING PLAN

17. PRICE GROUP

4. AUTHORITY (Data Acquisition Document No.) DI-ALSS-81529(PP)

5. CONTRACT REFERENCE SOW para 3.23.2

6. REQUIRING OFFICE MARCORSYSCOM PM TMDE

18. ESTIMATED TOTAL PRICE

7. DD 250 REQ DD

8. APP CODE A

9. DIST STATEMENT A

10. FREQUENCY ONE/R

11. AS OF DATE

12. DATE OF 1ST SUBMISSION 150DADO

13. DATE OF SUBSEQUENT SUBMISSION ASREQ

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA:	1	1	
15. TOTAL →	2	2	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 20 days to review and the contractor has 10 days to submit final.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and governement signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N002	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) DATA PRODUCT (POPS)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(POPS)	SOW para 3.23.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**
A			

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1	1	
15. TOTAL ——→	2	2	

16. REMARKS

This requirement does not apply to Government Furnished Equipment/Material.

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12/13 - Initial submission shall be in accordance with the Provisioning Performance Schedule. The Government will require 30 days to review/screen result from DLSC. If discrepancies are found, the contractor shall incorporate Government comments and resubmit within 30 days.

BLK 14 - Letter of Transmittal to DLSC is required with CD-ROM submittal. Acceptance will be upon receipt and approval of hard copy screening results from DLSC.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

CONTRACT DATA REQUIREMENTS LIST

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OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N003	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) PROVISIONING TECHNICAL DATA (PTD)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(PTD)	SOW para 3.23.4	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16
A		

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Report due 15 days prior to each scheduled IPR. Government will review and provide comments at the IPR. The contractor shall incorporate comments and resubmit within 15 days of each IPR which follows. This review/resubmission process shall be iterative.

BLK 13 - Final submission of data due 30 days prior to the last ILMT/IPT. Government will provide final comments at IPR. Contractor shall incorporate comments and submit final delivery within 15 days of completion of final IPR. Government will accept/reject data within 15 days.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1	1	
15. TOTAL ------>	2	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N004	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) PROVISIONING PARTS LIST (PPL)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(PPL)	SOW para 3.23.4.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION SEE BLK 16**
A			

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
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15. TOTAL ——→	2	2	

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Report due 15 days prior to each scheduled IPR. Government will review and provide comments at the IPR. The contractor shall incorporate comments and resubmit within 15 days of each IPR which follows. This review/resubmission process shall be iterative.

BLK 13 - Final submission of data due 30 days prior to the last ILSMT/IPT Government will provide final comments at IPR. Contractor shall incorporate comments and submit final delivery within 15 days of completion of final IPR. Government will accept/reject data within 15 days.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N005	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) TOOLS AND TEST EQUIPMENT LIST(TTEL)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(TTEL)	SOW para 3.23.4.2	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	150DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ
A		

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The Government requires 20 days to review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA	1	1	
15. TOTAL --------->	2	2	

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17. PRICE GROUP

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DD Form 1423-1, JUN 90 (EG) ***Previous editions are obsolete*** **Page __ of __ Pages**

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N006	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) CBIL

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(CBIL)	SOW para 3.23.4.3	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See Blk 16
A		

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

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BLK 12 - Report due 15 days prior to each scheduled . Government will review and provide comments at the IPR. The contractor shall incorporate comments and resubmit within 15 days of each IPR which follows. This review/resubmission process shall be iterative.

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14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA:	1	1	
15. TOTAL ---------→	2	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER X
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N007	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) DCN

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529 (DCN)	SOW para 3.23.4.4	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	See Blk 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ
A		

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

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14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
MCLBA:	1	1	
15. TOTAL --------→	2	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N008	SUPPLY SUPPORT	LOGISTICS MANAGEMENT INFORMATION (LMI) ENGINEERING DATA FOR PROVISIONING

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-ALSS-81529(EDFP)	SOW para 3.23.5	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	ONE/R	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION
A		SEE BLK 16

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Report due 15 days prior to each scheduled IPR. Government will review and provide comments at the IPR. Contractor shall incorporate comments and resubmit within 15 days of each IPR which follows. This review/resubmission process shall be iterative.

BLK 13 - Final submission of data due 30 days prior to the last ILSMT/IPT. Government will provide final comments at IPR. Contractor shall incorporate comments and submit final delivery within 15 days of completion of final IPR. Government will accept/reject data within 15 days.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and government signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

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a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER __X__
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N009	SUPPLY SUPPORT	REQUEST FOR NOMENCLATURE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-CMAN-81254A	SOW para 3.23.6	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
DD	A	1TIME	SEE BLK 16
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION ASREQ**
A			

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The completed Request for Nomenclature shall be submitted by the contractor 190 days after Delivery Order Award and the design of the item affected affords assignment of nomenclature.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters and governement signed DD 250 forms shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
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MCLBA	1	1	
15. TOTAL ----------→	2	2	

17. PRICE GROUP

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP ___ TM ___ OTHER __X__

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
N010	TECHNICAL REPORT - STUDY/SERVICES	LITHIUM BATTERY (LB)

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-80508B(LB)	SOW para 3.24.1.1	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	190DADO

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Concurrent with delivery of Safety Assessment Report (SAR) or before commencement of First Article Test (FAT), whichever occurs first. Updates to be provided as changes in design or equipment occur which impacts Lithium Battery usage.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION			
a. ADDRESSEE	b. COPIES		
	Draft	Final	
		Reg	Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL ---------→	1	1	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_
D. SYSTEM/ITEM: EPLS	E. CONTRACT/PR NO.	F. CONTRACTOR
1. DATA ITEM NO.: N011	2. TITLE OF DATA ITEM: TECHNICAL REPORT - STUDY/SERVICES	3. SUBTITLE: RADIO FREQUENCY (RF)

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-80508B(RF)	SOW para 3.1.10	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ASREQ	150DADO
8. APP CODE		**11. AS OF DATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
			ASREQ

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - The first draft shall be 80% complete and delivered 150 DADO or NLT CDR. The final submission shall be 100% compete and delivered 170 DADO or NLT 20 days prior to TRR The Government requires 10 working days for review and comment. The contractor shall incorporate any required changes based on Government comments and resubmit 10 days after receipt of comments. This review cycle shall continue until the contractor receives acceptance from the Government. Updates to be provided as changes in design or equipment occur which impacts Lithium Battery usage.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
15. TOTAL ------>	1	1	

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TDP __ TM __ OTHER _X_

D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR
EPLS		

1. DATA ITEM NO.	2. TITLE OF DATA ITEM	3. SUBTITLE
P001	TECHNICAL REPORT - STUDY/SERVICES	SUSTAINING ENGINEERING

4. AUTHORITY (Data Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
DI-MISC-80508B(EC)	SOW para 3.11	MARCORSYSCOM PM TMDE

7. DD 250 REQ	9. DIST STATEMENT	10. FREQUENCY	12. DATE OF 1ST SUBMISSION
LT	A	ONE/R	SEE BLK 16

8. APP CODE	11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION ASREQ

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

16. REMARKS

BLK 9 - The following information shall be included on the deliverable: DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

BLK 12 - Responses are due to the Government within 20 days after receipt of SOW. The Government requires 20 days to review. The contractor shall submit final 10 days after receipt of Government comments.

BLK 14 - Draft, regular, and reproducible copy shall be delivered in MS Office 2003 document and submitted to the Program Management office via email address TBD and to a contractor established and maintained website/integrated data environment. The contractor shall notify the Government of deliverable availability. One copy of transmittal letters shall be sent to the Administrative Contracting Officer (w/o the deliverable).

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES Draft	Final Reg	Final Repro
MCSC:			
PM TMDE	1	1	
Safety-ES/OHO	1	1	
15. TOTAL ---------→	2	2	

G. PREPARED BY	H. DATE	I. APPROVED BY	J. DATE

ATTACHMENT F
GOVERNMENT FURNISHED INFROMATION (GFI)

FOR

Embedded Platform Logistics System (EPLS)

Prepared By

Marine Corps Systems Command
Program Manager, Test Measurement and Diagnostic Equipment
2202 Lester Street
Quantico, VA 22134

20 March 2007
Version 1.0

FOR OFFICIAL USE ONLY
COMPETITION

MISCELANIOUS DOCUMENTS

MISCELANIOUS DOCUMENTS	
DD Form 1172-2	Application for DoD Common Access Card (CAC)
DD Form 1494	Application For Equipment Frequency Allocation
DoDD 8100.2	Use of Commercial Wireless Devices, Services, and Technologies in the DoD GIG
DoDI 8551.1	Ports, Protocols, and Services Management (PPSM)
IEEE 1671	ATML for Exchanging Automatic Test Equipment and Test Information via XML
Interim DIACAP Guidance	Interim DoD Guidance Certification and Accreditation Process Guidance (DIACAP)
JTDI Server Specification	OBSA Server Specs
MARCORSYSCOM Acquisition Policy Letter No. 3-04	Lithium Battery Safety Program
MarineNet Technical Guidelines Version 3.0	Technical Specifications for content on MarineNet
MCSELMS Website	Information on Marine Corps Software Enterprise
MCWP 3-37.3	Nuclear, Biological, and Chemical (NBC) Decontamination Manual
OBSC Forms List from MCO 4700-15/H	List of example documents to reside in EPLS
SAT Manual	Systems Approach to Training Manual
TM 10510-OD/1H	General Purpose TMDE Listings
TM4700-15/1H	Technical Manual for Ground Equipment Record Procedures
TM 9-4910-571-12&P	STE/ICE Technical Manual
TM S9310-AQ-SAF-010	Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures
UM 4790-5	MIMMS (AIS) Field Maintenance Procedures

AMPHIBIOUS ASSULT VEHICLE

AAV P7A1 (Troop Carrying AAV)	
TM 09674A-10/3B	ASSAULT AMPHIBIOUS VEHICLE
TM 09674A-10/1A	AAV SPECIAL MISSION KITS
TM 10004A-10/1C	AAV UPGUNNED WEAPON STATION
TM 09674A-25&P/2A	AAV SPECIAL MISSION KITS
TM 09674A-25&P/4B VOL 1	ASSAULT AMPHIBIOUS VEHICLE
TM 09674A-25&P/4A VOL 2	ASSAULT AMPHIBIOUS VEHICLE
TM 09674A-25&P/4B VOL 3	ASSAULT AMPHIBIOUS VEHICLE

TM 09674A-50/5A	IROAN STD FOR AAVP7A1, C7A1, R7A1
TM 8F152B-25&P/A VOL 1	AAV POWER PLANT ASSEMBLY
TM 8F152B-25&P/A VOL 2	AAV POWER PLANT ASSEMBLY

AAV C7A1 (Command and Control AAV)	
TM 07268B-10/1C	AAVC7A1 COMMAND VEHICLE
TM 07268B-25&P/2	AAV COMMAND, MODEL 7A1,AAVC7A1
TM 08463A-10	CMD COMM SYS MOD 7A1 AAVC7A1

AAV R7A1 (Recovery AAV)	
TM 07267B-10/1C	AAVR7A1 RECOVERY VEHICLE
TM 07267B-25 &P/2	AAVR7A1 RECOVERY VEHICLE
TM 07267B-24&P/2	AMPH VEH RECOERY 7A1 AAVR7A1 MAINT

LIGHT ARMORED VEHICLE

LAV 25A1 (Troop Carrying LAV)	
TM 08594B-10/1	LAV-25A1 TURRET
TM 08594A-10/2	LAV-25A1 HULL
TM 08594A-10/2B	OPERATORS MANUAL LAV25
TM 08594A-12&P	PRECISION GUNNERY SYS (PGS) LAV25
TM 08594B-20/3	LAV-25A1 TURRET
TM 08594B-20/4 VOL 1	LAV-25A1 HULL
TM 08594B-20/4 VOL 2	LAV-25A1 HULL
TM 08594A-25/1	LAV WELDING PROCEDURES
TM 08594B-34/8	LAV-25A1 TURRET
TM 08594B-34/9 VOL 1	LAV-25A1 HULL
TM 08594B-34/9 VOL 2	LAV-25A1 HULL
TM 08672A-23&P	GUN, AUTOMATIC 25MM, M242 W/EQUIP
TM 8A191B-34/1	XMSN AUTO MODEL MT 653
TM-8A192C-34&P/A	ENGINE DIESEL 6 CYL TURBO CHARGED
SL-3-08594B	COMPONENTS LIST FOR LAV-25A1
SL-3-08594B	COMPONENTS LIST FOR LAV-25A1 (CHANGE 06)

LAV C2A1 (Command and Control LAV)	
TM 08650B-10	LAV-C2A1
TM 08650B-20	LAV-C2A1
TM 08650B-34	LAV-C2A1
TM 08650A-34B	SUPP TO TM-08594A-34/9
TM 09179A-12/1	RADIO SET AN/GRC-213A(V)1

LAV RA1 (Recovery LAV)	
TM 08651B-10	LAV-RA1
TM 08651B-20	LAV-RA1
TM 08651B-34	LAV-RA1
SL-3-08651A	COMPONENTS LIST FOR LAV-RA1

LAV-ATA1 (Anti-Tank LAV)	
TM 08652B-10/1	LAV-ATA1 TURRET

TM 08652B-10/2	LAV-ATA1 HULL
TM 08652B-20/3	LIGHT ARMORED VEHICLE LAV-AA1
TM 08652B-20/4	LAV-AT HULL
TM 08652B-34/5 VOL 1	LAV-ATA1 TURRET
TM 08652B-34/5 VOL 2	LAV-ATA1 TURRET
TM 08652B-34/6	LAV-ATA1 HULL
SL-3-08652A	COMPONENTS LIST FOR LAV-ATA1
SL-3-08652B	COMPONENTS LIST FOR LAV-ATA1

LAV-MA1 (Mortar LAV)	
TM 08655B-10	LAV-MA1
TM 08655B-20	LAV-MA1
TM 08655B-34	LAV-MA1
TM-09922A-23&P/2A	81 MM MORTAR M252
SL-3-08655A	COMPONENTS LIST FOR LAV-MA1
SL-3-08655B	COMPONENTS LIST FOR LAV-MA1 (CHANGE 03)

MEDIUM TACTICAL VEHICLE REPLACEMENT

MTVR	
MTVR IETM	See 3 Disk Set (Included)
TM 10629-10C	TRUCK, CARGO, 7T, 6X6

EPLS Specification Requirements							
Specification Paragraph	Title	T	O	O+	E	D	Proposal Reference
3.1	First Articles						
3.2	Materials						
3.2.1	Recycled, recovered, or environmentally preferable materials						
3.3	Design						
3.3.1	Modular Open System						
3.3.2	Design Architectures						
3.3.2.1	Configurations						
3.3.2.2	Scalability						
3.3.3	Data Strategy						
3.3.3.1	Net-Centric Data Strategy						
3.3.3.1.1	EPLS Data Visibility						
3.3.3.1.2	EPLS OBSA Data Accessibility						
3.3.3.1.3	Data OBSA Understandability						
3.3.3.1.4	EPLS Data Trustability						
3.3.3.1.5	EPLS Data Manageability						
3.3.3.1.6	EPLS GIG Service Strategy						
3.3.3.1.7	EPLS OBC/OBSC Continuity of Operations (COOP)						
3.3.3.2	Data Exchange						
3.3.4	Network						
3.3.4.1	Ethernet (Wired)						
3.3.4.2	Transmission Control Protocol/Internet Protocol (TCP/IP)						
3.3.4.3	NIPRNET (NIPR)						
3.3.4.4	Wireless (Non-Secure)						
3.3.4.5	Information Technology Standards Guidance (ITSG)						
3.3.5	Human Interface						
3.3.6	Connectors and Cabling						
3.3.6.1	Connectors						
3.3.6.1.1							
3.3.6.1.2							
3.3.6.2	Cabling						
3.3.6.2.1							
3.3.6.2.2							
3.3.6.2.3							
3.3.6.2.4							
3.3.6.2.5							
3.3.6.2.6							
3.3.7	Marking						
3.3.8	Compatibility						
3.3.9	Form, Fit and Function						
3.3.10	Interchangeability						
3.3.11	Ruggedization						
3.3.12	Reliability						
3.3.13	Availability						
3.3.14	Maintainability						
3.3.15	Built In Test (BIT) and Built in Test Equipment (BITE)						
3.3.15.1	EPLS BIT / BITE						
3.3.15.1.1							

3.3.15.1.2							
3.3.15.1.3							
3.3.15.1.4	Start-up Built-In-Test (SBIT)						
3.3.15.1.5	Initiated Built-In-Test (IBIT)						
3.3.15.1.6	Operational Built In Test (OBIT)						
3.3.16	Survivability and Vulnerability						
3.3.16.1	Operation in an MOPP environment						
3.3.16.2	Decontamination						
3.3.17	Safety						
3.3.17.1	Personnel Safety						
3.3.17.1.1							
3.3.17.1.2							
3.3.17.1.3							
3.3.17.2	Equipment Safety						
3.3.17.2.1							
3.3.17.2.2							
3.3.17.2.3							
3.3.18	Critical Infrastructure Protection (CIP)						
3.4	Performance Characteristics						
3.4.1	EPLS Hardware						
3.4.1.1	On-Board Computer (OBC)						
3.4.1.1.1							
3.4.1.1.2							
3.4.1.1.3							
3.4.1.1.4							
3.4.1.1.5	Computer Reserve						
3.4.1.2	Sleep Mode						
3.4.1.2.1							
3.4.1.2.2							
3.4.1.2.3							
3.4.1.3	Sensors						
3.4.1.3.1							
3.4.1.3.2							
3.4.1.3.3							
3.4.1.3.4							
3.4.1.4	Data Bus						
3.4.1.4.1							
3.4.1.4.2							
3.4.1.4.3							
3.4.1.4.4							
3.4.1.4.5							
3.4.2	EPLS Software						
3.4.2.1	Software Design						
3.4.2.1.1	Internal Data Requirements						
3.4.2.1.2	Design traceability						
3.4.2.2	EPLS On-Board Software Client (OBSC)						
3.4.2.2.1							
3.4.2.2.2							
3.4.2.2.3							
3.4.2.2.4							
3.4.2.3	OBSC Functions.						
3.4.2.3.1							
3.4.2.3.2							

3.4.2.3.3							
3.4.2.3.4							
3.4.2.4	EPLS Off-Board Service Application (OBSA)						
3.4.2.4.1							
3.4.2.4.2							
3.4.2.4.3							
3.4.2.4.4							
3.4.2.4.5							
3.4.2.4.6							
3.4.3	Business Rules						
3.4.3.1	Business Rules Categories						
3.4.3.1.1	Fixed Business Rules						
3.4.3.1.2	Limited Business Rules						
3.4.3.1.3	Adjustable Business Rules						
3.4.3.2	Business Rule Application						
3.4.3.2.1							
3.4.3.2.2							
3.4.3.2.3							
3.4.3.2.4							
3.4.3.2.5							
3.4.4	EPLS Data						
3.4.4.1	Electronic Record Book						
3.4.4.2	Electronic Ordnance Record Book						
3.4.4.2.1	Ordnance Vehicle Record Book						
3.4.4.2.2	Electronic Weapon Record Book						
3.4.4.2.2.1	Weapon Record Book/Gun Book						
3.4.4.3	EPLS Interactive Electronic Technical Manual (IETM) (SM)						
3.4.4.4	Platform Technical Manuals						
3.4.5	Operational Status and System Health						
3.4.5.1	Operational Status and System Health Alerts, Indicators						
3.4.5.1.1	Alert, Indication, and Report Generation						
3.4.5.1.2	Alert and Indicator Modes						
3.4.5.1.3	Alert and Indicator Interface						
3.4.5.2	Operational Status and System Health Reports						
3.4.5.2.1							
3.4.5.2.2							
3.4.5.2.3							
3.4.5.2.4							
3.4.6	Automated and Manual Operational Status and System Health Check (OS/SHC) Routines						
3.4.6.1	Automated OS/SHC						
3.4.6.1.1							
3.4.6.1.2							
3.4.6.1.3							
3.4.6.1.4							
3.4.6.2	Manual OS/SHC						
3.4.6.3	OS/SHC Types						
3.4.6.3.1	Start-up OS/SHC (SU OS/SHC)						
3.4.6.3.2	Operational OS/SHC (OP OS/SHC)						
3.4.6.3.3	Initiated OP OS/SHC (I OS/SHC)						
3.4.7	Ammunition Status						
3.4.7.1	Ammunition Reporting						
3.4.7.2	Ammunition Usage						

3.4.8	Fuel Quantity						
3.4.8.1	Platform Fuel						
3.4.8.1.1							
3.4.8.1.2							
3.4.8.1.3							
3.4.8.2	Auxiliary Fuel						
3.4.9	Mobile Load / Passenger Manifest						
3.4.9.1	Mobile Load Functionality						
3.4.9.1.1							
3.4.9.1.2							
3.4.9.1.3							
3.4.9.1.4							
3.4.9.1.5							
3.4.9.2	Passenger Manifest Functionality						
3.4.9.2.1							
3.4.10	Power Management						
3.4.10.1	Primary Power						
3.4.10.1.1							
3.4.10.1.2							
3.4.10.2	Secondary Power						
3.4.10.2.1							
3.4.10.2.2							
3.4.10.3	Power Performance						
3.4.10.3.1							
3.4.10.3.2							
3.4.10.3.3							
3.4.10.3.4							
3.4.10.3.5							
3.4.11	Visual Displays						
3.4.11.1	Operator Considerations						
3.4.11.2	Lighting Conditions						
3.4.12	External Interfaces						
3.4.12.1	Device Interfaces						
3.4.12.1.1							
3.4.12.1.2							
3.4.12.1.3							
3.4.13	Global Positioning System						
3.4.13.1	Global Positioning System (GPS) Interfaces						
3.4.14	Tactical Radio						
3.4.15	Information Assurance						
3.5	Environmental Conditions						
3.5.1	Environmental conditions of operation						
3.5.1.1	General conditions						
3.5.1.2	Electromagnetic environment effects (E3)						
3.5.1.2.1							
3.5.1.3	Electromagnetic Interference						
3.5.2	Corrosion Resistance						
3.5.2.1	Material Selection and Installation						
3.5.2.2	Protection During Storage						
3.5.2.3	Preventive maintenance						

Notes

If you have checked O+, E, or D, explain why

LAV

Baseline EPLS

Major System	Sub-System	Sub-System Fault Isolation (A/M)	Sub-Assembly	Sub-Assembly Fault Isolation (A/M)	Measurement	OS/SHC SU	OS/SHC OP	OS/SHC I	Proposal Ref	Notes
Drive Train	Engine		N/A		Engine Operation					
					Hours Idle					
					Total Hours Idle					
					Hours of Use					
					Total Hours of Use					
					Current Speed					
					Max Speed During Trip					
					Current RPM					
					Max RPM					
					Other (list in notes)					
					Vehicle Movement					
					Per Trip					
					Total Miles					
					Other (list in notes)					
	Air Intake		N/A		Air Cleaner Pressure					
					Air Cleaner Diag					
					Moisture Content					
					Turbo Boost Atmospheric Pressure					
					Turbo Boost Pressure					
					Other (list in notes)					
	Cooling		N/A		Coolant Level					
					Coolant Temperature					
					Other (list in notes)					
	Lubrication		N/A		Oil Level					
					Oil Temperature					
					Oil Life					
					Other (list in notes)					
	Electrical		Battery		Voltage					
					Temperature					
					Amperage					
					Supply voltage					
					Internal resistance					
					Other (list in notes)					
			Alternator		Output voltage					
					Field voltage					
					Amperage					
					Other (list in notes)					
	Fuel		Fuel Pump		Fuel Supply Pressure					
					Fuel solenoid voltage					
					Fuel filter differential pressure					
					Other (list in notes)					
			Fuel Filter		Fuel solenoid voltage					
					Fuel supply pressure					
					Fuel filter differential pressure					
					Other (list in notes)					
			Fuel Tank		Fuel Level					
					Other (list in notes)					
	Transmission		N/A		Transmission Fluid Level					
					Transmission Fluid Temperature					
					Other (list in notes)					
	Transfer case		N/A		Fluid Level					
					Other (list in notes)					
	Differential		N/A		Fluid Level					
					Fluid Temperature					
					Other (list in notes)					
	Planetary		Gearbox		Vibration					
					Temperature					
					Other (list in notes)					
Hydraulics	Hydraulics		N/A		Fluid Temperature					
					Fluid Pressure					
					Other (list in notes)					
Environmental	N/A		N/A		Ambient temperature					
					Cabin temperature					
					Barometric pressure					
					Other (list in notes)					
Auxiliary Fuel	Auxiliary Fuel		N/A		Remaining auxiliary fuel					
					Other (list in notes)					
Weapon	M242 25mm Chain Gun		N/A		Rounds fired					
					Round type					
					Barrel Per Mission					
					Barrel Total					
					Control Data Assembly					
					Gunners Hand Control					
					Commanders Hand Control					
					Sighting Assemblies					
					Power Distribution Assembly					
					Turret System					
					Others (list in notes)					
	TOW II ATGM		N/A		Rounds fired					
					Others (list in notes)					
	M252 81mm Mortar		N/A		Rounds fired					
					Round Charge					
					Tube Per Mission					
					Tube Total					
					Others (list in notes)					

AAV

Baseline EPLS						OS/SHC				
Major System	**Sub-System**	**Sub-System Fault Isolation (A/M/N)**	**Sub-assembly**	**Sub-assembly Fault Isolation (A/M/N)**	**Measurement**	**SU**	**OP**	**I**	**Proposal Ref**	**Notes**
Drive Train	Engine		N/A		Engine Operation					
					Hours Idle					
					Total Hours Idle					
					Hours of Use					
					Total Hours of Use					
					Current Speed					
					Max Speed During Trip					
					Current RPM					
					Max RPM					
					Other (list in notes)					
					Mileage					
					Per Trip					
					Total Miles					
					Other (list in notes)					
	Air Intake		N/A		Air Cleaner Pressure					
					Air Cleaner Drop					
					Moisture Content					
					Other (list in notes)					
	Cooling		N/A		Coolant Level					
					Coolant Temperature					
					Other (list in notes)					
	Lubrication		N/A		Oil Level					
					Oil Temperature					
					Oil Life					
					Other (list in notes)					
	Electrical		Battery		Voltage					
					Temperature					
					Amperage					
					Supply voltage					
					Internal resistance					
					Other (list in notes)					
			Alternator		Output voltage					
					Field voltage					
					Amperage					
					Other (list in notes)					
	Fuel		Fuel Pump		Fuel Supply Pressure					
					Fuel solenoid voltage					
					Fuel filter differential pressure					
					Other (list in notes)					
			Fuel Filter		Fuel solenoid voltage					
					Fuel supply pressure					
					Fuel filter differential pressure					
					Other (list in notes)					
			Fuel Tank		Fuel Level					
					Other (list in notes)					
	Transmission		N/A		Transmission Fluid Level					
					Transmission Fluid Temperature					
					Other (list in notes)					
	Transfer case		N/A		Fluid Level					
					Other (list in notes)					
	Differential		N/A		Fluid Level					
					Fluid Temperature					
					Other (list in notes)					
Hydraulics	Hydraulics		N/A		Fluid Temperature					
					Fluid Pressure					
					Other (list in notes)					
Additional Sensors	N/A		N/A		Ambient temperature					
					Cabin temperature					
					Barometric pressure					
					Other (list in notes)					
Auxilliary Fuel	Auxiliary Fuel		N/A		Remaining auxiliary fuel					
					Other (list in notes)					
Platform Specific EPLS										
Weapon	50 Cal		N/A		Rounds fired					
					Round type					
	MK-19		N/A		Rounds fired					
					Round type					

MTVR

Major System	Sub-System	Sub-System Fault Isolation (A/M)	Sub-assembly	Sub-Assembly Fault Isolation (A/M)	Measurement	OS/SHC SU	OS/SHC OP	OS/SHC I	Proposal Ref	Notes
Drive Train	Engine		General		Engine Operation					
					Hours Idle					
					Total Hours Idle					
					Hours of Use					
					Total Hours of Use					
					Current Speed					
					Max Speed During Trip					
					Current Engine Speed					
					Max Engine Speed During Trip					
					Other (list in notes)					
					Mileage					
					Per Trip					
					Total Miles					
					Other (list in notes)					
			Oil System		Engine Oil Level					
					Engine Oil Pressure					
					Engine Oil Temperature					
					Engine Oil Filter Status					
					Engine Oil Life					
					Other (list in notes)					
	Engine		ECU		ECU Voltage					
					Throttle Position					
					Crankshaft Position					
					Camshaft Position					
					Intake Manifold Temperature					
					Atmospheric Pressure					
					Boost Pressure					
					Other (list in notes)					
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					Temperature					
					Amperage					
					Other (list in notes)					
			Alternator		Voltage					
					Amperage					
					Command Signal					
					Other (list in notes)					
	Cooling System		N/A		Engine Coolant Level					
					Engine Coolant Temperature					
					Other (list in notes)					
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					Fuel Temperature					
					Other (list in notes)					
			Individual Fuel Tank		Fuel Level					
					Other (list in notes)					
			Fuel Filter		Fuel Pressure					
					Other (list in notes)					
	Air Filter		N/A		Air Box Pressure					
					Air Box Drop					
					Moisture Content					
					Other (list in notes)					
	Transmission		N/A		Transmission Oil Level					
					Transmission Oil Temperature					
					Other (list in notes)					
	Transfer case		N/A		Transfer Case Oil Level					
					Transfer Case Oil Temperature					
					Other (list in notes)					
	Differential		Individual Differential		Differential Oil Level					
					Differential Oil Temperature					
					Other (list in notes)					
	Transmission		ECU		ECU Voltage					
					Turbine Speed					
					Engine Speed					
					Output Speed					
					Other (list in notes)					
	Central Tire Inflation System (CTIS)		CTIS		CTIS ECU Voltage					
					CTI Power Manifold Pressure					
					Air Tank Pressure					
					Other (list in notes)					
					ABS ECU Voltage					

	Antilock Breaking System (ABS)		ABS		Axle 1 Speed Left					
					Axle 1 Speed Right					
					Axle 2 Speed Left					
					Axle 2 Speed Right					
					Axle 3 Speed Left					
					Axle 3 Speed Right					
					Brake Switch					
					Axle 1 Left ABS Valve					
					Axle 1 Right ABS Valve					
					Axle 2&3 Left ABS Valve					
					Axle 2&3 Right ABS Valve					
					Other (list in notes)					
	Automatic Traction Control (ATC)		ATC		ABS ECU Voltage					
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					Axle 1 Speed Right					
					Axle 2 Speed Left					
					Axle 2 Speed Right					
					Axle 3 Speed Left					
					Axle 3 Speed Right					
					Axle 1 Left ABS Valve					
					Axle 1 Right ABS Valve					
					Axle 2&3 Left ABS Valve					
					Axle 2&3 Right ABS Valve					
					ATC Valve					
					Other (list in notes)					
	TIM		ECU		TIM ECU Voltage					
					Other (list in notes)					
Environmental	N/A		N/A		Ambient temperature					
					Cabin temperature					
					Barometric pressure					
					Other (list in notes)					
Hydraulics	PTO		PTO		PTO Pump State					
					Hydraulic Oil Pressure					
					Hydraulic Oil Temperature					
					Other (list in notes)					
	Suspension (MK35)		ECU		Suspension ECU Voltage					
					Hydraulic Oil Pressure					
					Drivers Side Height					
					Passengers Side Height					
					Other (list in notes)					

SMART-T

TMCR NO. NDMS-070033-000
Date: 10 January 2007

TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR)

SUBJECT: Technical Manual Change Package to EPLS-LAV/AAV/MTVR.

ACQUISITION ACTIVITY: MARCORPSYSCOM
2200 Lester Street
Quantico, VA 22134

CONTRACTOR: TBD

CONTRACT NO.: TBD

DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

This document prescribes the Technical Manual format, style, technical content, preparation, and delivery requirements. Instructions and guidance are provided to assist Technical Manual preparers in the development of accurate, adequate, comprehensible, and usable technical documentation that conforms to and complies with established NAVSEA policy.

This document is effective upon receipt and supersedes all previous information and instructions, regardless of source, related to the preparation of a NAVSEA Technical Manual for the subject equipment. Conformance with the requirements specified are mandatory. No changes or waivers are authorized without the express written NAVSEA approval.

PREPARED BY

COMMANDER
NAVAL SURFACE WARFARE CENTER DIVISION
NAVAL SYSTEMS DATA SUPPORT ACTIVITY
4363 MISSILE WAY

PORT HUENEME, CA 93043-4307

BY DIRECTION OF

NAVAL SEA SYSTEMS COMMAND (SEA 043)

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- Figure List
- Text

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31	Example of a Change Instruction Sheet.
1129	Safety Summary.

TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR)

DATE: 10 January 2007 **TMCR NUMBER: NDMS 070033-000**

REQUESTED BY: MARCORPSYSCOM
2200 Lester Street
Quantico, VA 22134

PREPARED BY: Christina R Edwards
CODE: MCSC

CONTRACTOR: **MCSC - TMDE**
2200 LESTER STREET
QUANTICO, VA 22134

CONTRACT NO.: TBD

SUBJECT: Technical Manual Change Package to EPLS-LAV/AAV/MTVR.

SCOPE: This TMCR contains specific integrated requirements and instructions for the preparation of the subject technical manual permanent change pages. The requirements for the preparation of the technical content of the subject technical manual were taken from the applicable specifications and standards for technical content of manuals as specified in NAVSEAINST 4160.3A.

The requirements listed in the Contract Data Requirements List (DD Form 1423), in conjunction with the requirements of the specific contract line items as specified herein, constitute the data to be delivered, the products to be prepared, and the resulting tasks to be performed by the contractor.

1.0 DELIVERABLES.
The following deliverable items shall be prepared as specified in Section 3 of this document.

DATA ITEMS.

1.1 TECHNICAL MANUAL CHANGE PACKAGE.

1.1.1 Review Draft Copy (RDC).

1.1.1.1 Final Digital Encoding of Technical Publications.

2.0 APPLICABLE DOCUMENTS.

2.1 Specifications.

The following documents were used to establish the requirements of this document.

MIL-DTL-24784B(SH)	Manuals, Technical: General Acquisition and Development Requirements
MIL-PRF-28001C	Markup Requirements and Generic Style Specification for Exchange of Text and its Presentation.
MIL-PRF-28002C	Raster Graphics Representation in Binary Format, Requirements for.
MIL-STD-38784 Appendix C Document Type Definition (DTD)	Standard Practice for Manuals, Technical: General Style and Format Requirements

2.2 Standards.

MIL-STD-1840C	Military Standard Automated Interchange of Technical Information
MIL-STD-1388-1	Logistics Support Analysis
MIL-STD-1388-2	DOD Requirements for a Logistics Support Analysis Record

(Copies of standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.3 Department of Navy.

SL160-AA-LST-010/TM-WORDS or EL160-AA-LST-010/TM-WORDS	Baseline Word Lists for NAVSEA/ SPAWAR Technical Manuals

Application for copies should be addressed to:
The Standardization Documents Order Desk,
Building 4D,
700 Robbins Avenue,
Philadelphia, PA 19111-5094

2.4 Forms.

Copies of forms required by the preparing activity in connection with specific procurement functions should be obtained from:

The Standardization Documents Order Desk,
Building 4D,
700 Robbins Avenue,
Philadelphia, PA 19111-5094

2.5 NON-GOVERNMENT PUBLICATIONS.

The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

Aerospace Industries Association, AIA-TR91-1 Publications DOD Liaison	Recommendation for Hazardous Materials Warnings in Technical Data

(Application for copies should be addressed to the Aerospace Industries Association, 1250 Eye Street NW, Washington, DC 20005.)

2.5.1 American National Standards Institute, Inc. (ANSI).

The following standards shall apply:

ANSI Z535.3	Criteria for Safety Symbols

Application for copies should be addressed to:

American National Standards Institute, Inc.
25 West 43rd Street
New York, N.Y. 10036

or http://www.ansi.org

3.0 REQUIREMENTS.

In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Technical manuals shall not contain copyrighted material except as specified in the Federal Acquisition Regulations/Defense Federal Acquisition Regulation Supplement. When copyrighted material is to be included in a technical publication, the preparer shall obtain prior written permission from the copyright owner/authorized agent for its use. The signed, written permission shall be delivered with the final reproducible copy when it is delivered. The written permission shall contain a statement declaring whether or not a

copyright credit line is required. Sound engineering principles and techniques, available engineering analyses, service experience, performance data on the item and on similar items, and all other reliability and maintainability data available shall be used in the preparation of specific instructions.

3.1 TECHNICAL MANUAL CHANGE PACKAGE.

3.1.1 Review Draft Copy (RDC).

RDCs shall be developed for review and coordination for technical accuracy and adequacy to evaluate the preparing activity's progress and assess compliance with this document and terms of the contract or SEATASK. RDCs shall be submitted for acceptance prior to development of the PTM or FRC.

3.1.1.1 RDC Development.

The RDC shall be developed as follows:

a. RDC shall be formulated in accordance with the approved outline and represent the configuration of the hardware.
b. The text shall be computer generated, double spaced, on one side of the paper and shall contain the exact wording and content intended for the reproducible copy. The RDC may be issued initially in single column format and may include voids where information is not available. The production method may be the most economical method at the option of the preparing activity. When the RDC is presented in computer or other form such that the paragraphing or symbols cannot be readily understood, it shall be annotated to make the paragraphing and symbols clear to the reviewer.
c. All front matter, text, tables, and illustrations shall meet the content, format, page size and image area requirements of this document.
d. The binding edge shall not be less than 1 inch and the outside edge not less than 1/4 inch. The method of duplication, covering and binding shall provide legible, collated copies.
e. Unclassified RDCs shall be duplicated and loose leaf bound in pressboard or equivalent binders.
f. Reproduction of penciled illustrations are acceptable if their technical content, clarity, correctness, and adequacy meet requirements of this document. Illustrations submitted for review shall be legible.
g. Illustrations, drawings, and tables shall be final size, complete with titles, figures, and table numbers.
h. Official nomenclature, common names, and equipment abbreviations shall appear in their normal-reading sequence. The nomenclature shall be used consistently in the text, figures, and tables of the text plan. Transposed nomenclature shall be used in illustrated parts breakdowns (IPBs) or indices.
i. The words "REVIEW DRAFT COPY" shall be placed on the cover and title page above the technical manual identification number.
j. The RDC shall be complete in all respects with all in-process review comments incorporated. A completed and signed validation certificate shall accompany the

RDC submitted for technical review. Following review, the developing activity shall incorporate all required changes.

k. Shading or color-coding is not required in the RDC but functional boundaries shall be illustrated by dotted lines. Hardware boundaries shall be indicated by dot-dash lines, with the number of dots corresponding to the level of containment (first level, second level, and so forth).
l. The RDC shall be proofread, technically edited, validated in accordance with the validation plan, and collated in the same manner as the final manual prior to submittal.

3.1.1.1.1 Change Package Content.
Each change package shall include the following:

a. A replacement title page.
b. A replacement list of effective pages.
c. An instruction sheet.
d. As applicable, replacement pages for the table of contents, general information page(s), lists of abbreviations or symbols, system and component diagrams, and text.

3.1.1.1.2 Cover and Title Page.
The cover and title page shall contain the information indicated by Figure 4. The TM identification number will be furnished by the acquiring activity. The title page (and cover, if required) of changed manuals shall be updated to:

a. Reflect the current distribution statement, warning, and destruction notice. A new title page shall be supplied with the distribution statement centered, one-fourth inch below the SYSCOM seal.
b. Indicate the change letter and date in addition to the original date of the publication, that is, CHANGE A 15 July 1994. The change identification shall be entered below the original publication date in the lower right-hand corner of the page.
c. Indicate the current supersession notice.

The supersedure notice, supplement notice, disclosure notice and destruction notice, as applicable, may be placed on the reverse side of the title page if additional space is needed to avoid overcrowding of the title page (that is, small technical manuals such as job guides and work cards). The reverse side of the title page, when used as a continuation of the title page, shall be numbered. Title pages shall be unnumbered; however, the first page of a brief manual that uses an abbreviated title, below which the beginning text is placed, shall be assigned Arabic numeral 1.

3.1.1.1.3 List of Effective Pages.
On the list of effective pages, above the listing of pages contained in the manual, shall be a list of all published change identification numbers, letters, and dates. The current change shall be included in this list. The list of effective pages shall back up the title page and be numbered using the letter "A" in the lower left-hand corner. When the list of effective pages begins as a right hand page, the letter "A" shall be in the lower right-hand corner. When additional pages are required, they shall be identified as "B", "C", etc. When the last page is a right hand page, it shall not be backed up and will list the next succeeding page as blank, e.g. "B/(C blank)". The list of effective pages shall be a complete list of all manual pages, including title page, the list of effective pages, table of contents pages, safety summary pages, blank pages, deleted pages, added pages and foldout pages. The list of effective pages shall include a statement of the total number of pages in the manual. The list of effective pages shall be updated for each change or revision. The listing shall be held to a minimum by grouping numbers where applicable. The page numbers for a blank page and the printed side of the sheet shall be listed as separate numbers even though a double number will appear on the printed side of the sheet. Appropriate change numbers shall be placed in the "Change No."column. The words "Deleted" or "Blank" shall be placed alongside the page number of pages so affected.

3.1.1.1.4 Change Instruction Sheet.
The change instruction sheet shall provide instructions for inserting new and revised pages, and for disposing of superseded pages (see figure 31). The instruction sheet shall be the first page of a change package. The instruction sheet shall include the following, as applicable:

a. "Change Instruction Sheet" shall appear at the top of each page (below the basic technical manual identification number).
b. The technical manual change identification number shall appear on the top- left of each change instruction sheet page, but below the page identifier (that is, "Change Instruction Sheet"). The change shall be identified with a permanent identification number assigned by the Government.
c. The security classification shall be located on all pages of classified interim or permanent changes and shall appear on the top (above the manual identification number) and bottom center of each page.
d. The total number of pages included in the change shall be indicated on the first page for the instruction sheet.
e. If other than the change date, a statement shall be included indicating when the change is in effect. If it supersedes an earlier change, a statement of that fact shall be given.
f. If an equipment change is involved (field or production change), a statement shall be included indicating the purpose of the change and the extent (serial numbers or conditions of application) to which it applies to the equipment population and identify the alteration by number.
g. When the equipment nomenclature has been changed because of a production or field change to the equipment, the nomenclature references in the text and

illustrations need not be modified merely to include the new nomenclature providing that information equivalent to the following is included as general information:

h. "Unless otherwise specified, all references in the manual

i. to Radar Set AN/SPS-10 apply equally to Radar Set AN/SPS-10A."

j. If an equipment change does not effect the entire equipment population, the change shall be developed so that it will describe both the effected and uneffected equipment.

k. When the change applies to the entire equipment population, the change shall cover only the modified equipment. A note shall be included in the first paragraph of the instruction sheet to the effect that maintenance support activities shall not dispose of the superseded pages until it is established that all of the equipment population has been modified.

l. Instructions shall be concise and clear, illustrations and diagrams corrected, as applicable, and replacement pages provided.

m. The instructions shall be followed by a statement that the change instruction sheet shall be inserted in the manual immediately following the front cover and title page for reference purposes.

n. The instructions shall specify the deleted or added pages and include information for completing the change record page.

o. The method used to identify new and changed material shall be explained.

p. For changes pertaining to equipment modifications, the user shall be instructed not to insert a change in a manual until the modification has been accomplished.

q. Printed matter shall be arranged on the page so that all copy is readable when bound in the manual.

r. A bar-coded stock number for the change package shall appear in the lower left-hand corner of the first page.

3.1.1.1.5 Foreword, Preface, Introduction.

If the following statement is not in the existing foreword, then a new foreword shall be prepared to include current information on contacting distance support (anchor desk) via the web (http://www.anchordesk.navy.mil/) and via the toll free number (1-877-4-1-TOUCH [86824]). The new foreword shall include the following statement: "Ships, training activities, supply points, depots, Naval Shipyards and Supervisors of Shipbuilding are requested to arrange for the maximum practical use and evaluation of NAVSEA technical manuals. All errors, omissions, discrepancies, and suggestions for improvement to NAVSEA technical manuals shall be forwarded to:

COMMANDER
CODE 310 TMDER, BLDG 1388
NAVSURFWARCENDIV
4363 MISSILE WAY
PORT HUENEME CA 93043-4307

on NAVSEA Technical Manual Deficiency/Evaluation Report, form NAVSEA 4160/1. All feedback comments shall be thoroughly investigated and originators will be advised of action resulting therefrom. Three copies of NAVSEA 4160/1 are included at the end of each separately bound technical manual 8-1/2 x 11 inches or larger. Copies of form NAVSEA 4160/1 may be downloaded from:

https://nsdsa2.phdnswc.navy.mil/tmmp/forms/TMDER_BLANK_REV_3-2001.doc

Users are encouraged to transmit deficiency submittals via the Naval Systems Data Support Activity Web page located at:

https://nsdsa2.phdnswc.navy.mil/tmder/tmder.htm

Urgent priority TM deficiencies shall be reported by Naval message to Port Hueneme Division, Naval Surface Warfare Center (Code 311), Port Hueneme, CA. Local message handling procedures shall be used. The message shall identify each TM deficiency by TM identification number and title."

3.1.1.1.6 Replacement Pages.
Changes to an existing manual shall be issued in the form of replacement pages. The change shall be developed in accordance with this document, development details and style, format and content of this document. Pages shall be revised only when significant technical changes are required.

a. Replacement pages shall include all corrections issued in previous changes in addition to all other outstanding corrections required.
b. Changes made to any given page of the manual shall require a complete check and correction of associated pages that reflect the subject change.
c. A change letter for the change shall be used to identify changes and will be assigned by the Government.
d. When the published change package is available, the change pages shall be inserted (by the supplier) into the basic manuals to be shipped with the equipment.
e. The publication identification number shall appear at the top of each replacement page and shall remain the same as the basic manual.
f. When the RDC of the change is submitted for review and acceptance, the new change package publication identification number and change letter shall be requested from the Government.
g. When a change is made to a maintenance dependency chart, the entire chart shall be reprinted, including the backup page. Markings shall be the same as for all changed pages.
h. As necessary, indices shall be updated to reflect changes and shall be issued as replacement pages.
i. Change pages shall be developed and punched or drilled to the exact size and dimensions of the pages they replace.

3.1.1.1.6.1 Additions.
All paragraphs and pages shall be added and numbered as follows:

3.1.1.1.6.1.1 Numbering of Added Material.
When paragraphs, illustrations, tables, and pages are added by a change, existing paragraphs, illustrations, tables, and pages shall be renumbered. If this involves renumbering more than 10 paragraphs or will effect more than five pages, the following method shall be used:

a. When paragraphs are added at the end of a sequence, the next consecutive number shall be used.
b. When paragraphs are added in the middle of a sequence, paragraphs shall be numbered by adding an alpha character (for example, 2.4A, 2.4B, 2.4.1A, and so forth), to the preceding paragraph number.
c. Added illustrations, tables, and pages shall be numbered by adding a decimal (for example, figure 3-2.1, page 3-26.1, and so forth).
d. When it is necessary to add an illustration, table, and page between items which have already been added by the preceding method, an alpha character shall be used (for example, a page added between 3-26.2 and 3-26.3 would be 3-26.2A).
e. Pages shall not be added between a right-hand (odd numbered) and a left-hand (even numbered) page.
f. When new material is to be added to a right-hand page, any overrun shall be carried to the left-hand page. The overrun from the left-hand page shall be placed on the added page.
g. Where material is to be added to a right-hand page (for example, 2-5) and adequate blank space is available on the preceding left-hand page (for example, 2-4), material at the top of 2-5 shall be moved to the bottom of 2-4 and the new material added to 2-5.

3.1.1.1.6.1.2 Multisheet Illustration,.
Sheets added to a set of multisheet illustrations which fall between existing sheets shall be assigned the preceding number plus a decimal number. For example: if a sheet is added between sheets 2 and 3, the added sheet becomes 2.1. If possible, the new sheet shall be added after the last sheet and be assigned the next consecutive number.

3.1.1.1.6.1.3 Index Number.
Where a change to an illustration adds index numbers between existing numbers, the added numbers shall be the same as the preceding index number with an added decimal number, for example, 22.1, 22.2, and so forth.

3.1.1.1.6.2 Deletions.

3.1.1.1.6.2.1 Deleted Paragraphs, Steps, Illustrations, Tables.
Where a change deletes a paragraph, step/substep, illustration,or table without substituting another, the space formerly occupied by the paragraph, step/substep, illustration, or table can be used for other instructions, allowing for sufficient space to provide 1/4 inch above and below a sentence such as "Paragraph 4-2 deleted." The table of contents, list of illustrations, list of tables and index shall be changed as necessary.

3.1.1.1.6.2.2 Deleted Pages.
When page number continuity is broken by deletion of a page and a blank page results, a statement indicating the deletion shall be placed in the bottom margin(right or left corner, or centered, as space permits) of the preceding page or top margin of the succeeding page. For example:

```
"All data on page ......, including Figure ...... deleted."
```

This also applies when two back to back pages are deleted. The statement shall be used only if the same manual change affects a preceding or succeeding page. A preceding or succeeding page shall not be changed merely to add this statement. In such instances, the list of effective page listings will be adequate.

3.1.1.1.6.2.3 Changes to Illustration.
When changes are made to illustrations, the original artwork shall be used unless the development of new artwork is less expensive. Sheets added to a set of multisheet illustrations which fall between existing sheets shall be assigned the preceding number plus a decimal number. For example: if a sheet is added between sheets 2 and 3, the added sheet becomes 2.1. If possible, the new sheet shall be added after the last sheet and be assigned the next consecutive number. If a callout is deleted from an illustration, the word "(Deleted)" in parentheses shall be placed after the appropriate number in the legend.

3.1.1.1.6.2.4 Change Symbols for Illustrations.
Changes to line drawings, charts, illustrations, graphs, diagrams, and schematics shall be indicated by shading and screening to highlight the area containing the changed information. Extensively changed presentations shall be indicated by a screen border around the effected area. For minor changes not suitable for shading or screening, a miniature pointing hand shall be used.

3.1.1.1.6.2.5 Change Page Numbering and Sequence.
Change pages which replace pages in the manual shall carry the same number as the page they replace. Where the reverse side of the page in the manual is unaffected by the change, the replacement page shall carry both the change page and its unchanged back-up page. Added pages shall be numbered by adding sequential decimal numbers to the preceding page number (for example, 22.1, 22.2). Added pages may be printed on one side only if the addition of a back-up page would disrupt the sequence of the presentation within the volume or part.

3.1.1.1.6.2.6 Blank Page Number.
A blank page shall be assigned a number but it shall appear on the preceding or following page. For example: if page 10 of Chapter 1 is blank, page 9 shall bear the number 1-9/(1-10 blank); if page 9 of Chapter 1 is blank, page 10 shall bear the number (1-9 blank)/1-10. When applicable, an added page, such as 1-10.1, shall show that 1-10.2 is blank.

3.1.1.1.6.3 Change Designator.
Each page containing changed or added material shall bear the words "Change __" placed at the bottom of the page in the same corner and on the same line as the page number. The change designator shall begin approximately 1/2-inch to the right of the page number for an even numbered page, and end approximately 1/2-inch to the left of the page number for an odd numbered page (see Figure 22). This change designator requirement is also applicable to all added pages, including those placed at the end of a manual.

3.1.1.1.6.4 Change Symbols for Text and Tables.
Changes (except as noted below) to the text and tables (including new material on added pages) shall be indicated by a vertical line in the margin extending the entire area of the material effected (outer margin for double column material, margin opposite binding edge for single column material) (see Figure 22). Exception: pages with emergency markings (black diagonal lines around three edges) shall have the vertical line symbols placed along the inner margins for single column; for double column, the vertical line symbols which apply to the outside column shall be placed in the gutter between columns. Previous change symbols on a page shall be deleted when a page is subsequently changed. Symbols shall show current changes only. The vertical line change symbol shall be 6-point in width. It may be reduced 10 percent in width to allow for automatic composing equipment use providing it remains legible and obvious. If the composing equipment used is incapable of producing a vertical line, change symbols such as a number sign "#", plus sign "+", black circle or black square, or the letter "C", "R", or "X" may be used in lieu of the vertical line, if approved by the government. The meaning of these symbols shall be explained in the change instruction sheet or foreword, preface or introduction of the manual. Change symbols are not required for:

a. Introductory material.
b. Indexes where the change cannot be identified.
c. Blank space resulting from the deletion of text, an illustration or part of an illustration, or a table.
d. Correction of minor inaccuracies such as spelling, punctuation, relocation of material, renumbered paragraphs, and so forth, unless such correction changes the meaning of instructive information and procedures.
e. Replacement or addition of a complete part, chapter, or section.

3.1.1.1.6.5 Numbering of Changes.
Each change package to a manual shall be lettered, as specified by the government, in sequence and dated. Identification of changes after each revision of a manual shall begin

over again with the or letter A as applicable. The change date shall be the date at which the final material to be included was approved.

3.1.1.1.6.5.1 Change Instruction Sheet.
A "T" shall be entered in the front of the interim change package identification number. This change number shall be assigned by the Government.

3.1.1.1.6.5.2 Deleted Paragraph.
When a paragraph is to be deleted, the number of the page on which it appears shall be stated, followed by a statement that the paragraph is rescinded. For example:

```
"Page 3.  Paragraph 2-1 is rescinded."
```

3.1.1.1.6.5.3 Changes to Tabular Material.
When interim changes are made in lengthy tabular material, deletions, additions, and substitutions shall be listed in page sequence and the page number on which each change occurs shall be shown. For example:

```
     "Page B-15, Appendix B.

  The following are deleted from the list of classes:

     Page B-15      5133 Drills, Counterbores and Countersinks 5905
Resistors
     Page B-16      6115 Generators and Generators Sets

  The following changes are made in the columns indicated:

     Page B-21      The description of class 4010 is changed to read
"Chain and
                    Wire Rope".

     Page B-27      Class number "2960", appearing between class 2930
and 2940,
                    is corrected to read "2935"."
```

3.1.1.1.6.5.4 Interim Additions.
The number of the page where the added material would appear if it were incorporated into the existing manual shall be stated, followed by a statement to the effect that the material is being added. This shall be followed by the number, title, and text of the new paragraph. For example:

```
     "Page 3-14.      Paragraph 3.5.1A and 3.5.1B are added after 3.5.1.
                      Paragraph 3.5.1A - Refer to S0005-XX-XXX-XXX for
                      coaxial connector repair procedures.
```

```
                    Paragraph 3.5.1B - Refer to S0005-XX-XXX-XXX for
LRU
                    checkout and trouble-shooting procedures."
```

3.1.1.1.6.5.5 Text Supersession.
The number of the page on which the paragraph appears shall be stated, followed by a statement to the effect that the paragraph is superseded. This shall be followed by the number, title, and text of the superseding paragraph. For example:

```
   "Page 1-6.  Paragraph 1.2 is superseded as follows:

       1.2         RECORD AND REPORT FORMS.
       1.2.1       Depreservation Guide. STD Form XXXX, Depreservation
                   Guide for Engineer Equipment.
       1.2.2       Other Forms.  For other record and report forms
applicable
                   to operator, crew and organizational maintenance,
refer to
                   S0005-XX-XXX-XXX."
```

3.1.1.1.7 Danger, Warnings, Cautions, and Notes.
Dangers, warnings and cautions shall precede the text but follow paragraph headings to which they apply. Notes may precede or follow applicable text, depending upon the material to be highlighted. Dangers, warnings, cautions and notes shall not contain procedural steps nor shall the headings be numbered. When a danger, warning, caution or note consists of two or more paragraphs the heading DANGER, WARNING, CAUTION, or NOTE shall not be repeated above each paragraph. If it is necessary to precede a paragraph by both a danger and a note, a warning and a note, or a caution and a note, and so forth, dangers shall precede warnings, warnings shall precede cautions, which in turn shall precede notes.

DANGER

WARNING

CAUTION

Dangers, warnings, cautions and notes shall be short, concise and used only to emphasize important or critical data. Dangers, warnings and cautions may be worded positively or negatively and shall state the hazard and result or reason, unless obvious. Paragraphs 3.1.1.1.7.1 through 3.1.1.1.7.1.3.1.1 provides additional requirements for inclusion of warnings and cautions. Icons shall be used as described in paragraphs 3.1.1.1.7.1 through 3.1.1.1.7.1.3.1.1.

3.1.1.1.7.1 Scope.
This document identifies standard practices for the inclusion of Occupational Safety and Health guidance in the text of technical manuals. The intent is to provide sufficient information to allow a standardized approach to the task, eliminate confusion, and improve the technical manual development process overall. The criteria for safety symbols in technical documents are in conformance with ANSI Z535.3.

3.1.1.1.7.1.1 General Requirements.

3.1.1.1.7.1.1.1 Human factors.
Technical manual procedures are subject to being overlooked or circumvented when they are deemed unworkable or impractical. Careful consideration of environmental factors, equipment design or layout, human nature, and other human factors will help ensure the overall integrity of the task procedures.

3.1.1.1.7.1.1.2 When to use Danger, Warning, or Caution statements.

3.1.1.1.7.1.1.2.1 Danger.
Danger is used to indicate a location, equipment, or system where imminent hazard exist, capable of producing immediate injury or death to personnel or threatens the primary mission of the ship.

3.1.1.1.7.1.1.2.2 Warning.
Warning is used to indicate a location, equipment, or system where a potential hazard exist, capable of producing injury to personnel, if approved procedures are not followed.

3.1.1.1.7.1.1.2.3 Caution.
Caution is used to indicate where hazard exist, that could severely damage equipment, a system, or the ship, causing loss of mission capability if approved procedures are not followed.

3.1.1.1.7.1.1.3 General.
Operating, maintenance, and safety instructions are used to indicate procedures to be followed in operating and maintaining equipment and complex systems normally tended by trained technicians. General safety information provides notice of general safe practice or rules related to health, first aid, sanitation and housekeeping.

3.1.1.1.7.1.1.4 Design criteria.
Danger, warning and caution icons or symbols shall be in accordance with ANSI Z535.3. These signs shall be compatible with precautions in applicable manuals.

a. As indicated by the definition in this document, DANGER statements are used to indicate imminent hazard to personnel or equipment, WARNING statements are reserved for the protection of personnel and CAUTION statements are reserved for equipment or system protection. Do not use CAUTIONS for health hazards.

1. WARNINGS and CAUTIONS should be used for those unique conditions, steps or processes that require additional emphasis because of the inherently dangerous nature of the task or the potential for a "surprise" not otherwise readily obvious from the procedure.
2. A WARNING should be used to advise of injury or occupational illness potential, but only based on the reasonable likelihood that the reader's health or safety will be impacted in such a manner as to cause immediate concern and a disabling injury or occupational illness will result if the task procedure or stated precaution are not closely followed. Injury is defined as a traumatic bodily harm caused by a single or 1-day exposure to an external force, toxic substance (usually associated with accidents and spills in work places where the specific agent is not normally in the environment), or physical agent which will result in restricted duty, lost time, or worse. The occupational illness is defined as any abnormal physical condition or disorder, other than one resulting from an injury (as defined above), caused by repeated exposure to chemical, biological, or physical agents associated with the occupational environment which will result in restricted duty, lost time, or worse.
3. Specific direction as to which specific procedures require the use of warnings or cautions should be obtained from the LSAR and system safety. The responsible safety office also should be requested to review technical manual procedures for compliance with safety concerns.

b. Risk assessment - and the related issue of whether or not additional emphasis is required - is somewhat subjective. Decisions concerning these issues should be based on as much information as possible including historical mishap data from related systems, research, and the experience of all those involved in the technical manual development process. Often, the latter is the best indicator of the need for additional comment. Through the acquisition phase of major weapon systems, the decision to include a DANGER, WARNING or CAUTION statement in the text can often be made by consulting the Operating and Support Hazard Analysis or other system safety engineering analysis.
c. DANGERS, WARNINGS or CAUTIONS are not to be used for environmental protection concerns or security information.

3.1.1.1.7.1.1.5 Wording and Structure of Danger, Warning, and Caution Statements.

a. A DANGER, WARNING or CAUTION statement should consist of four parts: a signal word (Danger, Warning, Caution), a concise statement of the hazard, minimum precautions, and the possible result if the DANGER, WARNING or CAUTION is disregarded, unless obvious. An icon is optional. In cases where hazardous materials are being used and the conditions on 3.1.1.1.7.1.1.7e.2 exist, a hazardous material icon(s) shall be used. See paragraph 3.1.1.1.7.1.3.1 for guidance on constructing the icons.

1. The signal word will always be included using one of the styles, or similar, referenced in this document. Whichever style is used, it must be used consistently.
2. The remaining parts can be arranged in any way that gets the point across; however, following the format of statement first, precaution second, and result third is often the most clear and concise method. Brevity is important. If the possible result is obvious, it need not be included.
3. A precaution is a short statement of hazard mitigation that tells the reader to take care, for example "use eye protection", or "keep arms and hands clear". Certain precautions may reference other publications or direct people to consult with another agency (for example, "...consult Bioenvironmental Engineering"). However, guidance of this nature should be considered for inclusion in a safety summary (see 3.1.1.1.7.1.1.7).

b. DANGER, WARNING or CAUTION statements shall never contain procedures critical to the effective and safe completion of the task. For example:

```
c.                                  "WARNING
d.
e.              Cleaning with compressed air can create airborne
f.              particles that may enter eyes or penetrate skin.
   Pressure
g.              shall not exceed 30 psig. Wear goggles. Do not direct
h.              compressed air against skin."
i.
j.
```

k. Negatively worded statements (for example, "Failure to adhere..." or "Do not use ...") are acceptable and sometimes the best way to convey the message.
l. Multiparagraph or excessively long DANGER, WARNINGS and CAUTIONS are not specifically disallowed by this document but lengthy statements are a good indication that the task procedures are not written with the needed safety steps or procedures included.
m. Pay strict attention to the definitions of "shall", "will", "should", and "may" in this document. The use of these words must be consistent with exposures or conditions which require comparable DANGER, WARNINGS or CAUTIONS.

3.1.1.1.7.1.1.6 Placement of Danger, Warning, or Caution Statements.

a. This document contains general requirements.
b. DANGER, WARNINGS or CAUTIONS should be placed in the text immediately prior to the step or procedure to which they apply. The same DANGER, WARNING or CAUTION need not be repeated within a procedure as long as the emphasis and impact of the DANGER, WARNING or CAUTION is not lost because of a break in the procedures.

c. There is no stated maximum on the number of unrelated DANGER, CAUTIONS or WARNINGS that can be placed on a page. Under no conditions should they be so numerous so as to obscure the procedures. Properly written procedures should eliminate the need for consecutive WARNINGS. Sandwiching short (one line or two line) procedures between WARNINGS and CAUTIONS should be avoided.

3.1.1.1.7.1.1.7 Safety summary sheets or sections.

a. All technical manuals containing dangers, warnings, or cautions shall have a Safety Summary. In conjunction with properly written procedures, the Safety Summary, which can contain general safety precautions, can eliminate the need for many DANGER, WARNINGS or CAUTIONS.
b. Provide a Safety Summary in accordance with this document in the front of the manual preceding the first text page. The safety summary provided on figure 1129 is only an example of the type, depth, and format of general shop safety information necessary. It is not all inclusive. Only the first two paragraphs (see figure 1129), or similar wording detailing the significance and use of DANGER, WARNING and CAUTION statements, should be considered common to all Safety Summaries. Additional paragraphs can be added depending upon the class of hazard found in the technical manual.
c. Nearly any topic can be considered for inclusion in a Safety Summary: mechanized material handling equipment; overhead lifting devices; wood or metal working machine use and guarding; and so forth. General precautions related to storage, and so forth, can also be included.
d. Safety summaries are an excellent place to provide general safety or health instructions, but they must be tailored to the technical manual.
    1. Live circuitry guidance is probably not applicable to a corrosion control technical manual. This does not preclude the possibility, however, of a WARNING in the text of a corrosion control technical manual if the text establishes the likelihood of exposure to injurious current.
    2. The converse is also true. It would be appropriate to include live circuitry guidance in the Safety Summary of a maintenance manual. However, WARNINGS inserted in the text prior to every point of potential current exposure would not be required, as long as the procedures identify the proper controls, for example, "discharge capacitor XXXX," or "...turn off power and tag out (lock out) switch." It is reasonable to assume a trained maintenance technician is fully aware of the hazards of live circuitry; emphasis beyond a Safety Summary would be needed only in the event that the equipment, procedures or work environment presented an unusual situation to the technician.
e. Inclusion of general guidance in a Safety Summary does not preclude the need for a DANGER, WARNING or CAUTION if the text calls out a nonroutine use or application.

1. For example: in a parts cleaning technical manual, general guidance in the Safety Summary related to air pressures (30 psig), chip guarding, eye protection, and so forth, would suffice as long as the task procedures include the minimum required controls (pressure regulation, and so forth) as procedural steps. A CAUTION may still be required, however, if the text specifies 15 psig for a delicate piece of equipment that would be damaged if the technician proceeded under the general guidance included in the Safety Summary.
2. Many industrial hygiene and occupational health concerns can be addressed in the same manner. In technical manuals that frequently call for routine solvent applications, WARNINGS would not be needed throughout the text as long as the minimum required controls are called for in the task procedures. General guidance regarding solvents could be included in the Safety Summary. Additional emphasis would then be required only if a procedure calls for a nonroutine application, such as heating the solvent, or an unusual, potentially more toxic solvent. In that event, a DANGER or WARNING could be used depending on the ability of the process to cause immediate safety or health concerns. This approach can be used for many of the occupational health concerns associated with commonly used substances, for example, hydraulic fluids, oils, fuels, paints, thinners, adhesives, sealants, and so forth.

f. DANGER, WARNINGS or CAUTIONS should not simply be extracted from the text and inserted verbatim in a Safety Summary. An acceptable approach would be to provide a general summary of guidance, classed by exposure. DANGER, WARNINGS or CAUTIONS must still be placed in the text, however, based on the risk associated with the steps or procedure.
g. Excessively long Safety Summaries are discouraged. If a technical manual requires extensive safety or health guidance, a safety section or chapter should be considered.

3.1.1.1.7.1.2 Quality Control.

3.1.1.1.7.1.2.1 Rewrite.
The Government will recommend rewrite under the following conditions:

a. When any part of a procedure, DANGER, WARNING, CAUTION, or Safety Summary is not consistent with existing Occupational Safety and Health Administration and Service safety requirements or is detrimental to existing Service safety and health programs.
b. When WARNING statements are misused for equipment protection or otherwise misused outside of the intent of this document.
c. When CAUTION statements are misused for personnel protection, or otherwise misused outside of the intent of this document.

d. When DANGER, WARNING or CAUTION statements contain procedural steps, they should be included in the task description. Minimum protective equipment requirements or minimum precautions are allowable.
e. When DANGER, WARNING, or CAUTION statements are excessively long.
f. When DANGER, WARNING, or CAUTION statements are so numerous on a page that necessary task procedural steps are visually obscured.
g. When Safety Summaries are used to the exclusion of DANGER, WARNINGS and CAUTIONS in the text unless indicated by the nature and class of hazard associated with the text, or when otherwise used outside of the intent of this document (that is, they should provide tailored, general guidance).
h. When DANGER, WARNINGS or CAUTIONS are extracted from the text verbatim and inserted in the Safety Summary.
i. When statements detailing the significance and use of DANGER, WARNING and CAUTION statements are not provided in the Safety Summary.
j. When the wording of DANGER, WARNINGS or CAUTIONS varies throughout the text even though the same or very comparable conditions are being emphasized.
k. When a DANGER/WARNING does not serve to prevent disabling injury or death, or a DANGER/CAUTION does not serve to prevent damage or destruction of equipment.
l. When a procedure lacks required emphasis because of its inherently dangerous nature or a step requires additional emphasis because of its critical safety impact.
m. When WARNINGS or CAUTIONS contain vague precautionary statements such as "avoid all contact", or rely too frequently on references to other technical manuals or outside agencies. In these cases, inclusion in a Safety Summary or input conditions page will be recommended as appropriate.
n. When WARNING or CAUTION statements contain general safety precautions.

3.1.1.1.7.1.3 Health Hazards.
Procedures prescribed for the operation of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act (OSHA) Public Law 91-596 and Executive Order 12196. When exposure to hazardous chemicals or other adverse health factors or use of equipment cannot be eliminated, guidance pertaining to the exposure shall be included in the Safety Summary or a Warning.

3.1.1.1.7.1.3.1 Construction of Health Hazard Icons/Safety Symbols.

3.1.1.1.7.1.3.1.1 Hazard Icons.
Icons/safety symbols may be used to save space in the manuals while still conveying a clear message of the hazard to the technician using the manual. Since the icon presents a visual image of the hazard rather than a more abstract message, recognition should be much faster than with a worded warning. ANSI Z535.3 provides general criteria for the design evaluation and use of safety symbols to identify and warn against specific hazards and provide information to avoid personnel injury and damage to equipment.

3.1.1.1.7.1.4 Points of Contact.

3.1.1.1.7.1.4.1 Coordination.
All those involved in the technical manual development process must remember that the OSH guidance included in technical manuals is not the only line of defense against serious mishaps, but it is sometimes the last. The effective inclusion of OSH guidance can almost never be accomplished by a single individual with a distinct background. It must be a coordinated effort among system experts, safety professionals, technical writers, and the potential user. Questions arising from this process should be referred to the appropriate Safety Office and the Government acquiring activity. Do not ignore existing contractual or Command requirements.

3.1.1.2 Technical Content.
The change package shall incorporate all approved information (for example, engineering change proposals, ship alterations, ordnance alterations, machine alterations, field changes, and so forth). The changes shall also incorporate all advance change notices and outstanding deficiencies that have been resolved by the Government.

3.1.1.2.1 Digital Encoding of Technical Publications.

3.1.1.2.1.1 Source File Development Requirements.

3.1.1.2.1.1.1 General Requirements.
Manuals developed in general accordance with this document shall conform to a document type definition in accordance with MIL-STD-38784. Technical manual and artwork shall meet the requirements of this document, including the requirements specified for FRC printed form and style. All corrections required due to verification and review of the preliminary manuals shall be incorporated. Technical manual in digital form shall conform to the requirements specified in MIL-STD-1840, MIL-PRF-28001, MIL-PRF-28002, FIPS PUB 194, and the requirements set forth in this document.

3.1.1.2.1.1.2 Textual Source File Requirements.
Textual material marked in accordance with MIL-PRF-28001 is referred to as a text source file. A complete SGML-tagged source file(s) of all text data (SGML Instance) is a mandatory part of each final technical manual product.

3.1.1.2.1.1.3 Graphic Source File Requirements.
Illustrations artwork, photographs and other graphic material shall be developed in accordance with MIL-PRF-28002 and FIPS PUB 194. This data is referred to as a graphic source file. Raster illustration or graphic source files for all figures and illustrations shall be a mandatory part of each final technical manual product.

3.1.1.2.1.1.4 Source File Interchange Format.
The format of all digital source files shall be in accordance with MIL-STD-1840. It is the source files to which all subsequent changes and updates must be made to maintain the technical publication throughout its operational life. When corrections are made to a

working, intermediate, or output file, corrections must be incorporated in the source file which is the primary final product.

3.1.1.2.1.1.5 Inspections.
The Government reserves the right to perform any of the inspections set forth in MIL-PRF-28001 to ensure that supplies and services conform to prescribed requirements.

3.1.1.2.1.2 Digital File Requirements.

3.1.1.2.1.2.1 Files And File Formats, General.
The following specific digital source files and products are required for the final issue of each technical manual. Technical publication information consists of text and associated illustrations in digital form. This information shall be organized into file sets. Each requisite file of a set shall be encoded in a format in accordance with MIL-STD-1840, and be accompanied by the applicable data file header records in accordance with MIL-STD-1840.

3.1.1.2.1.2.2 Declaration File Format.
The declaration file shall be in 7-bit ASCII and shall uniquely identify the delivery document. The declaration file shall be developed in accordance with the requirements of Section 5 of MIL-STD-1840. There shall be one declaration file provided with each final manual delivered in digital form. (Declaration files may also contain the characters permitted by ANSI X3.4.)

3.1.1.2.1.2.3 SGML Conforming Text Source File Format.
The file set of a technical manual containing SGML conforming files shall consist of SGML coded text source files with at least one text source file per document, mandatory. Each file shall be accompanied by identifying data file header records. The text source files shall be ASCII, SGML coded text files tagged in accordance with MIL-PRF-28001 as specified by the document type definition of MIL-PRF-28001 and the following:

a. Text files shall be provided on 9-track magnetic tape at 6250 characters per inch or 1600 if so specified in the contract or SEATASK in data format conforming to MIL-STD-1840. Media other than magnetic tape (for example, magnetic diskettes, optical disks, and so forth) shall be provided when specified in the contract or SEATASK.
b. The appropriate document declaration set shall be referenced in the SGML text using the following public identifier:
c. `<!DOCTYPE doc PUBLIC "-//USA-DOD//DTD MIL-STD-38784C 900102//EN" >`
d.
e. Document numbers for the following items must be physically present in the text stream using the appropriate attribute as defined in MIL-PRF-28001: chapter, section, paragraph, figure, table, footnote, appendix, steps, and list items.
f. All internal (cross) references shall be tagged as defined by the document type definition in Appendix B of MIL-STD-38784. For internal references, a reference identifier (ID) shall be provided which specifies the unique ID of that part of the

manual which is being referenced. Accordingly, an ID value shall be provided for the appropriate reference within the manual. For external references, the referenced document number shall be provided.

g. Information in the following table shall be tagged as defined by the document type definition (DTD).

h.

i. Information to be tagged.

j.

k.	Cross reference	National stock number
l.	Technical manual	Part description
m.	identification	Part number
n.	number (Doc No)	Start and end of change
o.	Equipment model number	Start and end of emergency
p.	Equipment serial number	information
q.	Footnote	Start and end of emphasis
r.	Graphic	(note 1)
s.	Index flag	Test equipment

t.

u. Note 1. For use only when format document cannot
v. provide desired emphasis

w.

x. Hyphenation and spell checking. The processing system that produces the text digital products required by this paragraph must electronically spell check the document text. Line ending machine generated hyphens are not permitted.

y. Page integrity. Page integrity is the maintenance of physical or logical page boundaries at specific places in a publication. The processing system that prepares the digital products must provide page break indicators in the tagged text files for use in maintaining page integrity during future updates to the technical manual. The page break indicator as defined by the document type definition of MIL-STD-38784 and associated page number shall be used.

3.1.1.2.1.2.4 Document Type Definition (DTD) Data File Format.

A document type definition shall be used to define the organization and logical structure of elements, entities, and attributes allowed in a particular document. It shall also be used to control automated processing functions (such as parsing) that support quality assurance requirements. The document type definition data file shall be in accordance with the document type definition in Appendix B of MIL-STD-38784 and shall define the structure and content of the technical manual. A standard DTD shall be cited. It can be provided on diskette, if the contractor desires, and requests it. The standard Navy/NAVSEA DTD (NAVSEA Class 2 DTD) is readily available on INTERNET. It can be viewed on-line at:

Navy XML/SGML Repository

3.1.1.2.1.2.5 Output Specification and Formatting Output Specification Instance (FOSI).
The Government will provide a FOSI for use by the preparing activity. The FOSI provides a set of formatting characteristic values used to rigorously describe composition processing functions to be performed on the elements of a text document to provide the required format and style. The FOSI shall be expanded by the preparing activity to contain values for characteristics for every context in which a tag has a unique formatting requirement. Each unique tag shall be accompanied with a description of its attributes if it effects the formatting. Technical manuals conforming to this document and encoded in accordance with MIL-STD-38784 shall be accompanied by a FOSI which incorporates any preparing activity unique attributes for output format and style stated in this document.

3.1.1.2.1.2.6 Illustration Data Source File Format.
Each set of text source files for a technical publication shall be supported with an illustration data source file for each illustration in the technical publication.

a. Raster illustration data files shall be in accordance with the requirements of MIL-PRF-28002 and FIPS PUB 194.
b. Each illustration data file shall be accompanied by identifying header records (see Section 5 of MIL-STD-1840).
c. A printout of all raster file header records will accompany all digital raster illustration files.
d. Where there are multiple instances of the same illustration in different locations of the technical publication, a single illustration file may be used to satisfy all of the illustration instances.
e. All digital raster illustrations shall be cropped and sized to fit the designated window for printing with no further manipulation.
f. The use of color and photographs is prohibited.
g. The fixed-length blocks of the raster files are to be padded using ASCII Decimal 32 (space) to the appropriate size.
h. For TMs conforming to this document, 8 1/2 inch by 11 inch or smaller illustrations are to be MIL-PRF-28002 type I files. All larger sizes are to be in accordance with FIPS PUB 194.

3.1.1.2.1.2.7 Page Description Language (PDL) Data Files.
The PDL shall be as follows. Output page description language files shall be provided as allowed by MIL-PRF-28001. The page description language shall be postscript or a postscript compatible language. The file format shall be written with 256 byte ANSI type F fixed-length records with block length of 2048 bytes. All data header records shall be as defined in Section 5 of MIL-STD-1840. The data header record shall be written in the first physical block of the file, with the block padded using ASCII Decimal 32 (space) to

the appropriate size. There shall be only one postscript or postscript compatible file for the final issue of each technical manual.

3.1.1.2.1.2.8 Hardcopy Print >From PDL Files.
A hardcopy printout of the PDL files shall accompany each final technical manual deliverable.

3.1.1.2.1.2.9 Special Word Data File Format.
Any special word data files and their format (see MIL-STD-1840) shall be as specified.

4.0 QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for Inspection.
The contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Responsibility for Compliance.
All items shall meet all requirements of this document. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the document shall not relieve the procuring activity of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract or SEATASK. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2.1 Government Inspection.
Material furnished in accordance with this document shall be subject to inspection, verification and approval or disapproval by the Government as specified by the terms of the contract. Inspection and verification will be performed by the Government prior to acceptance. The Government reserves the right to conduct a guidance and quality planning conference and quality program reviews throughout the term of the contract to ensure compliance with the quality assurance program plan, this document, the contract, and the production of a quality product.

4.2.1.1 Government Inspection at Subcontractor Facilities.
Government inspection, verification and acceptance of a preliminary material at a subcontractor facility shall not constitute Government acceptance of the manual. Such Government actions shall not in any way relieve the prime contractor of his responsibilities for inspection and validation or of his responsibility to furnish an acceptable manual. When the Government requires inspection or verification at the

subcontractor location, the prime contractor shall include in the purchasing document a statement equivalent to the following:

> "Government inspection and verification is required prior to shipment from your plant. Upon receipt of this order, promptly notify and provide a copy of this order to the Government representative servicing your plant so that Government inspection and verification may be planned. If the Government representative cannot be identified, the prime contractor shall be notified immediately."

The prime contractor shall report to his Government representative any nonconformance of subcontractor's manuals and shall require the subcontractor to coordinate corrective action with the appropriate Government representative.

4.2.2 TMQA Program.
The contractor shall establish a TMQA program to ensure the development of technically accurate and complete technical manuals. The Quality Assurance program shall be in accordance with the ASQC Q9003 or other documented quality assurance procedures submitted by the contractor and approved by the procuring activity. Review requirements for the quality assurance program developed by the contractor will be specified by the acquisition documents. The contractor's quality assurance program shall encompass the accountability for and development of quality control functions required for the management of the following technical manual program elements:

a. Source data collection.
b. Intermediate product.
c. Graphics and illustrations.
d. Validation.
e. Internal coordination.
f. Records.
g. Verification support.
h. Final product.

4.2.3 QA Program Organization.
The contractor's quality assurance program organization shall have well defined responsibility, authority, and the organizational freedom to identify and evaluate quality assurance problems and to recommend and initiate solutions.

4.2.4 Quality Assurance Program Functions.
All TM elements and processes shall be evaluated by the preparing and Government Quality Assurance personnel at various stages of development, by any or all of the following Quality Assurance program functions:

a. Guidance and quality planning conferences.
b. Adequacy reviews.
c. In-process reviews.
d. Quality program reviews.
e. Quality reviews.
f. Validation.
g. Verification.

4.2.4.1 Guidance and Quality Planning Conference.
The Guidance and Quality Planning Conference is conducted to ensure the contractor's understanding of applicable specifications, this document, formal instructions, established policies, and program requirements. Such conferences may be requested by either the contractor or Government.

4.2.4.2 Adequacy Reviews.
Adequacy reviews will be authorized and convened by the procuring activity to monitor the preparation of documentation in support of the planned maintenance system (PMS) and may be conducted on maintenance manuals to determine adequacy prior to verification. PMS documentation will be reviewed to ensure it is ready for Fleet evaluation.

4.2.4.3 In-Process Reviews (IPRs).
IPRs will be authorized and convened as deemed necessary by the Government. The contractor shall support IPRs and provide access to TM materials, intermediate, and final products. As a minimum, IPRs will include evaluation of source data, TM plans/outlines, presentation methods, modes of preparation, TMCR compliance (if applicable), completed text and artwork, and readability.

4.2.4.3.1 IPR and Adequacy Review Location.
IPRs and adequacy reviews will be held at the contractor's facility but can be held at a designated Government facility. IPR and adequacy reviews intended for locations other than the contractor's facility must be approved by the Government. The contractor may request IPR and adequacy reviews at any time during the term of the contract when assistance or clarification is desired. The Government will request additional IPR and adequacy reviews when it appears the program is not proceeding according to schedule.

4.2.4.3.2 IPR and Adequacy Review Records.
The Government will act as recorder and record decisions, results, and findings during the IPR and adequacy review evaluation utilizing the Technical Manual Evaluation Record. The Government will provide a copy of all recorded IPR and adequacy reviews to the contractor.

4.2.4.3.3 Disposition of IPR and Adequacy Review Findings.
The Government and the contractor shall resolve IPR and adequacy review findings that

involve problem areas or findings that require further evaluation before final disposition. Discrepancy or deficiency found as the result of the IPR and adequacy review shall be corrected prior to certification and acceptance of the technical manual.

4.2.4.4 Quality Program Reviews.
The contractor shall support quality program reviews as requested by the Government and provide access to QA records as specified in the TMQA program plan. During the TMQA program review, the contractor shall demonstrate to the Government the operation of the TMQA program. This shall include review of data generated during contractor quality reviews and quality related reports and records. TMQA program reviews chaired by a Government representative will be conducted at the contractor's facility. All quality review results will be documented by the Government.

4.2.4.5 Quality Reviews.
The contractor's QA organization shall conduct quality reviews to ascertain compliance with the TMQA program plan and provide for corrective action. Quality reviews shall be conducted to evaluate the availability and adequacy of materials, processes, procedures, and intermediate products which constituent technical manual development. Sampling plans shall be as specified in the TMQA program plan.

4.2.4.5.1 Corrective Action.
The contractor shall initiate a process of corrective action for all recorded and detected deficiencies. The contractor shall implement preventive action programs to counter any apparent deficiency trends. The detection of deficiencies which are recognized and are not cited in the classification of defects (CD) shall be added to the CD in the TMQA program plan. Objective evidence of the effectiveness of the corrective action program for each deficiency shall be maintained.

4.2.4.5.2 Data Base Control.
The preparing activity shall ensure that the most current source data is available and utilized for TM development.

4.2.4.5.3 Task Identification Matrix or Equivalent.
The TM content and organization shall be consistent with a task identification matrix or equivalent. The task identification matrix or its equivalent shall ensure that all required levels of maintenance are sufficiently detailed and complete. The task identification matrix or equivalent shall be in agreement with the LSA task analysis data, approved maintenance plan, and approved SM&R codes. The requirements shall be reviewed to determine that all levels are sufficiently detailed and completed. Evaluation shall include a comparison of the tasks identified to the current configuration of hardware.

4.2.4.5.4 Control of Subcontractors and Vendors.
The contractor shall ensure the quality of technical manuals developed by subcontractors and suppliers. The contractor's quality program shall not be deemed acceptable to the Government unless that contractor requires from his subcontractor a quality control

program satisfying the requirements of this document, or equivalent control over the subcontractor.

4.2.4.5.5 Sampling Plans.
All technical manual products, regardless of percentage of completion, shall be sampled and evaluated as a method of determining the acceptability of product in development. Sampling plans shall be as specified in the quality assurance program plan.

4.2.4.5.5.1 Classification of Defects (CD).
The CD table associated with the contractor sampling plans shall be made available during the guidance and quality planning conference. The CD shall be patterned after the CD listed below for product evaluation. The contractor and the Government may jointly classify additional defects applicable to the specific products being acquired.

a. Major defects (incorrect, incomplete, missing):
    1. Maintenance procedures.
    2. Values and tolerances.
    3. Illustrations, schematics, wiring diagrams.
    4. Part numbers.
    5. References and indices.
    6. Safety - notes, cautions, warnings, dangers.
    7. Technical content (source dates/hardware comparison).
    8. Classified matter (incorrect identification/handling);
    9. Charts and tables.
    10. An excess of any one or combination of the following: unfamiliar words, inconsistent vocabulary, long sentences, long paragraphs, noninformative headings, organization not based on immediate needs of the user, and complex or unclear illustrations.
b. Minor defects (incorrect, incomplete, missing):
    1. Typographical errors,
    2. Collated pages,
    3. SM&R codes.
    4. Style and format (Guide errors).

4.2.4.6 Validation.
Validation is a contractor quality assurance responsibility which shall be accomplished for all TMs, changes, and revisions thereto. A TM shall not be considered validated until the following conditions have been fulfilled:

a. Contractor's engineering technical review has been completed.
b. Information reflects configuration of the systems/equipment and includes all engineering changes.
c. Adequacy of data is checked to ensure that it supports the approved maintenance and support plan.

d. Hardware of the proper configuration is available for the validation effort.

4.2.4.6.1 Validation Performance.
Theory and principles of operation, system and component description, SM&R codes (when applicable), schematic, and wiring data shall be validated against engineering source data in accordance with the validation plan. Operating and maintenance procedures including checkout, alignment, scheduled removal and replacement instructions, and associated checklists shall be validated against the system and equipment by actual demonstration. Malfunctions shall not be introduced into the system or equipment for the purpose of validation unless specifically required for certification of procedural tasks or system tests. Destructive malfunctions shall not be introduced into the system or equipment for any purpose.

4.2.4.6.2 Support Equipment.
Available Government approved support equipment shall be utilized in the performance of validation. Simulation or substitution of support equipment shall be approved by the Government. It is the responsibility of the contractor to request Government furnished equipment in order to support the validation effort.

4.2.4.6.3 Disposition of Validated Data.
Corrections and significant comments resulting from validation shall be incorporated prior to issue of the validation.

4.2.4.7 Verification.
Verification shall be accomplished under the jurisdiction of the Government and may include contractor support. Verification is a responsibility of the approval authority or authorized representative. The purpose of verification shall be to ensure that the preparing activity's products and services are in conformity with the requirements of this document.

4.2.4.7.1 Verification Support Requirements.
Contractor support of verification shall consist of the following:

a. Serves as verification recorder, if required. Record and maintain records of changes associated with performance of verification.
b. Provide assistance in performing verification tasks, if required.

4.2.4.7.2 Combined Validation and Verification.
When authorized by the Government, verification shall be performed concurrently with validation. Final acceptance of the technical manual will be made upon receipt of the validation and verification incorporation certifications.

5.0 PACKAGING.

5.1 TECHNICAL MANUAL CHANGE PACKAGE.

5.1.1 Review Draft Copy (RDC).
Unless otherwise specified, suggested packaging is commercial in accordance with ASTM D3951.

5.1.1.1 Final Digital Encoding of Technical Publications.
The requirements for packaging shall be in accordance with MIL-STD-1840.

6.0 GOVERNMENT FURNISHED PROPERTY.

The following documents are provided as GFP:

The following documents are available on the INTERNET at

NAVSEA Carderock CALS Standards

MIL-PRF-28001C	Markup Requirements and Generic Style Specification for Electronic Printed Output and Exchange of Text
MIL-PRF-28002C	Raster Graphics Representation in Binary Format, Requirements for
MIL-STD-1840C	Military Standard Automated Interchange of Technical Information

The following document is available on the INTERNET at

Navy XML/SGML Repository

MIL-STD-38784	Document Type Definitions

7.0 COST AND PRICING.

Not applicable.

8.0 PRINTING.

8.1 Authorization.
Joint Committee on Printing (JCP), Congress of the United States Authorization 23383 permits procurement of cold-type composition and photolithographic negatives under Government contracts. Accordingly, such authority is invoked in this contract. The printing of final technical manuals shall be accomplished by the Government.

9.0 NOTES.

The Figure List referenced in this document is by ascending order which is not necessarily the order of appearance. Only those figures referenced by the requirements of this document are included which accounts for the non-sequential listing. The figures are samples only. Size and legibility do not necessarily conform to the requirements set forth herein.

SMART-T

TMCR NO. NDMS-070025-000
Date: 2 January 2007

TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR)

SUBJECT: System Interactive Electronic Technical Manual (IETM) for Embedded Platform Logistics System (EPLS).

ACQUISITION ACTIVITY: MARCORSYSCOM
Building 2200 Lester Street
Quantico, VA 22134

CONTRACTOR: TBD

CONTRACT NO.: TBD

DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

This document prescribes the Technical Manual format, style, technical content, preparation, and delivery requirements. Instructions and guidance are provided to assist Technical Manual preparers in the development of accurate, adequate, comprehensible, and usable technical documentation that conforms to and complies with established NAVSEA policy.

This document is effective upon receipt and supersedes all previous information and instructions, regardless of source, related to the preparation of a NAVSEA Technical Manual for the subject equipment. Conformance with the requirements specified are mandatory. No changes or waivers are authorized without the express written NAVSEA approval.

PREPARED BY

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BY DIRECTION OF

NAVAL SEA SYSTEMS COMMAND (SEA 043)

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TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR)

DATE: 2 January 2007 **TMCR NUMBER: NDMS 070025-000**

REQUESTED BY: MARCORSYSCOM
Building 2200 Lester Street
Quantico, VA 22134

PREPARED BY: Eugene L Morin

CONTRACTOR: MARCORSYSCOM PG16 TMDE
2200 Lester Street
Quantico, VA 22134

CONTRACT NO.:

SUBJECT: System Interactive Electronic Technical Manual (IETM) for Embedded Platform Logistics System (EPLS).

SCOPE: This TMCR contains specific integrated requirements and instructions for the preparation of the subject Interactive Electronic Technical Manual (IETM).

IETMs are to be in digital form and are designed for interactive display to the maintenance technician or system operator end user by means of a computer controlled Electronic Display System (EDS).

Technical content requirements for the subject technical manual were taken from the applicable specifications and standards specified in NAVSEAINST 4160.3A.

The requirements listed in the Contract Data Requirements List (DD Form 1423), in conjunction with the requirements of the specific contract line items as specified herein, constitute the data to be delivered, the products to be prepared, and the resulting tasks to be performed by the contractor.

1.0 DELIVERABLES.

The following deliverable items shall be prepared as specified in Section 3 of this document.

DATA ITEMS.

1.1 TECHNICAL MANUAL SCHEDULE, STATUS AND COSTS REPORTS.

1.2 QUALITY ASSURANCE PROVISIONS.

1.2.1 Validation Plan.

1.2.2 Validation Certification.

1.3 MANUAL, TECHNICAL, STANDARD.

1.3.1 Interactive Electronic Technical Manual (IETM).

1.3.1.1 Final Digital Encoding of Technical Publications.

2.0 APPLICABLE DOCUMENTS.

2.1 Specifications.

The following documents were used to establish the requirements of this document.

MIL-PRF-87268A	Manuals, Interactive Electronic Technical: General Content, Style, Format, and User-Interaction Requirements

MIL-DTL-24784B(SH)	Manuals, Technical: General Acquisition and Development Requirements
MIL-DTL-24784/17B(SH)	Associated Detail Specification Hull, Mechanical, and Electrical (HM&E) Systems and Electronic and Interior Communication (IC) Systems Manual Requirements
MIL-PRF-28001C	Markup Requirements and Generic Style Specification for Exchange of Text and its Presentation.
MIL-PRF-28002C	Raster Graphics Representation in Binary Format, Requirements for.
MIL-STD-38784 Appendix C Document Type Definition (DTD)	Standard Practice for Manuals, Technical: General Style and Format Requirements

2.2 Standards.

MIL-STD-1840C	Military Standard Automated Interchange of Technical Information

(Copies of standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.3 Handbooks and Manuals.

Government Printing Office.

United States Government Printing Office	Style Manual

2.4 Department of Navy.

SL160-AA-LST-010/TM-WORDS or EL160-AA-LST-010/TM-WORDS	Baseline Word Lists for NAVSEA/ SPAWAR Technical Manuals

Application for copies should be addressed to:
The Standardization Documents Order Desk,
Building 4D,
700 Robbins Avenue,
Philadelphia, PA 19111-5094

2.5 Forms.

Copies of forms required by the preparing activity in connection with specific procurement functions should be obtained from:

The Standardization Documents Order Desk,
Building 4D,
700 Robbins Avenue,
Philadelphia, PA 19111-5094

2.6 NON-GOVERNMENT PUBLICATIONS.

The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

Aerospace Industries Association, AIA-TR91-1 Publications DOD Liaison	Recommendation for Hazardous Materials Warnings in Technical Data

(Application for copies should be addressed to the Aerospace Industries Association, 1250 Eye Street NW, Washington, DC 20005.)

2.6.1 American National Standards Institute, Inc. (ANSI).

The following standards shall apply:

ANSI Z535.3	Criteria for Safety Symbols

Application for copies should be addressed to:

American National Standards Institute, Inc.
25 West 43rd Street
New York, N.Y. 10036

or http://www.ansi.org

2.6.2 American Society for Testing and Materials (ASTM).

The following standards shall apply:

ASTM D3951	Standard Practice for Commercial Packaging

Application for copies should be addressed to:

American Society for Testing and Materials,
100 Barr Harbor Dr.,
West Conshohocken, PA 19428-2959

or http://www.astm.org

2.6.3 Institute of Electrical and Electronics Engineers (IEEE).
The following standards shall apply:

IEEE 945-84	IEEE Recommended Practice for Preferred Metric Units for Use in Electrical and Electronics Science and Technology

Application for copies should be addressed to:
The Institute of Electrical and Electronics Engineers, Inc.,
445 Hoes Lane,
Piscataway, N.J. 08855-1331

or http://www.ieee.org

2.6.4 National Institute of Standards and Technology (NIST).
The following standards shall apply:

NIST Special Publication 811	Guide for the Use of the International System of Units (SI).

Application for copies should be addressed to:
NIST
100 Bureau Drive, Stop 1070
Gaithersburg, MD 20899-1070

3.0 REQUIREMENTS.
In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Advertising. Technical manuals shall contain no advertising unless the contract or SEATASK specifies that the equipment manufacturer shall be identified on the cover.

Copyrights and proprietary information credit line. Technical manuals shall not contain copyrighted material except as specified in the Federal Acquisition Regulations and Defense Federal Acquisition Regulation Supplement. When copyrighted material is to be included in a technical publication, the developer shall obtain prior written permission from the copyright owner or authorized agent for its use. The signed, written permission shall be delivered together with the final reproducible copy. The written permission shall contain a statement declaring whether or not a copyright credit line is required. When it is

necessary to include copyright and proprietary material, it shall be clearly identified and the following warning statement shall be included on the title page:

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"This document contains copyright or proprietary materials.
Infringement of
copyright or proprietary material may violate existing Federal laws and
statutes
and result in criminal penalties, imprisonment, or removal from
office."
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Security classification, distribution statement and destruction notice. Security classification, distribution statement and destruction notice shall be in accordance with this document. The overall security classification assigned to a technical manual shall agree with the highest classification assigned to any portion within. The security markings shall be the same as for other title pages. For destruction notice see 3.3.1.2.3.1.1.1.1.

Source Data. The primary source data for technical manuals shall be engineering drawings and, if a requirement, Logistic Support Analysis (LSA) and Logistic Support Analysis Record (LSAR).

Maintenance coverage. Unless otherwise specified in this document, organizational, intermediate, and depot maintenance levels shall be covered in a combined single manual.

Distribution Statement. Each technical manual and modification thereto shall be marked, in accordance with DODD 5230.24, to denote its availability for distribution, release, and disclosure without additional approvals and authorizations (see 3.3.1.2.3.1.1.1). This marking shall be in addition to a security classification marking. Additionally, a determination shall be made in accordance with DODD 5230.25 whether the technical manual contains export controlled technical data.

ETM and IETM Product Delivery. The level of ETM/IETM functionality shall be identified during Concept of Operations (CONOPS) planning, referenced in the Interactive Electronic Technical Manual Process Plan (S0005-AD-PRO-010). The range and depth of subject matter coverage and the method of delivering information, required by all potential users, must be considered for new, changed, or revised TMs. Special attention shall be given to the fleet, overhaul, and training community's need to have certain long-line diagrams (oversized schematics, timing circuit diagrams, test set-up diagrams, wiring diagrams, and the like) delivered as a separately packaged hardcopy supplement or reauthored to be easily viewed on screen and printed.

3.1 TECHNICAL MANUAL SCHEDULE, STATUS AND COSTS REPORTS.

3.1.1 Schedule and Status Reports.

A technical manual schedule and status report shall be supplied at the frequency determined by the contract or SEATASK. The report shall be in a narrative format and

indicate the information necessary to provide a comprehensive management level analysis of all development activities.

3.1.2 Cost Reports.
Technical manuals shall be acquired in a cost-effective manner. Cost and pricing data shall be obtained for each new, revised or changed manual. A separate analysis shall be provided together with supporting documentation for each manual developed. The cost of technical manuals shall be limited to the effort and material needed to produce the manual from source data.

3.2 TECHNICAL MANUAL QUALITY ASSURANCE DATA.

3.2.1 Validation Plan.
A validation plan shall be developed and shall reflect compatibility with the overall maintenance and support plan, outline the contractor's recommended validation procedure, and indicate the scope of the validation effort. The plan shall reflect the requirements of this document. The plan may include recommendations for combined validation and verification as appropriate. The validation plan shall ensure there is a system for inspection, validation, and correction of the IETM. The plan shall require Government review for acceptability. The validation plan shall address:

a. Validation methods by which the IETM is tested for technical adequacy, accuracy, and compliance with the provisions of this document and other technical contractual requirements.
b. Detailed review of the final deliverable IETM to ensure it reflects the authorized, validated, verified, and corrected IETM material and, as applicable, complies with the functionality and display requirements.

3.2.1.1 Validation Plan Summary.
The validation plan shall include, as a minimum, the following items:

a. Titles and identification numbers (when available) of all deliverables to be validated.
b. Schedules for validation.
c. Cognizant personnel responsible for accomplishing the validation effort.
d. Site locations, support equipment, facilities, test equipment, materials, and tools required during validation.
e. General characteristics relating to skill level of target audience type personnel to be used in validation of procedural technical information.
f. Identification of next higher assembly(ies)/system(s) required to support the effort (e.g., if a procedure entails installing a black box on system, the system or a mock-up of one is the next higher assembly).
g. Associated technical information recommended for concurrent or consecutive validation.

h. Special safety precautions.
i. Any special environmental requirements.
j. Record keeping system to be used in validation.
k. How validation of procedures is to be accomplished.
l. A proposed troubleshooting procedures list for use in validation of troubleshooting procedures.
m. Approach to evaluation of usability of the IETM as generated by the preparing activity. Specifically, establishment of the adequacy and accuracy of information access procedures and identification of any potential man-machine interface problems involving effective use of the IETM on the Government specified EDS.

3.2.1.1.1 Troubleshooting Procedures List.
The contractor shall prepare a list of troubleshooting branches for every fault identified during system/equipment supportability analyses development that includes Failure Mode and Effects Analysis (FMEA), Failure Mode, Effects and Criticlity Analysis (FMECA), or other failure analysis process. These shall constitute a complete list of fault simulations for use during validation of troubleshooting procedures. Upon approval by the Government, the troubleshooting procedures list shall be appended to the validation plan. The procedures list and fault simulations list will be used by the Government to validate the troubleshooting technical information. The fault simulation list as a minimum, shall contain:

a. Fault symptoms.
b. Fault simulated and results of the simulation.
c. Unless otherwise specified, what condition was (or will be) inserted into the equipment to simulate the fault.

3.2.2 Validation Certification.
The contractor shall prepare a validation certification attesting to the IETM adequacy and accuracy by actual performance or simulation. The contractor shall certify that the IETM delivered to the Government for verification has been validated, that all corrections have been made, and that all requirements have been met. The certification shall list any exceptions, the document(s) authorizing the exception, and as applicable, the signature of all Government witnesses present at the validation. Individual validation certification reports shall be prepared for each IETM validated by the contractor, using NAVSEA Form 4160/3 from S0005-AA-PRO-010 as the certification document.

3.3 MANUAL, TECHNICAL, STANDARD.

3.3.1 Interactive Electronic Technical Manual.

3.3.1.1 General Requirements For Common User Interface.
IETMs and the associated EDS presentation software shall provide the display formatting and user interaction functions described herein. Required user interaction functions, written in uppercase throughout this document, shall not be employed as literal key names on an EDS device, but shall be treated as logical or "virtual" functions which shall be implemented as specified for the particular display system. For example, the cursor movement and selection functions can be optionally implemented by a mouse, a joystick, a track ball, a light pen, a touch panel, voice commands, or arrow keys with a selection key. An OK function can be implemented as a dedicated key labeled "enter" or a "soft" function key. This document identifies the logical user input functions which shall be supported by the display system, without specifying the exact keyboard or hardware requirements for the display system. Figure 950 provides a list of the minimum user interface virtual functions and general definitions of those functions. These functions shall be implemented to permit the minimum functionality as described below. However, this shall not preclude additional detailed requirements in an IETM presentation software specification that further defines functionality.

3.3.1.1.1 Common User Interface Components.
A common set of components and presentation conventions shall be used to provide a consistent user interface across all presentation devices. Common user interface components described in this document shall be implemented on all types of presentation systems used. The components cursor, windows, menus, controls, dialogs, and optional pointer shall be implemented as follows.

3.3.1.1.1.1 Cursor.
If the information on the screen is capable of being selected, the system shall provide the user with the ability to select the information with a cursor. The cursor shall designate the position on the screen where the input is focused. The cursor shall be visually and consistently distinguishable from other information on the display. Selectable information shall be visually and consistently distinguishable from the cursor and other information on the screen (e.g., by the use of a border or frame around the selectable object).

3.3.1.1.1.1.1 Selection.
The user shall be able to select items in the client area with the cursor. The IETM shall provide the user with a visual feedback of the selection. Selecting an already selected item shall deselect that item. The user shall be provided with the capability to select a single item, a range of items, or additional noncontiguous items, including multiple ranges of items. Selecting the OK function will end the selection process. If a user is required to select only one option, the SELECT function shall activate the item without requiring the OK function.

3.3.1.1.1.1.2 Movement.
The cursor shall be capable of moving from one selectable information item to another, such as, from cell to cell in a table, from selectable word to selectable word in text, or from selectable object to selectable object in a graphic. If a free- form positioning device

(e.g., mouse) is not provided, the capability to use the UP, DOWN, LEFT, and RIGHT functions to allow movement of the cursor to any selectable region shall be provided.

3.3.1.1.1.1.3 Shapes.
Each cursor mode shall use clearly discernable shapes or icons.

3.3.1.1.1.1.4 Tab Groups.
When several sets of selectable objects are displayed, they shall be formed into fields called "tab groups". Cursor movement (and associated focus for any input) shall be constrained within a single tab group. The TAB function shall allow a forward sequential movement of the cursor between tab groups. The BACK TAB function shall allow a reverse sequential movement of the cursor between tab groups. Examples of tab groups are: individual fill-in-the-blanks, groups of related choices, and dialog push buttons.

3.3.1.1.1.1.5 Pointer.
If the system provides a free-form positioning device it shall have a position designator (pointer) and a POINTER SELECT function. The pointer shall be used in conjunction with the cursor. The pointer shall be used to rapidly relocate the cursor on the display. The system shall provide the capability to move the cursor and select items with the pointer.

3.3.1.1.1.2 Windows.
A window shall be an area of the screen that displays information and provides the functional means to communicate with the IETM. The presentation system shall have the capability to display a minimum of three windows on the screen at one time, but only one window shall be active at any one time. An active window shall be designated by a highlighted title bar. The system shall provide the capability to open and close windows. The system shall allow windows to be displayed overlapping, adjacent (tiled), and cascading (overlapping with title bar showing). If a single window device is specified by the procuring activity, the IETM shall restrict the use of multiple windows.

3.3.1.1.1.2.1 Presentation.
The minimum window shall be composed of client area, title bar, menu bar, and window controls (see figure 951 and figure 952). Window controls are not applicable to single window systems (see 3.3.1.1.1.2).

3.3.1.1.1.2.2 Client Area.
The client area shall be the portion of the window in which the IETM content information is displayed. The client area shall be contained within the window frame and include one or more data panes or viewing areas displaying the text, tables, graphics, etc., of the IETM information. The IETM contents shall be displayed in the client area (see 3.3.1.2.1).

3.3.1.1.1.2.3 Title Bar And Menu Bar.
The top area of every window shall consist of a horizontal title bar and a menu bar that, when displayed, appears immediately below the title bar. The title bar shall contain the

title of the information being displayed. The title shall be displayed in uppercase letters. The menu bar (see 3.3.1.1.1.3) shall appear only at the user's request. The title bar shall be highlighted when the window is active. When the single window option is specified by the procuring activity, the title bar shall be capable of being toggled on and off with a menu bar (see 3.3.1.1.1.3.1.1). In this case, the title bar shall be initially displayed at the top of the window and the menu bar shall replace the title bar display when toggled.

3.3.1.1.1.2.4 Window Controls.
Whenever the information to be displayed requires a space larger than the available window area, the user shall be given the capability to manipulate the displayed information or window using the following window controls. The need for this capability shall be minimized.

3.3.1.1.1.2.4.1 Scroll Bars.
Vertical and horizontal scroll bars shall provide the capability to SCROLL UP, SCROLL DOWN, SCROLL LEFT, and SCROLL RIGHT to manipulate the displayed information (text, graphic, table, etc.). Scroll bars shall appear at the bottom of the data pane and at the right edge of the data pane with arrow marks at each corner. Scroll bars shall have the following components; a scroll region which is the background of the scroll bar and represents visually the length of the area that can be scrolled; a slider box which represents the displayed data; and stepper arrows which enable incremental scrolling through the display. When scrolled, the information shall appear to move in the opposite direction of the slider. For example, in a text data pane, if the slider of a vertical scroll bar moves up, a text display shall move down as previous lines in the information appear at the top of the data pane.

3.3.1.1.1.2.4.2 Window Control Options.
Additional window controls shall be included as described below.

3.3.1.1.1.2.4.2.1 Window Resize And Relocation.
The window resize function shall allow adjustment of individual window location and physical display size. Initially, resizable windows shall be displayed at the default size indicated for that display. The capability to alter the size of the active window shall be available at any time during the presentation. The control mechanism for the resize function shall be located inside the window frame on one or more corners of the frame. Any resizable window shall have a distinctive border or consistent indicator which signifies, that it can be resized. When the window is resized, the amount of information it contains shall increase or decrease (i.e., more of the text or graphic is shown when the window is enlarged). It shall not simply be rescaled. When changing the size of the window is not permitted, the resize border shall not be included as one of the window components.

3.3.1.1.1.2.4.2.2 Window Menu Button.
A window menu button shall be located in the upper left corner of the title bar and shall be used to activate the window menu.

3.3.1.1.1.3 Menu System.
The user shall be given the capability to access all of the functions available on the system through hard keys, a footer bar, or a menu system. The menu system shall consist of a menu bar which shall control a hierarchy of pull-down menus and a set of pop-up menus. The window menu shall provide the standard location for window management functions.

3.3.1.1.1.3.1 Menu Bar.
When displayed, the menu bar shall be a single horizontal row of menu titles. Titles shall be unique descriptive textual labels, of one or more words, that clearly differentiate each menu item. All functions available on the system and not included on the footer bar or on the presentation system hard keys (e.g., ENTER, TAB) shall be listed in menus on the menu bar and shall be accessible at any time. Footer bar options may also be duplicated in the menu bar.

3.3.1.1.1.3.1.1 Menu Bar On Single Window Screen Device.
When a single window device is specified by the procuring activity, the title bar and the menu bar shall be located in the same area. Each shall have the capability to be toggled on and off through a MENU function (see 3.3.1.1.1.3). Default information displayed in the top area of the window shall be the title bar. When the menu bar is displayed, the title bar shall disappear and vice versa. The user shall be given the capability to view either the title bar or the menu bar at all times.

3.3.1.1.1.3.2 Pull-Down.
Pull-down menus shall be displayed as a vertical column of selectable items. When active, titles on the menu bar of available pull-down menus shall always be visible to the user.

3.3.1.1.1.3.3 Pop-Up.
Pop-up menus shall be displayed as vertical columns of selectable items. Pop-up menus shall appear adjacent to the selectable item.

3.3.1.1.1.3.4 Cascading.
Cascading menus or submenus shall be used to add detail to pull- down and pop-up menus. Cascading menus shall provide a tree like structure for organizing information. If required, menu subfunctions shall appear and more selections shall be provided to the user.

3.3.1.1.1.3.5 Presentation Details.
Menus shall appear quickly and exist only while a selection is being made. Menu items shall be displayed in uppercase and lowercase characters. The user shall not be given the capability to interact with any other part of the data until the menu is removed. The user shall be given the capability to select or activate the menu item with the cursor or pointer. The user shall be allowed to exit any menu by activating the CANCEL function.

3.3.1.1.1.3.5.1 Width.
The minimum menu column width shall be no less than five text characters. Menu columns shall be wide enough to enclose all menu item labels or options so that no option is truncated. Whenever an individual menu item is too wide for display in the client area, it shall wrap to the next line. If the entire menu can not be presented within the client area, hidden menu data shall be indicated to the user.

3.3.1.1.1.3.5.2 Height.
The minimum menu height shall be the height of two menu items (i.e., the menu title plus at least one menu item). The maximum displayed menu height shall be the height of the client area. Fonts and font sizes, line spacing between menu items, and allowable margins between menu items shall conform to the requirements for the display and selection of text (see 3.3.1.1.2).

3.3.1.1.1.3.5.3 Border.
The menu shall be drawn with a boundary extending beyond the menu cells.

3.3.1.1.1.3.5.4 Highlighting.
Highlighting shall be used to indicate the cursor is on a selectable menu item. Reverse video (or similar brightness coding) shall be used to highlight the menu item after the item is selected.

3.3.1.1.1.3.5.5 De-emphasis.
The system shall gray-out or dim menu selections which are unavailable. The user shall not have the capability to display a menu when all selections are unavailable.

3.3.1.1.1.3.5.6 Organization Of Selections.
Selections shall be grouped functionally or by frequency of use, alphabetically, or by some other clearly understood organizational scheme. Commands that change system status or enter other input and can not be reversed shall not be displayed next to frequently chosen selections.

3.3.1.1.1.3.5.7 Cursor Default Locations.
The cursor shall be positioned at the same default location in a menu every time that menu is accessed.

3.3.1.1.1.3.6 Command Interface.
The system shall provide a command interface using mnemonics or numeric entries as a means for making selections from menus in addition to navigation and selection functions. The command interface for selections from the menu bar shall be available at all times when the menu is active. When a single window device is specified by the procuring activity, the command interface shall be available only when the menu bar is displayed and active (see 3.3.1.1.1.2). Users shall be given the capability to enter the required numeric key value(s) or mnemonic key combination that corresponds to displayed menu options to activate the command interface.

3.3.1.1.1.3.6.1 Mnemonics.
A mnemonic shall be a single character, usually the first letter of the selection. The mnemonic for the various menus shall provide a visual cue to the user. Two selections in a menu shall not begin with the same letter; a unique mnemonic for each selection shall be used. When the mnemonic of the selection does not appear within the text of the selection, it shall be included in parentheses after the text. Mnemonics shall only be available when the menu containing them is displayed.

3.3.1.1.1.3.6.2 Numeric Values.
Numeric values may be used, as an alternative to mnemonics. If numeric values are used, selection numbers shall be separated from their text descriptors by at least one blank space. The numeric code and descriptive label for each choice on the menu shall be left justified.

3.3.1.1.1.4 Dialogs And Dialog Controls.
A dialog box shall be used as the principal means to communicate with the IETM application software. See figure 953 for examples of different types of dialogs. Dialogs shall be displayed in a separate window, which may overlay the primary window, and shall contain a heading and one or more graphical controls (buttons). Dialogs shall be one of five kinds: alert, single/multiple choice, selection-in-list, combination, or data entry (data entry is depicted in the combination dialog box in figure 953) and shall use check-boxes, radio buttons, data entry, etc., to determine the course of action required. Dialog boxes shall appear in a consistent and prominent location on the display. All dialogs shall contain the OK and CANCEL functions. However, information only alerts, e.g., system messages, shall include the appropriate push buttons to acknowledge the alert. The OK or CANCEL functions shall complete the dialog box interaction. Dialog boxes shall distinguish the information they contain from other information displayed.

a. Dialog Cursor Movement. The cursor shall move only to items which require input from the user.
b. Dialog Box Presentation. Headings used in dialog boxes shall be distinctive and not confused with other displayed material. Headings shall be placed in close proximity to their respective response alternatives (i.e., buttons). Dialog headings shall end in the appropriate punctuation depending on the response required.
c. Dialog Push Buttons. Dialog boxes shall contain graphical controls called push buttons. A push button shall be a word or graphic icon on the screen used to select or initiate an action. Push buttons shall be large enough to allow positioning of the cursor on the push button. Push buttons or choices shall provide visual feedback when selected. Push buttons shall be found on every type of dialog box. They shall each be single action entities. Push buttons shall indicate selections made or invoke a general action (e.g., CANCEL or OK). Push button shapes shall be consistent, (e.g., box, circle, or arrow) with the name of the selection or action written inside of the shape. Common push buttons (OK CANCEL) shall be displayed along the bottom of the dialog box. The common dialog buttons shall correspond to completing the last selection before leaving the dialog box.

d. Use Of Push Buttons. Dialog transactions shall be completed by using push buttons. As a minimum, these buttons shall have the functions OK and CANCEL. CANCEL shall be equivalent to the CANCEL function and shall cancel the dialog box. The OK function shall communicate to the application software that the user has completed the dialog.

3.3.1.1.1.4.1 Alert Dialogs.
Alert messages shall include warnings, cautions, and notes; any message, communication, notice, or output which requires manual acknowledgment; or message generated as a result of erroneous inputs or sequence control actions. Alerts shall provide information regarding processing status. Alerts shall also provide status of the system internal components (e.g., low battery power, improper functioning of the operating system, or memory module).

3.3.1.1.1.4.1.1 Alert Information Content.
Alerts shall be brief, consistent, strictly factual, informative, and written in the active voice. Alerts shall not imply or ascribe blame to the user, "personalize" the computer, or attempt to make the content of the information humorous. Alerts regarding calls to erroneous or potentially destructive external systems shall be displayed. Following an interruption of data processing or database navigation/sequencing command (e.g., CANCEL), an advisory message shall be displayed indicating that the system has returned to its previous status.

3.3.1.1.1.4.2 Data Entry Dialogs.
Data Entry dialogs shall require entry of alphanumeric characters in response to displayed questions or data entry fields (e.g., inputting user identification data; entering the title or number of database frames containing errors or discrepancies). All Data Entry dialogs data entries shall be prompted explicitly by displayed labels for data fields. The user shall be given the capability to DELETE or otherwise change previous entries.

3.3.1.1.1.4.3 Choice Dialogs.
A choice dialog shall require one or more selections from a group of choices. Choice dialogs shall consist of a single choice dialog, multiple choice dialog, or a combination of the two. Radio buttons and check boxes shall be used to indicate choices and shall be left justified and separated from text descriptors by at least one blank space. If choices are placed in columns, the check box or radio button position shall be left justified with respect to the column. Each response alternative listed in a dialog box shall be given a short, unique, descriptive label.

3.3.1.1.1.4.3.1 Single Choice (Radio Buttons).
Selectable items that are mutually exclusive (i.e., only one can be selected at any time) shall be presented as a single choice dialog constructed using radio buttons. Radio buttons shall be grouped into lists of mutually exclusive choices. Each radio button shall

appear as a consistent shape (e.g., a circle) and shall be marked with a visual indicator when the button is selected.

3.3.1.1.1.4.3.2 Multiple Choice (Check Boxes).
A multiple choice dialog shall be the type of dialog in which one or more selections are able to be made from a group of choices. Multiple selections shall be made using check boxes. Check boxes shall be grouped into lists of non-mutually exclusive choices. The user shall be given the capability to check one or more of these boxes as needed using the cursor or number selection technique. Each button shall appear as a consistent shape (e.g., a square) and shall be marked with a visual indicator when the button is selected. Check boxes shall employ different shapes from radio buttons.

3.3.1.1.1.4.4 Selection-in-list.
The selection-in-list shall provide the means of manipulating lists of data to a point where an item can be highlighted and an action on the item taken. The selection-in-list shall enable the user to choose from an existing list of items that is either long or variable in length. In addition to the standard features of all dialogs, the selection-in-list shall have at least two additional characteristics: a window containing the content listing and a vertical scroll bar when the entire list will not fit within the window.

3.3.1.1.1.4.5 Combination Dialog.
A composite of the previous types of dialogs shall be located together in one dialog box, when required.

3.3.1.1.2 Display Formatting And User Interaction Requirements.
The following paragraphs describe the standard data types (text, graphics, tables, and user prompts) that shall be displayable in the client area. When standard data types are individually displayed in data panes, those data panes shall have the capability to be linked to form one logical unit of technical information display within a single window frame.

3.3.1.1.2.1 Text.
Textual information shall consist of alphanumeric data consisting of letters, words, sentences, paragraphs, numbers, etc., in accordance with style guidelines described earlier in this document.

3.3.1.1.2.1.1 Display Of Text.
Textual information shall be displayed in data panes of the client area. Text shall be displayed in uppercase and lowercase characters.

3.3.1.1.2.1.1.1 Character Spacing.
Character spacing in textual displays shall be no less than 0.1 character height. Between word spacing for textual displays shall be one character width (em space).

3.3.1.1.2.1.1.2 Line Dimensions.
Between line spacing for textual displays shall be 0.33 of character height exclusive of

superscripts and subscripts and no less than 0.15 character height when superscripts and subscripts are displayed.

3.3.1.1.2.1.1.2.1 Text Panes.
The width of the text pane shall range from 30-60 characters per line.

3.3.1.1.2.1.1.3 Margins.
Margins shall be required for all text panes to prevent information from being obscured by borders or information in adjacent panes.

3.3.1.1.2.1.1.4 Justification.
Left justification shall be used for all lines of text displayed as sentences or paragraphs.

3.3.1.1.2.1.1.5 Word Wrapping.
Lines of text shall wrap, so that no line extends beyond the limits of the pane or right margin, including when resized. Lines shall be broken only between individual words or within a word when that word is explicitly hyphenated. If resized text exceeds the text pane area, vertical scrolling shall be used (see 3.3.1.1.2.1.2.1).

3.3.1.1.2.1.1.6 Hyphenation.
Hyphenation shall not be used to display normally non-hyphenated words on successive lines.

3.3.1.1.2.1.2 Selection Of Text.
The ability to highlight selectable textual information on the screen (e.g., by color change, brightness variance, image reversal, font change) shall exist. The capability to select a highlighted character string (i.e., one that is indicated as selectable) by positioning the cursor on or near that string and activating the SELECT function shall be provided.

3.3.1.1.2.1.2.1 Scrolling.
When the displayed text exceeds the length of the data pane, the text shall scroll and a visual cue shall be provided (vertical scroll bar). Manipulation of the displayed text shall be provided using the SCROLL function. The capability to move through textual information, one line at a time, shall be provided using the SCROLL UP and SCROLL DOWN functions.

3.3.1.1.2.2 Graphics.
The IETM shall display graphics in a data pane as follows.

3.3.1.1.2.2.1 Display Of Graphic Overlays.
Encoded graphics shall be displayed along with any associated callout overlays designed to indicate the specific components of the graphic.

3.3.1.1.2.2.2 Types Of Graphics.
Two types of graphics shall be displayed: static and interactive. Static graphics shall be

displayed in full detail in the graphic area provided, with no ability for manipulation. Interactive graphics shall provide the capability for manipulation.

3.3.1.1.2.2.3 Scale.
Graphics shall be displayed to a scale at least as large as its designated minimum size so that all essential detail is legible.

3.3.1.1.2.2.4 Display.
Graphics shall be displayed in an assigned data pane of the displayed window. If a graphic can not be displayed in its entirety and in full detail, it shall be displayed using interactive graphic display techniques described in this document (e.g., scrolling, zooming).

3.3.1.1.2.2.5 Selection.
The user shall be given the capability to select a point area, or the entire graphic by positioning the cursor on or near that point and activating the SELECT function. Selectable regions of a graphic shall be visually distinct and shall not adversely affect the appearance of the graphic. The selection of graphical information shall include, but is not limited to, the following.

a. Selecting an individual graphic object, such as a part, displayed in a graphic.
b. Selecting a point or rectangular area in a graphic image.

3.3.1.1.2.2.6 Manipulation.
Graphics designated as scrollable shall have the capability to activate SCROLL, ZOOM, CENTER, or FULL SCREEN functions. These options shall be available whenever the graphic exceeds the size of the data pane.

3.3.1.1.2.2.7 Scroll Functions.
When required, the capability shall exist to scroll graphical information through the use of the SCROLL UP, SCROLL DOWN, SCROLL LEFT, and SCROLL RIGHT functions. When the graphic displayed exceeds the size of the data pane, it shall scroll and a visual cue shall be provided (vertical/horizontal scroll bar).

3.3.1.1.2.2.7.1 Zoom Functions.
The capability shall be provided to enlarge or reduce the displayed graphical information. Graphic enlargement shall be provided by activating a ZOOM IN function. Graphic reduction in size shall be provided by activating a ZOOM OUT function. The size of the data pane shall not change as a result of using the zoom functions.

3.3.1.1.2.2.7.2 Center.
The capability to activate a CENTER function shall be provided. The CENTER function shall relocate the center of a graphic to the point the cursor indicates, without scrolling.

3.3.1.1.2.2.7.3 Full Screen.
The capability to enlarge a graphic to the full size of a client area by activating the FULL SCREEN function, shall exist.

3.3.1.1.2.3 Tables.
Tabular information shall be displayed as cells of textual information or a graphic. When tables contain textual elements, those elements shall conform to the requirements herein, for textual information. Graphical elements within a table shall conform to the requirements herein, for graphic material.

3.3.1.1.2.3.1 Display Of Tables.
Tables shall be displayed in a left-to-right, top-to-bottom array of cells. Tables shall have column headers and, if applicable, row headers.

3.3.1.1.2.3.1.1 Justification.
Lists of alphabetic data shall be vertically aligned with left justification. Numerical data shall be justified with respect to a fixed decimal point. In cases where there is no decimal point, the numerical data shall be right justified.

3.3.1.1.2.3.1.2 Column Spacing.
Consistent column spacing shall be maintained within a table. When more than one column of data is displayed, sufficient space shall be provided to clearly distinguish the data.

3.3.1.1.2.3.1.3 Row Spacing.
For dense tables with more than ten rows, a grouping feature (i.e., a solid or blank line) shall be inserted after every fifth row.

3.3.1.1.2.3.2 Highlighting.
The capability to highlight selectable text shall exist within a table. Tables shall display active selections as highlighted areas and the entire highlighted area shall be sensitive to selection by the pointing device. All selectable areas shall be displayed and visually highlighted before selection.

3.3.1.1.2.3.3 Selection Of Tables.
The capability to select an individual highlighted cell displayed in a table shall be provided.

3.3.1.1.2.3.4 Scrolling Of Tables.
The user shall have the capability to manipulate displayed tables by activating the SCROLL function if the table exceeds the size of the data pane. When a table is scrollable, the table headers shall not scroll within the pane. The capability to scroll tabular information a row or column at a time, through the use of the SCROLL UP, SCROLL DOWN, SCROLL LEFT, and SCROLL RIGHT function shall be provided. When the table displayed exceeds the size of the data pane, it shall scroll and a visual cue shall be provided (vertical and horizontal scroll bars).

3.3.1.1.2.4 User Prompts/Questions.
User prompts shall be displayed as dialogs (see 3.3.1.1.1.4.3). Prompts shall be used to obtain any information required by the IETM. Prompts shall be presented as questions.

3.3.1.1.2.4.1 Display Of User Prompts.
A standard symbol or layout shall be used with prompts to indicate that an explicit response (e.g., entry) is required. The symbol or layout used shall be reserved only for this purpose. The data entry area shall be displayed in the immediate vicinity of the prompt or question.

3.3.1.1.2.4.2 Manipulation Of User Prompts.
When responding to multiple prompts in a single section of a procedure, the capability to change a previously entered response to the extent that the change does not alter the logic of the procedure shall be provided. When a response is changed to any given prompt, access to all of the current entries for that prompt shall be provided.

3.3.1.1.2.5 Video Controls.
When displaying a motion video sequence, the video sequence shall automatically begin after the entire screen has been displayed. The capability shall exist to allow pausing, repeating and exiting the video sequence.

3.3.1.1.2.6 Motion/Animation Controls.
If displaying an animated graphic, the animation sequence shall automatically begin after the entire screen has been presented. The capability shall exist to allow pausing, repeating, and exiting the animation sequence.

3.3.1.2 General IETM Formatting And User Interaction Display Features.
The IETM shall be displayed by an EDS which shall have the capability to form displayed windows of information in accordance with this paragraph and the common user interface requirements in 3.3.1.1. In addition the final IETM shall conform to the applicable special requirements specified in 3.3.1.2.5. The general formatting and user interaction requirements of the following paragraphs shall apply to all IETMs.

3.3.1.2.1 General Display Formats.
IETM content shall be displayed according to one of the presentation templates below. Individual data panes, footer bar (function-designation area), second header line (if required), message area (if required), alerts (warnings, cautions, and notes), and designation of classified information shall be displayed within the client area (see figure 955).

3.3.1.2.1.1 Window Layout Templates For Data Panes.
Window components shall be displayed in one or more data panes within the client area. Data panes shall consist of rectangular display regions containing information in the form of text, tables, graphics, etc., displayed individually or in combination in the client area. All information shall be displayed in individual data panes and combined into a full window display in accordance with the window arrangement rules in 3.3.1.2.1.1.1.

Divided panes need not be of the same size. Explicit lines shall be drawn between window panes. Upon initial presentation, data panes shall not overlap. No more than four panes shall be allocated, upon initial presentation, within the client area.

3.3.1.2.1.1.1 Arrangement Of Data Panes.
Windows shall be composed of one or more separate data panes (see figure 956) and shall be combined or displayed according to the following rules:

a. A window consisting of a single data pane composed of any combination of text, table, or graphics is permitted.
b. A graphic pane shall be large enough to satisfy the minimum size designated for the individual graphic whenever possible. If the graphic pane is smaller than that minimum size, the graphic shall be made scrollable and the graphic shall be scaled so that the visible portion of the image appears as large as the designated minimum size.
c. When displaying one text pane and one graphic pane (or table), the text and associated graphic shall be kept together in the same window.
d. When displaying one text pane with multiple graphics (or tables), all text and graphics shall be arranged in one window whenever possible. If all graphics will not fit on a single window, the information shall be broken into a sequence of separate windows (each with the same text and as many graphics as will fit). There shall not be more than one user scrollable graphic pane active in a window.
e. Text shall always begin in the upper left most corner of its data pane.
f. When text refers to a graphic, the graphic shall be displayed whenever the associated text reference is displayed.
g. When the preceding rule will not allow a text pane plus all of the associated graphics panes to fit in one window, the set of panes shall be split up into several separate windows, each retaining the same text pane but with differing graphic panes. The capability to move through the sequence of combined text and graphic windows without the relative position or the displayed content of the text pane changing shall be provided.
h. Appropriate use of "white space" (i.e., space in the color of the background) shall be implemented so that the eye is guided horizontally or vertically through the window.
i. Margins shall be at least one character width around any image.

3.3.1.2.1.2 Footer Bar (Function Designation Area).
The footer bar shall be located at the bottom of the window frame within the client area. All active selectable options (i.e., available interaction functions) shall be displayed in the footer bar area. Footer information shall be displayed in a region that is at least two character cell heights tall and as wide as the window. The footer bar shall be used in conjunction with the menu bar to display interaction options to the user.

3.3.1.2.1.2.1 Support Of Function Keys.
The footer bar shall support delivery devices which use programmable or dedicated function keys. The footer bar shall provide a cue that particular functions are assigned to physical keys and that those keys are active. It shall also support interfaces that use the marked region in the footer bar as an active function selection or button area. Active function selection areas of the frame shall only be in the footer bar area, unless a dialog box or other active window is superimposed on the frame. Inactive functions for the displayed window shall be visually distinguishable from active functions or not displayed.

3.3.1.2.1.2.2 Visual Prompts.
Selectable options shall be indicated using function name, icons, programmable function key labels (e.g., F2), or other visual prompts and shall be enclosed in a box outlined with a visual border (e.g., line, shadowed button image) in the footer bar area. Icons with no label shall be included without the surrounding border. Visual prompts shall be lined up horizontally.

3.3.1.2.1.2.3 Visual Prompt Labels.
When a software function is assigned to a particular function key, a label containing the hard key function label or the programmable function key number (such as "F8") along with a succinct description of the function shall be displayed in the footer bar area. The same function shall appear in the same region of the footer bar even if this requirement calls for blank space to be reserved in the bar when a particular function is not active.

3.3.1.2.1.2.4 Menus.
When required, footer bar menus shall be activated from the function designations in the footer bar and shall be attached (e.g., pull-down, pop-up) in accordance with the formats described in 3.3.1.1.1.3.

3.3.1.2.1.3 Optional Second Header Line.
The top line in the client area shall be reserved for additional header information. The format of this line shall be compatible with the title bar. If the MENU function is used to toggle the title bar, the toggle shall also apply to the second header line.

3.3.1.2.1.4 Optional Message Area.
A message area shall be reserved at the bottom of the client area above the footer bar. Requirements for messages to be displayed in this area shall be as specified by the procuring activity.

3.3.1.2.1.5 Display Requirements For Warnings, Cautions, And Notes.
Warnings, cautions, and notes and their associated icons shall be prominently displayed and shall be treated as an alert. The associated message shall appear in the approximate middle of the client area. Normal operation of the system shall not resume until the message is acknowledged in accordance with the requirements for an alert. Upon acknowledgment, the alert shall be eliminated and the procedural information presented. Combinations of warnings, cautions, and notes, shall be displayed in that order.

3.3.1.2.1.5.1 Color Display.
Where color is used for display, message colors shall be red for warnings, yellow for cautions, and cyan for notes.

3.3.1.2.1.5.2 Borders.
Borders for warnings and cautions shall consist of diagonal bars, alternating between the background color or white, and the designated message color. The appropriate word identifying the message type shall appear in capital letters, horizontally and vertically centered on the upper border (see figure 957).

3.3.1.2.1.5.3 Icon And Title.
One or more icons representing a warning, caution, or note shall appear in the footer bar.

a. Icons for hazardous materials shall be designed and used in accordance with the Aerospace Industries Association Service Publications Committee PUBS-119.
b. An applicable icon shall remain displayed in the footer bar until the warning, caution, or note message it represents is no longer applicable. The user shall be given the capability to view the warning, caution, or note in its original appearance and functionality at any time by selecting the icon.
c. A message title, when applicable, shall be horizontally centered one character cell height below or to the immediate right of the icon.

3.3.1.2.1.5.4 Text.
Text of warnings, cautions, or notes shall be displayed within the border. Messages containing two or more paragraphs shall have a blank line between paragraphs.

3.3.1.2.1.5.4.1 Danger From Several Sources.
When warnings or cautions exist in separate categories for the same set of technical information, they shall be successively displayed in decreasing order of severity: Warnings first, followed by cautions. Warnings or cautions in the same category shall be successively displayed. However, there shall be no requirement to determine an order of importance within the same category. When related warnings or cautions of the same category exist for the same block of technical information, it is permissible to group them within a common border but they shall be visually distinct. In such a case the title shall indicate the combined danger.

3.3.1.2.1.5.4.2 Health Hazards.
Procedures prescribed for the operation of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act (OSHA) Public Law 91-596 and Executive Order 12196. When exposure to hazardous chemicals or other adverse health factors or use of equipment cannot be eliminated, guidance pertaining to the exposure shall be included in the Safety Summary or a Warning.

3.3.1.2.2 User Interaction Functions.
In addition to the common user interface functions previously described, the presentation system software shall provide, as a minimum, the capability to activate the set of standard functions for selecting, manipulating, accessing, navigating, and entering data into the system. These functions shall be implemented as required by the presentation systems (e.g., one presentation device might have dedicated keys for each standard function, another may provide software programmable function keys, a third might use a pointing device to select the standard functions). The user shall be given the capability to select and activate all of the standard input functions described herein.

3.3.1.2.2.1 Required Navigation Functions.
A comprehensive set of commands to navigate and sequence through the information shall be provided. The minimum set of navigation and control functions available and common to all IETMs shall permit the minimum functionality as described below and in Figure 958.

3.3.1.2.2.1.1 NEXT.
The NEXT function shall display the next section or frame of information that the user requires, based on context.

3.3.1.2.2.1.2 BACK.
BACK shall be the opposite of NEXT. The BACK function shall display the previous module or frame of information. The BACK function shall reset to the previous window information, including all variables and settings. If relevant, a message box shall be presented explaining any special circumstances which cannot be reversed by invoking the BACK function.

3.3.1.2.2.1.3 BROWSE BACK, BROWSE NEXT, And BROWSE EXIT.
These functions shall be required for all systems for which the NEXT and BACK functions set interactive system variables that are used to effect subsequent navigation through the IETM. These navigation functions shall act as NEXT and BACK, but shall not set or reset system variables automatically or through dialogs. Once either BROWSE BACK or BROWSE NEXT is selected, other navigation functions shall not be available until the user returns to the originating window by invoking the BROWSE EXIT function. The presentation system shall provide a distinct visual indication that the system is in browse mode. When either the BROWSE BACK or the BROWSE NEXT function is not logical (such as at the beginning of a string or at a mandatory branch point), only the complementary BROWSE function shall be active. System variables shall still be set and shall be activated and logged to a temporary state table. It is not necessary to post system variables to the permanent state table when in browse mode.

3.3.1.2.2.1.4 RETURN.
The RETURN function shall restore the location prior to branching. Pressing RETURN shall perform an orderly exit from the branched information presentation, resetting all temporary system state information relative to the branched node. If a branch has not been previously taken, this function key shall be nonfunctional.

3.3.1.2.2.2 Required Data Access Functions.
There shall be multiple data access paths provided to the user including, as a minimum, the following access methods:

3.3.1.2.2.2.1 CREATE, REMOVE, MODIFY, And GOTO Bookmarks.
The capability to mark displayed information for later recall shall exist. Bookmarks shall be used to recall specific information (e.g., a procedure). The capability to view bookmarks shall be provided. There shall be the capability to name a bookmark with a unique alphanumeric name.

3.3.1.2.2.2.2 SEARCH AND DIRECT ACCESS.
The SEARCH and DIRECT ACCESS functions shall enable, but not be limited to, searching for and directly accessing the following IETM information by entering search information into a dialog box.

3.3.1.2.2.2.3 System Index.
There shall be the capability to access IETM information by using a hierarchical outline or index.

3.3.1.2.2.2.4 Functional Diagrams.
There shall be the capability to access IETM information through the use of a functional diagram or graphic. Through the diagram, the capability to move the cursor to the graphic display of the function of interest and activate the SELECT function shall be provided.

3.3.1.2.2.2.5 CROSS REF.
The presence of and access to cross reference information shall be provided. When selected, a new data pane or window shall appear on the display. The capability to exit the cross reference and return to the original information displayed shall be accomplished using the RETURN function.

3.3.1.2.2.2.6 HELP.
The system shall provide a help information display function and shall permit access to the following help functions and descriptions, as required:

a. Context. Shall provide context sensitive help about the specific situation that exists or the information being displayed on the system when help was requested.
b. How to use help. Help shall include information on how to use the application's help facility.
c. Window. Shall provide general information about the operation of the window from which the help was requested.
d. Keys. Shall provide information about the function keys and other keyboard features.
e. System. Shall provide help related to use of the computer system being used to view the IETM.
f. Index. Shall provide an index with a search capability for all help information.
g. Tutorial. Shall provide access to a tutorial.

h. Glossary. Shall provide the meaning of terms, acronyms, and abbreviations contained in the IETM.

3.3.1.2.3 General Content Requirements Related To IETMs.
The following paragraphs present general requirements for technical information used for both IETM technical content and IETM use requirements. The following paragraphs on help information and for warnings, cautions, and notes shall relate to all aspects of the technical function of the IETM.

3.3.1.2.3.1 Help Related To Technical Content.
The help function shall permit the user to access context sensitive help which applies to the user's current activity and situation. It shall permit the user to access descriptive information to further explain technical points, define specific terms, or provide a fuller explanation of processes covered very briefly by the technical information. Help information shall be available for all sections of the IETM.

3.3.1.2.3.1.1 Administrative Information.
All IETMs shall contain the following administrative information for subsequent user selectable display:

a. Identification of the technical manual title, assigned technical manual number, and document version, as applicable.
b. Classification level of the IETM (also be presented upon initial entry into the IETM).
c. Date, baseline date plus date of latest and all previous changes, if applicable.
d. Verification, change, or revision status, as applicable.
e. Preparing activity.
f. Activity with technical control of the IETM.
g. Activity responsible for configuration management of the equipment/system.
h. Current information on contacting distance support (anchor desk) via the web (http://www.anchordesk.navy.mil/) and via the toll free number (1-877-4-1-TOUCH [86824]).
i. Submittal and routing instructions for TM improvement reports. The following statement shall be included: "Ships, training activities, supply points, depots, Naval Shipyards and Supervisors of Shipbuilding are requested to arrange for the maximum practical use and evaluation of NAVSEA technical manuals. All errors, omissions, discrepancies, and suggestions for improvement to NAVSEA technical manuals shall be forwarded to:

j. COMMANDER
k. CODE 310 TMDER, BLDG 1388
l. NAVSURFWARCENDIV NSDSA
m. 4363 MISSILE WAY
n. PORT HUENEME CA 93043-4307

on NAVSEA Technical Manual Deficiency/Evaluation Report, form NAVSEA 4160/1. All feedback comments shall be thoroughly investigated and originators will be advised of action resulting there from. Copies of form NAVSEA 4160/1 may be downloaded from:

https://nsdsa2.phdnswc.navy.mil/tmmp/forms/TMDER_BLANK_REV_3-2001.doc

Users are encouraged to transmit deficiency submittals via the Naval Systems Data Support Activity Web page located at:

https://nsdsa2.phdnswc.navy.mil/tmder/tmder.htm

Urgent priority TM deficiencies shall be reported by Naval message to Port Hueneme Division, Naval Surface Warfare Center (Code 311), Port Hueneme, CA. Local message handling procedures shall be used. The message shall identify each TM deficiency by TM identification number and title."

o. Method of obtaining additional copies and the format of those electronic copies.
p. Distribution statement.
q. Export control notice, if applicable.
r. Summary of documents and/or technical manuals that are referenced but not included in the automatically accessible data available to the IETM at the time it is used, if applicable.
s. General notes describing the physical method for identifying the specific equipment to which this IETM applies, the method for identifying the change configuration status of equipment when not immediately obvious to a qualified user, and the relationship of the IETM to the particular equipment under maintenance.

3.3.1.2.3.1.1.1 Distribution Statement.
All TMs shall have a distribution statement placed on the cover and title page. The appropriate distribution statement, will be provided by the Government. Unless otherwise specified, Distribution Statement C shall be placed on the cover and title page

3.3.1.2.3.1.1.1.1 Destruction Notice.
All technical documents marked with distribution statements A, B, C, D, E, F or X shall be marked with the destruction notice from DOD 5230.24 on the cover and title page as follows:

"Destruction Notice: Destroy by any method that will prevent disclosure of contents or reconstruction of the document."

3.3.1.2.3.1.2 Applicability Statement.
The IETM shall contain a highly accessible applicability statement which explicitly identifies the system, equipment, or component to which the IETM applies, as well as the level of maintenance for which the IETM is intended (i.e., organizational, intermediate, or depot), as applicable. This information shall be in addition to the use of any automated feature of the EDS which displays only that information relating to one particular configuration. If the IETM applies only to specific members of an equipment class, this shall be stated, and relevant model numbers, serial numbers, aircraft tail numbers, etc., shall be clearly identified.

3.3.1.2.3.1.3 List Of Contents.
The IETM shall contain a list of contents and shall provide instructions for direct user access to each item at the lowest level cited. If the IETM is for proceduralized corrective maintenance, the list of contents shall provide all maintenance tasks included. The list of contents, while analogous to the table of contents of a paper manual, shall base sequencing on the logic of the logistics support function covered and shall contain branching as needed. The user shall be given the capability to access listed entries directly from the list of contents menu.

3.3.1.2.3.1.4 How To Use "Help" Information.
In addition to the technical information related help described in 3.3.1.2.3.1, the user shall be provided with help information involving the use of the IETM or the use of the EDS. This help information shall describe how to use the IETM; e.g., how to reach (access) specific information and how to employ user interaction functions. How to use this IETM information shall be incorporated as part of the content information for the IETM.

3.3.1.2.3.1.5 Instructions For Interactions With IETM Utility Functions.
Information shall be provided which describes procedures for all utility functions included as supplements to the primary functions of the IETM (e.g., preparation and submission of associated maintenance action reports; accumulation and submission of the IETM deficiency reports citing IETM errors or problems in using the IETM; ordering of

needed parts; work center maintenance management; use for on station training; acquisition of additional IETM data).

3.3.1.2.3.1.6 Definitions Of Acronyms And Unusual Terms.
A glossary including all acronyms, abbreviations, and unusual terms shall be incorporated into the IETM and shall be directly accessible at all times during the IETM presentation.

3.3.1.2.3.2 Danger, Warnings, Cautions and Notes.
Dangers, warnings and cautions shall precede the text but follow paragraph headings to which they apply. Notes may precede or follow applicable text, depending upon the material to be highlighted. Dangers, warnings, cautions and notes shall not contain procedural steps nor shall the headings be numbered. When a danger, warning, caution or note consists of two or more paragraphs the heading DANGER, WARNING, CAUTION, or NOTE shall not be repeated above each paragraph. If it is necessary to precede a paragraph by both a danger and a note, a warning and a note, or a caution and a note, and so forth, dangers shall precede warnings, warnings shall precede cautions, which in turn shall precede notes.

DANGER

WARNING

CAUTION

Dangers, warnings, cautions and notes shall be short, concise and used only to emphasize important or critical data. Dangers, warnings and cautions may be worded positively or negatively and shall state the hazard and result or reason, unless obvious. Paragraphs 3.3.1.2.3.3 through 3.3.1.2.3.3.4.1 provides additional requirements for inclusion of warnings and cautions. Icons shall be used as described in paragraphs 3.3.1.2.3.3 through 3.3.1.2.3.3.4.1.

3.3.1.2.3.2.1 Health Hazards.
Procedures prescribed for the operation of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act (OSHA) Public Law 91-596 and Executive Order 12196. When exposure to hazardous chemicals or other adverse health factors or use of equipment cannot be eliminated, guidance pertaining to the exposure shall be included in the Safety Summary or a Warning.

3.3.1.2.3.3 Scope.
This document identifies standard practices for the inclusion of Occupational Safety and Health guidance in the text of technical manuals. The intent is to provide sufficient information to allow a standardized approach to the task, eliminate confusion, and improve the technical manual development process overall. The criteria for safety symbols in technical documents are in conformance with ANSI Z535.3.

3.3.1.2.3.3.1 General Requirements.

3.3.1.2.3.3.1.1 Human factors.
Technical manual procedures are subject to being overlooked or circumvented when they are deemed unworkable or impractical. Careful consideration of environmental factors, equipment design or layout, human nature, and other human factors will help ensure the overall integrity of the task procedures.

3.3.1.2.3.3.1.2 When to use Danger, Warning, or Caution statements.

3.3.1.2.3.3.1.2.1 Danger.
Danger is used to indicate a location, equipment, or system where imminent hazard exist, capable of producing immediate injury or death to personnel or threatens the primary mission of the ship.

3.3.1.2.3.3.1.2.2 Warning.
Warning is used to indicate a location, equipment, or system where a potential hazard exist, capable of producing injury to personnel, if approved procedures are not followed.

3.3.1.2.3.3.1.2.3 Caution.
Caution is used to indicate where hazard exist, that could severely damage equipment, a system, or the ship, causing loss of mission capability if approved procedures are not followed.

3.3.1.2.3.3.1.3 General.
Operating, maintenance, and safety instructions are used to indicate procedures to be followed in operating and maintaining equipment and complex systems normally tended by trained technicians. General safety information provides notice of general safe practice or rules related to health, first aid, sanitation and housekeeping.

3.3.1.2.3.3.1.4 Design criteria.
Danger, warning and caution icons or symbols shall be in accordance with ANSI Z535.3. These signs shall be compatible with precautions in applicable manuals.

a. As indicated by the definition in this document, DANGER statements are used to indicate imminent hazard to personnel or equipment, WARNING statements are reserved for the protection of personnel and CAUTION statements are reserved for equipment or system protection. Do not use CAUTIONS for health hazards.
    1. WARNINGS and CAUTIONS should be used for those unique conditions, steps or processes that require additional emphasis because of the inherently dangerous nature of the task or the potential for a "surprise" not otherwise readily obvious from the procedure.
    2. A WARNING should be used to advise of injury or occupational illness potential, but only based on the reasonable likelihood that the reader's health or safety will be impacted in such a manner as to cause immediate concern and a disabling injury or occupational illness will result if the task

procedure or stated precaution are not closely followed. Injury is defined as a traumatic bodily harm caused by a single or 1-day exposure to an external force, toxic substance (usually associated with accidents and spills in work places where the specific agent is not normally in the environment), or physical agent which will result in restricted duty, lost time, or worse. The occupational illness is defined as any abnormal physical condition or disorder, other than one resulting from an injury (as defined above), caused by repeated exposure to chemical, biological, or physical agents associated with the occupational environment which will result in restricted duty, lost time, or worse.

3. Specific direction as to which specific procedures require the use of warnings or cautions should be obtained from the LSAR and system safety. The responsible safety office also should be requested to review technical manual procedures for compliance with safety concerns.

b. Risk assessment - and the related issue of whether or not additional emphasis is required - is somewhat subjective. Decisions concerning these issues should be based on as much information as possible including historical mishap data from related systems, research, and the experience of all those involved in the technical manual development process. Often, the latter is the best indicator of the need for additional comment. Through the acquisition phase of major weapon systems, the decision to include a DANGER, WARNING or CAUTION statement in the text can often be made by consulting the Operating and Support Hazard Analysis or other system safety engineering analysis.

c. DANGERS, WARNINGS or CAUTIONS are not to be used for environmental protection concerns or security information.

3.3.1.2.3.3.1.5 Wording and Structure of Danger, Warning, and Caution Statements.

a. A DANGER, WARNING or CAUTION statement should consist of four parts: a signal word (Danger, Warning, Caution), a concise statement of the hazard, minimum precautions, and the possible result if the DANGER, WARNING or CAUTION is disregarded, unless obvious. An icon is optional. In cases where hazardous materials are being used and the conditions on 3.3.1.2.3.3.1.7e.2 exist, a hazardous material icon(s) shall be used. See paragraph 3.3.1.2.3.3.4 for guidance on constructing the icons.

1. The signal word will always be included using one of the styles, or similar, referenced in this document. Whichever style is used, it must be used consistently.
2. The remaining parts can be arranged in any way that gets the point across; however, following the format of statement first, precaution second, and result third is often the most clear and concise method. Brevity is important. If the possible result is obvious, it need not be included.
3. A precaution is a short statement of hazard mitigation that tells the reader to take care, for example "use eye protection", or "keep arms and hands

clear". Certain precautions may reference other publications or direct people to consult with another agency (for example, "...consult Bioenvironmental Engineering"). However, guidance of this nature should be considered for inclusion in a safety summary (see 3.3.1.2.3.3.1.7).

b. DANGER, WARNING or CAUTION statements shall never contain procedures critical to the effective and safe completion of the task. For example:

```
c.                                  "WARNING
d.
e.            Cleaning with compressed air can create airborne
f.            particles that may enter eyes or penetrate skin.
   Pressure
g.            shall not exceed 30 psig. Wear goggles. Do not direct
h.            compressed air against skin."
i.
j.
```

k. Negatively worded statements (for example, "Failure to adhere..." or "Do not use ...") are acceptable and sometimes the best way to convey the message.

l. Multiparagraph or excessively long DANGER, WARNINGS and CAUTIONS are not specifically disallowed by this document but lengthy statements are a good indication that the task procedures are not written with the needed safety steps or procedures included.

m. Pay strict attention to the definitions of "shall", "will", "should", and "may" in this document. The use of these words must be consistent with exposures or conditions which require comparable DANGER, WARNINGS or CAUTIONS.

3.3.1.2.3.3.1.6 Placement of Danger, Warning, or Caution Statements.

a. This document contains general requirements.

b. DANGER, WARNINGS or CAUTIONS should be placed in the text immediately prior to the step or procedure to which they apply. The same DANGER, WARNING or CAUTION need not be repeated within a procedure as long as the emphasis and impact of the DANGER, WARNING or CAUTION is not lost because of a break in the procedures.

c. There is no stated maximum on the number of unrelated DANGER, CAUTIONS or WARNINGS that can be placed on a page. Under no conditions should they be so numerous so as to obscure the procedures. Properly written procedures should eliminate the need for consecutive WARNINGS. Sandwiching short (one line or two line) procedures between WARNINGS and CAUTIONS should be avoided.

3.3.1.2.3.3.1.7 Safety summary sheets or sections.

a. All technical manuals containing dangers, warnings, or cautions shall have a Safety Summary. In conjunction with properly written procedures, the Safety Summary, which can contain general safety precautions, can eliminate the need for many DANGER, WARNINGS or CAUTIONS.
b. Provide a Safety Summary in accordance with this document in the front of the manual preceding the first text page. The safety summary provided on figure 1129 is only an example of the type, depth, and format of general shop safety information necessary. It is not all inclusive. Only the first two paragraphs (see figure 1129), or similar wording detailing the significance and use of DANGER, WARNING and CAUTION statements, should be considered common to all Safety Summaries. Additional paragraphs can be added depending upon the class of hazard found in the technical manual.
c. Nearly any topic can be considered for inclusion in a Safety Summary: mechanized material handling equipment; overhead lifting devices; wood or metal working machine use and guarding; and so forth. General precautions related to storage, and so forth, can also be included.
d. Safety summaries are an excellent place to provide general safety or health instructions, but they must be tailored to the technical manual.
    1. Live circuitry guidance is probably not applicable to a corrosion control technical manual. This does not preclude the possibility, however, of a WARNING in the text of a corrosion control technical manual if the text establishes the likelihood of exposure to injurious current.
    2. The converse is also true. It would be appropriate to include live circuitry guidance in the Safety Summary of a maintenance manual. However, WARNINGS inserted in the text prior to every point of potential current exposure would not be required, as long as the procedures identify the proper controls, for example, "discharge capacitor XXXX," or "...turn off power and tag out (lock out) switch." It is reasonable to assume a trained maintenance technician is fully aware of the hazards of live circuitry; emphasis beyond a Safety Summary would be needed only in the event that the equipment, procedures or work environment presented an unusual situation to the technician.
e. Inclusion of general guidance in a Safety Summary does not preclude the need for a DANGER, WARNING or CAUTION if the text calls out a nonroutine use or application.
    1. For example: in a parts cleaning technical manual, general guidance in the Safety Summary related to air pressures (30 psig), chip guarding, eye protection, and so forth, would suffice as long as the task procedures include the minimum required controls (pressure regulation, and so forth) as procedural steps. A CAUTION may still be required, however, if the text specifies 15 psig for a delicate piece of equipment that would be damaged if the technician proceeded under the general guidance included in the Safety Summary.
    2. Many industrial hygiene and occupational health concerns can be addressed in the same manner. In technical manuals that frequently call for routine solvent applications, WARNINGS would not be needed

throughout the text as long as the minimum required controls are called for in the task procedures. General guidance regarding solvents could be included in the Safety Summary. Additional emphasis would then be required only if a procedure calls for a nonroutine application, such as heating the solvent, or an unusual, potentially more toxic solvent. In that event, a DANGER or WARNING could be used depending on the ability of the process to cause immediate safety or health concerns. This approach can be used for many of the occupational health concerns associated with commonly used substances, for example, hydraulic fluids, oils, fuels, paints, thinners, adhesives, sealants, and so forth.

f. DANGER, WARNINGS or CAUTIONS should not simply be extracted from the text and inserted verbatim in a Safety Summary. An acceptable approach would be to provide a general summary of guidance, classed by exposure. DANGER, WARNINGS or CAUTIONS must still be placed in the text, however, based on the risk associated with the steps or procedure.
g. Excessively long Safety Summaries are discouraged. If a technical manual requires extensive safety or health guidance, a safety section or chapter should be considered.

3.3.1.2.3.3.2 Quality Control.

3.3.1.2.3.3.2.1 Rewrite.
The Government will recommend rewrite under the following conditions:

a. When any part of a procedure, DANGER, WARNING, CAUTION, or Safety Summary is not consistent with existing Occupational Safety and Health Administration and Service safety requirements or is detrimental to existing Service safety and health programs.
b. When WARNING statements are misused for equipment protection or otherwise misused outside of the intent of this document.
c. When CAUTION statements are misused for personnel protection, or otherwise misused outside of the intent of this document.
d. When DANGER, WARNING or CAUTION statements contain procedural steps, they should be included in the task description. Minimum protective equipment requirements or minimum precautions are allowable.
e. When DANGER, WARNING, or CAUTION statements are excessively long.
f. When DANGER, WARNING, or CAUTION statements are so numerous on a page that necessary task procedural steps are visually obscured.
g. When Safety Summaries are used to the exclusion of DANGER, WARNINGS and CAUTIONS in the text unless indicated by the nature and class of hazard associated with the text, or when otherwise used outside of the intent of this document (that is, they should provide tailored, general guidance).
h. When DANGER, WARNINGS or CAUTIONS are extracted from the text verbatim and inserted in the Safety Summary.

i. When statements detailing the significance and use of DANGER, WARNING and CAUTION statements are not provided in the Safety Summary.
j. When the wording of DANGER, WARNINGS or CAUTIONS varies throughout the text even though the same or very comparable conditions are being emphasized.
k. When a DANGER/WARNING does not serve to prevent disabling injury or death, or a DANGER/CAUTION does not serve to prevent damage or destruction of equipment.
l. When a procedure lacks required emphasis because of its inherently dangerous nature or a step requires additional emphasis because of its critical safety impact.
m. When WARNINGS or CAUTIONS contain vague precautionary statements such as "avoid all contact", or rely too frequently on references to other technical manuals or outside agencies. In these cases, inclusion in a Safety Summary or input conditions page will be recommended as appropriate.
n. When WARNING or CAUTION statements contain general safety precautions.

3.3.1.2.3.3.3 Points of Contact.

3.3.1.2.3.3.3.1 Coordination.
All those involved in the technical manual development process must remember that the OSH guidance included in technical manuals is not the only line of defense against serious mishaps, but it is sometimes the last. The effective inclusion of OSH guidance can almost never be accomplished by a single individual with a distinct background. It must be a coordinated effort among system experts, safety professionals, technical writers, and the potential user. Questions arising from this process should be referred to the appropriate Safety Office and the Government acquiring activity. Do not ignore existing contractual or Command requirements.

3.3.1.2.3.3.4 Construction of Health Hazard Icons/Safety Symbols.

3.3.1.2.3.3.4.1 Hazard Icons.
Icons/safety symbols may be used to save space in the manuals while still conveying a clear message of the hazard to the technician using the manual. Since the icon presents a visual image of the hazard rather than a more abstract message, recognition should be much faster than with a worded warning. ANSI Z535.3 provides general criteria for the design evaluation and use of safety symbols to identify and warn against specific hazards and provide information to avoid personnel injury and damage to equipment.

3.3.1.2.3.3.5 Safety Summary.
Every IETM which contains warnings or cautions shall contain at least one safety summary conforming to the requirements of this document. When an IETM contains multiple major procedures, each of which is intended to be used independently of the other procedures in the IETM, there shall be a safety summary for each major procedure.

3.3.1.2.3.4 Health Hazard Precaution Data.
When hazardous chemicals or other adverse health factors are present in the environment or will appear during the performance of the procedure, and these health hazards can not be eliminated, appropriate warning and caution information shall be included in the technical information. Necessary protective devices for personnel shall be listed in the initial setup (input conditions) of the procedure and referred to in the appropriate subtask steps or warning/caution message.

3.3.1.2.3.5 Hazardous Material Icons.
Aerospace Industries Association Pubs-119 Publication shall be used to construct warnings, cautions, and applicable icons relating to hazardous substances.

3.3.1.2.4 General Style Requirements.
IETMs shall be prepared in accordance with the general style requirements contained in the following paragraphs. These requirements shall apply both for the language to be used in textual technical information and for the graphics supplementing the textual portions.

3.3.1.2.4.1 Level Of Detail.
Technical information shall contain all of the information necessary for a user to perform the task involved or to comprehend a description. The criteria required to define the specific level of detail shall be for a Petty Officer 1st Class at the I-Level and a Petty Officer 2nd Class at the O-Level. The IETM shall not contain unnecessary detail above or below this level. However, in all cases the IETM shall retain enough information to permit the user to perform the documented maintenance without error or loss of time due to insufficient information. Procedures within steps shall be implemented as follows. When a general purpose procedure which can be performed without reference to technical information by a technician experienced in this procedure (e.g., "Open access panel") is referenced by a step, the user shall be given the option either to access the procedure before continuing with the current task or to bypass the procedure. When a procedure is peculiar to a task, or involves use of a peculiar piece of equipment, it shall be included in the procedural data and not made optional.

3.3.1.2.4.2 Comprehensibility.
To ensure comprehensibility of the IETM data, the following principles shall be followed in authoring technical information:

a. Essential information in narrative text shall:
    1. Describe the system, components, etc., identifying special or outstanding features.
    2. Describe what functions are performed, including inputs, outputs, interface with other systems, etc.; emphasize end results.
    3. Describe how the functions are performed, including associated principles of operation.
    4. Describe at what point in an overall system process the function is performed.

5. Describe the location of the component or part.

b. When procedural text is combined with graphics, the following rules shall be used to abbreviate, so long as the meaning is not altered or obscured.
    1. Eliminate articles.
    2. Begin sentences with transitive verbs (action verbs).
    3. Use the imperative mood whenever appropriate. The only time subjects shall be implied is when they are unknown and the passive voice is being used or when the imperative mood is being used to give an instruction, order, or command, in which case the subject shall always be omitted (i.e., implied).
c. When it is necessary to indicate time, begin sentences with "when" clauses.
d. Example:"When power supply voltage stabilizes..."
e.
f.
g. Limit paragraphs to a single idea. Limit sentences to a single thought; use no compound or complex sentences. Whenever possible, limit words to those that are short and familiar to the target audience. Eliminate long, complex sentences and paragraphs through the use of lists. The resulting parallel portions of sentences shall be individually listed as in the following example:

```
The beat frequency oscillator has three components

        (1)...

        (2)...

        (3)...
```

a. Sentence length shall not exceed an average of 20 words. The average paragraph shall not exceed six sentences. The desired paragraph length is three to four sentences. Each paragraph shall have a topic entry or sentence. All material in the paragraph shall relate to and develop the topic sentence.
b. Except in unusual circumstances, text modules (e.g., construct steps and explanations) shall be fully integrated with graphics modules. Associate explanatory text to the graphic.
c. Present descriptive text in a logical order (e.g., in operational sequence or in signal flow sequence) and include summary headers for individual paragraphs whenever needed for clarity.
d. Keep descriptive text consistent in terminology, style, and format throughout the IETM.

3.3.1.2.4.3 Readability.

Unless otherwise specified, the Reading Grade Level (RGL) shall be nine. IETMs shall be written to the capability of the target audience for which they are intended. The method employed to determine readability of narrative material is optional; however, it shall meet the quality assurance provisions identified in 4.2.3.5.1.3. Computation of RGL

may be automated providing the results meet the requirements of this document. Non-narrative material, such as procedural steps, is not subject to RGL. The overall grade level (OGL) shall not exceed the appropriate RGL by more than one grade level. The grade level (GL) of each sample shall not exceed the appropriate RGL by more than three grade levels. The following may be used to determine readability for frame-based IETMs.

3.3.1.2.4.3.1 Sample Selection.
Samples of text shall be analyzed for readability. Select samples as follows:

a. Count the number of topics (or data modules) contained in the IETM (e.g., General Information and Safety Precautions; Operation; Functional Description; Scheduled Maintenance; Troubleshooting; Corrective Maintenance; Parts List or IPB).
b. Count the number of data panes (or screens) of text within each topic or data module. The count shall include all full and partial data panes that contain text in the form of consecutive sentences. The count shall not include data panes containing only illustrations, tables, lists, and so forth. Record the number of data panes.
c. The basic number of samples is determined as follows.

Basic Number of Samples

Number of Data Panes	Divisor Divided by "N"	Basic No. of Samples	
		Min	Max
90 and above	10	9	30
54 to 89	9	6	9
32 to 53	8	4	6
1 to 31	6	2	4

l. Divide the number of data panes by the appropriate divisor, "N". Round off the quotient to the next lowest whole number.
m. For IETMs that contain fewer than 12 data panes, randomly select two samples and mark them for analysis.
n. For IETMs that are 12 data panes or more, randomly select a number between one and "N". The number selected shall be marked as the first data pane of text to be analyzed. Starting at the selected data pane, mark every "Nth" data pane of text to the end of the IETM. The marked data panes shall identify starting points for the basic samples to be analyzed.
o. Mark the data panes to verify that at least one sample has been selected for each topic of the IETM. If any topic has been missed, randomly select one data pane of text from that topic and add it to the basic samples to be analyzed.

3.3.1.2.4.3.2 Raw Data Collection.
For each sample marked, raw data shall be collected. Data collection shall consist of counts of the numbers of words, sentences, and syllables in each sample. The size of each sample is based on the number of words to be analyzed. Samples shall start at the beginning of the first full paragraph on each marked sample. If a sample falls on a data pane containing procedural instructions, start sample at beginning of first full sentence on the data pane. Headings, captions, and paragraph titles shall not be counted in the sample.

3.3.1.2.4.3.3 Word Count.
For each sample, count the number of words as follows:

a. For each sample, count all words up to the end of the sentence containing the 200th word. If the marked sample contains fewer than 200 words, the sample can be extended to the next data pane of text; but, do not extend the sample into a new topic, or text pertaining to a completely new subject.
b. Count as a word all numbers, letters, symbols, and groups of letters surrounded by white spaces. Hyphenated words and contractions count as one word.
c. Record the number of words in each sample.

3.3.1.2.4.3.4 Sentence Count.
For each sample, count the number of sentences as follows:

a. Count all sentences in sample including the sentence that contains the 200th word.
b. Count as a sentence each unit of thought that can be considered grammatically independent of another sentence or clause. A period, question mark, exclamation point, and semicolon usually denote independent clauses and thus mark the end of a sentence.
c. Record the number of sentences in each sample.

3.3.1.2.4.3.5 Syllable Count.
For each sample, count the number of syllables as follows:

a. For most words, count syllables the way the word is normally pronounced aloud.
b. Count all numbers as one syllable. However, if a numeric expression contains several numbers separated by hyphens, count each number as a syllable.
c. Acronyms and abbreviations are counted as one syllable unless they actually spell out a word of more than one syllable.
d. Count as one syllable all words that are included in a baseline word list for Navy TMs (see SL160-AA-LST-010/TM-WORDS) and all expanded versions of those lists that are authorized for TM acquisitions.

e. Record the number of syllables in each sample.

3.3.1.2.4.3.6 Grade Level Calculations.

3.3.1.2.4.3.6.1 Sample Grade Levels.

Calculate the GL of each sample as follows:

a. Calculate the average sentence length (L). Divide the number of words in the sample (V) by the number of sentences in the sample (T): (L = V/T). Round off quotient to the nearest one hundredth.
b. Calculate the average number of syllables per word (D). Divide the number of syllables (C) in the sample by the number of words (V) in the sample: (D = C/V). Round off quotient to the nearest one hundredth.
c. Calculate the GL of each sample by the following formula. Round off each GL to the nearest integer.
d.
e.

$$GL = 0.39(L) + 11.8(D) - 15.59$$

3.3.1.2.4.3.6.2 OGL.

The OGL of an IETM is calculated as follows:

a. Add the total number of words (W) from all samples combined. Record total.
b. Add the total number of sentences (S) from all samples combined. Record total.
c. Add the total number of syllables (P) from all samples combined. Record total.
d. Calculate the average sentence length (A). Divide total number of words (W) by total number of sentences (S): (A = W/S). Round off quotient to the nearest one hundredth. Record quotient.
e. Calculate the average number of syllables per word (B). Divide total number of syllables (P) by total number of words (W): (B = P/W). Round off quotient to the nearest one hundredth. Record quotient.
f. Calculate the OGL of the manual by the following formula. Round off the OGL to the nearest integer.
g.

$$OGL = 0.39(A) + 11.8(B) - 15.59$$

3.3.1.2.4.4 General Style Requirements For Text.

IETM text shall be developed in accordance with the following style requirements.

3.3.1.2.4.4.1 Language Considerations.

Writing shall be factual, specific, terse, clearly worded, and simply illustrated, so that a user who has the required aptitude, training, and experience will understand it.

3.3.1.2.4.4.2 Proper Amount Of Technical Information.

The IETM shall provide all the technical information required by a technician to perform

the task. It shall not contain extraneous material. Helpful, but not required, information shall be included only in the form of user accessible HELP (see 3.3.1.2.3.1).

3.3.1.2.4.4.3 Nomenclature.
Nomenclature used for names of equipment item assemblies, parts, etc., shall be in agreement with the approved nomenclature list prepared as part of the supportability analysis records or other official maintenance specification, as applicable. Use of this nomenclature or its substitution with a standard shortened identifier (i.e., acronym, common name) shall be consistent throughout the entire IETM and among all IETMs which apply to the weapon system or equipment involved. Standard shortened identifiers shall be substituted at all times so no confusion will result.

3.3.1.2.4.4.4 Nomenclature For Tools And Test Equipment.
The official nomenclature shall be used in the first occurrence in a task or procedure, for all titles, parts lists, support/test equipment lists, consumable/expendable lists, and work unit codes. When a common name exists for the same item, it may be used in place of the official name. Official and common name usage shall be consistent, as described above, throughout the IETM (see 3.3.1.2.4.4.10).

3.3.1.2.4.4.5 Nomenclature For Controls And Indicators.
Controls and indicators identified in a procedure shall be identified exactly as placarded on the equipment. Component reference designators (R1O5, C56, etc.) shall be omitted unless the reference designator itself appears on the equipment or if two or more controls/indicators have identical nomenclature. If variations in panel or chassis nomenclature exist, a comment explaining that the panel nomenclatures are typical and may vary slightly from one unit to another shall be included. Controls and indicators with functional names only (no panel names) shall be identified by functional name.

3.3.1.2.4.4.6 Abbreviations.
Use of abbreviations (including abbreviations for common units) shall be held to a minimum. Standard abbreviations shall be in accordance with MIL-STD-12. Each abbreviation shall be defined in the IETM glossary.

3.3.1.2.4.4.7 Metric Symbols.
Metric symbols shall be in accordance with NIST Special Publication 811 and IEEE 945.

3.3.1.2.4.4.8 Unit Of Measure.
Unit of measure shall be consistent throughout the IETM. If not otherwise specified on the equipment, measurements shall be in U.S. standard units (ounces, pounds, gallons, inches, feet, knots, miles, etc.). Units of measure shall be used as follows:

a. Temperature readings as marked on the equipment. If other than Fahrenheit, the equivalent in Fahrenheit shall follow parenthetically. General ambient temperature references, such as room temperature, shall be given in degrees Fahrenheit.

b. Speed, distance, and meter readings as marked on the equipment. When the metric system is used on the equipment, conversion to U.S. standards of measurement shall follow in parentheses. Conversion of U.S. standards of measurement to metric standards of measurement shall follow in parentheses.
c. Switch positions and panel markings exactly as marked on the equipment. However, symbols on panel markings, such as the symbols for "ohm" or "infinity," may be spelled out in textual references when they cannot be produced by the presentation system.

3.3.1.2.4.4.9 Numerical Expression Of Tolerances.
The optimal value shall be expressed, along with associated tolerances (e.g., 15 +4/-2 VDC), for numeric measurement values. Tolerances shall not be expressed in percentages. All numerical values given shall match the number of decimal places indicated on the affected instruments. Torque measurement values shall conform to the calibration of the required tool.

3.3.1.2.4.4.10 Vocabulary (Permitted Words).
Permitted word lists for preparation of IETM textual and procedural steps are contained in SL160-AA-LST-010/TM-WORDS. Words initially used by the IETM author, and identified during the contractor's Quality Assurance (QA) process, which are not on these lists, shall be eliminated and replaced with the "permitted" words, unless the comprehensibility of a given passage requires the use of a "non-permitted" word. In such a case, the exception shall be submitted to the Government for approval of any "non-permitted" word. Terminology shall be used consistently throughout the IETM; e.g., the same word for a given tool must be used throughout the IETM.

3.3.1.2.4.5 General Style Requirements For Graphics.
Graphics for IETMs shall be developed in accordance with the general style requirements of the following paragraphs as they relate to individual graphics or to associations of both graphics and text. The requirements of these paragraphs shall apply to the display of the IETM on the least capable device (i.e., smallest screen) which is specified for use with the weapon system or equipment to be supported by the IETM.

3.3.1.2.4.5.1 Graphic Conventions.
Displayable graphics shall have a means for designating the minimum size at which that graphic is capable of being discerned when physically displayed and whether that graphic is permitted to be displayed using interactive functions. The particular encoding standards shall conform to the system specific IETMDB implementation and the designated presentation system. Non- interactive graphics shall be viewed in full detail without manipulation. Interactive graphics shall allow the user to either manipulate the graphic for better view or allow the user to choose selectable areas within the graphic.

3.3.1.2.4.5.2 Minimum Size For Graphics.
Graphics shall be displayed no smaller than required to meet the minimum displayable size which has been designated for each individual graphic.

3.3.1.2.4.5.3 Graphic Density.
Graphics shall show only that detail needed to support the action being described.

3.3.1.2.4.5.4 Quality Of Graphics.
Graphics shall be prepared to a scale that ensures legibility of all essential detail. Line widths shall be of sufficient density to register sharply and clearly when displayed at the designated minimum size EDS.

3.3.1.2.4.5.5 Level Of Detail In Graphics.
Graphics shall present only the equipment items referred to by the action statements, plus sufficient surroundings to permit the user to correctly locate the item.

3.3.1.2.4.5.6 Measurements And Tolerances.
Numerical measurements and tolerances shall be expressed in the same manner as that required for text (see 3.3.1.2.4.4.9).

3.3.1.2.4.5.7 Textual Citations Of Panel Nomenclature.
In all references to controls, control positions, test points, and indicating devices which have panel or chassis nomenclature, the nomenclature used in the textual label shall be displayed exactly as it appears on the panel or chassis (e.g., all capitals if used, spacing, and special symbols). Nomenclature shall not be enclosed in quotation marks unless required for clarity. Functional names shall be used in procedures involving controls and indicators with no panel names. All nomenclature used in graphics shall be identical to the nomenclature for the corresponding item in the related text.

3.3.1.2.4.5.8 Angle Of View.
Graphics shall be drawn from the same general angle of view that the user sees the equipment, (e.g., during a given step of a procedure). Cutaways and hidden lines shall be used as required in conjunction with details that are accessible, but not visible, to the user (e.g., as seen after removal of an access cover or after opening a cabinet door). In situations where the user is able to view the hardware from more than one angle, the view which provides the most pertinent and necessary information shall be used. An item or part removed from the system may be rotated to show important features; the axis, direction, and degrees of rotation shall be indicated in the graphic. Perspective and isometric graphics shall be used for a more realistic view. Orthographic projection may be used if the view is head-on.

3.3.1.2.4.5.9 Use Of The Human Figure.
When it is necessary to illustrate an operation or procedure, graphics may include a human figure or parts of the body. Jewelry shall not appear in any graphics. The human figure shall not obscure details of the equipment necessary for a complete understanding of its operation. The human figure shall be clothed in a Navy enlisted working uniform.

Clean, neat, dungarees are preferred but may use Undress Blues with either a second or first class petty officer emblem. A cross section of races and sexes shall be used.

3.3.1.2.4.5.10 Types Of Graphics.
Where required to present maintenance procedures or descriptions, an IETM shall contain graphics to include, but not be limited to, such types as frontispiece (assembled view), isometric, perspective, and orthogonal.

3.3.1.2.4.5.11 Drawings.
When engineering drawings are used as a baseline in the development of graphics, details which reduce the comprehensibility and clarity of the graphic shall be removed. Electrical and engineering diagrams shall be laid out functionally. Where information must be presented by means of a signal flow chart or circuit diagram, such visual aids shall be divided into discrete units, simplified, and standardized.

3.3.1.2.4.5.12 Schematic And Wiring Diagrams.
Wire lists, schematics, and wiring diagrams initially displayed along with an associated text pane shall be simplified to contain only the information referenced by the accompanying text. However, the technician shall have access to the entire wire list, schematic, or wiring diagram when that full graphic is available in the IETM.

3.3.1.2.4.5.13 Functional Flow Diagrams.
Functional flow diagrams shall be drawn as flowcharts indicating the direction of system interaction. The information shall flow from left-to-right and top-to-bottom on diagrams. The diagrams shall indicate the detail referenced by the accompanying text.

3.3.1.2.4.5.14 Locator Graphics.
A locator graphic shall consist of a labeled graphic together with required callouts. Locator graphics, when used, shall either be an option, or an automated part of the procedural or descriptive information presented.

3.3.1.2.4.5.14.1 Placement.
Placement of locator graphics shall be fully integrated with the associated technical information.

a. The individual equipment items (e.g., parts, switches, controls, indicators, and other items) shall be shown in physical context to the major equipment components of the illustrated hardware. The nomenclature of the major equipment component shall be shown on the graphic.
b. Index numbers on callouts shall be assigned, if required, on the equipment item locator graphic either: in clockwise sequence, or in the sequence that the item is discussed in the procedural steps.
c. When reference is made to an illustrated equipment item in a procedural step, the step reference shall be keyed directly to the relevant equipment item (e.g., part, switch, control, indicator, or other item) by a callout reference citation from the

text (e.g., item name) or an index number and a leader line pointing to the referenced item.

3.3.1.2.4.5.14.2 Successive Graphics.
Successive locator graphics may be used in lieu of a single graphic to lead the user systematically from a large overall (general) view to successively lower level (specific) views in a logical presentation sequence. Item exploded views shall be used as locator graphics only where further disassembly is required.

3.3.1.2.4.5.14.3 Format.
The minimum size of the locator graphics shall provide sufficient resolution to enable the user to quickly identify the surroundings and the item to be located with respect to the surroundings. A callout shall be used to emphasize the item to be located.

3.3.1.2.4.5.15 Callouts And Leader Lines.
Callouts and leader lines shall be provided to identify specific features of interest on graphics. The following provisions for callouts shall be followed:

a. Callouts shall be keyed to the procedural steps or descriptive information displayed.
b. Callouts and identifier numbers shall not be crowded into spaces between graphic elements; callouts shall be clearly distinguishable from the graphic elements and each other.
c. Labels used for part names or other graphic element identifiers instead of index numbers shall be identical to those used in the associated text.
d. Leader lines (with arrow heads,) shall be drawn from the index number to the equipment item.
e. Leader line width shall differentiate from graphic line width.
f. Leader lines shall not obscure essential graphic detail.
g. Leader lines shall not cross graphic lines if, an alternative is possible.
h. Leader lines shall be straight wherever possible.
i. When straight lines are not possible, leader lines shall have one bend at an angle of 45 degrees, drawn with the angled end pointing to the graphic.
j. Leader lines shall not cross or come in contact with other leader lines.

3.3.1.2.4.5.16 Style Requirements For Animated Information.
The motion of the animated information shall be easily discernable by the user and clearly differentiated from the background and other static information of the overall display.

3.3.1.2.4.5.17 Computer-generated Or Electronically-stored Speech.
Computer-generated or electronically-stored speech shall be limited to procedural information.

3.3.1.2.5 Special Requirements.
The following requirements shall apply, in addition to those previously stated herein, unless otherwise contained in the applicable functional requirements of the conventional TM performance specification corresponding to the type of IETM being developed, (e.g., operation, maintenance) as determined by the procuring activity. Generally, the major types of information covered shall include, but not be limited to procedural (task), fault isolation, parts, and descriptive or narrative text.

3.3.1.2.5.1 Descriptive Information.
Narrative text shall be used to assist in the comprehension of procedural data.

3.3.1.2.5.2 Requirements Peculiar To Procedural Information.
Procedural information shall be used to instruct an end user how to operate, test, or repair a system; or carry out a logistics support procedure. Format for tasks and subtasks shall conform to the requirements contained herein.

3.3.1.2.5.2.1 Title And Label Requirements.
The following title and labeling information shall be associated with procedural tasks and subtasks. It shall be used primarily for window labeling upon presentation.

3.3.1.2.5.2.1.1 Task Title.
Wording of the task title shall be identical with the wording used in the task description in the detailed task analysis summary of the system supportability analysis. If no supportability analysis task title is available, the task title shall conform to the requirements of MIL-STD-38784, or the requirements herein.

3.3.1.2.5.2.1.2 Subtask Title Line.
A subtask title line, if required, shall consist of an uppercase title and may have a subtask number (Arabic). If numbered, subtasks shall be numbered sequentially throughout a task. A subtask title shall be structured in the same manner as a task title and uniquely identify the material which it heads.

3.3.1.2.5.2.2 Supporting Material For Tasks.
Procedural data shall contain the following information, which shall be displayed before the steps are viewed.

3.3.1.2.5.2.2.1 Procedure Applicability Statement.
Any procedure presented shall specify the equipment model, range, or sequence to which the procedural information applies. When a procedure to be presented does not apply to all existing models, the applicable equipment model or model range shall be identified. Such terms as "on later equipment" and "on early serial numbers" are not acceptable. When a procedure does not apply to all models, the IETM system shall require entry of

the applicable system or equipment model number, serial number, or other unique system identifier before the task can proceed. If this information has been entered earlier in the use of the IETM (e.g., log-in) and that information is available at the time the procedure is presented, reentry of the information shall not be required. Such a control shall be based on established designations, such as model designation, part number, serial number range, or similar means. Indefinite categories such as "early serial numbers" or "some late models" shall not be used.

3.3.1.2.5.2.2.2 Initial Setup.
The initial setup or input conditions, where required, shall be provided at the beginning of every new task (e.g., consumable materials, support equipment). All lists provided as part of the initial setup shall be headed by individual underlined labels, using upper case initial letters with successive letters in lower case. Information presentation in each window shall avoid crowding; as many frames shall be used for each initial setup as necessary.

3.3.1.2.5.2.2.3 Safety Considerations.
Safety conditions shall be identified as stated herein (see 3.3.1.2.3.2).

3.3.1.2.5.2.3 Dynamically Generated Fault Isolation Recommendations.
Dynamically generated fault isolation recommendations shall be computed, as required, with information received from user input and/or automated system recording. The fault isolation system shall provide the option to select a recommended test or repair action to perform that will aid in the fault isolation process. Results from these maintenance actions shall be used to update the status of the current situation producing additional recommendations if necessary. Recommended computations shall be based on a variety of input data including, but not limited to, historical information, heuristics, probability factors, and cost factors such as time or availability. The models for dynamically generated fault isolation recommendations shall be based on a computed process which involve one or more automated approaches including, but not limited to: model based reasoning, dependency models, fault based reasoning, rule based logic, information theory, or advanced artificial intelligence schema.

3.3.1.2.5.2.4 Presentation Requirements.
Presentation of dynamic fault isolation information shall be interactively displayed. Dynamic fault isolation of a system shall be depicted in some representative form (e.g., functional block diagram, connectivity block diagram, or iconic form). Depictions shall convey information about current components under investigation and the detected faults. Interaction with the depictions shall obtain additional information such as, but not limited to, lower levels of system detail, theory of operation, supply status, associated graphics, and part information. Presentation of system information shall be hierarchical in nature. It shall include automated access to additional system wide information including, but not be limited to, block diagrams of all subsystems and the complete set of test and repair procedures, symptoms, and parts. The information presentation shall not be limited to a single set of troubleshooting recommendations but shall include user options for viewing

a variety of troubleshooting information such as a best test or best repair list, previous actions performed during the troubleshooting process, test results, and block diagrams.

3.3.1.2.5.3 Presentation Of Parts Information.
A data base of supporting parts information (similar to a conventional Illustrated Parts Breakdown (IPB) or Repair Parts and Special Tools List (RPSTL)) shall be incorporated. In general, the IETM shall have the capability of accessing parts information to: permit unambiguous identification of all replaceable or reparable parts authorized at the current level of maintenance; show precisely the physical relationship of this part to other parts of the system; and provide all data required to order the part through the use of an automatically prepared parts ordering form. Each part shall be presented using line graphics showing the physical relationship of the part to the adjacent equipment.

3.3.1.2.5.3.1 Availability.
Parts information shall be made available at the point in the presentation in which a specific part is identified including, but not limited to:

a. a locator diagram;
b. parts shown on any logic flow diagram or circuit diagram;
c. parts cited in the text of the technical information;
d. a dialog prompt for parts related information:
e. any citation using a part designation in any of its available forms.

3.3.1.2.5.3.2 Direct Access.
Parts data shall be accessible by direct entry of applicable part identification or numbering systems (e.g., stock number, part name, system/subsystem/sub-subsystem (subject) number (SSSN), reference designator).

3.3.2 Technical Contents for Systems Manuals.

3.3.2.1 Specific requirements.
The manuals shall provide system and subsystem oriented instructions for operation, maintenance, and test data. Detailed equipment data should be provided by reference to the equipment manuals. However, technical data shall be developed at the equipment level and be included for all equipment system and subsystem and interface components not covered by an equipment technical manual. The contents shall be arranged according to the following:

a. General Information.
b. Safety Precautions.
c. Conditions of Readiness.
d. Operation.
e. Functional Description.
f. Scheduled Maintenance.

g. Fault Isolation.
h. Alinement Procedures.

3.3.2.1.1 General Information.
This topic shall describe the system in general physical and functional terms as specified below.

3.3.2.1.1.1 Introduction.
The introduction shall define the system and its relationship with other systems. The mission of the system shall be stated. The text shall be supported by a diagram(s) showing the interrelationships of the system equipments (see figure 135). The major functional relationship and inputs and outputs to related systems shall be indicated.

3.3.2.1.1.2 Physical Arrangement.
System areas and compartments shall be described and the system equipment and units (see 6.4.4) contained in the areas shall be listed. The physical arrangement description shall be supported by the following illustrations:

a. An inboard profile drawing of the ship or stations showing compartment locations and identifying topside equipment and equipment units comprising the system (see figure 39).
b. Separate illustrations of each compartment and area, identifying the listed system equipment (see figure 1135). Other equipment, which is installed in the subject system compartments and areas, need not be listed in the text or called out in the illustrations if they do not directly affect the operation or maintenance of the subject system.

3.3.2.1.1.3 System Equipment.
Each of the equipments comprising the system shall be identified and described. Descriptions of operator-attended equipment shall include general statements as to the nature and purpose of units and indicators. The text shall be supported by illustrations. All equipments shall be shown, whenever possible, in relative-scale proportion. An equipment may be separately illustrated with significant features called out, if such details are necessary for proper support of the text.

3.3.2.1.1.4 Associated System Equipment.
When required, descriptions and illustrations of associated system equipment shall be limited to the major units thereof. The descriptions shall be more condensed than those of subject system equipment; otherwise, the same requirements are applicable. In the descriptions, emphasis shall be placed on those associated system equipment that constitute operational or functional interfaces with the subject system. Such units shall be included in the system illustrations.

3.3.2.1.1.5 Reference Data.
Reference data shall include a list of the equipment comprising the system, and its official designations. A list of common names and abbreviated or informal nomenclature, and system characteristics together with a list of referenced publications shall be included as follows:

a. Capabilities. A summary of system capabilities shall be provided. The summary shall include data such as gallons per minute, transfers per hour, boom capacity, rated ranges, resolution, accuracy, data handling capability, number of channels, and so forth. Such data shall be presented in tabular form.
b. Reference Publications. A list of the manuals that pertain to system and system equipments, and other documents of interest, such as training manuals and manuals for associated systems equipment shall be included. The list of publications shall include the title and publication number of the referenced publications.
c. Tools and Test Equipment. A list of all special tools and test equipment for system-level maintenance shall be included. Special tools are defined as those tools not listed in the Federal Supply Catalog. An illustration and description of special items required shall be provided for identification. Information shall be presented in tabular form. For each item the description or table shall include:
    1. The official name or nomenclature.
    2. Identifying number.
    3. A brief description of the use of the item with a reference to the procedures requiring its use.

3.3.2.1.2 Safety Precautions.
This topic shall describe the hazards associated with system operation and maintenance. To permit wide and unrestricted use on board ship, this topic shall contain only unclassified information.

3.3.2.1.2.1 Introduction.
This description shall orient system supervisory personnel, and shall include the following:

a. Purpose, scope, and organization of the system safety instructions.
b. Basic safety concepts.
c. Basic responsibilities for safety.

3.3.2.1.2.2 Electromagnetic Radiation Hazards and Precautions.
If applicable, describe the radiation hazards to topside personnel and the precautions to be taken. The hazards of radiation to flammable or explosive materials also shall be described. The description shall include discussions of the following:

a. Locations of topside and inboard radiation hazardous areas.
b. Minimum safe distances on the axis of beam radiation.
c. Precautions to be taken when entering areas of radiation hazard (such as the wearing of copper-screen goggles).
d. The effect of radiation on flammable or explosive material, such as induction of radio frequency currents in metals, sparking, and the consequent possibility of igniting flammables or detonating explosives. The text shall be supported by one or more illustrations identifying the areas of radiation hazards and the location of antennas, and so forth.

3.3.2.1.2.3 Hazards to Divers.
When applicable, the description of hazards to divers shall include but shall not necessarily be limited to the following:

a. The nature and intensity of sound energy in water as related to divers.
b. Precautions to be taken when working near operating equipment.
c. Illustrations identifying the hazardous areas and locations of sonar domes.

3.3.2.1.2.4 System Hazards and Precautions.
Descriptions of system hazards and precautions shall be included, addressed to system personnel, and referenced to particular system equipments. The descriptions shall be organized to be consistent with the operation of the system. The descriptions shall supplement and extend equipment safety instructions to the system level, by warning of potential hazards that can be caused during operation or maintenance.

3.3.2.1.2.4.1 Operational Safety Summary.
A summary shall be included which emphasizes the proper use of equipment controls, describes the hazards to operators, or as applicable, the hazards to persons in areas remote from the operation, and recommends precautions. An emergency operational routine shall be included which emphasizes the controls that permit immediate braking or de-energizing of the system.

3.3.2.1.2.4.2 Maintenance Safety Summary.
A maintenance safety summary shall emphasize the proper use of controls, describe the hazards to maintenance personnel, potential damage to the equipment, and recommend precautions.

3.3.2.1.2.4.3 Hazardous Components.
Identify and briefly describe the hazardous components, including radioactive devices and elements used with the system and summarize the general handling precautions for such components. The description of a hazardous component shall include brief statements as to the purpose, manner of functioning, nature of built-in safety devices, and

nature of the hazardous element; it shall also indicate the relative sensitivity of the component to mechanical shock, vibration, electromagnetic and radioactive radiation, and electrostatic discharges.

3.3.2.1.3 Conditions of Readiness.
This topic shall be provided for guidance purposes and shall represent engineering considerations. This topic shall list conditions of readiness requirements prior to the operation of the system. Activities or conditions within compartments or areas outside the system shall be described as necessary. When it is impractical or illogical to separate the conditions of readiness information from operational information, a request shall be made with justification, to combine the requirements of these two topics.

3.3.2.1.3.1 Conditions Coverage.

a. An orientation of system personnel shall be included. The condition of readiness shall be included as follows:
    1. Watch condition.
    2. General quarters condition.
    3. Emergency condition.
b. Coverage shall include but not be limited to the following:
    1. A block diagram showing signal paths of the conditions of readiness (see figure 138).
    2. Block diagrams and descriptions of IC links between compartments and areas, including sound-powered telephone circuits, announcing systems, and closed-circuit television.
    3. Presumptions relative to system status at specified times. (For example, from watch condition to general quarters condition, or from general quarters condition to emergency condition).

3.3.2.1.3.1.1 Watch Condition.
The condition of all systems equipment and the personnel situation (how many of what class or type of men to be stationed where) for watch condition shall be described. The operating console and panel positions shall be illustrated.

3.3.2.1.3.1.2 General Quarters Condition.
The condition of all systems equipment and personnel situation shall be described for general quarters condition. The operating console and panel positions shall be illustrated.

3.3.2.1.3.1.3 Emergency Condition.
The condition of all systems, equipment, and the personnel situation for emergency condition shall be described. The operating console and panel positions shall be illustrated.

3.3.2.1.4 Operation.
This topic shall describe the system operating situations, modes, and procedures. The descriptions shall be detailed to the level required for an understanding of the operational interfaces of the system equipments and associated systems. Illustrations shall be included when necessary for clarity (see figure 139). The various operating modes shall first be described to acquaint the operator with all equipment combinations that can be employed to effect a given mode of operation.

3.3.2.1.4.1 Preoperational Conditions and Setup.
Specific preoperational conditions presumed to be in effect prior to system operation shall be established. A system readiness checkoff list of significant switch positions and indicator status shall be tabulated. For indicators such as dials, where a band of readings are possible, upper and lower limits shall be delineated. The initial conditions of associated system equipment that directly affect system operation shall be treated in a similar manner.

3.3.2.1.4.2 Operating Modes.
The primary operating mode shall be discussed in detail, and alternate modes shall be treated as modifications of the primary mode. Operating procedures common to all modes shall be detailed under the primary mode and referred to under the alternate modes, with such modifications of procedure as may be necessary. Each mode shall be described in the logical sequence of major phases, events, options, supervisory commands and responsive actions, and the following:

a. Only those equipment operational controls and indicators having system significance shall be explained in the description. When controls must be actuated and indicators observed in a sequence to achieve system operation, the descriptions will cite each control and indicator with a number to indicate the position in the sequence.
b. Emphasis shall be placed, by the use of warnings, on the safe operation of controls, which, if operated improperly, could result in hazards to personnel or damage to the equipment. Each control shall be followed by a brief description of its effects (equipment actuation or display indication, or both) at the operator station and at remote stations. The primary mode description shall be supported by both general and detailed illustrations.
c. Operational phases which involve operator judgment shall be illustrated by operational logic diagrams. The diagrams shall indicate the conditions that must be favorable prior to an operator action, or if unfavorable, indicate the alternate action. Illustrations showing dials, gauges, status lights, and so forth. which indicate the favorable or unfavorable conditions shall be included. Special procedures to be followed when an equipment failure may be bypassed (as separate from emergency procedures) shall also be described.

3.3.2.1.4.2.1 Normal Operation.
The duties of system operators shall be described in terms of general responsibility and specific step-by-step procedures for operating the system in all of the primary modes. Descriptive words (such as switch, button, dial, or indicator) may be added to clarify the type of control involved, for example: "Press ACCESS button and observe channel spot." All system controls and indicators provided for the use of operators shall be covered. Controls and indicators provided only for maintenance and nonsystem application shall not be called out.

3.3.2.1.4.2.2 Emergency Operation.
Step-by-step procedures shall be provided for emergency operation of the system. If specially designated controls have been provided for emergencies, a short statement shall be included describing how they modify or otherwise affect normal system operation. Emergency procedures shall be supported by illustrations.

3.3.2.1.4.2.3 Special Operation.
Special operations such as test checkout, training, or evaluation exercises shall be described. Illustration support shall include block diagrams and pictorial diagrams.

3.3.2.1.5 Functional Description.
This topic shall describe how the components or equipments comprising the system jointly perform major operations and functions, and how associated systems contribute to the performance of these major functions. Equipment or associated system interfaces shall be described only as necessary to identify the sources or destinations of system inputs and outputs (see figure 150). Descriptions shall not repeat the functional description provided in the equipment manuals.

3.3.2.1.5.1 Method of Presentation.
The presentation shall first define how the system major functions meet the purpose of the system as described in 3.3.2.1.1.1. Each major function (an essential functional operation which is fundamental to operation (as opposed to a circuit) of the equipment (for example, transmit, receive, display, hoist, and so forth) shall then be discussed separately at progressively increasing levels of detail. The description of the entire system shall be supported by a basic block diagram of the system (see figure 140). Where information can be presented better pictorially than by text, additional diagrams and other illustrations shall be used. Reference may be made to diagrams appearing in the Fault Isolation topic.

3.3.2.1.5.2 Introduction.
The introduction shall describe the general approach that is used in the functional description. The introduction shall also describe briefly the interrelationship between the system and associated systems.

3.3.2.1.5.3 System Function Directory.
A system function directory shall tabulate operation control functions and the signal data

described in the detailed level of functional analysis. The tabulation shall include the following information, as applicable:

a. Official name of the function, colloquial name, and symbol.
b. Type of control or signal (ac frequency and voltage, dc polarity and voltage, hydraulic pressure, mechanical motion, synchro, etc.).
c. The origin and termination of the control or signal.
d. Identity of equipments (relay transmitters, coordinate converters, distribution boxes, switches, and the like) between the origin and termination of the output control or signal.
e. Figure numbers of illustrations on which the function is illustrated, including the fault isolation diagrams used in the Fault Isolation topic.

3.3.2.1.5.4 Functional Description.

3.3.2.1.5.5 First Level of Functional Description.
The first level of the description shall be confined to data such as origin of the major functions at an equipment control or sensor; transmission of the signal via intermediate equipment such as switchboards, relay transmitters, coordinate converters, and distribution boxes; and presentation of the function at terminal equipment. Control functions essential to the development of a signal shall be introduced and briefly described in their relationship to the signal. The description shall be supported by a block diagram (see figure 141). The diagrams for electrical and mechanical systems may be illustrated as shown on figure 151. Functions involving computations may be explained in mathematical terms, but at a level no higher than high school mathematics. The second level of analysis shall be supported by one or more diagrams.

3.3.2.1.5.6 Detailed (Second) Level of Functional Description.
The detailed description shall explain the system functions in terms directly related to the diagrams in the Fault Isolation topic. Data and control functions shall be described down to the level of an equipment or an equipment group. Functional descriptions of important parts of electrical or mechanical systems may be supported by illustrations similar to figure 142.

3.3.2.1.6 Scheduled Maintenance.
This topic shall contain all system scheduled test procedures, together with necessary explanations and illustrations. It is intended that the engineering effort required to develop preventive maintenance data be expended only once and that the data, where applicable, be used both in this topic and in Maintenance Engineering Analysis (MEA), Logistic Support Analysis (LSA), and/or Maintenance Requirements Cards (MRC) where one or more of the latter three data items are required by the contract. The preparation of this topic of the manual shall be delayed until completion of the MEA, LSA, and/or MRC; submissions of the manual manuscript for review should be marked "TO BE SUPPLIED UPON COMPLETION OF LSA." When the approved MEA, LSA, or MRC

data is available, it shall be included in the manual in the identical technical content and, wherever practicable, in the identical format. When included in the manual, such MEA, LSA, or MRC data shall be integrated with other technical data required to be in this topic. This topic shall comprise the following:

a. Introduction
b. Scheduled maintenance action index
c. Scheduled test procedures

3.3.2.1.6.1 Introduction.
The introduction shall be an explanation of the purpose, scope, and arrangement of the scheduled maintenance material. When a preventive maintenance procedure is critical to the operation of the system and the schedule for servicing is absolute (not recommended), this information shall be conspicuously written as a CAUTION. The following statement shall be included:

a. "The scheduled maintenance instructions in this manual are intended to duplicate those furnished in the Planned Maintenance System (PMS)." In case of conflicts, the PMS documentation takes precedence. Such conflicts should be reported immediately on the user comment sheet in accordance with the maintenance procedures for this manual."

3.3.2.1.6.2 Scheduled Maintenance Action Index.
This index shall include all required scheduled performance procedures. The index shall be tests and preventive maintenance tabulated as follows:

a. Column 1, Periodicity. This column shall contain an alphanumeric list of all maintenance actions contained in the topic. The following periodicity symbols, asappropriate, shall be used in the order of increasing periodicity as listed in following table:

b. Interval Symbol
c.
d. Daily.....D
e. Weekly.....W
f. Monthly.....M
g. Quarterly (3 months).....Q
h. Semiannually (6 months).....S
i. Annually (12 months).....A
j. Overhaul cycle.....C
k. As specified (explain
l. circumstances).....R (see note 1)
m. 1. An R periodicity shall be preceded by a recommended calendar periodicity
n. (for example, DR, WR, MR, and so forth).

o.

p. Column 2, Maintenance action. This column shall list the maintenance action which corresponds to the periodicity number in Column 1.
q. Column 3, Reference. This column shall state the paragraph number that contains the procedure listed in column 2.

3.3.2.1.6.3 Scheduled Test Procedures.
Include the detailed procedures for setting up and performing complete system tests. Each procedure shall be numbered and titled to clearly define the test action and the output to be tested.

3.3.2.1.6.3.1 Scheduled Performance Tests.
These tests shall contain step-by-step procedures necessary to verify that the equipment is operating within standards in all modes of operation and shall contain the following:

a. Safety precautions.
b. A list of tools and test equipment identified by type, manufacturer, and model number.
c. The title of the test to be performed.
d. The minimum rating of the technician expected to perform the task.
e. Preliminary setup data required to perform the test.
f. Detailed procedures for accomplishing the test. Procedures requiring lengthy and identical setup data may be presented in detail in one procedure and referenced in succeeding procedures.
g. Values or conditions, with tolerances, indicative of normal operation.
h. References to troubleshooting or corrective actions to be used if the test values are not within tolerances.
i. Illustrations to support the test.

3.3.2.1.7 Fault-Isolation.
This topic shall contain fault-isolation procedures, illustrations, and an explanation of the use of the information presented. The major objective of the system fault-isolation procedures contained shall be described. In addition, this shall contain a brief description of each type of maintenance diagram. A fault directory shall be included which relates fault symptoms found during operation to the fault-isolation procedures. Fault-isolation procedures, fault logic diagrams, control function diagrams, and data function diagrams shall be included as follows:

a. Operation-based symptom fault directory.
b. Fault-isolation procedures.
c. System fault logic and troubleshooting maintenance dependency matrix diagrams.
d. System control function diagrams.
e. System data function diagrams.

3.3.2.1.7.1 Operation-Based Symptom Fault Directory.
The directory shall relate the fault isolation diagrams to the system faults that were observed during operation as described in the Operation topic. The directory shall be presented in tabular form by operational modes (see figure 152). The tables shall include references to system-fault isolation diagrams and, where applicable, directly to equipment troubleshooting diagrams. The content of the table shall include, as applicable, the following information:

a. Table headings. Shall be identified by the operational mode to which the table relates.
b. Column headings. The fault directory shall contain the following columns:
    1. Column 1, Operating Procedure Step. This column shall list the step of the operation procedure found in the Operation topic for which a fault symptom can be observed. (For example, if step 1 is an action step "set XYZ switch to ON" with no operational response, step 1 would not appear in the column. However, if step 1 stated "set XYZ switch to ON and check to see that XYZ lamp lights," then step 1 would be included in the column).
    2. Column 2, Functional Description. This column shall include reference to the applicable paragraph in the Functional Description topic. In addition, when an operation can be identified with an output, this column shall also contain the name or symbol of the output.
    3. Column 3, Fault-Isolation Procedure. This column shall reference by paragraph number the fault-isolation procedure.
    4. Column 4, Alinement Procedure. This column shall reference by paragraph number the alinement procedure in the Alinement Procedures topic.
    5. Column 5, Fault-Isolation Diagram. This column shall reference the fault-isolation diagram by figure and sheet number.
    6. Column 6, Equipment Document. This column shall reference the equipment technical manual when the fault can be isolated to the specific equipment causing the fault.

3.3.2.1.7.2 Fault-Isolation Procedures.
Procedures shall be included for isolation of a trouble to a single equipment or functional area of an equipment. The procedures shall provide for the analysis of switching combinations and observable indications (dials, gauge lamps, and meters). The use of any required test equipment shall be described. The procedures shall support the fault-logic, control function, and data function diagrams. The supporting diagrams shall be referenced by figure number. Prerequisite control settings and conditions shall precede each procedure.

3.3.2.1.7.3 System Fault Logic and Troubleshooting-maintenance Dependency-matrix Diagrams.
System fault logic diagrams shall be developed for fault indications observed during either scheduled tests or operation. Fault logic diagrams shall be constructed in accordance with 3.3.2.1.7.4. These diagrams shall isolate the functional area of the equipment at fault and then refer the user to the equipment technical manual containing the information needed to complete the fault isolation and repair. Each diagram shall include or make reference to information necessary to establish the system test or operating conditions required for starting the fault isolation procedure. The conclusion boxes shall list the equipment or functional area within an equipment that is the probable source of malfunction and the technical manual reference or references for further isolation and repair of the fault. Troubleshooting-maintenance dependency-matrix diagrams in accordance with 3.3.2.1.7.5 may be substituted for or augment fault logic diagrams.

3.3.2.1.7.4 Fault Logic Diagrams.
Fault logic diagrams shall be based on a fault indication observed during troubleshooting. The diagrams shall comprise a branching series of questions pertaining to fault isolation. Each question shall pertain to a further observation or measurement, and shall result in a "yes" or "no" answer, thereby progressively narrowing the possible functional area of the fault. Tolerance values shall be presented in those instances where a definitive "yes" or "no" is not obtained. This progression and elimination shall isolate the functional area of the equipment containing the fault and then refer the user to the portion of the manual containing that information needed to complete the fault isolation and repair. Each diagram shall include or make reference to information necessary to establish the test or operating conditions required for starting the fault isolation procedure. Only three types of blocks shall be used. Shaded blocks (right and bottom border lines weighted) shall contain questions which may be answered from observation, without changing test setup and without special equipment. Single-line blocks shall contain questions requiring measurement by special setup of external test equipment. Double-line boxes (conclusion boxes) shall list the functional area within an equipment that is the probable source of malfunction and shall reference a procedure or another diagram for further isolation or correction of a fault.

3.3.2.1.7.5 Troubleshooting-Maintenance Dependency-Matrix Chart.
Matrix charts shall show the functional dependency of output signals or indications upon circuit elements, circuits, modules, and so forth. These charts shall be developed in accordance with the following:

a. Each vertical column is annotated to represent a circuit element, circuit, assembly, and so forth
b. The horizontal rows are annotated to represent a procedural step which results in an observable output or indication.
c. Symbols shall be used, in the body of the grid, to show the relationship between circuit elements, circuit, and so forth, and observable output or indication.

d. All circuits, assemblies, modules, and so forth, shall be exercised in a manner to permit logical diagnosis.
e. All outputs shall be clearly defined and performance specifications given.
f. All symbols shall be defined.
g. Use of chart shall be fully explained.

3.3.2.1.7.6 System Interconnection Diagrams.
System interconnection block diagrams shall presented with each equipment or component shown as a block. All cables running between equipments shall be identified by cable number. The number of active and spare leads in each cable shall be included. The illustrations shall also indicate all junction boxes, switchboards, and so forth, into which interconnection cables enter or leave.

3.3.2.1.7.6.1 Control Diagrams.
Control diagrams shall be included for all control circuits. Control circuits shall be grouped according to energizing voltage, control function, mode of operation, or physical limits of cabinet or assembly, as applicable. Supporting information required to clarify the use of the diagram shall be provided in the general notes. The functional name and reference designation for each relay, switch, lamp, and so forth, shown shall be included. All relay energizing circuits shall be shown with all tie points and terminals and with switches and relay contacts in their operating positions. All terminal connections, switches, interlocks, contacts, or other relays in series with the energizing path, plus lamps or indicators (electrically connected in the energizing or indicating status of contact closures), shall be shown. The following note shall appear on all control diagrams: "All switches and relay circuits are shown in operating positions." In cases of multiple operating positions, switch and relay positions shall be explained by a specific note on the diagram apron.

3.3.2.1.7.7 System Data Function Diagrams.
System data function diagrams shall show in detail the system information needed to isolate faults within signal or data flow paths. Data function diagrams shall include tolerance values and shall contain references to equipment publications where necessary. All inputs required to develop the output shall be shown. The data function diagrams shall be constructed in accordance with the following:

a. Titles of diagrams shall correspond to the signal flow described.
b. Show all test points necessary to isolate the trouble to the lowest level of hardware block (for example, subassembly). Include test parameters required to define satisfactory operation. Where signal flow diagrams depict signal flow in more than one mode of operation, that data shall be presented on the apron for all modes. Apron notes shall also include test data for test equipment setup. All inputs and outputs shall have signal description information.

c. References shall be made to the functional description, troubleshooting procedures, corrective actions, and so forth, as appropriate by paragraph number. Normally these references shall be included with the notes.
d. The display of more than one function or mode of operation on one diagram shall be allowed only when clarity is not sacrificed and the functions are relatively simple.
e. Screwdriver adjustments, dial adjustments, and adjustable controls shall be shown.
f. All built-in controls and monitoring devices shall be shown. Do not show external test equipment, unless it is a permanent part of the equipment.
g. Hull grounds, chassis grounds, signal grounds, and power grounds shall be shown.
h. All leads of motors, generators, synchros, and so forth, shall be identified.
i. All relay coils that are energized by the signal shall be shown.
j. All relay contacts and relay terminals in the flow path shall be shown and identified. All relay contacts shall be depicted in operational mode. References to control diagrams on which the relay coils appear shall be shown adjacent to the relay contacts.
k. Signal paths shall be identified by weighted lines and arrowheads.

3.3.2.1.7.7.1 Signal Flow Diagrams.
Signal flow diagrams shall consist of detailed block diagrams illustrating the functional development of each major function from its origin to its measurable output. The flow path shall begin with one or more initial inputs (or appropriate interface conditions) and proceed through each unit, assembly, and subassembly influencing the signal flow. Each hardware-level block shall reference a schematic diagram to isolate the faulty part. All items shown on the signal flow diagram shall be identified by their reference designations. The following shall apply:

a. Titles of diagrams shall correspond to the signal flow described.
b. Diagrams shall depict such signal flow as receive, transmit, RHI display, PPI display, bearing data, antenna rotation, elevation data, and so forth
c. All test points necessary to isolate the trouble to the lowest level of hardware block (for example, subassembly). Include test parameters required to define satisfactory operation. Where signal flow diagrams depict signal flow in more than one mode of operation, that data shall be presented on the apron for all modes. Apron notes shall also include test data for test equipment setup. All inputs and outputs shall have signal description information.
d. References shall be made to the functional description, troubleshooting procedures, corrective actions, and so forth, as appropriate, by paragraph number. Normally these references shall be included with the notes.
e. The display of more than one function or mode of operation on one diagram shall be allowed only when clarity is not sacrificed and the functions are relatively simple.

f. Screwdriver adjustments, dial adjustments, and adjustable controls shall be shown.
g. The reference designations (for example, 1A1A2) shall be placed in each hardware block. Reference to the figure number of the schematic diagram shall be placed adjacent to the reference designation.
h. All input and output signals and connectors and terminals in the signal path shall be shown. Identify the signal, and show all lead numbers, connector numbers, and terminal identifiers.
i. All built-in controls and monitoring devices shall be shown. Do not show external test equipment, unless it is a permanent part of the equipment.
j. Hull grounds, chassis grounds, signal grounds, and power grounds shall be shown.
k. All leads of components such as motors, generators, synchros, and so forth, shall be identified.
l. All relay coils that are energized by the signal shall be shown.
m. All relay contacts and relay terminals in the flow path shall be shown and identified. All relay contacts shall be depicted in operational mode. References to control diagrams on which the relay coils appear shall be shown adjacent to the relay contacts.
n. All switches which affect signal flow shall be shown and identified. Switch terminals and panel markings corresponding to the switch positions shall also be shown.
o. Mechanical couplings of all controls, switches, potentiometers, synchros, and so forth, shall be shown.
p. Signal paths shall be identified by weighted lines and arrowheads.
q. Test instruction procedures and test data shall be shown.

3.3.2.1.8 Alignment Procedures.
The procedures shall present the corrective adjustment procedures and support information necessary to restore electrical and mechanical alignment between the various system equipments. All values and tolerances shall be included. The alignment shall be cross-referenced to respective fault-isolation procedures and diagrams in the Fault Isolation topic. Alignment procedures shall include references to equipment publications where further procedures are required at the equipment level. The alignment procedures shall be presented in step-by-step form.

3.3.2.2 Digital Encoding of Technical Publications.

3.3.2.2.1 Source File Development Requirements.

3.3.2.2.1.1 General Requirements.
Manuals developed in general accordance with this document shall conform to a document type definition in accordance with MIL-STD-38784. Technical manual and artwork shall meet the requirements of this document, including the requirements

specified for FRC printed form and style. All corrections required due to verification and review of the preliminary manuals shall be incorporated. Technical manual in digital form shall conform to the requirements specified in MIL-STD-1840, MIL-PRF-28001, MIL-PRF-28002, FIPS PUB 194, and the requirements set forth in this document.

3.3.2.2.1.2 Textual Source File Requirements.
Textual material marked in accordance with MIL-PRF-28001 is referred to as a text source file. A complete SGML-tagged source file(s) of all text data (SGML Instance) is a mandatory part of each final technical manual product.

3.3.2.2.1.3 Graphic Source File Requirements.
Illustrations artwork, photographs and other graphic material shall be developed in accordance with MIL-PRF-28002 and FIPS PUB 194. This data is referred to as a graphic source file. Raster illustration or graphic source files for all figures and illustrations shall be a mandatory part of each final technical manual product.

3.3.2.2.1.4 Source File Interchange Format.
The format of all digital source files shall be in accordance with MIL-STD-1840. It is the source files to which all subsequent changes and updates must be made to maintain the technical publication throughout its operational life. When corrections are made to a working, intermediate, or output file, corrections must be incorporated in the source file which is the primary final product.

3.3.2.2.1.5 Inspections.
The Government reserves the right to perform any of the inspections set forth in MIL-PRF-28001 to ensure that supplies and services conform to prescribed requirements.

3.3.2.2.2 Digital File Requirements.

3.3.2.2.2.1 Files And File Formats, General.
The following specific digital source files and products are required for the final issue of each technical manual. Technical publication information consists of text and associated illustrations in digital form. This information shall be organized into file sets. Each requisite file of a set shall be encoded in a format in accordance with MIL-STD-1840, and be accompanied by the applicable data file header records in accordance with MIL-STD-1840.

3.3.2.2.2.2 Declaration File Format.
The declaration file shall be in 7-bit ASCII and shall uniquely identify the delivery document. The declaration file shall be developed in accordance with the requirements of Section 5 of MIL-STD-1840. There shall be one declaration file provided with each final manual delivered in digital form. (Declaration files may also contain the characters permitted by ANSI X3.4.)

3.3.2.2.2.3 SGML Conforming Text Source File Format.
The file set of a technical manual containing SGML conforming files shall consist of

SGML coded text source files with at least one text source file per document, mandatory. Each file shall be accompanied by identifying data file header records. The text source files shall be ASCII, SGML coded text files tagged in accordance with MIL-PRF-28001 as specified by the document type definition of MIL-PRF-28001 and the following:

a. Text files shall be provided on 9-track magnetic tape at 6250 characters per inch or 1600 if so specified in the contract or SEATASK in data format conforming to MIL-STD-1840. Media other than magnetic tape (for example, magnetic diskettes, optical disks, and so forth) shall be provided when specified in the contract or SEATASK.
b. The appropriate document declaration set shall be referenced in the SGML text using the following public identifier:

c. `<!DOCTYPE doc PUBLIC "-//USA-DOD//DTD MIL-STD-38784C 900102//EN" >`

d.

e. Document numbers for the following items must be physically present in the text stream using the appropriate attribute as defined in MIL-PRF-28001: chapter, section, paragraph, figure, table, footnote, appendix, steps, and list items.
f. All internal (cross) references shall be tagged as defined by the document type definition in Appendix B of MIL-STD-38784. For internal references, a reference identifier (ID) shall be provided which specifies the unique ID of that part of the manual which is being referenced. Accordingly, an ID value shall be provided for the appropriate reference within the manual. For external references, the referenced document number shall be provided.
g. Information in the following table shall be tagged as defined by the document type definition (DTD).

h.

i. Information to be tagged.

j.

k.	Cross reference	National stock number
l.	Technical manual	Part description
m.	identification	Part number
n.	number (Doc No)	Start and end of change
o.	Equipment model number	Start and end of emergency
p.	Equipment serial number	information
q.	Footnote	Start and end of emphasis
r.	Graphic	(note 1)
s.	Index flag	Test equipment

t.

u. Note 1. For use only when format document cannot
v. provide desired emphasis
w.

x. Hyphenation and spell checking. The processing system that produces the text digital products required by this paragraph must electronically spell check the document text. Line ending machine generated hyphens are not permitted.

y. Page integrity. Page integrity is the maintenance of physical or logical page boundaries at specific places in a publication. The processing system that prepares the digital products must provide page break indicators in the tagged text files for use in maintaining page integrity during future updates to the technical manual. The page break indicator as defined by the document type definition of MIL-STD-38784 and associated page number shall be used.

3.3.2.2.2.4 Document Type Definition (DTD) Data File Format.
A document type definition shall be used to define the organization and logical structure of elements, entities, and attributes allowed in a particular document. It shall also be used to control automated processing functions (such as parsing) that support quality assurance requirements. The document type definition data file shall be in accordance with the document type definition in Appendix B of MIL-STD-38784 and shall define the structure and content of the technical manual. A standard DTD shall be cited. It can be provided on diskette, if the contractor desires, and requests it. The standard Navy/NAVSEA DTD (NAVSEA Class 2 DTD) is readily available on INTERNET. It can be viewed on-line at:

Navy XML/SGML Repository

3.3.2.2.2.5 Output Specification and Formatting Output Specification Instance (FOSI).
The Government will provide a FOSI for use by the preparing activity. The FOSI provides a set of formatting characteristic values used to rigorously describe composition processing functions to be performed on the elements of a text document to provide the required format and style. The FOSI shall be expanded by the preparing activity to contain values for characteristics for every context in which a tag has a unique formatting requirement. Each unique tag shall be accompanied with a description of its attributes if it effects the formatting. Technical manuals conforming to this document and encoded in accordance with MIL-STD-38784 shall be accompanied by a FOSI which incorporates any preparing activity unique attributes for output format and style stated in this document.

3.3.2.2.2.6 Illustration Data Source File Format.
Each set of text source files for a technical publication shall be supported with an illustration data source file for each illustration in the technical publication.

a. Raster illustration data files shall be in accordance with the requirements of MIL-PRF-28002 and FIPS PUB 194.
b. Each illustration data file shall be accompanied by identifying header records (see Section 5 of MIL-STD-1840).

c. A printout of all raster file header records will accompany all digital raster illustration files.
d. Where there are multiple instances of the same illustration in different locations of the technical publication, a single illustration file may be used to satisfy all of the illustration instances.
e. All digital raster illustrations shall be cropped and sized to fit the designated window for printing with no further manipulation.
f. The use of color and photographs is prohibited.
g. The fixed-length blocks of the raster files are to be padded using ASCII Decimal 32 (space) to the appropriate size.
h. For TMs conforming to this document, 8 1/2 inch by 11 inch or smaller illustrations are to be MIL-PRF-28002 type I files. All larger sizes are to be in accordance with FIPS PUB 194.

3.3.2.2.2.7 Page Description Language (PDL) Data Files.
The PDL shall be as follows. Output page description language files shall be provided as allowed by MIL-PRF-28001. The page description language shall be postscript or a postscript compatible language. The file format shall be written with 256 byte ANSI type F fixed-length records with block length of 2048 bytes. All data header records shall be as defined in Section 5 of MIL-STD-1840. The data header record shall be written in the first physical block of the file, with the block padded using ASCII Decimal 32 (space) to the appropriate size. There shall be only one postscript or postscript compatible file for the final issue of each technical manual.

3.3.2.2.2.8 Hardcopy Print From PDL Files.
A hardcopy printout of the PDL files shall accompany each final technical manual deliverable.

3.3.2.2.2.9 Special Word Data File Format.
Any special word data files and their format (see MIL-STD-1840) shall be as specified.

4.0 QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility For Inspection.
The contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. The contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document, where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility For Compliance.
All items shall meet all requirements of this document. The inspections set forth in this document shall become a part of the contractor's overall inspection system or quality

program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Government Inspection.
Material furnished in accordance with this document shall be subject to inspection, verification, and approval or disapproval by the Government as specified by the terms of the contract. Inspection and verification will be performed by the Government prior to acceptance. The Government reserves the right to conduct a guidance and quality planning conference, quality program reviews, and in-process reviews (IPRs) throughout the term of the contract to ensure compliance with the Technical Manual Quality Assurance (TMQA) program, applicable specifications and the contract to ensure production of a quality product. When the Government performs an inspection at a contractor's plant, such inspection shall not be used by the contractor as evidence of effective control of quality. When revisions or corrections are required after any inspection, validation, or review, there shall be re-inspection, re-validation, or re-review by the contractor, and if necessary, by the Government of all data affected.

4.1.2.1 Government Inspection At Subcontractor Facilities.
Government inspection, verification and acceptance of a preliminary material at a subcontractor facility shall not constitute Government acceptance of the IETM. Such Government actions shall not, in any way relieve the prime contractor of his responsibilities for inspection and validation or of his responsibility to furnish an acceptable IETM. When the Government requires inspection or verification at the subcontractor location, the prime contractor shall include in the purchasing document a statement equivalent to the following:

```
      "Government inspection and verification is required prior to
shipment from your plant.
      Upon receipt of this order, promptly notify and provide a copy of
this order to the
      Government representative servicing your plant so that Government
inspection and
      verification may be planned.  If the Government representative
cannot be identified,
      the prime contractor shall be notified immediately."
```

The prime contractor shall report to his Government representative any nonconformance of subcontractor's manuals and shall require the subcontractor to coordinate corrective action with the appropriate Government representative.

4.2 TMQA Program And Responsibilities.
The contractor shall establish a TMQA program to ensure the development of technically accurate and complete IETMs. The contractor shall be responsible for the implementation of the TMQA program and for product quality. The TMQA program shall be in

accordance with the ASQC Q9003 or other documented quality assurance procedures as approved by the Government. Review requirements are as specified by this document. The contractor's TMQA program shall encompass the accountability for and development of quality control functions required for the management of the following IETM program elements:

a. Source data collection.
b. Intermediate product.
c. Participation in quality reviews and IPRs.
d. Graphics and illustrations.
e. Authoring system software documentation and control.
f. Authoring system capability.
g. Validation.
h. Internal coordination (documentation of contractor operating procedures).
i. Record keeping.
j. Verification support.
k. Final product.

4.2.1 Written Operating Procedures.
Contractor personnel, subcontractors, and vendors involved in IETM generation shall operate in accordance with written operating procedures. Portions of these procedures that relate directly to product quality shall be identified by name, number, and date. Such procedures shall be originated, revised, and controlled within the framework of the overall TMQA program, and shall periodically be reviewed, evaluated, and updated as required. Current operating procedures shall be made available for Government inspection (see 4.2.3.2).

4.2.2 TMQA Program Organization.
The contractor's TMQA program organization shall have well defined responsibility, authority, and the organizational freedom to identify and evaluate quality assurance problems and to recommend and initiate solutions.

4.2.3 TMQA Program Functions.
All IETM program elements and processes shall be evaluated by contractor and Government quality assurance personnel at various stages of development, using any or all of the following quality assurance program functions:

a. Guidance and quality planning conferences.
b. Quality program reviews.
c. Quality reviews.
d. IPRs.
e. Validation.
f. Verification.

4.2.3.1 Guidance And Quality Planning Conference.
The guidance and quality planning conference (also referred to as the TMQA guidance conference or start of work meeting) is conducted soon after contract award to ensure the contractor's understanding of this document, contract requirements, instructions, established policies, and program requirements. Such conferences may be requested by either the contractor or Government. Anticipated quality assurance problems will be identified and resolved at this conference. The contractor shall explain the proposed TMQA program, showing how the program meets all of the requirements of this document and how the program will function to assure a quality product. The contractor shall also explain the Classification of Defects (CD) table during this conference. Attendance shall include key Government and contractor personnel who will be involved in the TMQA program.

4.2.3.2 Quality Program Reviews.
The contractor shall support quality program reviews as requested by the Government and provide access to QA records as specified in the TMQA program. During the quality program review, the contractor shall to demonstrate to the Government the operation of the TMQA program, and establish that product quality reviews are being correctly implemented, defects are being identified, and appropriate corrective actions are being taken. This shall include review of data generated during contractor quality reviews and quality related reports and records. TMQA program reviews chaired by a Government representative shall be conducted at the contractor's facility. All quality review results will be documented by the Government.

4.2.3.3 Quality Reviews.
The contractor's QA organization shall conduct quality reviews to ascertain compliance with the TMQA program and provide for corrective action. Quality reviews shall be conducted to evaluate the availability and adequacy of materials, processes, procedures, and intermediate products that constitute IETM development.

4.2.3.3.1 Corrective Action.
The contractor shall initiate a process of corrective action for all recorded and detected deficiencies. The contractor shall implement preventive action programs to counter any apparent deficiency trends. The detection of deficiencies that are recognized and are not cited in the classification of defects (CD) shall be added. Objective evidence of the effectiveness of the corrective action program for each deficiency shall be maintained.

4.2.3.3.2 Source Data Control.
The contractor shall ensure that the most current source data is available and utilized for IETM development.

4.2.3.3.2.1 Task Identification Matrix Or Equivalent.
The contractor shall ensure the IETM content and organization is consistent with a task identification matrix or equivalent. The task identification matrix or its equivalent shall

ensure that all required levels of maintenance are sufficiently detailed and complete. The task identification matrix or equivalent shall be in agreement with the LSA task analysis data, approved maintenance concept or plan, and approved source, maintenance, and recoverability (SM&R) codes.

4.2.3.3.2.2 Control of Subcontractors And Vendors.
The contractor shall ensure the quality of IETMs developed by subcontractors and suppliers. The contractor's quality program shall not be deemed acceptable to the Government unless that contractor requires from his subcontractor a quality control program satisfying the requirements of this specification, or equivalent control over the subcontractor.

4.2.3.3.2.3 Sampling.
All IETM products, regardless of percentage of completion, shall be sampled and evaluated as a method of determining the acceptability of product in development.

4.2.3.3.2.4 Classification Of Defects (CD).
The CD table associated with the contractor's sampling procedures shall be made available during the guidance and quality planning conference and other quality reviews and IPRs. The CD table shall be used for product evaluation to identify IETM defects. The CD shall be patterned after the CD listed below. The contractor and the Government may jointly classify additional defects applicable to the specific products being acquired.

a. Major defects (incorrect, incomplete, missing):
    1. Maintenance procedures.
    2. Hotspots and links.
    3. Values and tolerances.
    4. Illustrations, schematics, wiring diagrams.
    5. Part numbers.
    6. References and indices.
    7. Safety - notes, cautions, warnings, dangers.
    8. Alert acknowledgement.
    9. Technical content (source data and hardware comparison).
    10. Classified matter (incorrect identification and handling).
    11. Charts and tables.
b. An excess of any one or combination of the following:
    1. Unfamiliar words, inconsistent vocabulary, long sentences, long paragraphs, non-informative headings, organization not based on immediate needs of the user, and complex or unclear illustrations.
c. Minor defects (incorrect, incomplete, missing):
    1. Typographical errors.
    2. Collated pages.
    3. SM&R codes.
    4. Style and format.

4.2.3.4 In-Process Reviews (IPRs).
IPRs will be authorized and convened by the Government to ensure that IETMs are adequate, accurate, meet user requirements, and in compliance with the contract and this document. The contractor shall support IPRs and provide access to IETM source materials, intermediate, and final products. IPRs shall include evaluation of source data, IETM preparation methods, readability, a review intermediate and final IETM deliverables (including completed text, artwork, and technical content). As applicable, IPRs are convened to monitor the preparation of IPBs to ensure coverage is in accordance with the approved SM&R codes. IPRs will also be conducted during the preliminary development stages of the IETM to ensure adequacy and accuracy of IETM functionality, usability, and presentation (see 4.2.3.4.3 through 4.2.3.4.7). Safety and nuclear weapon procedures identified by the Government shall require a 100% IPR. The Government and the contractor will jointly establish the frequency and timing of IPRs, and the Government shall have final approval authority for the schedule. Additional IPRs may be required based on the contractor's or Government's evaluation of the IETM development process or criticality/complexity of the material covered. The IPR schedule will be agreed upon at the guidance and quality planning conference, and the Government approved IPR schedule shall be contained in the guidance and quality planning conference minutes.

4.2.3.4.1 IPR Review Location.
IPRs intended for locations other than the contractor's facility will be approved by the Government.

4.2.3.4.2 Evaluation Of The IETM Authoring System.
The use of the authoring system to be employed in generating the IETM, including a demonstration that the authoring system functions outlined in the TMQA program plan are in working order and are being used in the IETM generation process. Relationship of the IETM authoring process to acquisition and use of relevant source data (particularly LSA/LSAR and drawings) shall be specifically addressed.

4.2.3.4.3 Evaluation Of The IETM And The Display Device.
An IPR will be authorized to monitor the compatibility of the IETM with the operating and presentation software of the display device before any actual use, testing, or evaluation of operational suitability can take place (for example, using the Government specified or contractor recommended end-user IETM display device). In this sense, the IETM cannot be approved without demonstrating its operability with the proposed display device.

4.2.3.4.4 Evaluation Of IETM Navigation Functions.
An IPR will be authorized to determine if a comprehensive set of commands to navigate and sequence through the technical information has been provided and that these navigation functions are user friendly and are explained adequately within the IETM.

4.2.3.4.5 Evaluation Of IETM Functionality.
An IPR will be authorized to evaluate IETM functionality as specified by the Government.

4.2.3.4.6 Evaluation Of IETM Presentation Techniques.
An IPR will be authorized to monitor the placement of the IETM technical information within the display device to be used. A demonstration shall be provided showing the following:

a. Location and use of standard navigation buttons.
b. Placement and use of the table of contents.
c. Placement of the technical content such as narrative text, procedural data, and parts information.
d. Display and placement of graphics and tables.
e. Hotspot and linking capability.

4.2.3.4.7 Evaluation Of World Wide Web Applicability.
When specified by the Government, the contractor shall demonstrate that the IETM can be accessed and displayed over the World Wide Web.

4.2.3.4.8 Evaluation Of Source Files.
When IETM source files are to be delivered to the Government, the contractor shall validate that the source files have been tagged to the level and depth required by the applicable DTD and the content requirements contained in this document.

4.2.3.4.9 IPR Records.
The Government will act as recorder and record decisions, results, and findings during the IPR. The Government will provide a copy of all recorded IPRs to the contractor.

4.2.3.4.9.1 Disposition Of IPR Findings.
The Government and the contractor shall resolve IPR findings that involve problem areas or findings that require further evaluation before final disposition. Any discrepancy or deficiency found as the result of the IPR shall be corrected prior to certification and acceptance of the IETM.

4.2.3.5 Validation.
Validation is a contractor's quality assurance responsibility that shall be accomplished for all IETMs, changes, and revisions thereto. Validation shall provide a measure of the overall quality of the IETM. The validation shall be performed by individuals who are of approximately the same education, experience, and skill level as the actual target audience for the IETM. Where it is not possible to obtain such personnel for validation, validation personnel shall at least exclude those who cannot be expected to provide a realistic test of the validity of the IETM (e.g., graduate engineers or those involved in authoring the IETM). The Government reserves the right to witness validation. The contractor shall notify the Government of the validation schedule prior to commencement. An IETM shall not be considered validated until the following conditions have been fulfilled:

a. Contractor's engineering technical review has been completed (see 4.2.3.5.1).
b. Information reflects configuration of the systems and equipment.
c. Procedural instructions are readily understandable by the intended user and adequate to perform all intended functions.
d. Adequacy of data is checked to ensure that it supports the approved maintenance and support plan.
e. Hardware of the proper configuration is available for the validation effort. An operational environment shall be used, if possible, or simulated, if practicable.
f. Functionality is in accordance with the specified requirements.
g. Required information can be easily accessed from the List of Contents and that the navigation and logical sequencing through the information is manageable and user friendly.
h. All technical information, including text, tables, graphics appear in the appropriate data panes.
i. Source files are tagged to the level and depth required by the applicable DTD and the technical content requirements contained in this document.

4.2.3.5.1 Engineering Reviews.
The contractor shall conduct appropriate engineering reviews of the technical information to ensure that it is safe, complete, logical, technically accurate, and comprehensible. Based on this review, the contractor shall certify prior to validation that the technical information permits efficient performance of the intended equipment-support functions and that the technical information is ready for validation. All errors noted during this engineering review shall be corrected prior to validation. The contractor shall maintain engineering review records.

4.2.3.5.1.1 Validation Performance.
Theory and principles of operation, system and component description, SM&R codes (when applicable), schematic, and wiring data shall be validated against engineering source data in accordance with the validation plan. Operating and maintenance procedures including checkout, alignment, scheduled removal and replacement instructions, and associated checklists shall be validated against the system and equipment by actual demonstration. Malfunctions shall not be introduced into the system or equipment for the purpose of validation unless specifically required for certification of procedural tasks or system tests. Destructive malfunctions shall not be introduced into the system or equipment for any purpose.

4.2.3.5.1.2 Support Equipment.
Government approved support equipment shall be utilized in the performance of validation. Simulation or substitution of support equipment shall be approved by the Government. It is the responsibility of the contractor to request Government furnished equipment in order to support the validation effort. The contractor shall provide all consumable and expendable items required to support validation.

4.2.3.5.1.3 Validation Of Readability.
Narrative text shall be validated for conformance to readability standards specified in 3.3.1.2.4.3. If the overall grade level (OGL) (including tolerance) is exceeded, the IETM shall be rewritten as required to meet the specified reading grade level (RGL). If a sample grade level (GL) is exceeded, the entire text surrounding each sample shall be rewritten as required.

4.2.3.5.1.4 IETM System Validation.
An IETM system consists of the EDS hardware, the IETM, and the EDS presentation software interoperability. Unless otherwise specified, validation of the IETM system shall be performed by demonstration. The extent of the demonstration shall be in accordance with the contractor's validation plan. Unless otherwise specified by the Government, the field version of the IETM system hardware and software shall be demonstrated to the extent required to establish its accuracy, capabilities, and compatibility with Government systems and contractual requirements. The IETM system validation shall:

a. Demonstrate the general visibility and readability of the IETM as displayed on the EDS.
b. Check that all data access links and branches are valid and operable.
c. As applicable, ensure that there are no "open loops" in the fault isolation tasks (i.e., that each task ends in a single resolution, and each retrieval string ends in successful isolation and repair of a discrete fault).
d. Ensure that there are no un-referenced or inaccessible data in the system.
e. Demonstrate all required functionalities are fully operable.

4.2.3.5.1.5 Disposition Of Validated Data.
Corrections and significant comments resulting from validation shall be incorporated prior to issue of the validation certification.

4.2.3.5.2 Verification.
Verification shall be accomplished under the jurisdiction of the Government and may include contractor support. Verification is a responsibility of the approval authority or authorized representative. The purpose of verification shall be to ensure that the contractor's products and services are in conformity with the requirements of this document.

4.2.3.5.2.1 Verification Support Requirements.
Contractor support of verification shall consist of the following:

a. Serve as verification recorder, if required. Record and maintain records of changes associated with performance of verification.
b. Provide assistance in performing verification tasks, if required.
c. Certification that all discrepancies and defects noted during verification have been corrected or resolved.

4.2.3.5.3 Combined Validation And Verification.
When authorized by the Government, verification shall be performed concurrently with validation. Final acceptance of the IETM will be made upon receipt of the validation and verification incorporation certifications.

5.0 PACKAGING.

5.1 TECHNICAL MANUAL SCHEDULE, STATUS AND COSTS REPORTS.
Suggested packaging is commercial in accordance with ASTM D3951. Delivery shall be in accordance with the Contract Data Requirements List.

5.2 QUALITY ASSURANCE PROVISIONS.

5.2.1 Validation Plan.
Suggested packaging is commercial in accordance with ASTM D3951. Delivery shall be in accordance with the Contract Data Requirements List.

5.2.2 Validation Certification.
Suggested packaging is commercial in accordance with ASTM D3951. Delivery shall be in accordance with the Contract Data Requirements List.

5.3 MANUAL, TECHNICAL, STANDARD.

5.3.1 Interactive Electronic Technical Manual (IETM).
Unless otherwise specified by the procuring activity, items shall be packaged in the most economical manner that will provide adequate protection during shipment in accordance with accepted industrial packaging procedures. Packaging of encoded computer products, in preparation for delivery, shall be in accordance with the requirements in MIL-STD-1840.

5.3.1.1 Final Digital Encoding of Technical Publications.
The requirements for packaging shall be in accordance with MIL-STD-1840.

6.0 GOVERNMENT FURNISHED PROPERTY.

The following documents are provided as GFP:

The following documents are available on the INTERNET at

NAVSEA Carderock CALS Standards

MIL-PRF-28001C	Markup Requirements and Generic Style Specification for Electronic Printed Output and Exchange of Text
MIL-PRF-28002C	Raster Graphics Representation in Binary Format,

Requirements for

MIL-STD-1840C Military Standard Automated Interchange of Technical Information

The following document is available on the INTERNET at

Navy XML/SGML Repository

MIL-STD-38784 Document Type Definitions

7.0 COST AND PRICING.

Not applicable.

8.0 PRINTING.

8.1 Not Applicable.

9.0 NOTES.

The Figure List referenced in this document is by ascending order which is not necessarily the order of appearance. Only those figures referenced by the requirements of this document are included which accounts for the non-sequential listing. The figures are samples only. Size and legibility do not necessarily conform to the requirements set forth herein.

ATTACHMENT B
PERFORMANCE SPECIFICATION (PSPEC)

FOR

Embedded Platform Logistics System (EPLS)

Prepared By

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2202 Lester Street
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20 March 2007
Version 1.0

FOR OFFICIAL USE ONLY
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1 SCOPE

This performance specification is for procurement of Embedded Platform Logistics Systems (EPLS).

1.1 EPLS Capability

EPLS shall provide the capability to monitor, collect, process, record, report, store, and archive the operational status and system health of a platform for use by the authorized users. EPLS shall also host and display specified platform electronic records and documents.

1.1.1 Operational Status

Operational Status is an assessment of the platforms ability to perform its required mission and includes fuel level and consumption rates, ammunition type, quantity, levels and consumption rates, mobile load and crew / passenger manifest information.

1.1.2 System Health

EPLS shall derive system health from existing and additional sensors, bus signals, bit error codes, diagnostics / prognostics, and other health monitoring technologies to provide an assessment indicative of overall operational condition of a platform.

1.2 Operational Relevance

Equipment readiness and operational availability are fundamental attributes to mission success. Current and projected Operation Iraqi Freedom (OIF), Tactics, Techniques, and Procedures (TTPs) highlight the need to improve visibility of equipment operating status in order to enhance operational availability and logistic response. Accurate visibility of platform operational status is critical to maintaining warfighting readiness and ability to sustain combat operations over extended periods under extremely harsh conditions. The effective sustainment of critical weapon systems and platforms begins with the ability to monitor, collect, process, and display essential platform operating status. While this ability is needed across the Marine Corps ground equipment inventory, there exists an immediate need to modify and upgrade the following weapon systems/platforms: Medium Tactical Vehicle Replacement (MTVR), Light Armored Vehicle (LAV), and Amphibian Assault Vehicle (AAV).

1.3 Classification

Concept of Employment - Embedded Platform Logistics (EPL) Modification shall be employed at the tactical level, down to the individual platform/equipment item. EPLS shall be used during pre-deployment, deployment and post deployment phase of a mission. It shall be capable of employment in wartime and peacetime situations, independent of scenarios, and wherever Marines are deployed to support platform operations, maintenance, and logistics information requirements and activities. EPL shall improve platform readiness, availability, and mission performance by providing authorized users enhanced situation awareness of a platform or combination of platforms operational status and system health. EPLS shall perform automated diagnostic routines and allow the platform operator and maintainer to interact with, troubleshoot, and diagnose equipment failures and where possible anticipate failures.

1.4 Types

The EPLS program shall provide On-Board computer (OBC) with ancillary cabling, sensors, analog to digital converters, mounting hardware, test measurement and diagnostic equipment, and other required hardware and software particular for each of the three platforms and their variants.

1.4.1 Entity Type Description

EPLS consists of four primary functional components, seven functional processes, and three data types:

1.4.1.1 EPLS Hardware

EPLS hardware consists of all material parts required to provide EPLS capability as specified herein. EPLS hardware includes hardware that is required to provide EPLS capability on the platform, and includes but is not limited to the On-Board computer (OBC), display, a J-1939 Data Bus, interface electronics, cabling, connectors, additional sensors, data acquisition, test measurement, diagnostic equipment, and mounting hardware.

1.4.1.2 EPLS On-Board Software Client

EPLS On-Board Software Client (OBSC) application consists of all data and EPLS OBSC applications and executable software required to provide EPLS capability as specified herein. EPLS OBSC design shall allow interactions between EPLS On-Board applications i.e., (diagnostics / prognostics) and other on-board data sources as required.

1.4.1.3 EPLS Electronic Record

EPLS OBSC data and software includes an electronic record that contains but is not limited to EPLS IETMs, parts lists, and preventive maintenance checks and services specific to EPLS but shall include the vehicle electronic record jacket.

EPLS shall also host additional on-board data sources e.g. (non-EPLS) platform related IETMs, ETMs, parts lists, preventive maintenance checks and services specific, and computer based training modules specific to the host platform.

1.4.1.4 EPLS Off-Board Service Application

EPLS Off-Board Service Application (OBSA) consists of aggregated On-Board Software Client generated data, conditional based maintenance tools, and additional software required to provide EPLS capability as specified herein. EPLS OBSA includes fleet operational status and system health reporting capabilities for individual and multiple platforms, platform variants, assessment management, a database, administrator tools, user tools and trending reporting, graphing and charting capability.

1.4.1.5 EPLS Functional Processes

The following processes performed as a single process or a combination of processes shall be referred to as EPLS functions or EPLS functionality.

1.4.1.5.1 Monitor - EPLS function of observing, detecting the data relating to operational parameters or performance characteristics, or known state of a single or group of platforms, sub-systems, or sub-assemblies.

1.4.1.5.2 Collect - EPLS function of gathering data relating to the irregularities, changes to (Increases/Decreases) of known states, indicators, readings, or other operational characteristics / parameters of a single or group of platforms, sub-systems, or sub-assemblies for further analysis.

1.4.1.5.3 Process - EPLS function of examination, analysis, or comparison of collected data or combination of data elements in order to identify changes of the relative operational characteristics or known state of a single or group of platforms, sub-systems, or sub-assemblies.

1.4.1.5.4 Record - EPLS function of documenting the outputs of EPLS processing function for use in future EPLS functions and associating an accurate date / time stamp to information documenting irregularities, changes to (increases/decreases) of known states, indicators, readings, or other operational characteristics / parameters of a single or group of platforms, sub-systems, or sub-assemblies.

1.4.1.5.5 Store - EPLS function of filing for reference, download, or transmission the outputs of EPLS processing function for use in future EPLS functions with associated accurate date / time stamp to information documenting irregularities, changes to (Increases/Decreases) of known states, indicators, readings, or other operational characteristics / parameters of a single or group of platforms, sub-systems, or sub-assemblies. Storage is relatively short term in duration.

1.4.1.5.6 Report - EPLS function of using recorded and stored EPLS information to communicate the irregularities, changes to (Increases/Decreases) of known states, indicators, readings, or other operational characteristics / parameters of a

single or group of platforms, sub-systems, or sub-assemblies as usable information presented and displayed to an authorized EPLS users in response to an on demand or interval based standard or Ad Hoc information query

1.4.1.5.7 Archive - EPLS function of filing for historical reference, the outputs of EPLS storage and reporting processing for use in future EPLS functions. Archival functions shall take place Off-Platform. Archive is a permanent record.

1.4.1.6 Data Types

The EPLS system shall access, use, and generate multiple data sets. Data sets are classified as follows –

Platform Data – consists of data provided by the platform in the form of paper, electronic, and interactive electronic technical manuals, configuration, inventory, parts and modification data developed prior to this contract.

EPLS Data – consists of all data related to EPLS including, operating systems, software interfaces, interface control documents, business rules, algorithms, firmware, sensors data, alerts and indicator, electronic records, etc. developed under this contract.

Cooperate Data – consist of data that is provided from or to external applications.

1.4.2 Related Systems

EPLS OBC and OBSC shall interface with the Joint Tech Data Integration (JTDI) Portable Electronic Display Device (PEDD) for data exchange, and EPLS OBSA shall reside on a JTDI server.

2 APPLICABLE DOCUMENTS

2.1 General

The documents listed in this section are applicable to sections 3, 4 or 5 of this specification. This section does not include documents cited in other sections of this specification or documents recommended for additional information or as examples. The most recent revision of the referenced document at the time of contract shall be used unless otherwise specified. In the event of conflict between the applicable documents and this specification, the specification shall take precedence. All second tier and below references cited in mandatory compliance documents shall be considered as guidance only. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained. The following documents form a part of this specification.

2.2 Military Standards and Specifications - Mandatory Compliance

MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-461	Requirements for the Control of Electromagnetic Interference Characteristics of subsystems and equipment
MIL-STD-464	Electromagnetic Environmental Effects Requirements for Systems
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-882	Standard Practice for System Safety
MIL-STD-1275	CHARACTERISTICS OF 28 VOLT DC ELECTRICAL SYSTEMS IN MILITARY VEHICLES

2.3 Military Standards and Specifications - Guidance Only

MIL-STD-6017	DoD Interface Standard Variable Message Format

2.4 Drawings

Not Applicable.

2.5 Handbooks - Guidance Only

MIL-HDBK-781	Reliability Test Methods, Plans, and Environments for Engineering Development, Qualification, and Production

MIL-HDBK-237	Electromagnetic Environmental Effects and Spectrum Supportability Guidance for the Acquisition Process
MIL-HDBK-240	HERO Test Guide

2.6 Other Government Documents

Unless otherwise stated, the following documents may be obtained from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or visit http://dodssp.daps.mil.

DoDD 4650.1	Management and Use of the Radio Frequency Spectrum
OPSTD-014	Guidance for Wireless LANS
NTIA Manual	National Telecommunications and Information Administration
UM-4790	User Manual for MIMMS and SASSY
TM 4700-15/1	Technical Manual for Ground Equipment Record Procedures
DDMS	DoD Discovery Metadata Specification
DoD Net-Centric Data Strategy	Enterprise Level Data Strategy
DoD Directive 8100.1	Global Information Grid (GIG) Overarching Policy
DoDD 8500.1	Information Assurance (IA)
DoDI 8500.2	Information Assurance (IA) Implementation
DoDI 5200.40	DoD Information Technology Security Certification and Accreditation Process (DITSCAP)
Interim Guidance – July 2006	DoD Information Assurance Certification and Accreditation Process (DIACAP) Guidance

2.7 Non-Government Documents

IEEE 1671	Automated Test Markup Language
IEEE/EIA 12207	Standard for Information Technology – Software Life Cycle Processes

(Copies of IEEE/EIA 12207 are available from www.ieee.org or Institute of Electrical and Electronics Engineers Service Center, 445 Hoes Lane, Piscataway, NJ 08854-1331.)

ISO 13374	Open Systems Architecture for Condition Based Maintenance, Version 3.1, 1 August 2006

(Copies of ISO 13374 are available from www.iso.ch or ISO Central Secretariat International Organization for Standardization (ISO) 1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland)

MIMOSA OSA-EAI Version 3.1	Open Systems Architecture – Enterprise Application Integration <website>

(Copies of MIMOSA OSA-EAI are available from www.mmosa.org)

SAE J1939	Truck and Bus Communications Network, Class C
SAE J1587	Database of Platform Fault Codes
SAE J1708	Platform Data Bus
SAE J1850	Communications Standard for On- and Off-road Platforms, Class B Network
SAE 1962	16 Pin Diagnostic Connector
SAE J2534	Pass Through Interface Device

(Copies of SAE series standards are available from www.sae.org)

NAS 411	Hazardous Materials Management Program

(Copies of NAS 411 are available from www.aia-aerospace.org or Aerospace Industries Association of America, 1250 Eye Street, NW, Suite 1200, Washington, DC 20005-3924.)

2.8 Forms

DD Form 1494 Application for Equipment Frequency Allocation

3 REQUIREMENTS

3.1 First Articles

As described in Section 4 of this specification, a quantity of four LAV, four MTVR, and four AAV EPLS First Article Units (EPLS Hardware, On-Board Software Client, Electronic Record, and Off-Board Service Application) shall be subjected to first article test.

3.2 Materials

The contractor shall select materials capable of meeting all of the operational and environmental requirements specified herein.

3.2.1 Recycled, recovered, or environmentally preferable materials

EPLS shall be made of all new materials. NAS 411 shall be used as guidance when considering environmental factors while selecting materials for EPLS.

3.3 Design

3.3.1 Modular Open System

EPLS shall utilize an open systems architecture, which shall accommodate the insertion of evolutionary performance enhancements over the system's life cycle. EPLS design shall be developed in a layered and modular fashion, using Commercial-Off-the-Shelf/ Non-Developmental Item (COTS/NDI) hardware, operating systems, and middleware that utilize non-proprietary or non-vendor-unique, key Application Programming Interfaces (APIs). Any computer hardware/software developed or fielded for the EPLS shall be in accordance with the open system architecture and standards as specified in the Defense Information Technology Standards Register (DISR). ISO 13374 and MIMOSA OSA-EAI Version 3.1, and IEEE 1671 - Automated Test Markup Language shall be used for guidance.

3.3.2 Design Architectures

3.3.2.1 Configurations

EPLS hardware and software designs shall minimize the number of distinct equipment configurations (to improve logistics supportability) while maximizing general-purpose applications and operational flexibility, suitability for echelon-specific functional requirements, and commonality with organic assets at each echelon.

3.3.2.2 Scalability

EPLS design shall provide for a scalable architecture that allows users, including remote users, to expand the capability and functions of the system; and for peak load handling of basic functions. Expansion by external users shall be permitted only through defined protocols and with proper authority controlled by specific codes.

3.3.3 Data Strategy

IEEE 1671, ISO 13374 and MIMOSA OSA-EAI Version 3.1 shall be used for guidance.

3.3.3.1 Net-Centric Data Strategy

The EPLS shall follow the DoD Net-Centric Data Strategy for all data structure, format, and content.

3.3.3.1.1 EPLS Data Visibility - Information from EPLS shall be made visible to interfacing systems by application of the DoD Discovery Metadata Specification (DDMS). All data assets (intelligence, non-intelligence, raw, and processed) shall be advertised or "made visible" by providing metadata, which describes the asset.

3.3.3.1.2 EPLS OBSA Data Accessibility - all EPLS data shared on the network (once enabled) shall be made accessible to authenticated networked users through the use of documented and published COTS/NDI open data standards and interfaces. No proprietary software shall be used for this purpose.

3.3.3.1.3 Data OBSA Understandability - All EPLS data that will be shared by network users (once enabled) shall be structured, formatted, and its content designed so that other (network) users will be able to understand to the extent that they can apply it to their operations. The structure and usage shall be documented thoroughly so that other users can understand the process. An accepted standard format shall be used and documented.

3.3.3.1.4 EPLS Data Trustability - All EPLS data shall be marked and coded (tagged) in such a way that (once enabled) any networked users can determine the veracity and authenticity of the data and apply it to their operations. The methodology for interpretation of the code shall be documented with care taken as to confidentiality.

3.3.3.1.5 EPLS Data Manageability - EPLS shall be designed with a metadata capability that at the minimum shall provide the ability to manage the

database structure to modify it when required. The metadata capability shall allow other network users to manage the data if certain defined security codes are used. When such modification is made, the metadata capability shall notify other network users of the changes.

3.3.3.1.6 EPLS GIG Service Strategy - EPLS shall be compatible with Global Information Grid (GIG) standards in accordance with DoD Directive 8100.1. It need not implement all GIG requirements, but it must be compatible with the GIG and be capable of executing in the GIG environment in future configurations.

3.3.3.1.7 EPLS OBC/OBSC Continuity of Operations (COOP) - EPLS shall maintain continuity of operations across all operational areas. The system shall be equipped with disaster recovery capabilities that provide for data backup at stated intervals. In case of power loss, it shall shut down gracefully without loss of data. In case of power loss, it shall shut down gracefully without loss of data. EPLS OBC/OBSC Continuity of Operations includes all interaction with on board software (e.g. processing, sensor data, electronic record, alerts and indicators) and on board hardware (e.g. additional sensors, data bus, EPLS self power).

3.3.3.2 Data Exchange

EPLS shall provide common ports to make available a means of connectivity between the OBC and external computer systems in the following ways:

Method of Transfer	**Requirement.**
a) USB Storage Device Transfer	Principal Method
b) Wired Ethernet Connection	Principal Method
c) Wired Serial Port Connection	Optional Method
d) OPSTD-014 and FIPS 140-2 Compliant Wireless	Principal Method *

* Wireless transfer of data off the platform shall be demonstrated and verified during FAT and shall be disabled in production units pending approval. The use of wireless data transfers shall not be capable of being enabled by system users. A method shall be provided to enable the wireless transfer of data in the production units after delivery and with Government approval by authorized personnel.

3.3.4 Network

EPLS shall provide internal data network connectivity as defined in the specification for both wired and wireless capability.

3.3.4.1 Ethernet (Wired)

EPLS shall support wired Ethernet connections compatible with 10Base-T and 100Base-T interfaces.

3.3.4.2 Transmission Control Protocol/Internet Protocol (TCP/IP)

EPLS shall provide TCP/IP protocols that allow and support connection and operation on LANS and WANS, including the Internet.

3.3.4.3 NIPRNET (NIPR)

EPLS shall provide the capability to connection to Non-secure Internet Protocol Router Network (NIPRNET).

3.3.4.4 Wireless (Non-Secure)

EPLS shall provide an OPSTD-014 and FIPS 140-2 Compliant Wireless 802.11 LAN for non-secure wireless networking to move data off the platform. The system shall allow the operator to turn off the 802.11 transmitters and revert to wired configuration when emission control procedures are in effect. Threshold is 30 meters, Objective is 50 Meters

3.3.4.5 Information Technology Standards Guidance (ITSG)

EPLS computer resources shall be compatible with and be compliant to the Information Technology Standards Guidance (ITSG), Command, Control, Communications, Computers Intelligence Surveillance and Reconnaissance, and the DISR. Equipment may require partial or full ruggedization to meet the system requirements. It shall be comprised of COTS, GOTS, or other design, that allow for expansion.

3.3.5 Human Interface

The following human engineering requirements shall be met. A human engineering effort shall be conducted in accordance with MIL-STD-1472 and MIL-HDBK-46855. This effort shall include identification and proposals for solutions to human engineering problems associated with the use of the Embedded Platform Logistics System. Simplicity of operation and human engineering considerations for the human operation and maintenance of the EPLS shall be collectively or individually designed into the system.
The human engineering effort shall state all special human interface limitations and also ensure that the following capabilities are met.

a) The position of EPLS controls shall be optimized with respect to their functions.
b) EPLS shall be capable of being operated by personnel wearing standard issue Nuclear, Chemical and Biological (NBC) and Cold Weather equipment.
c) EPLS shall be designed to be operable and maintainable by the 5th through 95th percentile ground troops per MIL-STD-1472 paragraph 5.6.
d) Special design efforts shall be devoted, but not limited to, addressing MIL-STD-1472 paragraphs 5.4, 5.5, 5.6, 5.9, and 5.13.

e) If applicable, equipment that requires concentrated human engineering due to the sensitivity of the operation, or criticality of the task, shall be identified with the appropriate level of detail and proposals for solutions provided. MIL-HDBK-759 shall be consulted for guidance.

3.3.6 Connectors and Cabling

3.3.6.1 Connectors

3.3.6.1.1 In order to prevent incorrect assembly that may cause damage, all connectors shall be marked and labeled. Connectors shall be corrosion resistant, waterproof, and sufficiently ruggedized to withstand combat operations and platform vibrations. External connectors and receptacles shall be durable enough to withstand a minimum of 500 connect/disconnect cycles without requiring replacement. Connectors shall be selected and allocated such that connecting a cable to the wrong connector shall not damage the system.

3.3.6.1.2 The vendor shall provide sufficient connectors and connector types to support EPLS communications and network architecture, external interfaces and shall provide expansion space for future installation of 20% (minimum) additional connectors of total connectors. The units shall be of a modular design, such that replacement of broken connectors or installation of different connector types may be accomplished using tools available at the unit level and without requiring factory refurbishment.

3.3.6.2 Cabling

3.3.6.2.1 System cables shall be braided (for ruggedization) and easy to connect/disconnect and incorporate a combination of different connector plug designs and labeling to preclude incorrect connections.

3.3.6.2.2 System cables shall provide a locking connector where appropriate. This includes locations where it is necessary to prevent unintentional disconnection or hazardous interchange of system cables,.

3.3.6.2.3 All wiring harnesses and their connectors shall be labeled to allow identification of the harness/connector while the harness is installed.

3.3.6.2.4 All connector-mating plugs shall be physically and electrically compatible without requiring any preparation other than insertion of plug-in components.

3.3.6.2.5 Protective caps shall be provided for both male and female connector units for all external connections. Internal connections shall use best commercial practice for application of protective caps.

3.3.6.2.6 All cabling shall consider dimensional variations in individual platform and variant types during fabrication.

3.3.7 Marking

All identification, nameplates, labels, legends, signs, and markings shall be readily displayed and provide clear concise instructions or warnings. They shall also be in compliance with the requirements of MIL-STD-130.

3.3.8 Compatibility

Each component, assembly, and subsystem when installed as a complete system and operating as intended, shall cause no undesirable response, malfunction, or degraded performance of any other component, assembly or subsystem installed in, or associated with, the system. No component, assembly, and subsystem shall likewise be affected when other component, assembly, and subsystems are singularly or collectively operated.

3.3.9 Form, Fit and Function

EPLS shall not adversely affect in any way the form, fit, and function of the host platform on which it is installed and operated, nor require any adverse configuration change to the host platform. EPLS shall not adversely affect the operator, maintainer, or passenger during operational use or the conduct of preventive and corrective activities of the host platform.

3.3.10 Interchangeability

To the maximum extent possible, EPLS components shall be designed or selected as modular plug-in devices and shall be marked or keyed to preclude insertion or installation in the wrong position or location. All components or groups of components performing similar functions shall be physically and electrically interchangeable without requiring any preparation other than resetting of exterior switches, connection of cables, or insertion of plug-in components. Mounting kits, cables, connectors, and raceways shall be interchangeable among all like Line Replaceable Units (LRU) and, to the maximum extent possible, interchangeable between different types of vehicle platforms and their variants.

3.3.11 Ruggedization

All components shall be ruggedized to survive intended operational environment.

3.3.12 Reliability

EPLS shall have a Mean Time Between Operational Mission Failure (MTBOMF) of not be less than 500 hours (threshold), and 1000 hours (objective). DEFINITION: An

operational mission failure is the loss of function (hardware and software) that prevents EPLS from performing its intended purpose for more than 15 minutes.

3.3.13 Availability

EPLS shall be designed to support an Inherent Availability (Ai) of not less than 95 percent (threshold), and 98 percent (objective).

3.3.14 Maintainability

EPLS shall use Line Replaceable Units (LRU) designed for removal and replacement by Marines using standard tools and Test Measurement, Diagnostic Equipment (TMDE) at the organizational level.

3.3.15 Built In Test (BIT) and Built in Test Equipment (BITE)

3.3.15.1 EPLS BIT / BITE

Section 3.3.15 specifically includes all EPLS hardware and software BIT / BITE.

3.3.15.1.1 EPLS BIT / BITE shall be used to the maximum extent possible to isolate EPLS faults to the single Line Replaceable Unit (LRU) 90 percent (threshold) to 95 percent (objective) of the time, . BIT shall not interfere with standard system operation.

3.3.15.1.2 Built-In Test (BIT) / BITE diagnostics, augmented by Manual Test Procedures (MTP), shall meet the following requirements:

3.3.15.1.2.1 Ninety-five percent probability of detecting all on-board system-level faults.

3.3.15.1.2.2 EPLS Fault isolation shall be conducted in 30 minutes or less.

3.3.15.1.2.3 Less than four percent BIT false alarm rate. False Alarm rates are per failure.

3.3.15.1.2.4 BIT failure shall not degrade performance of the prime system (i.e., BIT failure is transparent to systems operation).

3.3.15.1.2.5 BIT shall have self-test capability. (To include verification of additional sensors).

3.3.15.1.3 BIT / BITE diagnostics shall be the primary diagnostic mechanism for unit maintenance, with on-line fault detection and fault isolation BIT diagnostics results, as well as any prompts for interactive testing, displayed on the crew display panels.

3.3.15.1.4 Start-up Built-In-Test (SBIT) – A start-up Built-in-Test (BIT) shall be initiated at system power-on and provide a check of the Sensors, sensor

networks, data buss communications, wireless network, LRUs and the major system parameters. A system status report shall be generated at completion of BIT. If a fault condition is detected, a warning indication shall be provided to the operator and a failure report shall be generated. SBIT shall not interfere with standard system operation.

3.3.15.1.5 Initiated Built-In-Test (IBIT) – An initiated BIT function shall be included that can be started at any time by the operator or maintenance personnel. Initiated BIT may interrupt EPLS mission software activities. At the completion of its operation, initiated BIT shall provide a report of system status and a failure report listing the failed LRU(s) if any.

3.3.15.1.6 Operational Built In Test (OBIT) – During operation of the Embedded Platform Logistics System, an Operational BIT function (OBIT) shall run in the background and periodically check for system faults. Any faults detected shall be reported to the operator or maintenance personnel. The OBIT function shall be such that personnel may query its results at any time during system operation. This Operational Built In Test (OBIT) shall not alter or interfere with the operation of the system.

3.3.16 Survivability and Vulnerability

3.3.16.1 Operation in an MOPP environment

EPLS shall be capable of being operated and maintained by personnel in Mission Oriented Protective Posture (MOPP) Level IV protective clothing.

3.3.16.2 Decontamination

EPLS shall be capable of withstanding standard NBC decontamination procedures (Bleach).

3.3.17 Safety

The EPLS design and safety program shall utilize the guidance provided in MIL-STD-882.

3.3.17.1 Personnel Safety

3.3.17.1.1 Size and configuration of components of the EPLS shall be such as not to interfere with the duties normally performed by assigned operator and maintenance personnel, combat platform crew or passengers.

3.3.17.1.2 Safety devices shall be employed to prevent unintentional physical, electrical damage or weapon discharge, ignition of pyrotechnic devices, and injury to personnel.

3.3.17.1.3 All components shall be designed to minimize injury to assigned operator and maintenance personnel, combat platform crew or passengers while operating over rough terrain or when platform weapons are being fired.

3.3.17.2 Equipment Safety

3.3.17.2.1 EPLS shall provide the capability for grounding EPLS electrical systems in accordance with industry best practices.

3.3.17.2.2 The equipment in the system shall be designed to minimize equipment damage, degradation of efficiency, or mission failure due to the following conditions:

a) Operator induced errors.
b) Improper cabling.
c) Power failure or electrical overstress on EPLS components.
d) Power failure or electrical overstress to host platform and platform systems and components.
e) Secondary failures due to normal usage and transportation.
f) Installation, storage, operation, handling, maintenance and transportation.
g) Overload protection.

3.3.17.2.3 When the interchange of connectors may result in damage to the equipment or a hazard to personnel, the connectors shall be designed to prevent interchange.

3.3.18 Critical Infrastructure Protection (CIP)

EPLS shall be designed to ensure the CIP through vulnerability assessment process. EPLS shall comply with standards of vulnerability including standards of frequency of assessment and other DoD system security standards.

3.4 Performance Characteristics

3.4.1 EPLS Hardware

3.4.1.1 On-Board Computer (OBC)

3.4.1.1.1 EPLS shall provide storage and processing resources required to host the On-board Software Client (OBSC), electronic record book, platform technical data, and EPLS generated data relating to operational status and system health.

3.4.1.1.2 EPLS shall provide a capability to input data via a removable display, OBC, or external device. i.e., operator preventive maintenance checks and

services or conducting mobile load distribution events. The input device (e.g. removable display, OBC, or other external devices) shall operate for 3 hours (threshold) 4 hours (objective). If connected to the EPLS system the input device shall be durable enough to withstand a minimum of 2500 connect/disconnect cycles without requiring replacement or repair. When not in use the input device shall be securely stored.

3.4.1.1.3 OBC shall provide a display for authorized users to view operational status and system health and electronic records.

3.4.1.1.4 The OBC shall provides interfaces to electronics, including data buses, diagnostic ports, and sensor harnesses to perform EPLS functions required to provide operational status and system health to authorized users.

3.4.1.1.5 Computer Reserve

The developer shall ensure that there is adequate computer reserve for the software being developed such that the product/system operates as required in other sections of this specification. This includes reserves for memory, input/output functions, total operating throughput, and ancillary storage (e.g., disk space). Reserve capacities shall be maintained during all operations to ensure adequate performance during peak loading, to support system testing, and to support emergency loads. Reserve processing capability shall be defined as (total available - amount used)/(total available), and shall be 30% (threshold) or 50% (objective) above anticipated peak processing load (all sensors operating and running System Health Check and platform IETM)..

3.4.1.2 Sleep Mode

3.4.1.2.1 EPLS OBC shall have a sleep mode to conserve power. (threshold) sleep mode shall begin at 30 minutes of inactivity. (objective) sleep mode shall provide a user definable option to select sleep mode with a default of 30 minutes.

3.4.1.2.2 EPLS shall exit sleep mode by a user request or platform power-up.

3.4.1.2.3 EPLS shall exit sleep mode when a change in reporting criteria occurs.

3.4.1.3 Sensors

3.4.1.3.1 Sensors and sensor architectures added to the platform to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall provide sufficient resources to ensure continuity of operations. The system shall be equipped with disaster recovery capabilities (i.e., memory, last known state, or other methods) that provide for data backup at stated intervals. In case of power loss, it shall shut down gracefully without loss of data.

3.4.1.3.2 Sensors used to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication),

shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing.

3.4.1.3.3 Sensors operating on battery power shall provide sufficient battery life for continuous operation for a minimum period of 12 months before change of battery is required. Battery replacement shall not require the removal of adjacent LRUs.

3.4.1.3.4 Sensors and sensor networks using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall be self-configuring.

3.4.1.4 Data Bus

3.4.1.4.1 The Data Bus and on-board communication network shall when applicable comply with SAE J1939, SAE J1587, SAE J1708, SAE J1850, SAE 1962, and SAE J2534.

3.4.1.4.2 EPLS shall access and use the existing J-1939 Data Bus and fault codes on the MTVR.

3.4.1.4.3 EPLS shall provide a J-1939 Data Bus as a standard platform communication network for the LAV and AAV such that, existing and additional sensors signals can access the Data Bus directly.

3.4.1.4.4 EPLS shall use SAE J-1587 platform fault codes.

3.4.1.4.5 Data Buses used to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing.

3.4.2 EPLS Software

EPLS software, including OBSA, OBSC, business rules, diagnostic / prognostics algorithms and routines, shall provide a feedback loop that provides for verification and correction of false alarms, false indicators, and non-indications of faults. EPLS software shall collect and store data in a format that supports a net-centric diagnostic capability. EPLS Software design shall comply with IEEE/EIA 12207.

3.4.2.1 Software Design

3.4.2.1.1 Internal Data Requirements - Embedded Platform Logistics System shall provide for storage and maintenance of system data and the application of processing rules for data that apply to multiple interfaces and their interaction to maximize interoperability.

3.4.2.1.2 Design traceability – EPLS software shall be traceable by a documented method selected by the contractor and approved by the Government. The

traceability shall be one or more of the following as required to ensure that the requirements for EPLS are met:

a) Traceability from each Computer Software Configuration Item (CSCI) source file to the software unit(s) that it implements, or, if a software unit corresponds to multiple source files, traceability from each source file to the detailed design aspects of those software units that it implements.
b) Traceability from each software unit to the source files that implement it, or if a software unit corresponds to multiple source files, traceability from each detailed design aspect of the software unit to the source files that implement it.
c) Traceability from each computer hardware resource utilization measurement to the CSCI requirements it addresses. (Alternatively, this traceability may be provided in the computer hardware resource utilization section.).
d) Traceability from each CSCI requirement regarding computer hardware resource utilization to the utilization measurements given in the computer hardware resource utilization section.

3.4.2.2 EPLS On-Board Software Client (OBSC)

3.4.2.2.1 EPLS software shall encompass all platforms and include installation instructions for each platform variant.

3.4.2.2.2 EPLS OBSC installation instructions for individual platform types shall be determined by using Unique Identification (UID) compliant search.

3.4.2.2.3 EPLS OBSC installation process shall only load the software required for an individual platform and variant and shall not include Technical Manuals, ETMs, or IETMs for other platforms.

3.4.2.2.4 EPLS shall capture operational status, systems health, and equipment operating time codes (EOTC) during initialization process.

3.4.2.3 OBSC Functions.

3.4.2.3.1 OBSC applications shall perform EPLS functions required to provide operational status and system health.

3.4.2.3.2 OBSC applications shall be capable of generating "request for Service". Request for service shall be formatted in current Marine Corps Integrated Maintenance Management System (MIMMS) and Supported Activities Supply System (SASSY) formats as stated in the UM 4790. A request for service shall formatted in the Equipment Repair Order (ERO) Format and a request for Parts or Part Exchange shall be formatted in the ERO Shopping List (EROSL) format.

3.4.2.3.3 OBSC shall control the form and content of data for exchanges. OBSC shall include considerations of low bandwidth (9.4kb) and

intermittent communications. The OBSC shall provide an alert or indicator of the success or failure of data exchanges.

3.4.2.3.4 OBSC shall contain diagnostic and prognostic algorithms to support automated routines required to assess the platform operational status and system health.

3.4.2.4 EPLS Off-Board Service Application (OBSA)

3.4.2.4.1 EPLS OBSA shall consist of a database that accepts individual EPLS data and electronic equipment records from all EPLS equipped platforms.

3.4.2.4.2 EPLS OBSA shall include software that prepares detailed (status by sub-system or sub-assembly) and summary (operational, degraded, deadlined) operational status and system health reports as affiliated with unit task organizations.

3.4.2.4.3 EPLS OBSA shall provide sufficient tools to support trend and usage analysis of platform alerts, indicators, scheduled and unscheduled maintenance operations and tasks, mobile load/passenger manifests, and fuel and ammunition.

3.4.2.4.4 EPLS OBSA shall permit querying of the database for ad hoc reports and information requests.

3.4.2.4.5 EPLS OBSA shall be capable of formatting (as stated in the UM 4790) and storing collected EPLS data to an external courier disk.

3.4.2.4.6 EPLS OBSA shall provide for access to EPLS (individual Platforms and Units) aggregated information by authorized users via web services.

3.4.3 Business Rules

The software design shall be in accordance with best industry practice concerning clarity, modularity, and documentation. The interface between the OBC software and the user shall be in the form of business rules. Business rules are logical statements that use inputs from sensors and the user to determine reporting frequency, alert thresholds, report formats, and similar items.

3.4.3.1 Business Rules Categories

3.4.3.1.1 Fixed Business Rules – Business rules related to a major system, sub-system, and sub-assembly condition and are formulated one time and not changed on platform or by the operator, e.g. engine alarm points (oil pressure, battery voltage, etc.) based on an approval process and shall be changed only by an authorized master administrator. An authorized master administrator shall change Fixed Business Rules after approved by the platform Program Manager and shall be issued as updated software version or patch.

3.4.3.1.2 Limited Business Rules – Business rules related to platform data that may change on an infrequent basis, e.g. platform unit assignment or platform operator. Only authorized limited rights administrator shall change limited Business Rules and they shall be password protected.

3.4.3.1.3 Adjustable Business Rules – Business rules related to reporting frequencies, alerts and indicators, e.g. ammunition or fuel consumption reporting. Adjustable Business Rules shall have default setting and be adjustable by the all authorized users via a display at the start of each mission. Adjustable Business Rules shall not be password protected.

3.4.3.2 Business Rule Application

The business rules application shall be separate from the data acquisition and data processing application. The business rules application shall contain a business rule engine and business rule editor functionality.

3.4.3.2.1 The EPLS system shall provide for the authentication of authorized users for the purpose of changing business rules.

3.4.3.2.2 The business rule engine shall parse input data to determine if a response is required. When a response is required, the business rules application outputs the required response.

3.4.3.2.3 The business rule editor shall allow changing reporting frequency, display format, specification of alert condition and system response to alert conditions. The business rule editor shall not reside on EPLS OBC; it may reside on another Government owned computer such as a computer in a maintenance bay. The business rule editor shall be accessible via the OBSC and OBSA. The business rule editor shall permit changes to business rules only by appropriately authorized users for each type of rule.

3.4.3.2.4 A business rule shall allow event driven data acquisition frequencies.

3.4.3.2.5 Business rules shall permit assignment of priority to warnings and alarms.

3.4.4 EPLS Data

For the purpose of this Performance Specification, the Historical Life referred to in Para 3.4.4.1 and 3.4.4.2 shall begin with the information currently contained in the existing records.

3.4.4.1 Electronic Record Book

EPLS shall provide a platform electronic record book capability that contains the following elements formatted in accordance with the records and forms outlined in TM 4700-15/1and the UM 4790.

a) Motor Vehicle Record Folder – vehicle historical record summary of the equipment's transfer, receipts, modifications, and major assembly replacements.
b) Preventative Maintenance Checks and Services (PMCS) Schedule and Record.
c) Daily PMCS Checklist – before operation/during operation/after operation.
d) Vehicle Operational Record/Trip Ticket.
e) Service History (i.e. Equipment Repair Order (ERO) forms).
f) Parts Request (i.e. Equipment Repair Order Shopping List (EROSL) forms).
g) Modification Control Record.
h) Limited Technical Inspections (LTI).
i) Other Testing and Inspection Records (e.g. Calibration Control Records, Condition Inspection Record, Oil Analysis Request/Log/Feedback, etc.).
j) Tool Lists (i.e. SL-3).

In addition to the requirement and processes directed in TM 4700-15/1, EPLS shall record and store the following elements.

k) Equipment Operating Time Code for all meters, odometers, and rounds.
l) Vehicle Unique Identification Data (UID).
m) Vehicle Configuration Data.
n) Current version and version history of the EPLS software, electronic record book, EPLS IETM, platform IETM(s), and all other installed software or technical data that is versioned or dated.
o) Parts Inventories.
p) Life Cycle Data available from EPLS and not currently captured by current record keeping process, e.g. battery state of charge.

Note - some data items are government furnished information, e.g. parts inventories.

3.4.4.2 Electronic Ordnance Record Book

EPLS LAV and AAV variants shall provide an electronic ordnance record book capability that allows for the storage of ordnance vehicle record jacket and weapon record book information in accordance with TM 4700-15/1.

3.4.4.2.1 Ordnance Vehicle Record Book

Ordnance Vehicle Record Book information shall include:

a) Ordnance Vehicle Daily/Monthly Log.
b) Ordnance Vehicle Service Record.
c) Ordnance Vehicle Overhaul and Rebuild Record.

3.4.4.2.2 Electronic Weapon Record Book

For LAV-25, LAV-AT, LAV-M, and AAV-P7, EPLS shall provide an electronic weapon record book capability. The weapon record book provides an accurate historical record of the entire service life of a particular weapon. It consists of Parts I and II.
Part I - Records information pertinent to the major item (mount, recoil mechanism, breech ring, etc.). Part I remains with the major item during its entire service life.
Part II - Records information pertinent to the tube. Part II remains with the tube until it is condemned.

3.4.4.2.2.1 Weapon Record Book/Gun Book. The Weapon Record Book/Gun Book consists of Parts I and II.

Part I, Major Item Complete Record -

a) Weapon Component Performance.
b) Weapon Data - results of inspections and completion of required maintenance.
c) Weapon Modification Record.

Part II, Tube Data -

a) Identification of Components (Serial No, Manufacturer, Year, Total accumulative rounds, etc.).
b) Unit Commanders Record (Type round fired, Number of rounds fired and Effective Full Charge value).
c) Pullover Gage Inspection Record.
d) Bore Inspection Record.

3.4.4.3 EPLS Interactive Electronic Technical Manual (IETM) (SM)

The contractor shall create and deliver an EPLS IETM in accordance with TMCR NDMS-070025-000 Technical Manual Contract Requirement (SIETM)

3.4.4.4 Platform Technical Manuals

EPLS shall host (e.g. IETMs, ETMs, technical manuals, modification instructions, and parts listing)and provide access (e.g., IADS, EMS2 viewers) to current platform technical data . (threshold) – EPLS shall host all platform organizational level technical data, (objective) – EPLS shall host all organizational and intermediate level technical data.

3.4.5 Operational Status and System Health

EPLS shall perform EPLS functions required to assess operational status and system health as a function of the platform's ability to operate as designed over its operational and environmental ranges. Operational Status includes fuel, ammunition, mobile load/passenger manifest, and systems health information. Operational status and System health status shall be classified as operational, degraded, or deadlined. Minimum data measurement parameters are provided for each platform is located in associated performance specification sheets. If the operational status and system health is classified as degraded or deadlined due to safety issues, the operational status and system health report shall indicate so.

3.4.5.1 Operational Status and System Health Alerts, Indicators

3.4.5.1.1 Alert, Indication, and Report Generation

EPLS shall provide EPLS functionality required to generate alerts, indications, and reports. Alerts, indicators and reports shall provide sufficient information to indicate a change in operational status or system health has occurred.

3.4.5.1.2 Alert and Indicator Modes

Alerts and indicators shall operate in two modes: automatic and override.

(a) Automatic Mode – EPLS shall automatically report operational status and system health based on business rules and user set preferences.

(b) Override Mode - EPLS alerts and indicators shall allow for manual override based on operational conditions and user preferences. When operating in manual override mode and an alert or indicator is reported, EPLS shall record and store the event, platform data, type of alarm, and indicator time, and other data that can be used to assist in reporting operational status and system health or used in corrective actions.

3.4.5.1.3 Alert and Indicator Interface

EPLS alerts and indicators shall provide an interface for a platform operator or maintainer to set the user preference of the type of alert or indicator, reporting frequency, and alert levels.

EPLS shall allow the user to choose how to display data from among several alternative displays (stop light, numerical data, bar chart, etc.).

3.4.5.2 Operational Status and System Health Reports

3.4.5.2.1 EPLS shall provide the ability to display and report platform operational status and system health.

3.4.5.2.2 EPLS shall provide the capability to time stamp EPLS data and reports. The time stamp shall provide a common and accurate time standard for

EPLS equipped platforms. EPLS shall provide a common and accurate time and date stamp with data, and reports from EPLS. The common and accurate time stamp shall come from the EPLS On-Board Computer (OBC) clock. Authorized users shall be able to reset the OBC clock.

3.4.5.2.3 EPLS shall provide predefined and ad-hoc operational status and system health reporting that supports the operational report requirements, e.g. ammunition and logistic summary reports, and battle damage assessments.

3.4.5.2.4 EPLS shall allow assignment of a priority designator to EPLS generated reports, alert and indicator messages, e.g. ammunition consumption may be assigned a higher priority than mobile load distribution events.

3.4.6 Automated and Manual Operational Status and System Health Check (OS/SHC) Routines

EPLS Operational Status and System Health Check (OS/SHC) routines shall be used to the maximum extent possible to isolate faults to the Sub-system (threshold) and Sub-assembly (objective). OS/SHC Threshold and objectives are provided for each platform is located in associated performance specification sheets. OS/SHC shall not interfere with standard system operation.

3.4.6.1 Automated OS/SHC

3.4.6.1.1 Automated OS/SHC shall provide EPLS functionality required to facilitate an automated diagnostic capability to identify platform mechanical, electrical, and weapon system failures. For this performance specification, automated failure diagnoses includes sufficient automated diagnostic / prognostic algorithms and routines, test procedures, fault trees, or knowledge management functionality required to provide authorized users the platform system health without action being required on the part of the user. For this performance specification, automated failure diagnoses shall be supported by the EPLS IETM.

3.4.6.1.2 Automated OS/SHC diagnostics / prognostics shall be the primary diagnostic mechanism for operator and organizational level maintainer, with on-line fault detection and fault isolation OS/SHC diagnostics results, as well as any prompts for interactive testing, displayed on the EPLS display panel.

3.4.6.1.3 Automated OS/SHC Oil Life Monitoring – EPLS shall include an Oil Life Monitoring capability, i.e. the ability to calculate an assessment of oil condition utilizing existing sensors and software coded expert knowledge of known oil degraders. Oil Life Monitoring shall provide an indication at 20% and 10% remaining Oil Life, and an alert when Oil needs to be replaced. Oil Life Monitoring shall be considered an Equipment Operating Time Code (EOTC) and be available as part of the OS/SHC reports.

3.4.6.1.4 Automated OS/SHC Diagnostics

OS/SHC Automated diagnostics when applied to a platform shall identify 90% (threshold) 96% (objective) of platform fault conditions, with a 4% or less false alarm rate.

3.4.6.2 Manual OS/SHC

Manual OS/SHC shall provide EPLS functionality required to facilitate a manual test procedure capability for identification of platform mechanical, electrical, and weapon system failures required to augment automated diagnostics. For this performance specification, manual failure diagnoses shall be supported by the platform IETM, ETM, or other platform technical data including guided procedures, fault trees, IETM, or knowledge management functionality and provide the operator / maintainer the operational platform status.

3.4.6.3 OS/SHC Types

3.4.6.3.1 Start-up OS/SHC (SU OS/SHC)

At system start-up, EPLS shall perform an automated Start Up OS/SHC at system power-on and provide a check of the major system and sub-system parameters. A system status report shall be generated at completion of SU OS/SHC. If a fault condition is detected, an alert or indictor shall be provided to the operator. EPLS automated diagnostic routines shall be used to identify the failure to the sub-system (threshold)or sub-assembly (objective)and generate a failure report. SU OS/SHC shall not interfere with standard system operation.

3.4.6.3.2 Operational OS/SHC (OP OS/SHC)

During operation of the host platform, EPLS shall run an automated Operational OS/SHC (OP OS/SHC) in the background and check for Operational Status and System Health. Any alerts and indicators detected shall be reported to the operator or maintenance personnel. If a fault condition is detected, an alert or indictor shall be provided to the operator. EPLS automated diagnostic routines shall be used to identify the failure to the sub-system (threshold) or sub-assembly (objective).
The OP OS/SHC function shall be such that personnel may query its results at any time during system operation. This OP OS/SHC shall not alter or interfere with the operation of the system.

3.4.6.3.3 Initiated OP OS/SHC (I OS/SHC)

In cases where Start Up and Operational OS/SHC indications require manual test procedures to identify the failure to the sub-system (threshold)or sub-assembly (objective), an Initiated OS/SHC shall be enabled. Initiated OS/SHC (I OS/SHC) shall provide the ability to launch the platform technical data, (threshold) to launch platform technical data, (objective) to launch the platform data at the manual test procedure. At the completion of an Initiated OS/SHC EPLS shall query the user for a status update, e.g., provide ability to report listing the failed major system, sub-system, or sub-assembly and document actions taken.

3.4.7 Ammunition Status

3.4.7.1 Ammunition Reporting

EPLS shall provide the capability to record and track ammunition quantities and types, to include Department of Defense Identification Code (DODIC), nomenclature, and lot number. (threshold) - Manual ammunition tracking, (objective) – Manual and automatic ammunition tracking, to include AIT marked ammunition inventories.

3.4.7.2 Ammunition Usage

EPLS shall provide a user-definable alert or indicator allowing the display of the number of rounds available and number of rounds fired, (threshold) - Manual ammunition tracking, (objective) – Manual and automatic ammunition tracking, to include AIT marked ammunition inventories.

3.4.8 Fuel Quantity

3.4.8.1 Platform Fuel

3.4.8.1.1 EPLS shall provide functionality to assess the platform fuel quantity within the platform fuel tank. EPLS shall be capable of reporting and displaying fuel quantity in gallons and liters remaining. (threshold) - Accuracy of 95% with the platform on level ground in a stationary mode and with the platform moving at a rate of 45 MPH over off-road surfaces, (objective) - Accuracy of 98% under same conditions.

3.4.8.1.2 EPLS shall provide functionality to calculate the remaining distance of travel (range kilometers or miles) available based on current usage pattern. (threshold) - Accuracy of 95% with the platform moving at a varying rate (bounds 15 to 45 MPH) over off-road surfaces, (objective) - Accuracy of 98% under same conditions.

3.4.8.1.3 EPLS shall provide a preset alert report of fuel levels. (threshold) - 100, 75, 50, 25 and 10% tank capacity levels with an accuracy of 95% with the platform on level ground in a stationary mode and with platform moving at a varying rate (bounds 15 to 45 MPH) over off-road surfaces. (objective) - User selectable fuel level alerts from 100 to 0 percent in 5% increments with an accuracy of 98% under same conditions.

3.4.8.2 Auxiliary Fuel

EPLS shall provide functionality to assess fuel quantity in gallons and liters of fuel carried in auxiliary fuel containers and intended for that platform's consumption.

3.4.9 Mobile Load / Passenger Manifest

3.4.9.1 Mobile Load Functionality

EPLS shall associate a mobile load with a platform, e.g. materiel, supplies, equipment, parts, ammunition, etc. transported by the platform as cargo for delivery to another location. Mobile loads can be liquids in bulk containers (such as fuel or water), large individual items (such as a large equipment item), single and multiple containers, or a mix of these items. Mobile loads data shall include information such as: Department of Defense Activity Address Code (DoDAAC), Port of Embarkation (POE) or Port of Debarkation (POD), Transportation Control Number (TCN), Radio Frequency Identification (RFID) tag number, recipient, item identification number, contents, weight, cube, and special instructions, (threshold) - 2-dimensional MSL reader capability, data elements identified by section 2.2 of MILSTD 129p.

(threshold) - Manual Mobile Load Functionality - EPLS shall have the capability to manually associate a mobile load with a platform at the time of loading or unloading, and track distribution events. EPLS shall provide the required EPLS functionality to manually input, adjust, store, and output mobile load data.

(objective) - Automatic Mobile Load Functionality - EPLS shall provide the required EPLS functionality to automatically recognize and associate a mobile load with a platform at time of loading, unloading and track distribution events. Upon query, EPLS shall provide the required EPLS functionality to report mobile load information for tracking purposes.

3.4.9.1.1 For the purpose of this performance specification, all EPLS software loads shall have the mobile load capability.

3.4.9.1.2 The normal state of the mobile load functionality shall be the disabled mode. Enabling the mobile load functionality shall require the operator to select a mobile load option.

3.4.9.1.3 The mobile load functionality shall be capable of enablement and disablement based upon platform and operational requirements.

3.4.9.1.4 EPLS shall provide required EPLS functionality to input, adjust, store, and report mobile load data.

3.4.9.1.5 EPLS shall provide for electronic receipt authorization for mobile load distribution events. Distribution events include the receipt of a mobile load by the platform driver and delivery to responsible individual, receiving unit, or locations responsible individual.

3.4.9.2 Passenger Manifest Functionality

3.4.9.2.1 EPLS shall record the names and total number of crew and passengers aboard each platform. (threshold) – EPLS accepts manual input of passenger and crew data, (objective) – automatic tracking of crew and passenger aboard each platform using CAC cards or other means of Government approved electronic identification.

3.4.10 Power Management

3.4.10.1 Primary Power

3.4.10.1.1 The primary source of power shall be the host platform. EPLS shall operate with in the standard military platform voltage IAW MIL_STD 1275.

3.4.10.1.2 EPLS shall perform EPLS functionality required to monitor primary supply voltage source at EPLS power input and determine when sufficient power level is available.

3.4.10.2 Secondary Power

3.4.10.2.1 The secondary source of power shall be an EPLS power source. EPLS power source shall be capable of operating without platform power for 3 hours (threshold), with an (objective) of 4 hours.

3.4.10.2.2 EPLS shall automatically switch to secondary power when primary power source levels are insufficient to operate EPLS. EPLS shall provide an alert and indication that the system has switched to the secondary power source.

3.4.10.3 Power Performance

3.4.10.3.1 EPLS shall be capable of automatically selecting and operating from both the primary and secondary power sources without interrupting EPLS OBC and OBSC applications.

3.4.10.3.2 EPLS shall perform EPLS functionality required to monitor secondary voltage supply at EPLS power input and determine when sufficient power level is available.

3.4.10.3.3 EPLS shall shut down in orderly, prescribed manner when the system supply voltage is insufficient to operate EPLS. (threshold) – shut down without affecting the ability of the system to restart, and loss of less than the last 5 minutes of operational data; (objective) – shut down without affecting ability of system to restart, and no loss of data.

3.4.10.3.4 EPLS shall save platform data prior to shut down.

3.4.10.3.5 EPLS shall provide an alert when EPLS primary and secondary power sources are insufficient to operate system. (threshold) - 15 minutes prior to shut down, (objective) - User defined with a default setting 15 minutes prior to shut down.

3.4.11 Visual Displays

3.4.11.1 Operator Considerations

In accordance with ANSI/HFS 100-1988 (American National Standard for Human Factors Engineering of Visual Display Terminal Workstations) and MIL-STD-1472

paragraph 5.2, the EPLS displays shall be designed to minimize strain and fatigue during sustained use by the operator.

3.4.11.2 Lighting Conditions

All visual displays, messages and alarm messages shall be readable in all lighting conditions. Displays shall be adjustable for varying light conditions to include direct sunlight and nighttime operations night vision devices.

3.4.12 External Interfaces

3.4.12.1 Device Interfaces

3.4.12.1.1 An external interface shall be provided allowing software/data upload and download from government provided JTDI PEDD.

3.4.12.1.2 An external interface shall be provided allowing test, measurement, and diagnostic equipment to perform diagnostics, (threshold RS-232), (objective) RS-232 and USB).

3.4.12.1.3 EPLS shall provide the capability to and in accordance with MIL-STD-6017 auto-populate VMF messages and other standard tactical messaging to support the operational reporting requirements (e.g. ammunition and logistic summary reports, and battle damage assessments).

3.4.13 Global Positioning System

3.4.13.1 Global Positioning System (GPS) Interfaces

EPLS shall have an external interface to accept GPS time and date information from Defense Advanced GPS System (DAGR) or similar devices to reset the OBC clock and provide an accurate time stamp on EPLS data and reports.

The EPLS OBSC shall be capable of converting GPS time and date information from Defense Advanced GPS System (DAGR) or similar devices and provide a consistent time stamp format on EPLS data and reports.

3.4.14 Tactical Radio

EPLS shall provide an interface to allow the transfer of data to common tactical radio systems.

3.4.15 Information Assurance

The EPLS shall comply with current security requirements and be capable of evolving to meet the state-of-the-art technological advances designed to protect information from unwanted exploitation as imposed by national, DoD, and joint policy. The EPLS shall

be capable of protecting critical, sensitive information stored, processed, received or transmitted by the system. As defined in DoDD 8500.1 Information Assurance (IA), EPLS Mission Assurance Category (MAC) is "III" and the Confidentiality Level (CL) is "sensitive". The EPLS shall implement Information Assurance Control Measures as defined in DoDI 8500.2 Information Assurance (IA) Implementation to ensure appropriate system availability, integrity, confidentiality, authentication and non-repudiation. The EPLS shall employ Defense in Depth to protect, detect and react to adversarial Information Warfare. The EPLS shall incorporate appropriate means to restore both system functionality and tactical information residing within. The EPLS shall be designed to ensure the Information Assurance (IA) control measures mandated in DoDI 8500.2 will be certified and accredited IAW DoDI 5200.40, DoD Information Technology Security Certification and Accreditation Process (DITSCAP), and interim DoD Information Assurance Certification and Accreditation Process (DIACAP) Guidance – July 2006. EPLS shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing, including Government Vulnerability Assessment Tests.

3.5 Environmental Conditions

3.5.1 Environmental conditions of operation

See DOD Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (MIL-STD-810F).

3.5.1.1 General conditions

Table 3-1 MIL-STD 810F Tailoring lists laboratory test methods, the parts of EPLS subject to test and tailoring procedures, conditions and parameters. EPLS shall operate during and after tests. The parts of EPLS installed in platform areas shall be designed to operate and be maintained in all environments and conditions that specific area is expected to operate, as specified below. These conditions are different for different platforms types and vary from place to place with in the same platform variant. EPLS units may be designed for installation on specific platforms or EPLS units may be designed for the worst combination of environmental conditions.

Table 3-1 MIL-STD 810F Tailoring

LABORATORY TEST METHOD	Subject to Test	Procedure	Parameters

LABORATORY TEST METHOD	Subject to Test	Procedure	Parameters
501.4 High Temperature	Complete system as installed on platform	Procedure I - Storage	See 5-1.4 para. 2.3.3. a. Use Hot temperature cycle as described in 501.4 II. See 5-1.4 para. 2.3.3. a. Use Hot temperature cycle (minimum of seven cycles) as described in Table 501.4 II "Hot" for ambient (32C-49C) and induced (33C-71C) temperature ranges.
	Complete system as installed on platform	Procedure II - Operation	See 5-1.4 para. 2.3.3.b. See 5-1.4 para. 2.3.3.b. Use Hot temperature cycle (minimum of three cycles) as described in Table 501.4 II "Hot" for ambient (32C-49C) and induced (33C-71C) temperature ranges
502.4 Low Temperature	Complete system as installed on platform	Procedure I - Storage	See 502.4 para 2.3.1. Use worldwide use climatic conditions with a 20% Probability of Occurrence (-51 degrees C). See Table 502.4-I. Para 4.5.2 Use Procedure I – Storage; duration is 4 hours.
	Complete system as installed on platform	Procedure II - Operation	See 502.4 para 2.3.1. Use worldwide use climatic conditions with a 20% Probability of Occurrence (-51 degrees C). See Table 502.4-I. Para 4.5.3 Use Procedure II – Operation.
504 Contamination by Fluids	Components enclosed in cab, turret, similar areas.	Proc 1 (occasional contamination)	Sequentially - Fuels, Hydraulic Fluids, Lubricating Oils, Solvents and Cleaning Fluids. Normal use Contact, Duration – Exposure limited to expected normal use. Test fluids and Temp in accordance with Mil-STD 810.
	Components enclosed in engine compartment, or mounted external to the platform.	Proc 1 (occasional contamination)	Sequentially - Fuels, Hydraulic Fluids, Lubricating Oils, Solvents and Cleaning Fluids Duration – 2 hours Test fluids and Temp in accordance with Mil-Std - 810
506.4 Watertightness	Complete system as installed on platform	Procedure II - watertightness	Follow para 4.1.2 - Test procedures – watertightness; 4.4.3– Test execution – watertightness.
507.4 Humidity	Complete system as installed on platform	This method has one procedure	Follow aggravated temperature-humidity cycle given in 507.4, Figure 1

LABORATORY TEST METHOD	Subject to Test	Procedure	Parameters
509.4 Salt Fog	Whole system, connected, operable, before installed on platform.	This method has one procedure	5% salt solution in deionized water. Use two alternating 24-hour periods of salt fog exposure and drying conditions for a total of 48 hours of exposure and 48 hours of drying. Maintain temperature at 95 +- 4 F. Minimal air velocity in test chamber. Adjust salt fog flow rate in the chamber such that 1 to 3 ml of solution is collected per hour for each 80 cm^2 of horizontal collecting area. Analyze results using guidance provided in Part One, Para. 5.14 and 5.17 of MIL-STD-810F. Report on physical, electrical and corrosion effects.
510.4 Sand and Dust	Complete system as installed on platform Components exposed to blowing sand	Procedure I – Blowing dust Procedure II – blowing sand	Use particle compositions, concentration, air velocity, orientation, and duration as specified in MIL-STD 810 F.
512.4 Immersion	Complete system installed on platform. Immersion to cover just those components immersed when landing or fording.	Procedure I (Immersion) for swimming platforms Procedure II – (Fording) for non swimming platforms (ie MTVR)	Obtain depth of immersion/fording and duration of exposure data from platform managers. For planning purposes use 1.5 m depth and 30 minute exposure.
514.5 Vibration	Complete system, connected and operational, before installation on platform	Operational Ground Vehicles;	Use level and duration data in Annex A of 514.5. Use Section 2.3.9 for ground vehicles. Taylor this procedure after discussions with platform managers. For planning purposes, use spectra in Annex C, figures 514.5C-1through 514.5C-3.
516.5 Shock	Complete system, connected and operational, before installation on platform	Procedure I – Functional shock	Taylor this procedure after discussions with platform managers. For planning purposes, use 20 g's for a duration of 11 milliseconds in each orthogonal direction.
	Complete system, connected and operational, before installation on platform	Procedure IV – Transit Drop	Use drop height of 122 cm. Drop on each face, edge, and corner; a total of 26 drops. See para. 4.5.5 of Method 516.5.
519.5 Gunfire Vibration	Only on platforms having gun mounted sensors to count rounds fired	Pulse Procedure I – Direct reproduction of measured material response data.	In-service gunfire environment material response is replicated under laboratory exciter waveform control. Use guidelines in Annex A of 519.5
521.2 Icing/Freezing Rain	Complete system as installed on platform	This method has one procedure	Taylor this procedure after discussions with platform managers. For planning purposes use a water delivery rate of 25 mm/hr, uniform spray on top, sides, front and rear of platform, 1.5 mm droplet size, and 13 mm ice thickness.

3.5.1.2 Electromagnetic environment effects (E3)

EPLS shall be compliant with existing DOD requirements in MIL-STD-464A (platform level) and in MIL-STD-461E (for Army Ground platforms) for all electromagnetic disciplines, including electromagnetic compatibility with itself and other systems in the operating environment; hazards of electromagnetic radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning, electrostatic discharge and precipitation static. The contractor may tailor MIL-STD 461 test requirements based on the system design and government approval.

3.5.1.2.1 EPLS shall demonstrate compliance with analyses and tests as noted in MIL-STD-464A and shall not be degraded by electromagnetic environmental effects and with other systems and platforms in the operating environment, including allied and coalition systems. To include platforms operating counter improvised explosive device jammers.

3.5.1.3 Electromagnetic Interference

EPLS shall be electromagnetically compatible with itself and with other systems in its operational environment (threshold). E3 Compatibility must be validated and documented for Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Electromagnetic Protection (EP), Hazards of Electromagnetic Radiation to Personnel (HERP), Hazards of Electromagnetic Radiation to Ordnance (HERO), Hazards of Electromagnetic Radiation to Fuel/Volatile Materials (HERF) and Natural Phenomenon.

3.5.2 Corrosion Resistance

3.5.2.1 Material Selection and Installation

EPLS material selection and installation process shall be designed utilizing corrosion prevention techniques, including measures taken to minimize water collection/entrapment and collection of debris, mitigate corrosion in areas inaccessible to cleaning and maintenance, and minimize dissimilar metal contact. Material selection should minimize the need for the application of coatings and other corrosion prevention compounds

3.5.2.2 Protection During Storage

EPLS shall be designed to resist corrosion in protected storage for extended periods consistent with warehouse conditions and maritime preposition shipping.

3.5.2.3 Preventive maintenance

EPLS shall incorporate preventive maintenance attributes for corrosion protection.

4 VERIFICATION

This section discusses all verifications to be performed to determine that the EPL system offered for acceptance conforms to the requirements in Section 3 of this specification. Verification may be accomplished by examination, analysis, demonstration, testing, or any combination thereof.

Unless otherwise specified, all tests shall be performed by the contractor and observed by the government in accordance with the test conditions specified in the applicable test method document.

First Article Verification shall be conducted on the following platforms and variants.

LAV – one LAV-M, one LAV – AT, two LAV-25
AAV - three AAV-P7s, one AAV - C2.

MTVR - four variants (or, depending on availability, any combination with a total of four):

- MTVR MK-23 w/o winch.
- MTVR MK-25 w/ winch.
- MTVR MK-27 XLWB w/o winch.
- MTVR MK-28 XLWB w/ winch.
- MTVR MK-29 Dump w/o winch.
- MTVR MK-30 Dump w/ winch.

4.1 First Article Verification Procedures and Criteria

The first article verification procedures and the criteria for determining conformance to the specification are to verify that EPLS performs all allocated functions according to this specification. Every specified requirement shall be addressed by at least one test. Test cases shall be selected for average situations, boundary situations and stress cases. Test cases that exercise combinations of different functions shall be included.

Where applicable and with government approval, tests and demonstrations of EPLS capabilities may be aided by automated test equipment or modeling and simulation tools that allow simulation of the inputs to the EPLS. Such a test system would permit the contractor or Government representatives to simulate sensor inputs (e.g. engine oil pressure or number of shots fired) and observe the response of the EPLS without having to generate these input conditions under actual operating conditions.

Verification methods have been identified for each requirement and are included in Table 4-1. Requirements paragraphs subsume all sub-paragraphs. Vendors are responsible for meeting all sub-requirements under major paragraph headings. Additional acceptable validation methods may be identified during design and, if

approved by the Government, may be used. The requirement paragraph number is the paragraph number in Section 3 of this specification in which the requirement appears. The verification paragraph number is the paragraph number in this section 4 that describes the verification methods and criteria in detail.

Unless otherwise noted, all criteria are threshold criteria required for conformance certification.

Method of Verification
A = Analysis
I = Inspection
T = Test
D = Demonstration.
C = Certification.

Analysis is an element of verification that uses established technical or mathematical models or simulations, algorithms, charts, graphs, circuit diagrams, or other scientific principles and procedures to provide evidence that stated requirements were met.

Inspection is the examination and testing of an item to determine whether it conforms to specified requirements. Examination is an element of verification that is generally nondestructive and typically includes the use of sight, hearing, smell, touch and taste; simple physical manipulation; and mechanical and electrical gauging and measurement.

Test is an element of verification in which scientific principles and procedures are applied to determine the properties or functional capabilities of items.

Demonstration is an element of verification that involves the actual operation of an item to provide evidence that the required functions were accomplished under specific scenarios. The items may be instrumented and performance monitored. Demonstrations may be conducted at a location chosen by the contractor provided the location allows for the realistic operation of the platforms, e.g. a systems integration laboratory.

Certification means to attest that the article conforms to an established standard of performance. The vendor shall perform verification by certification and provide a certificate for government acceptance.

Table 4-1 Qualification Methods

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3	REQUIREMENTS						
3.1	First Articles	4.2			X	X	
3.3.1	Modular Open System	4.2.1	X				
3.3.2.1	Configurations	4.2.2	X				
3.3.2.2	Scalability	4.2.3	X				
3.3.3.1	Net-Centric Data Strategy	4.2.4	X				
3.3.3.1.1	EPLS Data Visibility - Information from EPLS shall be made visible to interfacing systems by application of the DoD Discovery Metadata Specification (DDMS). All data assets (intelligence, non-intelligence, raw, and processed) shall be advertised or "made visible" by providing metadata, which describes the asset.	4.2.4	X				
3.3.3.1.2	EPLS OBSA Data Accessibility - all EPLS data shared on the network shall be made accessible to authenticated networked users through the use of documented and published COTS/NDI open data standards and interfaces. No proprietary software shall be used for this purpose.	4.2.4	X				
3.3.3.1.3	Data OBSA Understandability - All EPLS data that will be shared by network users shall be structured, formatted, and its content designed so that other (network) users will be able to understand to the extent that they can apply it to their operations. The structure and usage shall be documented thoroughly so that other users can understand the process. An accepted standard format shall be used and documented.	4.2.4	X				
3.3.3.1.4	EPLS Data Trustability - All EPLS data shall be marked and coded (tagged) in such a way that any networked users can determine the veracity and authenticity of the data and apply it to their operations. The methodology for interpretation of the code shall be documented with care taken as to confidentiality.	4.2.4	X				

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.3.1.5	EPLS Data Manageability - EPLS shall be designed with a metadata capability that at the minimum shall provide the ability to manage the database structure to modify it when required. The metadata capability shall allow other network users to manage the data if certain defined security codes are used. When such modification is made, the metadata capability shall notify other network users of the changes.	4.2.4	X				
3.3.3.1.6	EPLS GIG Service Strategy - EPLS shall be compatible with Global Information Grid (GIG) standards in accordance with DoD Directive 8100.1. It need not implement all GIG requirements, but it must be compatible with the GIG and be capable of executing in the GIG environment in future configurations.	4.2.4	X				
3.3.3.1.7	EPLS OBSC Continuity of Operations (COOP) - EPLS shall maintain continuity of operations across all operational areas. The system shall be equipped with disaster recovery capabilities that provide for data backup at stated intervals. In case of power loss, it shall shut down gracefully without loss of data.	4.2.5				X	
3.3.3.2	Data Exchange - EPLS shall provide common ports to make available a means of connectivity between the OBC and external computer systems in the following ways:	4.2.6			X	X	
	a) USB Storage Device Transfer				X	X	
	b) Wired Ethernet Connection				X	X	
	c) Wired Serial Port Connection				X	X	
	d) OPSTD-014 and FIPS 140-2 Compliant Wireless				X	X	
	* Wireless transfer of data off the platform shall be demonstrated and verified during FAT and shall be disabled in production units pending approval. The use of wireless data transfers shall not be capable of being enabled by system users. A method shall be provided to enable the wireless transfer of data in the production units after delivery and with Government approval by authorized personnel.						
3.3.4	Network - EPLS shall provide internal data network connectivity as defined in the specification for both wired and wireless capability.	4.2.7			X	X	
3.3.4.1	Ethernet (Wired)	4.2.7			X	X	
	EPLS shall support wired Ethernet connections compatible with 10Base-T and 100Base-T interfaces.				X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.4.2	Transmission Control Protocol/Internet Protocol (TCP/IP)	4.2.7			X	X	
3.3.4.3	NIPRNET (NIPR) - EPLS shall provide for connection to Non-secure Internet Protocol Router Network (NIPRNET).	4.2.7			X	X	
3.3.4.4	EPLS shall provide an OPSTD-014 and FIPS 140-2 Compliant Wireless 802.11 LAN for non-secure wireless networking to move data off the platform. The system shall allow the operator to turn off the 802.11 transmitters and revert to wired configuration when emission control procedures are in effect. Threshold is 30 meters, Objective is 50 Meters	4.2.7			X	X	
3.3.4.5	EPLS computer resources shall be compatible with and be compliant to the Information Technology Standards Guidance (ITSG), and the DISR. Equipment may require partial or full ruggedization to meet the system requirements. It shall be comprised of COTS, GOTS, or other design, that allow for expansion	4.2.7			X	X	
3.3.5	Human Interface - The following human engineering requirements shall be met. A human engineering effort shall be conducted in accordance with MIL-STD-1472 and MIL-HDBK-46855. This effort shall include identification and proposals for solutions to human engineering problems associated with the use of the Embedded Platform Logistics System. Simplicity of operation and human engineering considerations for the human operation and maintenance of the EPLS shall be collectively or individually designed into the system. The human engineering effort shall state all special human interface limitations and ensure that the following capabilities are met.	4.2.8	X				
	a) The position EPLS of the controls shall be optimized with respect to their functions.		X				
	b) EPLS shall be capable of being operated by personnel wearing standard issue Nuclear, Chemical and Biological (NBC) and Cold Weather equipment.		X				
	c) EPLS shall be designed to be operable and maintainable by the 5th through 95th percentile ground troops per MIL-STD-1472 paragraph 5.6.		X				
	d) Special design efforts shall be devoted, but not limited to, addressing MIL-STD-1472 paragraphs 5.4, 5.5, 5.6, 5.9, and 5.13.		X				

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
	e) If applicable, equipment that requires concentrated human engineering due to the sensitivity of the operation, or criticality of the task, shall be identified with the appropriate level of detail and proposals for solutions provided. MIL-HDBK-759 shall be consulted for guidance.		X				
3.3.6	Cables and Connectors						
3.3.6.1	Connectors						
3.3.6.1.1	Connectors - In order to prevent incorrect assembly that may cause damage, all connectors shall be marked and labeled. Connectors shall be corrosion resistant, waterproof, and sufficiently ruggedized to withstand combat operations and platform vibrations. External connectors and receptacles shall be durable enough to withstand a minimum of 500 connect/disconnect cycles without requiring replacement. Connectors shall be selected and allocated such that connecting a cable to the wrong connector shall not damage the system.	4.2.9	X				
3.3.6.1.2	The vendor shall provide sufficient connectors and connector types to support EPLS communications and network architecture, external interfaces and shall provide expansion space for future installation of 20% (minimum) additional connectors of total connectors.. The units shall be of a modular design, such that replacement of broken connectors or installation of different connector types may be accomplished using tools available at the unit level and without requiring factory refurbishment.	4.2.10	X			X	
3.3.6.2	Cabling	4.2.11	X				
3.3.6.2.1	System cables shall be braided (for ruggedization) and easy to connect/disconnect and incorporate a combination of different connector plug designs and labeling to preclude incorrect connections.	4.2.11				X	
3.3.6.2.2	System cables shall provide a locking connector where appropriate. This includes locations where it is necessary to prevent unintentional disconnection or hazardous interchange of system cables.	4.2.11				X	
3.3.6.2.3	All wiring harnesses and their connectors shall be labeled to allow identification of the harness/connector while the harness is installed.	4.2.11				X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.6.2.4	All connector-mating plugs shall be physically and electrically compatible without requiring any preparation other than insertion of plug-in components.	4.2.11				X	
3.3.6.2.5	Protective caps shall be provided for both male and female connector units for all external connections. Internal connections shall use best commercial practice for application of protective caps.	4.2.11				X	
3.3.6.2.6	All cabling shall consider dimensional variations in individual platform and variant types during fabrication.	4.2.11	X				
3.3.7	Marking - All identification, nameplates, labels, legends, signs, and markings shall be readily displayed and provide clear concise instructions or warnings. They shall also be in compliance with the requirements of MIL-STD-130.	4.2.12				X	
3.3.8	Compatibility - Each component, assembly, and subsystem when installed as a complete system and operating as intended, shall cause no undesirable response, malfunction, or degraded performance of any other component, assembly or subsystem installed in, or associated with, the system. No component, assembly, and subsystem shall likewise be affected when other component, assembly, and subsystems are singularly or collectively operated.	4.2.13	X			X	
3.3.9	Form, Fit and Function - EPLS shall not adversely affect in any way the form, fit, and function of the host platform on which it is installed and operated, nor require any adverse configuration change to the host platform. EPLS shall not adversely affect the operator, maintainer, or passenger during operational use or the conduct of preventive and corrective activities of the host platform.	4.2.14	X				

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.10	Interchangeability - To the maximum extent possible, EPLS components shall be designed or selected as modular plug-in devices and shall be marked or keyed to preclude insertion or installation in the wrong position or location. All components or groups of components performing similar functions shall be physically and electrically interchangeable without requiring any preparation other than resetting of exterior switches, connection of cables, or insertion of plug-in components. Mounting kits, cables, connectors, and raceways shall be interchangeable among all like Line Replaceable Units (LRU) and, to the maximum extent possible, interchangeable between different types of vehicle platforms and their variants.	4.2.15	X			X	
3.3.11	Ruggedization - All components shall be ruggedized to survive intended operational environment.	4.2.16	X				
3.3.12	Reliability - EPLS shall have a Mean Time Between Operational Mission Failure (MTBOMF) of not be less than 500 hours (threshold), and 1000 hours (objective). DEFINITION: An operational mission failure is the loss of function (hardware and software) that prevents EPLS from performing its intended purpose for more than 15 minutes.	4.2.17	X				
3.3.13	Availability - EPLS shall be designed to support an Inherent Availability (Ai) of not less than 95 percent (threshold), and 98 percent (objective).	4.2.18	X				
3.3.14	Maintainability - EPLS shall use Line Replaceable Units (LRU) designed for removal and replacement by Marines using standard tools and Test Measurement, Diagnostic Equipment (TMDE) at the organizational level.	4.2.19	X			X	
3.3.15	Built In Test (BIT) and Built in Test Equipment (BITE)	4.2.20	X		X	X	
3.3.15.1	EPLS BIT / BITE - Section 3.3.15 specifically includes all EPLS hardware and software BIT / BITE	4.2.20					
3.3.15.1.1	EPLS BIT / BITE shall be used to the maximum extent possible to isolate EPLS faults to the single Line Replaceable Unit (LRU) 90 percent (threshold) to 95 percent (objective) of the time. BIT shall not interfere with standard system operation.	4.2.20	X		X	X	
3.3.15.1.2	Built-In Test (BIT) / BITE diagnostics, augmented by Manual Test Procedures (MTP), shall meet the following requirements:	4.2.20	X		X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.15.1.2.1	Ninety-five percent probability of detecting all on-board system-level faults.	4.2.20	X		X	X	
3.3.15.1.2.2	EPLS Fault isolation shall be conducted in 30 minutes or less.	4.2.20			X	X	
3.3.15.1.2.3	Less than four percent BIT false alarm rate. False Alarm rates are per failure.	4.2.20	X		X	X	
3.3.15.1.2.4	BIT failure shall not degrade performance of the prime system (i.e., BIT failure is transparent to systems operation).	4.2.20			X	X	
3.3.15.1.2.5	BIT shall have self-test capability. (To include verification of additional sensors).	4.2.20	X		X	X	
3.3.15.1.3	BIT / BITE diagnostics shall be the primary diagnostic mechanism for unit maintenance, with on-line fault detection and fault isolation BIT diagnostics results, as well as any prompts for interactive testing, displayed on the crew display panels.	4.2.20				X	
3.3.15.1.4	Start-up Built-In-Test (SBIT) - A start-up Built-in-Test (BIT) shall be initiated at system power-on and provide a check of the Sensors, sensor networks, data buss communications, wireless network, LRUs and the major system parameters. A system status report shall be generated at completion of BIT. If a fault condition is detected, a warning indication shall be provided to the operator and a failure report shall be generated. SBIT shall not interfere with standard system operation.	4.2.20			X	X	
3.3.15.1.5	Initiated Built-In-Test (IBIT) - An initiated BIT function shall be included that can be started at any time by the operator or maintenance personnel. Initiated BIT may interrupt EPLS mission software activities. At the completion of its operation, initiated BIT shall provide a report of system status and a failure report listing the failed LRU(s) if any.	4.2.20			X	X	
3.3.15.1.6	Operational Built In Test (OBIT) - During operation of the Embedded Platform Logistics System, an Operational BIT function (OBIT) shall run in the background and periodically check for system faults. Any faults detected shall be reported to the operator or maintenance personnel. The OBIT function shall be such that personnel may query its results at any time during system operation. This Operational Built In Test (OBIT) shall not alter or interfere with the operation of the system.	4.2.20			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.3.16.1	Operation in an MOPP environment - EPLS shall be capable of being operated and maintained by personnel in Mission Oriented Protective Posture (MOPP) Level IV protective clothing.	4.2.21				X	
3.3.16.2	Decontamination - EPLS shall be capable of withstanding standard NBC decontamination procedures (Bleach).	4.2.22	X			X	
3.3.17.1	Personnel Safety	4.2.23	X				
3.3.17.1.1	Size and configuration of components of the EPLS shall be such as not to interfere with the duties normally performed by assigned operator and maintenance personnel, combat platform crew or passengers.	4.2.23	X				
3.3.17.1.2	Safety devices shall be employed to prevent unintentional physical, electrical damage or weapon discharge, ignition of pyrotechnic devices, and injury to personnel.	4.2.23	X				
3.3.17.1.3	All components shall be designed to minimize injury to assigned operator and maintenance personnel, combat platform crew or passengers while operating over rough terrain or when platform weapons are being fired.	4.2.23	X			X	
3.3.17.2	Equipment Safety	4.2.24	X				
3.3.17.2.1	EPLS shall provide the capability for grounding EPLS electrical systems in accordance with industry best practices.	4.2.24	X				
3.3.17.2.2	The equipment in the system shall be designed to minimize equipment damage, degradation of efficiency, or mission failure due to the following conditions:	4.2.24	X			X	
	a) Operator induced errors.	4.2.24	X			X	
	b) Improper cabling.	4.2.24	X			X	
	c) Power failure or electrical overstress on EPLS components.	4.2.24	X			X	
	d) Power failure or electrical overstress to host platform and platform systems and components.	4.2.24	X			X	
	e) Overload protection.	4.2.24	X			X	
3.3.17.2.3	When the interchange of connectors may result in damage to the equipment or a hazard to personnel, the connectors shall be designed to prevent interchange.	4.2.24	X			X	
3.3.19	Critical Infrastructure Protection (CIP) - EPLS shall be designed to ensure the CIP through vulnerability assessment process. EPLS shall comply with standards of vulnerability including standards of frequency of assessment and other DoD system security standards.	4.2.25	X				
3.4.1.1	On-Board Computer (OBC)	4.2.26			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.1.1.1	EPLS shall provide storage and processing resources required to host the On-board Software Client (OBSC), electronic record book, platform technical data, and EPLS generated data relating to operational status and system health.	4.2.26				X	
3.4.1.1.2	EPLS shall provide a capability to input data via a removable display, OBC, or external device. i.e., operator preventive maintenance checks and services or conducting mobile load distribution events. The input device (e.g. removable display, OBC, or other external devices) shall operate for 3 hours (threshold) 4 hours (objective). If connected to the EPLS system the input device shall be durable enough to withstand a minimum of 2500 connect/disconnect cycles without requiring replacement or repair. When not in use the input device shall be securely stored.	4.2.26	X			X	
3.4.1.1.3	OBC shall provide a display for authorized users to view operational status and system health and electronic records.	4.2.26				X	
3.4.1.1.4	The OBC shall provides interfaces to electronics, including data buses, diagnostic ports, and sensor harnesses to perform EPLS functions required to provide operational status and system health to authorized users.	4.2.26			X	X	
3.4.1.1.5	The developer shall ensure that there is adequate computer reserve for the software being developed such that the product/system operates as required in other sections of this specification. This includes reserves for memory, input/output functions, total operating throughput, and ancillary storage (e.g., disk space). Reserve capacities shall be maintained during all operations to ensure adequate performance during peak loading, to support system testing, and to support emergency loads. Reserve processing capability shall be defined as (total available - amount used)/(total available), and shall be 30% (threshold) or 50% (objective) above anticipated peak processing load (all sensors operating and running System Health Check and platform IETM).	4.2.27	X				
3.4.1.2	Sleep Mode	4.2.28			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.1.2.1	EPLS OBC shall have a sleep mode to conserve power. (threshold) sleep mode shall begin at 30 minutes of inactivity. (objective) sleep mode shall provide a user definable option to select sleep mode with a default of 30 minutes.	4.2.28			X	X	
3.4.1.2.2	EPLS shall exit sleep mode by a user request or platform power-up.	4.2.28			X	X	
3.4.1.2.3	EPLS shall exit sleep mode when a change in reporting criteria occurs.	4.2.28			X	X	
3.4.1.3	Sensors	4.2.29			X	X	
3.4.1.3.1	Sensors and sensor architectures added to the platform to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall provide sufficient resources to ensure continuity of operations. The system shall be equipped with disaster recovery capabilities (i.e., memory, last known state, or other methods) that provide for data backup at stated intervals. In case of power loss, it shall shut down gracefully without loss of data.	4.2.29	X			X	
3.4.1.3.2	Sensors used to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing.	4.2.29	X				
3.4.1.3.3	Sensors operating on battery power shall provide sufficient battery life for continuous operation for a minimum period of 12 months before change of battery is required. Battery replacement shall not require the removal of adjacent LRUs.	4.2.29	X			X	
3.4.1.3.4	Sensors and sensor networks using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall be self-configuring.	4.2.29	X			X	
3.4.1.4	Data Bus						
3.4.1.4.1	The Data Bus and on-board communication network shall when applicable comply with SAE J1939, SAE J1587, SAE J1708, SAE J1850, SAE 1962, and SAE J2534.	4.2.30	X				
3.4.1.4.2	EPLS shall access and use the existing J-1939 Data Bus and fault codes on the MTVR.	4.2.31				X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.1.4.3	EPLS shall provide a J-1939 Data Bus as a standard platform communication network for the LAV and AAV such that, existing and additional sensors signals can access the Data Bus directly.	4.2.32			X	X	
3.4.1.4.4	EPLS shall use SAE J-1587 platform fault codes.	4.2.32			X	X	
3.4.1.4.5	Data Buses used to provide EPLS functionality using other than standard shielded cabling for connectivity (e.g. short range wireless communication), shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing.	4.2.32	X				
3.4.2	EPLS Software - EPLS software, including OBSA, OBSC, business rules, diagnostic / prognostics algorithms and routines, shall provide a feedback loop that provides for verification and correction of false alarms, false indicators, and non-indications of faults. EPLS software shall collect and store data in a format that supports a net-centric diagnostic capability. EPLS Software design shall comply with IEEE/EIA 12207.	4.2.33	X				
3.4.2.1.1	Internal Data Requirements - Embedded Platform Logistics System shall provide for storage and maintenance of system data and the application of processing rules for data that apply to multiple interfaces and their interaction to maximize interoperability.	4.2.33	X				
3.4.2.1.2	Design traceability - EPLS software shall be traceable by a documented method selected by the contractor and approved by the Government. The traceability shall be one or more of the following as required to ensure that the requirements for EPLS are met:	4.2.33	X				
	a) Traceability from each Computer Software Configuration Item (CSCI) source file to the software unit(s) that it implements, or, if a software unit corresponds to multiple source files, traceability from each source file to the detailed design aspects of those software units that it implements.	4.2.33	X				
	b) Traceability from each software unit to the source files that implement it, or if a software unit corresponds to multiple source files, traceability from each detailed design aspect of the software unit to the source files that implement it.	4.2.33	X				

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	c) Traceability from each computer hardware resource utilization measurement to the CSCI requirements it addresses. (Alternatively, this traceability may be provided in the computer hardware resource utilization section.).	4.2.33	X				
	d) Traceability from each CSCI requirement regarding computer hardware resource utilization to the utilization measurements given in the computer hardware resource utilization section.	4.2.33	X				
3.4.2.2	EPLS On-Board Software Client (OBSC)	4.2.34			X	X	
3.4.2.2.1	EPLS software shall encompass all platforms and include installation instructions for each platform variant.	4.2.34				X	
3.4.2.2.2	EPLS OBSC installation instructions for individual platform types shall be determined from the input platform vehicle identification number (VIN) or using Unique Identification (UID) compliant search.	4.2.34				X	
3.4.2.2.3	EPLS OBSC installation process shall only load the software required for an individual platform and variant and shall not include Technical Manuals, ETMs, or IETMs for other platforms.	4.2.34				X	
3.4.2.2.4	EPLS shall capture operational status, systems health, and equipment operating time codes (EOTC) during initialization process.	4.2.34			X	X	
3.4.2.3	OBSC Functions	4.2.35			X	X	
3.4.2.3.1	OBSC applications shall perform EPLS functions required to provide operational status and system health.	4.2.35			X	X	
3.4.2.3.2	OBSC applications shall be capable of generating "request for Service". Request for service shall be formatted in current Marine Corps Integrated Maintenance Management System (MIMMS) and Supported Activities Supply System (SASSY) formats as stated in the UM 4790. A request for service shall formatted in the Equipment Repair Order (ERO) Format and a request for Parts or Part Exchange shall be formatted in the ERO Shopping List (EROSL) format.	4.2.35			X	X	
3.4.2.3.3	OBSC shall control the form and content of data for exchanges. OBSC shall include considerations of low bandwidth (9.4kb) and intermittent communications. The OBSC shall provide an alert or indicator of the success or failure of data exchanges.	4.2.35			X		

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			A	I	T	D	C
3.4.2.3.4	OBSC shall contain diagnostic and prognostic algorithms to support automated routines required to assess the platform operational status and system health.	4.2.35	X			X	
3.4.2.4	EPLS Off-Board Service Application (OBSA)	4.2.36			X	X	
3.4.2.4.1	EPLS OBSA shall consist of a database that accepts individual EPLS data and electronic equipment records from all EPLS equipped platforms.	4.2.36			X	X	
3.4.2.4.2	EPLS OBSA shall include software that prepares detailed (status by sub-system or sub-assembly) and summary (operational, degraded, dead-lined) operational status and system health reports as affiliated with unit task organizations.	4.2.36			X	X	
3.4.2.4.3	EPLS OBSA shall provide sufficient tools to support trend and usage analysis of platform alerts, indicators, scheduled and unscheduled maintenance operations and tasks, mobile load/passenger manifests, and fuel and ammunition.	4.2.36	X			X	
3.4.2.4.4	EPLS OBSA shall permit querying of the database for ad hoc reports and information requests.	4.2.36	X			X	
3.4.2.4.5	EPLS OBSA shall be capable of formatting (as stated in the UM 4790) and storing collected EPLS data to an external courier disk.	4.2.36	X			X	
3.4.2.4.6	EPLS OBSA shall provide for access to EPLS information by authorized users.	4.2.36				X	
3.4.3	Business Rules - The software design shall be in accordance with best industry practice concerning clarity, modularity, and documentation. The interface between the OBC software and the user shall be in the form of business rules. Business rules are logical statements that use inputs from sensors and the user to determine reporting frequency, alert thresholds, report formats, and similar items.	4.2.37	X				
3.4.3.1	Business Rules Categories	4.2.37	X				

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			A	I	T	D	C
3.4.3.1.1	Fixed Business Rules – Business rules related to a major system, sub-system, and sub-assembly condition and are formulated one time and not changed on platform or by the operator, e.g. engine alarm points (oil pressure, battery voltage, etc.) based on an approval process and shall be changed only by an authorized master administrator. An authorized master administrator shall change Fixed Business Rules after approved by the platform Program Manager and shall be issued as updated software version or patch.	4.2.37	X				
3.4.3.1.2	Limited Business Rules - Business rules related to platform data that may change on an infrequent basis, e.g. platform unit assignment or platform operator. Only authorized users shall change limited Business Rules and they shall be password protected.	4.2.37	X				
3.4.3.1.3	Adjustable Business Rules - Business rules related to reporting frequencies, alerts and indicators, e.g. ammunition or fuel consumption reporting. Adjustable Business Rules shall have default setting and be adjustable by the operator via a display at the start of each mission. Adjustable Business Rules shall not be password protected.	4.2.37	X				
3.4.3.2	Business Rule Application	4.2.38	X				
	The business rules application shall be separate from the data acquisition and data processing application. The business rules application shall contain a business rule engine and business rule editor functionality.	4.2.38	X				
3.4.3.2	Business Rule Application	4.2.39			X	X	
3.4.3.2.1	The EPLS system shall provide for the authentication of authorized users for changing business rules.	4.2.39	X				
3.4.3.2.2	The business rule engine shall parse input data to determine if a response is required. When a response is required, the business rules application outputs the required response.	4.2.40			X	X	
3.4.3.2.3	The business rule editor shall allow changing reporting frequency, display format, specification of alert condition and system response to alert conditions. The business rule editor shall accessible via the OBSC and OBSA. The business rule editor shall permit changes to business rules only by appropriately authorized users for each type of rule.	4.2.40			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.3.2.4	A business rule shall allow event driven data acquisition frequencies.	4.2.40			X	X	
3.4.3.2.4	Business rules shall permit assignment of priority to warnings and alarms.	4.2.40			X	X	
3.4.4.1	Electronic Record Book - EPLS shall provide a platform electronic record book capability that contains the following elements formatted in accordance with the records and forms outlined in TM 4700-15/1and the UM 4790.	4.2.41	X			X	
	a) Motor Vehicle Record Folder - vehicle historical record summary of the equipment's transfer, receipts, modifications, major assembly replacements.	4.2.41	X			X	
	b) Preventative Maintenance Checks and Services (PMCS) Schedule and Record.	4.2.41	X			X	
	c) Daily PMCS Checklist - before operation/during operation/after operation.	4.2.41	X			X	
	d) Vehicle Operational Record/Trip Ticket.	4.2.41	X			X	
	e) Service History (i.e. Equipment Repair Order (ERO) forms).	4.2.41	X			X	
	f) Parts Request (i.e. Equipment Repair Order Shopping List (EROSL) forms).	4.2.41	X			X	
	g) Modification Control Record.	4.2.41	X			X	
	h) Limited Technical Inspections (LTI).	4.2.41	X			X	
	i) Other Testing and Inspection Records (e.g. Calibration Control Records, Condition Inspection Record, Oil Analysis Request/Log/Feedback, etc.).	4.2.41	X			X	
	j) Tool Lists (i.e. SL-3).	4.2.41	X			X	
	k) Equipment Operating Time Code for all meters, odometers, and rounds.	4.2.41	X			X	
	l) Vehicle Unique Identification (UID) Data.	4.2.41	X			X	
	m) Vehicle Configuration Data.	4.2.41	X			X	
	n) Current version and version history of the EPLS software, electronic record book, EPLS IETM, platform IETM(s), and all other installed software or technical data that is versioned or dated.	4.2.41	X			X	
	o) Parts Inventories.	4.2.41	X			X	
	p) Life Cycle Data available from EPLS and not currently captured by current record keeping process, e.g. battery state of charge.	4.2.41	X			X	
3.4.4.2	Electronic Ordnance Record Book - EPLS LAV and AAV variants shall provide an electronic ordnance record book capability that allows for the storage of ordnance vehicle record jacket and weapon record book information in accordance with TM 4700-15/1.	4.2.42	X			X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.4.2.1	Ordnance Vehicle Record Book - shall include:	4.2.42	X			X	
	a) Ordnance Vehicle Daily/Monthly Log.	4.2.42	X			X	
	b) Ordnance Vehicle Service Record.	4.2.42	X			X	
	c) Ordnance Vehicle Overhaul and Rebuild Record.	4.2.42	X			X	
3.4.4.2.2	Electronic Weapon Record Book - For LAV-25, LAV-AT, LAV-M, and AAV-P7, EPLS shall provide an electronic weapon record book capability. The weapon record book provides an accurate historical record of the entire service life of a particular weapon. It consists of Parts I and II.	4.2.42	X			X	
	Part I - Records information pertinent to the major item (mount, recoil mechanism, breech ring, etc.). Part I remains with the major item during its entire service life.	4.2.42	X			X	
	Part II - Records information pertinent to the tube. Part II remains with the tube until it is condemned.	4.2.42	X			X	
3.4.4.2.2.1	Weapon Record Book/Gun Book. The Weapon Record Book/Gun Book consists of Parts I and II.	4.2.42	X			X	
	Part I, Major Item Complete Record -	4.2.42	X			X	
	a) Weapon Component Performance.	4.2.42	X			X	
	b) Weapon Data - results of inspections and completion of required maintenance.	4.2.42	X			X	
	c) Weapon Modification Record.	4.2.42	X			X	
	Part II, Tube Data -	4.2.42	X			X	
	a) Identification of Components (Serial No, Manufacturer, Year, Total accumulative rounds, etc.).	4.2.42	X			X	
	b) Unit Commanders Record (Type round fired, Number of rounds fired and Effective Full Charge value).	4.2.42	X			X	
	c) Pullover Gage Inspection Record.	4.2.42	X			X	
	d) Bore Inspection Record.	4.2.42	X			X	
3.4.4.3	EPLS Interactive Electronic Technical Manual (IETM) (SM) - The contractor shall create and deliver an EPLS IETM in accordance with TMCR NDMS-07002 Technical Manual Contract Requirement (SIETM)	4.2.43				X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.4.4	EPLS shall host (e.g. IETMs, ETMs, technical manuals, modification instructions, and parts listing)and provide access (e.g., IADS, EMS2 viewers) to current platform technical data . (threshold) – EPLS shall host all platform organizational level technical data, (objective) – EPLS shall host all organizational and intermediate level technical data.	4.2.44				X	
3.4.5	Operational Status and System Health - EPLS shall perform EPLS functions required to assess operational status and system health as a function of the platform's ability to operate as designed over its operational and environmental ranges. Operational Status includes fuel, ammunition, mobile load/passenger manifest, and systems health information. Operational status and System health status shall be classified as operational, degraded, or dead-lined. Unique platform measurement parameters are provided for each platform in associated performance specification sheets. If the operational status and system health is classified as degraded or dead-lined due to safety issues, the operational status and system health report shall indicate so.	4.2.45			X	X	
3.4.5.1	Operational Status and System Health Alerts, Indicators.	4.2.45			X	X	
3.4.5.1.1	Alert, Indication, and Report Generation - EPLS shall provide EPLS functionality required to generate alerts, indications, and reports. Alerts, indicators and reports shall provide sufficient information to indicate a change in operational status or system health has occurred.	4.2.45			X	X	
3.4.5.1.2	Alert and Indicator Modes	4.2.45			X	X	
	(a) Automatic Mode - EPLS shall automatically report operational status and system health based on business rules and user set preferences.	4.2.45			X	X	
	(b) Override Mode - EPLS alerts and indicators shall allow for manual override based on operational conditions and user preferences. When operating in manual override mode and an alert or indicator is reported, EPLS shall record and store the event, platform data, type of alarm, and indicator time, and other data that can be used to assist in reporting operational status and system health or used in corrective actions.	4.2.45			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
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3.4.5.1.3	Alert and Indicator Interface	4.2.45			X	X	
	EPLS alerts and indicators shall provide an interface for a platform operator or maintainer to set the user preference of the type of alert or indicator, reporting frequency, and alert levels.	4.2.45			X	X	
	EPLS shall allow the user to choose how to display data from among several alternative displays (stop light, numerical data, bar chart, etc.).	4.2.45			X	X	
3.4.5.2	Operational Status and System Health Reports	4.2.46			X	X	
3.4.5.2.1	EPLS shall provide the ability to display and report platform operational status and system health.	4.2.46			X	X	
3.4.5.2.2	EPLS shall provide the capability to time stamp EPLS data and reports. The time stamp shall provide a common and accurate time standard for EPLS equipped platforms. EPLS shall provide a common and accurate time and date stamp with data, and reports from EPLS. The common and accurate time stamp shall come from the EPLS On-Board Computer (OBC) clock. Authorized users shall be able to reset the OBC clock.	4.2.46			X	X	
3.4.5.2.3	EPLS shall provide predefined and ad-hoc operational status and system health reporting that supports the operational report requirements, e.g. ammunition and logistic summary reports, and battle damage assessments.	4.2.46				X	
3.4.5.2.4	EPLS shall allow assignment of a priority designator to EPLS generated reports, alert and indicator messages, e.g. ammunition consumption may be assigned a higher priority than mobile load distribution events.	4.2.46				X	
3.4.6	Automated and Manual Operational Status and System Health Check (OS/SHC) Routines EPLS Operational Status and System Health Check (OS/SHC) routines shall be used to the maximum extent possible to isolate faults to the Sub-system (threshold) and Sub-assembly (objective). OS/SHC threshold and objectives are provided for each platform is located in associated performance specification sheets. OS/SHC shall not interfere with standard system operation.	4.2.47			X	X	
3.4.6.1	Automated OS/SHC	4.2.47			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.6.1.1	Automated OS/SHC shall provide EPLS functionality required to facilitate an automated diagnostic capability to identify platform mechanical, electrical, and weapon system failures. For this performance specification, automated failure diagnoses includes sufficient automated diagnostic / prognostic algorithms and routines, test procedures, fault trees, or knowledge management functionality required to provide authorized users the platform system health without action being required on the part of the user. For this performance specification, automated failure diagnoses shall be supported by the EPLS IETM	4.2.48			X	X	
3.4.6.1.2	Automated OS/SHC diagnostics / prognostics shall be the primary diagnostic mechanism for operator and organizational level maintainer, with on-line fault detection and fault isolation OS/SHC diagnostics results, as well as any prompts for interactive testing, displayed on the EPLS display panel.	4.2.48			X	X	
3.4.6.1.3	Automated OS/SHC Oil Life Monitoring – EPLS shall include an Oil Life Monitoring capability, i.e. the ability to calculate an assessment of oil condition utilizing existing sensors and software coded expert knowledge of known oil degraders. Oil Life Monitoring shall provide an indication at 20% and 10% remaining Oil Life, and an alert when Oil needs to be replaced. Oil Life Monitoring shall be considered an Equipment Operating Time Code (EOTC) and be available as part of the OS/SHC reports.	4.2.48	X				
3.4.6.1.4	Automated OS/SHC Diagnostics	4.2.48			X	X	
	OS/SHC Automated diagnostics when applied to a platform shall identify 90% (threshold) 96% (objective) of EPLS monitored platform OS/SHC conditions, with a 4% or less false alarm rate.	4.2.48	X				
3.4.6.2	Manual OS/SHC - Manual OS/SHC shall provide EPLS functionality required to facilitate a manual test procedure capability for identification of platform mechanical, electrical, and weapon system failures required to augment automated diagnostics. For this performance specification, manual failure diagnoses shall be supported by the platform IETM, ETM, or other platform technical data including guided procedures, fault trees, IETM, or knowledge management functionality and provide the operator / maintainer the operational platform status.	4.2.49			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.6.3	OS/SHC Types	4.2.50			X	X	
3.4.6.3.1	Start-up OS/SHC (SU OS/SHC)	4.2.50			X	X	
	At system start-up, EPLS shall perform an automated Start Up OS/SHC at system power-on and provide a check of the major system and sub-system parameters. A system status report shall be generated at completion of SU OS/SHC. If a fault condition is detected, an alert or indictor shall be provided to the operator. EPLS automated diagnostic routines shall be used to identify the failure to the sub-system (threshold) or sub-assembly (objective) and generate a failure report. SU OS/SHC shall not interfere with standard system operation.	4.2.50			X	X	
3.4.6.3.2	Operational OS/SHC (OP OS/SHC) - During operation of the host platform, EPLS shall run an automated Operational OS/SHC (OP OS/SHC) in the background and check for Operational Status and System Health. Any alerts and indicators detected shall be reported to the operator or maintenance personnel. If a fault condition is detected, an alert or indictor shall be provided to the operator. EPLS automated diagnostic routines shall be used to identify the failure to the sub-system (threshold) or sub-assembly (objective). The OP OS/SHC function shall be such that personnel may query its results at any time during system operation. This OP OS/SHC shall not alter or interfere with the operation of the system.	4.2.50			X	X	
	During operation of the host platform, EPLS shall run an automated Operational OS/SHC (OP OS/SHC) in the background and check for Operational Status and System Health. Any alerts and indicators detected shall be reported to the operator or maintenance personnel. If a fault condition is detected, an alert or indictor shall be provided to the operator. EPLS automated diagnostic routines shall be used to identify the failure to the sub-system (threshold) or sub-assembly (objective). The OP OS/SHC function shall be such that personnel may query its results at any time during system operation. This OP OS/SHC shall not alter or interfere with the operation of the system.	4.2.50			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.6.3.3	Initiated OP OS/SHC (I OS/SHC) - In cases where Start Up and Operational OS/SHC indications require manual test procedures to identify the failure to the sub-system (threshold)or sub-assembly (objective), an Initiated OS/SHC shall be enabled. Initiated OS/SHC (I OS/SHC) shall provide the ability to launch the platform technical data, (threshold) to launch platform technical data, (objective) to launch the platform data at the manual test procedure. At the completion of an Initiated OS/SHC EPLS shall query the user for a status update, e.g., provide ability to report listing the failed major system, sub-system, or sub-assembly and document actions taken.	4.2.50			X	X	
3.4.7	Ammunition Status	4.2.51			X	X	
3.4.7.1	Ammunition Reporting - EPLS shall provide the capability to record and track ammunition quantities and types, to include Department of Defense Identification Code (DODIC), nomenclature, and lot number. (threshold) - Manual ammunition tracking, (objective) - Manual and automatic ammunition tracking, to include AIT marked ammunition inventories.	4.2.51			X	X	
3.4.7.2	Ammunition Usage - EPLS shall provide a user-definable alert or indicator allowing the display of the number of rounds available and number of rounds fired.	4.2.51			X	X	
3.4.8.1	Platform Fuel	4.2.52			X	X	
3.4.8.1.1	EPLS shall provide functionality to assess the platform fuel quantity within the platform fuel tank. EPLS shall be capable of reporting and displaying fuel quantity in gallons and liters remaining. (threshold) - Accuracy of 95% with the platform on level ground in a stationary mode and with the platform moving at a rate of 45 MPH over off-road surfaces, (objective) - Accuracy of 98% under same conditions.	4.2.52			X	X	
3.4.8.1.2	EPLS shall provide functionality to calculate the remaining distance of travel (range kilometers or miles) available based on current usage pattern. (threshold) - Accuracy of 95% with the platform moving at a varying rate (bounds 15 to 45 MPH) over off-road surfaces, (objective) - Accuracy of 98% under same conditions.	4.2.52			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.8.1.3	EPLS shall provide a preset alert report of fuel levels. (threshold) - 100, 75, 50, 25 and 10% tank capacity levels with an accuracy of 95% with the platform on level ground in a stationary mode and with platform moving at a varying rate (bounds 15 to 45 MPH) over off-road surfaces. (objective) - User selectable fuel level alerts from 100 to 0 percent in 5% increments with an accuracy of 98% under same conditions.	4.2.52			X	X	
3.4.8.2	Auxiliary Fuel - EPLS shall provide functionality to assess fuel quantity in gallons and liters of fuel carried in auxiliary fuel containers and intended for that platform's consumption.	4.2.52			X	X	
3.4.9	Mobile Load / Passenger Manifest	4.2.53					
3.4.9.1	Mobile Load Functionality	4.2.53			X	X	
	EPLS shall associate a mobile load with a platform, e.g. materiel, supplies, equipment, parts, ammunition, etc. transported by the platform as cargo for delivery to another location. Mobile loads can be liquids in bulk containers (such as fuel or water), large individual items (such as a large equipment item), single and multiple containers, or a mix of these items. Mobile loads data shall include information such as: Department of Defense Activity Address Code (DoDAAC), Port of Embarkation (POE) or Port of Debarkation (POD), Transportation Control Number (TCN), Radio Frequency Identification (RFID) tag number, recipient, item identification number, contents, weight, cube, and special instructions.	4.2.53			X	X	
	(threshold) - 2-dimensional MSL reader capability, data elements identified by section 2.2 of MILSTD 129p.	4.2.53			X	X	
	(threshold) - Manual Mobile Load Functionality - EPLS shall have the capability to manually associate a mobile load with a platform at the time of loading or unloading, and track distribution events. EPLS shall provide the required EPLS functionality to manually input, adjust, store, and output mobile load data.	4.2.53			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
	(objective) - Automatic Mobile Load Functionality - EPLS shall provide the required EPLS functionality to automatically recognize and associate a mobile load with a platform at time of loading, unloading and track distribution events. Upon query, EPLS shall provide the required EPLS functionality to report mobile load information for tracking purposes.	4.2.53			X	X	
3.4.9.1.1	For the purpose of this performance specification, all EPLS software loads shall have the mobile load capability.	4.2.53				X	
3.4.9.1.2	The normal state of the mobile load functionality shall be the disabled mode. Enabling the mobile load functionality shall require the operator to select a mobile load option.	4.2.53			X	X	
3.4.9.1.3	The mobile load functionality shall be capable of enablement and disablement based upon platform and operational requirements.	4.2.53			X	X	
3.4.9.1.4	EPLS shall provide required EPLS functionality to input, adjust, store, and report mobile load data.	4.2.53			X	X	
3.4.9.1.5	EPLS shall provide for electronic receipt authorization for mobile load distribution events. Distribution events include the receipt of a mobile load by the platform driver and delivery to responsible individual, receiving unit, or locations responsible individual.	4.2.53			X	X	
3.4.9.2	Passenger Manifest Functionality	4.2.54					
3.4.9.2.1	EPLS shall record the names and total number of crew and passengers aboard each platform. (threshold) - EPLS accepts manual input of passenger and crew data, (objective) - automatic tracking of crew and passenger aboard each platform using CAC cards or other means of Government approved electronic identification.	4.2.54			X	X	
3.4.10	Power Management	4.2.55			X	X	
3.4.10.1	Primary Power	4.2.56			X	X	
3.4.10.1.1	The primary source of power shall be the host platform. EPLS shall operate with in the standard military platform voltage IAW MIL_STD 1275	4.2.56			X	X	
3.4.10.1.2	EPLS shall perform EPLS functionality required to monitor primary supply voltage source at EPLS power input and determine when sufficient power level is available.	4.2.56			X	X	
3.4.10.2	Secondary Power	4.2.57			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.10.2.1	The secondary source of power shall be an EPLS power source. EPLS power source shall be capable of operating without platform power for 3 hours (threshold), with an (objective) of 4 hours.	4.2.57			X	X	
3.4.10.2.2	EPLS shall automatically switch to secondary power when primary power source levels are insufficient to operate EPLS. EPLS shall provide an alert and indication that the system has switched to the secondary power source.	4.2.57			X	X	
3.4.10.3	Power Performance	4.2.58			X	X	
3.4.10.3.1	EPLS shall be capable of automatically selecting and operating from both the primary and secondary power sources without interrupting EPLS OBC and OBSC applications.	4.2.58			X	X	
3.4.10.3.2	EPLS shall perform EPLS functionality required to monitor secondary voltage supply at EPLS power input and determine when sufficient power level is available.	4.2.58			X	X	
3.4.10.3.3	EPLS shall shut down in orderly, prescribed manner when the system supply voltage is insufficient to operate EPLS. (threshold) - shut down without affecting the ability of the system to restart, and loss of less than the last 5 minutes of operational data; (objective) - shut down without affecting ability of system to restart, and no loss of data.	4.2.58			X	X	
3.4.10.3.4	EPLS shall save platform data prior to shut down.	4.2.58			X	X	
3.4.10.3.5	EPLS shall provide an alert when EPLS primary and secondary power sources are insufficient to operate system. (threshold) - 15 minutes prior to shut down, (objective) - User defined with a default setting 15 minutes prior to shut down.	4.2.58			X	X	
3.4.11.1	Operator Considerations - In accordance with ANSI/HFS 100-1988 (American National Standard for Human Factors Engineering of Visual Display Terminal Workstations) and MIL-STD-1472 paragraph 5.2, the EPLS displays shall be designed to minimize strain and fatigue during sustained use by the operator.	4.2.59	X	X			
3.4.11.2	Lighting Conditions - All visual displays, messages and alarm messages shall be readable in all lighting conditions. Displays shall be adjustable for varying light conditions to include direct sunlight and nighttime operations with night vision devices.	4.2.60			X	X	
3.4.12.1	Device Interfaces	4.2.61			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.12.1.1	An external interface shall be provided allowing software/data upload and download from government provided JTDI PEDD.	4.2.61			X	X	
3.4.12.1.2	An external interface shall be provided allowing test, measurement, and diagnostic equipment to perform diagnostics, (threshold RS-232), (objective) RS-232 and USB)	4.2.61			X	X	
3.4.12.1.3	EPLS shall provide the capability to auto-populate VMF messages and other standard tactical messaging to support the operational reporting requirements (e.g. ammunition and logistic summary reports, and battle damage assessments).	4.2.61			X		
3.4.13.1	Global Positioning System (GPS) Interfaces - EPLS shall have an external interface to accept GPS time and date information from Defense Advanced GPS System (DAGR) or similar devices to reset the OBC clock and provide an accurate time stamp on EPLS data and reports. The EPLS OBSC shall be capable of converting GPS time, date information from Defense Advanced GPS System (DAGR) or similar devices, and provide a consistent time stamp format on EPLS data and reports.	4.2.62			X	X	
3.4.14	Tactical Radio - EPLS shall provide an interface to allow the transfer of data to common tactical radio systems.	4.2.63			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.4.15	The EPLS shall comply with current security requirements and be capable of evolving to meet the state-of-the-art technological advances designed to protect information from unwanted exploitation as imposed by national, DoD, and joint policy. The EPLS shall be capable of protecting critical, sensitive information stored, processed, received or transmitted by the system. As defined in DoDD 8500.1 Information Assurance (IA), EPLS Mission Assurance Category (MAC) is "III" and the Confidentiality Level (CL) is "sensitive". The EPLS shall implement Information Assurance Control Measures as defined in DoDI 8500.2 Information Assurance (IA) Implementation to ensure appropriate system availability, integrity, confidentiality, authentication and non-repudiation. The EPLS shall employ Defense in Depth to protect, detect and react to adversarial Information Warfare. The EPLS shall incorporate appropriate means to restore both system functionality and tactical information residing within. The EPLS shall be designed to ensure the Information Assurance (IA) control measures mandated in DoDI 8500.2 will be certified and accredited IAW DoDI 5200.40, DoD Information Technology Security Certification and Accreditation Process (DITSCAP)), and interim DoD Information Assurance Certification and Accreditation Process (DIACAP) Guidance July 2006. EPLS shall comply with Information Assurance (IA) policies and procedures and shall support required MARCORSYSCOM Authority to Operate prior to testing, including Government Vulnerability Assessment Tests.	4.2.64			X		
3.5	Environmental Conditions	4.2.65			X	X	
	501.4 High Temperature	4.2.65			X	X	
	502.4 Low Temperature	4.2.65			X	X	
	504 Contamination by Fluids	4.2.65			X	X	
	506.4 Rain	4.2.65			X	X	
	507.4 Humidity	4.2.65			X	X	
	510.4 Sand and Dust	4.2.65			X	X	
	509.4 Salt Fog	4.2.65			X	X	
	512.4 Immersion	4.2.65			X	X	
	514.5 Vibration	4.2.65			X	X	
	516.5 Shock	4.2.65			X	X	
	519.5 Gunfire Vibration	4.2.65			X	X	
	521.2 Icing/Freezing Rain	4.2.65			X	X	

Requirement Paragraph	First Article Verification	Verification Paragraph	Verification Methods				
			A	I	T	D	C
3.5.1.2	EPLS shall be compliant with existing DOD requirements in MIL-STD-464A (platform level) and in MIL-STD-461E (for Army Ground platforms) for all electromagnetic disciplines, including electromagnetic compatibility with itself and other systems in the operating environment; hazards of electromagnetic radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning, electrostatic discharge and precipitation static. The contractor may tailor MIL-STD 461 test requirements based on the system design and government approval.	4.2.66			X	X	
3.5.1.2.1	EPLS shall demonstrate compliance with analyses and tests as noted in MIL-STD-464A and shall not be degraded by electromagnetic environmental effects and with other systems and platforms in the operating environment, including allied and coalition systems. To include platforms operating counter improvised explosive device jammers.	4.2.66			X	X	
3.5.1.3	Electromagnetic Interference - EPLS shall be electromagnetically compatible with itself and with other systems in its operational environment (threshold). E3 Compatibility must be validated and documented for Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Electromagnetic Protection (EP), Hazards of Electromagnetic Radiation to Personnel (HERP), Hazards of Electromagnetic Radiation to Ordnance (HERO), Hazards of Electromagnetic Radiation to Fuel/Volatile Materials (HERF) and Natural Phenomenon.	4.2.67			X	X	
3.5.2	Corrosion Resistance	4.2.68	X				

4.2 First Articles

A total of 12 EPLS Units shall be subjected to First Article testing as described in Table 4.1 and Para 4.2.

4.2.1 Modular Open System

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.1.

4.2.2 Configurations

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.2.1

4.2.3 Scalability

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.2.2

4.2.4 Net-centric Data Strategy

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to support the EPLS requirements of Para 3.3.3.1, 3.3.3.1.1 - 3.3.3.1.6

4.2.5 EPLS OBSC Continuity of Operations (COOP)

The Contractor shall test in a lab and demonstrate in an operational environment the EPLS requirements in Para 3.3.3.1.7. The contractor shall provide sufficient documentation to validate EPLS ability to meet the requirements of Para 3.3.3.1.7

4.2.6 Data Exchange

The contractor shall test in a lab and demonstrate in an operational environment the transfer of EPLS data from the OBC to the OBSA. The contractor shall provide to the Government for acceptance supporting documentation to validate EPLS meets the requirements of Para 3.3.3.2 (a-d).

4.2.7 Network

The Contractor shall test in a lab and demonstrate in an operational environment the EPLS requirements in Para 3.4.4.1 to 3.3.4.5. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.3.4.1 Ethernet (wired), 3.3.4.2 TCP/IP, 3.3.4.3 NIPRNET, 3.3.4.4 Wireless (Non-Secure), and 3.3.4.5 ITSG

4.2.8 Human Interface

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.5

4.2.9 Connectors

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.6.1.1

4.2.10 Connectors

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.6.1.2

4.2.11 Cabling

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.6.2.1 - 3.3.6.2.6

4.2.12 Marking

The government will inspect and test all markings to verify that they meet the requirements of Para 3.3.7.

4.2.13 Compatibility

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.9

4.2.14 Form, Fit, Function

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.10

4.2.15 Interchangeability

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.10. The contractor shall demonstrate in an operational environment the EPLS interchangeability requirements contained in Para 3.3.10. Interchangeability demonstrations shall include platform to platform (LAV - 25 to LAV-25), variant to variant, (LAV - 25 to LAV-AT), System to System (LAV - 25 to AAV-P7 to MTVR) of common EPLS parts and assemblies.

4.2.16 Ruggedization

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.11

4.2.17 Reliability

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.12.

4.2.18 Availability

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.13.

4.2.19 Maintainability

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.14. The contractor shall demonstrate in an operational environment EPLS meets the requirements of Para 3.3.14.

4.2.20 Built In Test (BIT) and Built in Test Equipment (BITE)

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.15 (3.3.15.1.1 - 3.3.15.1.7). The contractor shall test in a lab and demonstrate in an operational environment EPLS meets the requirements of Para 3.3.15. (3.3.15.1.1 - 3.3.15.1.6)

4.2.21 Operation in an MOPP Environment

The Contractor shall demonstrate in an operational environment the EPLS ability to be operated in MOPP Level IV as required in Para 3.3.16.1

4.2.22 Decontamination

The contractor shall demonstrate in a laboratory environment the EPLS ability to be decontaminated with standard NBC procedures as required in Para 3.3.16.2

4.2.23 Personnel Safety

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.17.1, to include 3.3.1.7.1.1 - 3.3.17.1.3.

4.2.24 Equipment Safety

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.17.2, to include 3.3.1.7.2.1 - 3.3.17.2.3. The contractor shall demonstrate in an operational environment EPLS ability to meet the requirements of Para 3.3.17.2, to include 3.3.1.7.2.1 - 3.3.17.2.3

4.2.25 Critical Infrastructure Protection

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.3.19. The contractor shall included in the analysis any information required to certify the EPLS CIP

4.2.26 On-Board Computer (OBC)

The Contractor shall test in a lab and demonstrate in an operational environment the EPLS requirements in Para 3.4.1.1.1 - 3.4.1.2.3. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.1.1 - 3.4.1.2.3.

4.2.27 Computer Reserve

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.1.1.4. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.1.4.

4.2.28 Sleep Mode

The contractor shall test in a laboratory and demonstrate in an operational environment the OBC meets EPLS requirements listed in Para 3.4.1.2.1 - 3.4.1.2.3. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.2.1 - 3.4.1.2.3.

4.2.29 Sensors

The contractor shall test in a laboratory and demonstrate in an operational environment the OBC meets EPLS requirements listed in Para 3.4.1.3.1 - 3.4.1.3.4. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.3.1 - 3.4.1.3.4.

4.2.30 Data Bus

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.1.4.1

4.2.31 Data Bus

The contractor shall test in a laboratory and demonstrate in an operational environment the EPLS ability to access and use existing J-1939 Data Bus and fault codes on the MTVR as required in Para 3.4.1.4.2. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.4.2.

4.2.32 Data Bus

The contractor shall test in a laboratory and demonstrate in an operational environment the Data Bus provided meets the EPLS requirements listed in Para 3.4.1.4.3 - 3.4.1.4.5. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.1.4.3 - 3.4.1.4.5.

4.2.33 EPLS Software

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.2. The contractor shall provide evidence of design traceability process in use during the development of EPLS Software as required by Para 3.4.2.1.1 and 3.4.2.1.2 (a - d)

4.2.34 EPLS On-Board Software Client (OBSC)

EPLS On-Board Software Client -The contractor shall test in a laboratory and demonstrate in an operational environment the OBSC meets EPLS requirements listed in Para 3.4.2.2.1 - 3.4.2.2.4. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.2.2.1 - 3.4.2.2.4.

4.2.35 EPLS OBSC Functions

The contractor shall test in a laboratory and demonstrate in an operational environment the OBSC meets EPLS requirements listed in Para 3.4.2.3.1 - 3.4.2.3.4. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.2.3.1 - 3.4.2.3.4.

4.2.36 EPLS OBSA

The contractor shall test in a laboratory and demonstrate in an operational environment the OBSA meets EPLS requirements listed in Para 3.4.2.4.1 - 3.4.2.4.6. The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of Para 3.4.2.4.1 - 3.4.2.4.6.

4.2.37 Business Rules

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.3. The contractor shall included in the analysis and supporting documentation evidence of EPLS Business Rule categories Para 3.4.3.1.1 to 3.4.3.1.3

4.2.38 Business Rule Application

The contractor shall test in a laboratory and demonstrate in an operational environment the Business Rule Applications performs the EPLS requirements listed in Para 3.4.3.2.3 - 3.4.3.2.6

4.2.39 Business Rule Application

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.3.2 The contractor shall included in the analysis and supporting documentation evidence of EPLS Business Rule application required in Para 3.4.3.2.1

4.2.40 Business Rule Engine

The contractor shall test in a laboratory and demonstrate in an operational environment the Business Rule Engine meets EPLS requirements listed in Para 3.4.3.2.3 - 3.4.3.2.6.

The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements of The contractor shall include sufficient documentation to validate EPLS ability to meet the requirements listed in Para 3.4.3.2.3 - 3.4.3.2.6.

4.2.41 Electronic Record Book

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.4.1. The contractor shall demonstrate in an operational environment EPLS meets and performs the requirements of Para 3.4.4.1.

4.2.42 Electronic Ordnance Record Book

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.4.2. The contractor shall demonstrate in an operational environment EPLS meets the requirements of Para 3.4.4.2. and performs the EPLS requirements listed in Para 3.4.4.2.1 to 3.4.4.2.2.1

4.2.43 EPLS Interactive Electronic Technical Manual (IETM) (SM)

The Contractor shall deliver and demonstrate a complete EPLS Systems IETM for government acceptance. Para 3.4.4.3

4.2.44 Platform Technical Manuals

The contractor shall demonstrate the ability to access, display, and view platform technical manuals. 3.4.4.4

4.2.45 Operational Status and System Health

The contractor shall test in a laboratory and demonstrate in an operational environment EPLS performs the requirements for Operational Status and System Health as listed in Para 3.4.5.1, 3.4.5.1.1 to 3.4.5.1.3

4.2.46 Operational Status and System Health Reports

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS systems meets the requirements for Operational Status and System Health Alerts, Indicators, and Reports as listed in Para 3.4.5.2.1 to 3.4.5.2.4.

4.2.47 Operational Status and System Health Modes and Types

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS Automated and Manual OS/SHC meets the requirements for Operational Status and System Health Alerts, Indicators, and Reports as listed in Para 3.4.6.1 to 3.4.6.3.

4.2.48 Automated OS/SHC

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS systems meets the requirements for automated OS/SHC as listed in Para 3.4.6.1.1 to 3.4.6.1.4.

4.2.49 Manual OS/SHC

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS systems meets the requirements for manual OS/SHC as listed in Para 3.4.6.2.

4.2.50 OS/SHC Types

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS a start up, operational, and initiated OS/SHC as listed in Para 3.4.6.3.1 to 3.4.6.3.3.

4.2.51 EPLS Ammunition Status

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS a ammunition reporting and usage as listed in Para 3.4.7.1 to 3.4.7.2.

4.2.52 Platform Fuel

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS Platform Fuel reporting and usage as listed in Para 3.4.8.1.1 to 3.4.8.1.3 and shall include auxiliary fuel reporting in 3.4.8.2. The contractor shall demonstrate accuracy of fuel and verify functionality of the EPLS platform fuel reporting system.

4.2.53 Mobile Loads

The contractor shall conduct tests and demonstrations, and provide test results to the government that prove the mobile load functionality of EPLS successfully performs all the requirements of Para 3.4.9 to 3.4.9.1.5

4.2.54 Passenger Manifest Functionality

The contractor shall conduct tests and demonstrations, and provide test results to the government that prove the passenger manifest functionality of EPLS successfully performs all the requirements of Para 3.4.9.2.1

4.2.55 Power Management

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS power management for Primary Power as listed in Para 3.4.10.1.1 and 3.4.10.1.2.

4.2.56 Primary Power Management

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS power management for Primary Power as listed in Para 3.4.10.1.1 and 3.4.10.1.2. Secondary Power as listed in Para 3.4.10.2.1 and 3.4.10.2.2.

4.2.57 Secondary Power Management

The contractor shall test in a laboratory and demonstrate in an operational environment that performs the EPLS power management for Secondary Power as listed in Para 3.4.10.2.1 and 3.4.10.2.2.

4.2.58 Power Performance

The contractor shall test in a laboratory and demonstrate in an operational environment that the EPLS power performance is capabilities of the performing the requirements listed in Para 3.4.10.3.1 and 3.4.10.3.5.

4.2.59 Visual Displays

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.11.1.

4.2.60 Visual Displays

The contractor shall test in a laboratory and demonstrate in an operational environment that the EPLS displays meet the requirements of Para 3.4.11.2

4.2.61 Device Interface

The contractor shall test in a laboratory and demonstrate in an operational environment that the EPLS systems has sufficient devices interface to conform to the requirements in Para 3.4.12.1.1 and 3.4.12.1.3.

4.2.62 Global Positioning System (GPS)

The contractor shall test and demonstrate in a laboratory that the EPLS systems has sufficient capabilities to accept time and date information from a DoD approved (DAGR) GPS device interface to conform to the requirements in Para 3.4.13.1.

4.2.63 Tactical Radio

The contractor shall test and demonstrate in a laboratory that the EPLS systems has sufficient capabilities to transfer information to and from tactical radios as required in Para 3.4.14.1.

4.2.64 Information Assurance (IA)

The contractor shall conduct tests and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.4.15. The EPLS shall pass Government Vulnerability Assessment Tests.

4.2.65 Environmental Testing

The contractor shall test and demonstrate in a laboratory that the EPLS systems is compliant with MIL-STD 810 test 501.4, 502.4, 504, 507.4, 510.4, 509.4, 512.4, 516.5, 519.5, 521.2

4.2.66 Electromagnetic Environmental Testing

The contractor shall test and demonstrate in a laboratory that the EPLS systems is compliant with Mil-STD - 464 (platform level), and MIL-STD 461 for Army Ground Vehicles as required in Para 3.5.1.2 and 3.5.1.2.1

4.2.67 Electromagnetic Interference Testing

The contractor shall test and demonstrate in a laboratory that the EPLS systems is compliant with Mil-STD - 464 (platform level), MIL-STD 461 for Army Ground Vehicles as required by 3.5.1.3

4.2.68 Corrosion Resistance

The contractor shall conduct and provide to the Government for acceptance sufficient analysis and supporting documentation to validate EPLS meets the requirements of Para 3.5.2.1 to 3.5.2.3.

5 PACKAGING

6 NOTES

6.1 Intended use

6.2 Acquisition requirements

6.3 Qualification

6.4 Suppression data

There is no suppression of standards documents on this procurement.

6.5 Cross-references

There are no cross-references of old to new military part identifying numbers. The EPLS is a new item.

6.6 Government-furnished and Government-loaned property

The Government will make available to the contractor platform platforms for installation of EPL systems.

6.7 Patent notice

6.8 Definitions

a) Mission – Mission types include, but not limited to peace operations, humanitarian assistance/disaster relief, security operations, amphibious operations, amphibious assault, and Intelligence, Surveillance, Reconnaissance (ISR).

b) Authorized Users – The EPLS authorized users include vehicle operators, maintainers, and authorized administrators for the system.
c) Equipment Operating Time Codes (EOTC) – Various Marine Corps equipment operating time codes (EOTC's) exist for different items of equipment, such as miles traveled, rounds fired, days and hours of operation. All EPLS data will be associated with EOTC that contain date and time information.
d) Vehicle Configuration Data – The vehicle configuration data include capacity limit, axle configuration, carrying bed configuration, weapons systems, communications capabilities, etc.
e) Effective Full Charge (EFC) Value – The EFC value for a charge is a measure of its contribution to barrel wear. The EFC value may be input to the device for each charge used. It is used as a measurement of Barrel Effect.

6.9 International standardization agreement implementation

See Section 2 for a list of applicable international standards.

6.10 Identification of changes

PERFORMANCE SPECIFICATION SHEET

FOR

EMBEDDED PLATFORM LOGISTICS SYSTEM

FOR

Light Armored Vehicle (LAV) variants

The requirements for acquiring the product described herein shall consist of this specification sheet and PRF EPLS 01.

REQUIREMENTS:

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			**Minimum Data Requirements for Operational Status and System Health Checks**
Major System	**Sub-System (Threshold Diagnostic/Prognostic)**	**Sub-assembly (Objective Diagnostic/Prognostic)**	**Minimum Data Elements Required by this Performance Specification**
Drive Train	**Engine**	**Engine**	**Engine Operation**
		Engine	**Hours Idle**

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Engine	Total Hours Idle
		Engine	Hours of Use
		Engine	Total Hours of Use
		Engine	Current Speed
		Engine	Max Speed During Trip
		Engine	Current RPM
		Engine	Max RPM
		Engine	Mileage
		Engine	Per Trip
		Engine	Total Miles
	Air Intake System	Air Intake System	Air Cleaner Pressure
		Air Intake System	Air Cleaner Drop

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Air Intake System	Moisture Content
		Air Intake System	Turbo Boost Atmospheric Pressure
		Air Intake System	Turbo Boost Pressure
	Cooling System	Cooling System	Coolant Level
		Cooling System	Coolant Temperature
	Oil System	Oil System	Oil Level
		Oil System	Oil Temperature
		Oil System	Oil Life
	Electrical	Individual Battery	Voltage
		Individual Battery	Temperature
		Individual Battery	Amperage
		Individual Battery	Supply voltage

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Individual Battery	Internal resistance
		Alternator	Output voltage
		Alternator	Field voltage
		Alternator	Amperage
	Fuel	Individual Fuel Pump	Fuel Supply Pressure
		Individual Fuel Pump	Fuel solenoid voltage
		Individual Fuel Pump	Fuel filter differential pressure
		Individual Fuel Filter	Fuel solenoid voltage
		Individual Fuel Filter	Fuel supply pressure
		Individual Fuel Filter	Fuel filter differential pressure
		Individual Fuel Tank	Fuel Level
	Transmission	Transmission	Transmission Fluid Level

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Transmission	Transmission Fluid Temperature
	Transfer case	Transfer case	Fluid Level
	Differential	Individual Differential	Fluid Level
		Individual Differential	Fluid Temperature
	Planetary	Individual Planetary/Gearbox	Vibration
		Individual Planetary/Gearbox	Temperature
Hydraulics	Hydraulics	Hydraulics	Fluid Temperature
		Hydraulics	Fluid Pressure
Environmental	Environmental	Environmental	Ambient temperature
		Environmental	Cabin temperature
		Environmental	Barometric pressure
Auxiliary Fuel	Auxiliary Fuel	Individual Fuel Source	Remaining auxiliary fuel

LAV			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
Weapon	M242 25mm Chain Gun	M242 25mm Chain Gun	Rounds fired
		M242 25mm Chain Gun	Round type
		M242 25mm Chain Gun	Barrel Per Mission
		M242 25mm Chain Gun	Barrel Total
	TOW II ATGM	TOW II ATGM	Rounds fired
	M252 81mm Mortar	M252 81mm Mortar	Rounds fired
		M252 81mm Mortar	Round Charge
		M252 81mm Mortar	Tube Per Mission
		M252 81mm Mortar	Tube Total

PERFORMANCE SPECIFICATION SHEET

FOR

EMBEDDED PLATFORM LOGISTICS SYSTEM

FOR

Amphibian Assault Platform (AAV) variants

The requirements for acquiring the product described herein shall consist of this specification sheet and PRF EPLS 01.

REQUIREMENTS:

AAV			
Automated Operational Status and System Health Checks			**Minimum Data Requirements for Operational Status and System Health Checks**
Major System	**Sub-System (Threshold Diagnostic/Prognostic)**	**Sub-assembly (Objective Diagnostic/Prognostic)**	**Minimum Data Elements Required by this Performance Specification**
Drive Train	**Engine**	**Engine**	**Engine Operation**
		Engine	**Hours Idle**
		Engine	**Total Hours Idle**

AAV			
Automated Operational Status and System Health Checks			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Engine	Hours of Use
		Engine	Total Hours of Use
		Engine	Current Speed
		Engine	Max Speed During Trip
		Engine	Current RPM
		Engine	Max RPM
		Engine	Mileage
		Engine	Per Trip
		Engine	Total Miles
	Air Intake System	Air Intake System	Air Cleaner Pressure
		Air Intake System	Air Cleaner Drop
		Air Intake System	Moisture Content

AAV			
Automated Operational Status and System Health Checks			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Air Intake System	Turbo Boost Atmospheric Pressure
		Air Intake System	Turbo Boost Pressure
	Cooling System	Cooling System	Coolant Level
		Cooling System	Coolant Temperature
	Oil System	Oil System	Oil Level
		Oil System	Oil Temperature
		Oil System	Oil Life
	Electrical System	Individual Battery	Voltage
		Individual Battery	Temperature
		Individual Battery	Amperage
		Individual Battery	Supply voltage
		Individual Battery	Internal resistance

AAV			
Automated Operational Status and System Health Checks			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Alternator	Output voltage
		Alternator	Field voltage
		Alternator	Amperage
	Fuel System	Individual Fuel Pump	Fuel Supply Pressure
		Individual Fuel Pump	Fuel solenoid voltage
		Individual Fuel Pump	Fuel filter differential pressure
		Individual Fuel Filter	Fuel solenoid voltage
		Individual Fuel Filter	Fuel supply pressure
		Individual Fuel Filter	Fuel filter differential pressure
		Individual Fuel Tank	Fuel Level
	Transmission	Transmission	Transmission Fluid Level
		Transmission	Transmission Fluid Temperature

AAV			
Automated Operational Status and System Health Checks			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
	Transfer Case	Transfer Case	Transfer Case Fluid Level
	Differential	Individual Differential	Differential Fluid Level
		Individual Differential	Differential Fluid Temperature
Hydraulics	Hydraulic System	Hydraulic System	Hydraulic Fluid Temperature
		Hydraulic System	Hydraulic Fluid Pressure
Environmental	Environmental	Environmental	Ambient temperature
		Environmental	Cabin temperature
		Environmental	Barometric pressure
Auxiliary Fuel	Auxiliary Fuel	Individual Fuel Source	Remaining auxiliary fuel
Weapon	50 Cal	51 Cal	Rounds fired
		52 Cal	Round type
	MK-19	MK-20	Rounds fired
		MK-21	Round type

EXAMINATION AND TESTS:

PERFORMANCE SPECIFICATION SHEET

FOR

EMBEDDED PLATFORM LOGISTICS SYSTEM

FOR

Medium Tactical Vehicle Replacement (MTVR) variants

The requirements for acquiring the product described herein shall consist of this specification sheet and PRF EPLS 01.

REQUIREMENTS:

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
Drive Train	Engine	Engine	Engine Operation
		Engine	Hours Idle
		Engine	Total Hours Idle

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Engine	Hours of Use
		Engine	Total Hours of Use
		Engine	Current Speed
		Engine	Max Speed During Trip
		Engine	Current Engine Speed
		Engine	Max Engine Speed During Trip
		Engine	Mileage
		Engine	Per Trip
		Engine	Total Miles
	Oil System	Oil System	Engine Oil Level
		Oil System	Engine Oil Pressure
		Oil System	Engine Oil Temperature

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Oil System	Engine Oil Filter Status
		Oil System	Engine Oil Life
	Engine	ECU	ECU Voltage
		ECU	Throttle Position
		ECU	Crankshaft Position
		ECU	Camshaft Position
		ECU	Intake Manifold Temperature
		ECU	Atmospheric Pressure
		ECU	Boost Pressure
	Electrical System	Individual Battery	Voltage
		Individual Battery	Temperature
		Individual Battery	Amperage

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		Alternator	Voltage
		Alternator	Amperage
		Alternator	Command Signal
	Cooling System	Cooling System	Engine Coolant Level
		Cooling System	Engine Coolant Temperature
	Fuel System	Lift Fuel Pump	Fuel Pressure
		Lift Fuel Pump	Fuel Temperature
		Individual Fuel Tank	Fuel Level
		Fuel Filter	Fuel Pressure
	Air Filter System	Air Filter System	Air Box Pressure
		Air Filter System	Air Box Drop
		Air Filter System	Moisture Content

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
	Transmission	Transmission	Transmission Oil Level
		Transmission	Transmission Oil Temperature
	Transfer case	Transfer case	Transfer Case Oil Level
		Transfer case	Transfer Case Oil Temperature
	Differential	Individual Differential	Differential Oil Level
		Individual Differential	Differential Oil Temperature
	Transmission	Transmission	ECU Voltage
		Transmission	Turbine Speed
		Transmission	Engine Speed
		Transmission	Output Speed
	Central Tire Infaltion System (CTIS)	CTIS	CTIS ECU Voltage
		CTIS	CTI Power Manifold Pressure
		CTIS	Air Tank Pressure

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
	Antilock Braking System (ABS)	ABS	ABS ECU Voltage
		ABS	Axle 1 Speed Left
		ABS	Axle 1 Speed Right
		ABS	Axle 2 Speed Left
		ABS	Axle 2 Speed Right
		ABS	Axle 3 Speed Left
		ABS	Axle 3 Speed Right
		ABS	Brake Switch
		ABS	Axle 1 Left ABS Valve
		ABS	Axle 1 Right ABS Valve
		ABS	Axle 2&3 Left ABS Valve
		ABS	Axle 2&3 Right ABS Valve
	Automatic Traction	ATC	ABS ECU Voltage

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
	Control (ATC)	ATC	Axle 1 Speed Left
		ATC	Axle 1 Speed Right
		ATC	Axle 2 Speed Left
		ATC	Axle 2 Speed Right
		ATC	Axle 3 Speed Left
		ATC	Axle 3 Speed Right
		ATC	Axle 1 Left ABS Valve
		ATC	Axle 1 Right ABS Valve
		ATC	Axle 2&3 Left ABS Valve
		ATC	Axle 2&3 Right ABS Valve
		ATC	ATC Valve
	TIM	ECU	TIM ECU Voltage
Hydraulics	PTO	PTO	PTO Pump State

MTVR			
Automated Operational Status and System Health Checks Threshold and Objectives			Minimum Data Requirements for Operational Status and System Health Checks
Major System	Sub-System (Threshold Diagnostic/Prognostic)	Sub-assembly (Objective Diagnostic/Prognostic)	Minimum Data Elements Required by this Performance Specification
		PTO	Hydraulic Oil Pressure
		PTO	Hydraulic Oil Temperature
	Suspension (MK35)	Suspension (MK35)	Suspension ECU Voltage
		Suspension (MK35)	Hydraulic Oil Pressure
		Suspension (MK35)	Drivers Side Height
		Suspension (MK35)	Passengers Side Height
Environmental	Environmental	Environmental	Ambient temperature
		Environmental	Cabin temperature
		Environmental	Barometric pressure

EXAMINATION AND TESTS:

ATTACHMENT A
STATEMENT OF WORK (SOW)

FOR

Embedded Platform Logistics System (EPLS)

Prepared By

Marine Corps Systems Command
Program Manager, Test Measurement and Diagnostic Equipment
2202 Lester Street
Quantico, VA 22134

20 March 2007
Version 1.0

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1 Scope. The Embedded Platform Logistics (EPLS) System is a modification to existing platforms, consisting of the necessary sensors, on-board computer, display, input device, off-board database and end-user management application, computer software, interfaces, and all associated buses, connectors, cabling and mounting hardware.

This SOW sets forth the work efforts required to design, develop, integrate, test, produce, install, and provide training, logistic, technical, installation and field service, and prepare associated technical documentation and manuals required to deliver EPLS system for the following platforms:

EPLS Requirements

Platform	Models
LAV-25	A-1 and A-2
LAV-C2	A-1 and A-2
LAV-Log	A-1 and A-2
LAV-Anti-Tank	A-1 and A-2
LAV-Mortar	A-1 and A-2
LAV-Recovery	A-1 and A-2
AAV-P7	Standard and RAM/RS
AAV-C2	Standard and RAM/RS
AAV-R	Standard and RAM/RS
MTVR MK-23 w/o winch	
MTVR MK-25 w/ winch	
MTVR MK-27 XLWB w/o winch	
MTVR MK-28 XLWB w/ winch	
MTVR MK-29 Dump w/o winch	
MTVR MK-30 Dump w/ winch	
MVTR MK-36 Wrecker	

The contractor is responsible for providing all material, services, and necessary support documentation needed to complete the tasks identified in this Statement of Work (SOW).

It includes the efforts associated with Program Management, Meeting and Reviews, Systems Engineering, Producibility, Testing and Verification, Environment, Safety, and Occupational Health, Configuration Management, Unique Item Identification, Diminishing Manufacturing Sources and Material Shortages, Integrated Logistics Support, Maintenance Planning, Supply Support, Power, Technical Publications, Support Equipment, Manpower, Personnel, and Training, Packaging and Transportation, Software, and Contractor Performance Measurement.

The scope of the work includes support of the Government conducted Field Users Test and Evaluation (FUT&E). The Government reserves the right to require modifications of the systems following FUT&E and environmental testing to correct material and performance deficiencies that are discovered during FUT&E. Several sequences of Field User Tests may be required to ensure all deficiencies have been discovered and corrected.

2 Applicable Documents. The following documents specified form a part of this Statement of Work (SOW) to the extent specified herein. The most recent revision of the referenced document

at the time of contract shall be used unless otherwise specified. In the event of conflict between the applicable documents and this SOW, the SOW shall take precedence. All second tier and below references cited in mandatory compliance documents shall be considered as guidance only. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 Military Standards and Specifications - Mandatory Compliance.

MIL-PRF-29612	Training Data Products
MIL-PRF-49506	Logistics Management Information
MIL-STD-129	Military Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-196	Joint Electronics Type Designation System
MIL-STD-461	Requirements for the Control of Electromagnetic Interference Characteristics of subsystems and equipment
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-464	Electromagnetic Environmental Effects Requirements for Systems
MIL-STD-882	Standard Practice for System Safety
MIL-STD-2073-1	DoD Standard Practice for Military Packaging

2.2 Military Standards and Specifications - Guidance Only.

MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-1472	Department of Defense, Design Criteria Standard, Human Engineering
MIL-STD-6017	DoD Interface Standard Variable Message Format
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronics Parts, Assemblies and Equipment

2.3 Federal Standard - Mandatory.

FIPS 140-2	Security Requirements for Cryptographic Modules
FED-STD-313	Material Safety Data, Transportation Data, And Disposal Data For Hazardous Materials Furnished To Government Activities

2.4 Handbooks - Guidance Only.

MIL-HDBK-61	Configuration Management Guidance
MIL-HDBK-502	Acquisition Logistics
MIL-HDBK-512	Parts Management
MIL-HDBK-781	Reliability Test Methods, Plans, and Environments for Engineering Development, Qualification, and Production
MIL-HDBK-1857	Grounding, Bonding, and Shielding Design Practices
MIL-HDBK-237D	Electromagnetic Environmental Effects and Spectrum Supportability Guidance for the Acquisition Process
MIL-HDBK-240	HERO Test Guide

2.5 Other Government Documents. Unless otherwise stated, the following documents may be obtained from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or visit http://dodssp.daps.mil.

DoD 4650.1	Management and Use of the Radio Frequency Spectrum
FED-STD-313	Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
NAVSEAINST 9310.1	Naval Lithium Battery Safety Program
NTIA Manual	National Telecommunications and Information Administration

Tri-Service Technical Brief TE000-AB-GTP-020	Environmental Stress Screening (ESS)
NAVSEA TE-000-AB-GTP-010	Parts Derating Requirements and Applications Manual for Navy Electronic Equipment
TM S9310-AQ-SAF-010	Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures

(Copies of TM S9310-AQ-SAF-010 are available from Naval Weapons Support Center, Code 3057, Building 36, Crane, IN 47522-5060)

TM-4700-15/1	Marine Corps Ground Equipment Records and Procedures
MCO P4790.2	MIMMS Field Procedures Manual
MCO P5215.17	Marine Corps Technical Publication System
DoDD 8500.1	Information Assurance (IA)
DoDI 8500.2	Information Assurance (IA) Implementation
Interim Guidance July 2006	DoD Information Assurance Certification and Accreditation Process (DIACAP)
DoDI 5200.40	DoD Information Technology Security Certification and Accreditation Process (DITSCAP)

2.6 Non-Government Documents.

ANSI X3.27	File Structure and Labeling of Magnetic Tapes for Information Interchange

(Copies of ANSI X3.27 are available from www.ansi.org or American National Standards Institute, 1819 L Street, NW, 6th Floor, Washington, DC 20036.)

ASME Y14.34	Associated Lists
ASME Y14.100	Engineering Drawing Practices

(Copies of American Society of Mechanical Engineers (ASME) documents are available from www.asme.org or American Society of Mechanical Engineers Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, NJ 07007-2300.)

ASTM D3951	Standard Practice for Commercial Packaging

ASTM D4169-01e1	Standard Practice for Performance Testing of Shipping Containers and Systems

(Copies of ASTM documents are available from www.astm.org or American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

EIA-625	Requirements for Handling Electrostatic Discharge-Sensitive (ESDS) Device
EIA-649	National Consensus Standard for Configuration Management

(Copies of EIA documents are available from www.eia.org or Electronic Industries Alliance Corporate Engineering Department, 2500 Wilson Boulevard, Arlington, VA, 22201.)

IEEE 1671	Automated Test Markup Language
SCORM 2004	Sharable Object Reference Model 2004
IEEE/EIA 12207	Standard for Information Technology – Software Life Cycle Processes

(Copies of IEEE/EIA are available from www.ieee.org or Institute of Electrical and Electronics Engineers Service Center, 445 Hoes Lane, Piscataway, NJ 08854-1331.)

ISO 13374	Open Systems Architecture for Condition Based Maintenance, Version 3.1, 1 August 2006

(Copies of ISO 13374 are available from www.iso.ch or ISO Central Secretariat, International Organization for Standardization (ISO) 1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland)

MIMOSA OSA-EAI Version 3.1	Open Systems Architecture – Enterprise Application Integration

(Copies of MIMOSA OSA-EAI are available from www.mmosa.org)

IEEE 1451.1	Mixed Mode Communications Protocols – Transducer Electronic Data Sheets
SAE J1939	Truck and Bus Communications Network, Class C
SAE J1587	Database of Vehicle Fault Codes
SAE J1708	Vehicle Data Bus
SAE J1850	Communications Standard for On- and Off-road Vehicles, Class B Network
SAE 1962	16 Pin Diagnostic Connector

SAE J2534 Pass Through Interface Device

(Copies of SAE series standards are available from www.sae.org) or SAE World Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001 USA

NAS 411 Hazardous Materials Management Program

(Copies of NAS 411 are available from www.aia-aerospace.org or Aerospace Industries Association of America, 1250 Eye Street, NW, Suite 1200, Washington, DC 20005-3924.)

2.7 Forms.

DD Form 1494 Application for Equipment Frequency Allocation

3 Requirements. The contractor shall perform all tasks required and delineated in this SOW to design, develop, integrate, test, produce, install, and provide training, logistic, technical, field service, and prepare associated technical documentation and manuals required to deliver the EPLS system. The EPLS shall meet the requirements specified in the Performance Specification for Embedded Platform Logistics System, PRF EPLS 01. This includes modification kits in the quantity specified for each of the three platforms (inclusive of the different variants within each platform) and the software applications as specified in the EPLS Performance Specification for this contract. The contractor shall provide all materials, equipment, tooling, personnel, and facilities necessary to design, develop, integrate, test, produce, and deliver the types and quantities of deliverables specified by the contract. Upon successful completion of First Article Test (FAT) and Field User Test and Evaluation (FUT&E) involving the LAV, MTVR, and AAV, the Government may issue further orders for production, integration, installation, and training.

3.1 First Article Requirements

This section describes the requirements related to production of the 12 EPLS First Article modification kits (four per each platform) and proof of their readiness for full-scale production.

3.1.1 Systems Engineering. The contractor shall establish and maintain an effective systems engineering program. Throughout the design, development, testing, production, and installation processes, the contractor shall work with a Government Integrated Product Team (IPT) to achieve an integrated capability.

3.1.2 Reviews. The contractor shall perform the following reviews.

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.1.2.1 System Requirements Review. The contractor shall plan, schedule, host, coordinate, support, and conduct a System Requirements Review (SRR) for EPLS. The SRR is a multi-disciplined technical review. The intention of the SRR is to confirm system specific technical requirements as they pertain to the unique characteristics and mission for each of the platforms, validate operational concepts, verify engineering constraints and restraints unique to each platform, identify software components, ensure that critical technologies have been identified and required technical demonstrations, that verification procedures are planned, and that risks are well understood and mitigations plans are in place.

3.1.2.2 System Functional Review. The contractor shall plan, schedule, host, coordinate, support, and conduct a System Functional Review (SFR) and provide an updated Integrated Master Schedule (IMS), updated Risk Management Plan, all previous reviews, and reports available for the Government to review. The SFR is a multi-disciplined technical review to confirm EPLS system functional baseline and the draft allocated baseline for each of the three platforms, plans for an evolutionary design, verify that the system design is modular and open, review supporting analyses (e.g., logistics, human systems integration), and verify that design selections have been optimized through appropriate trade study analyses.

3.1.2.3 Preliminary Design Review. The contractor shall plan, schedule, host, coordinate, support, and conduct a Preliminary Design Review. The Preliminary Design Review (PDR) shall be used to resolve any issues in the EPLS Performance Specification; however, it will not be used as an opportunity to impose additional requirements. The contractor shall be prepared to present the preliminary Technical Modification Instructions (TMI) that impacts the current configuration and technical documentation for each of the three platforms. The PDR shall include EPLS equipment, hardware, and software configuration items and related peculiar support equipment that compose EPLS modification to the individual platform and present planned approaches used to verify and validate performance. The contractor shall show and/or demonstrate that evaluations of materials, lead times, tooling, fabrication techniques, assembly methods, test equipment, skills, processes, and inspection techniques have been accomplished for each equipment, hardware, and software configuration items as well as related support equipment and that the producibility objectives have been achieved. Preliminary test plans (to include proposed MIL-STD 461 tailoring), safety, and software documentation will be reviewed. The reviews shall present a minimum 65% design maturity and will evaluate the progress, technical adequacy, and configuration impacts to the host platform of EPLS design and will assess the technical risk associated with the selected manufacturing (assembly) methods (processes). The PDR also shall identify all single source, sole source, and diminishing source(s) of any components.

3.1.2.4 Critical Design Review. The contractor shall plan, schedule, host, coordinate, support, and conduct a Critical Design Review. The Critical Design Review (CDR) shall present a final 90% design that incorporates corrections of all deficiencies identified from the PDR. The CDR shall be a detailed review of the software and hardware design for EPLS and all data items required by the contract, including the FAT Plan (to include final MIL-STD 461 tailoring), and Software Test Plans (STP). The contractor shall provide complete requirements traceability, demonstrating the design furnished at CDR implements the performance requirements of EPLS, and present the methods used to verify and validate the design. An assessment of the results of producibility analyses conducted on system hardware will be made to ensure detailed producibility design

solutions satisfy the established requirements. Topics covered at the CDR shall include, but not be limited to the following:

a. Detailed evaluation of Program Plan indicating Design, Fabrication, Test Phases and Specification/Interface specification/drawings
b. Detailed evaluation of Electrical/Mechanical/Software Design
c. EMI/Thermal/Cooling Design
d. Supply Chain Management
e. Long Lead Items
f. COTS/NDI Screening
g. Detailed Reliability/Maintainability Analysis
h. Environment, Safety and Health (ESH) Analysis
i. NBC Survivability
j. Packaging/Handling/Storage/Transportability
k. Testing plans and documents (including FAT, STP, PAT)
l. Interoperability
m. Human Systems Integration/Human Interface Allocation
n. Detailed evaluation of the TMI for each platform

3.1.2.5 Test Readiness Review.

The contractor shall plan, schedule, host, coordinate, support, and conduct a Test Readiness Review (TRR). The TRR shall be used to assess test objectives, procedures, resources and coordination to determine readiness for formal testing. The TRR shall be conducted at least 30 days prior to FAT. and may be conducted in conjunction with the CDR.

3.1.3 Open Systems Design. The contractor shall use an open systems approach as the preferred design strategy to: (1) choose commercially supported specifications and standards for selected system interfaces (external, internal, functional, and physical), products, practices, and tools; and (2) build open system architectures as the primary foundation in developing the proposed system and its elements. The EPLS design architecture shall be included in the preliminary and critical design reviews.

The Contractor design shall ensure the EPLS architecture incorporates appropriate considerations for reconfigurability, portability, maintainability, technology insertion, vendor independence, reusability, scalability, interoperability, upgradeability, and long-term supportability.

The contractor shall establish a process for reporting conformance to open systems standards and profiles throughout the development process. The process shall provide evidence that the process used to manage the open systems approach support open system benefits such as portability, interoperability, reconfigurability, software standards, interface standards, technology insertion, vendor independence, reusability, scalability, and commercial product based maintainability (sources of supply/repair).

The contractor shall use the following documents - MIMOSA OSA-EAI Version 3.1 - Open Systems Architecture – Enterprise Application Integration, ISO 13374 - Open Systems

Architecture for Condition Based Maintenance, Version 3.1, 1 August 2006, IEEE 1671 - Automated Test Markup Language

3.1.4 Corrosion Prevention and Control. The contractor shall maintain a Corrosion Prevention and Control Program (CPCP) to ensure EPLS meets the corrosion prevention and control standards set forth in the EPLS Performance Specification. The design shall be monitored throughout the entire period of performance to identify and assess any changes that would impact the design decision and identify materials and corrosion control methods used to manufacture EPLS. The program shall address the techniques and processes to be applied in assuring that the products to be delivered will meet the requirements contained in the EPLS Performance Specification. Changes in materials, coatings, or corrosion prevention methods during the course of production shall be reflected in updated versions of the design. The contractor shall make available to the Government all CPCP data on any vendor or sub-contractor supplied item. At a minimum, the CPCP shall provide the following information.

a. Discussion of corrosion prevention techniques employed in design, including measures taken to minimize water collection/entrapment and collection of debris, mitigate corrosion in areas inaccessible to cleaning and maintenance, and minimizes dissimilar metal contact.

b. Process instructions detailing application of coatings and other corrosion prevention compounds (if any). Process instructions should address personnel training and qualification, material inspection, surface preparation, and coating or compound application procedures.

c. Any test data developed for coatings and materials.

d. Identification of coating/substrate combinations for which no testing was required or performed.

e. Recommended corrosion control-specific maintenance.

f. Quality assurance program provisions to address materiel control to ensure that the materials used in construction of EPLS are as shown on engineering drawings; and in-process measurements (number, type, frequency, locations) to ensure compliance with process instructions developed under b, above. First Article EPLS will not be required in order to have a quality assurance program implemented.

3.1.5 Human Systems Integration. The contractor shall apply effective Human Systems Integration (HSI) principles during the EPLS design, production, integration, and installation. The contractor shall ensure that manpower, personnel, training, personnel survivability and habitability, and human factors engineering requirements have been incorporated into the layout, design, and arrangement of equipment having an operator or maintainer interface. The contractor shall also integrate HSI principles into their systems safety program. The HSI program shall ensure EPLS can be operated, maintained, supported, and controlled in its intended

environment, including Nuclear, Biological, and Chemical Mission Oriented Projected Posture IV (MOPP IV). A functional analysis shall be performed and presented at the Critical Design Review to verify human systems integration requirements.

a. Personnel. The contractor shall establish personnel principles that will minimize manpower and training costs.

b. Training. The contractor shall apply principles that will enhance the user's capabilities and reduce individual and collective training costs. The contractor shall maximize the use of new learning techniques, simulation technology, embedded training, and instrumentation systems to provide anytime; any place training that reduces the demand on the training establishment and reduces Total Ownership Cost (TOC).

c. Personnel Survivability and Habitability. For missions that might expose it to combat threats, the contractor shall ensure personnel survivability issues including protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed have been incorporated into the design and integration of EPLS. The contractor shall also ensure habitability requirements that are necessary for meeting and sustaining system performance and minimizing total system costs have been incorporated into EPLS. The EPLS shall not adversely impact personnel or the platform on which it is installed.

d. Human Factors Engineering. Human factors design requirements shall be established to develop effective man-machine interfaces and preclude system characteristics that require extensive cognitive, physical, or sensory skills, or complex manpower or training intensive tasks or result in frequent or critical errors.

3.1.6 Human Interface (HI) Allocation

The design of EPLS shall employ human engineering concepts with respect to the location and/or operation of EPLS controls, displays, alerts, and switches on the EPLS display to facilitate ease of operation and minimize inadvertent activation of incorrect functions. All control labels and visual displays, alerts and indication messages shall be readable in all lighting conditions. Human engineering shall also be applied to ensure the operator-to-EPLS interface is well defined to facilitate ease of operator functions at the EPLS display panel. The interface design shall facilitate detection and correction of user-induced errors. If automatic correction is not possible, the system shall provide an audible and visual alarm or signal that the operator can respond to and allow a response to correct the action. In order to verify human interface requirements, a functional analysis shall be performed and presented at the Critical Design Review.

3.1.7 Reliability and Maintainability Program. The contractor shall maintain a comprehensive Reliability and Maintainability (R&M) program to ensure EPLS meets

the R&M standards set forth in the EPLS Performance Specification. The design shall be monitored throughout the entire period of performance to identify and assess any changes, which would impact reliability or maintainability. The contractor shall develop reliability analysis and predictions as required to ensure compliance with the EPLS Performance Specification. The program shall encompass all aspects of reliability with respect to design selection of components, predictions, and testing. If it is determined that an item is a throwaway (i.e. replaced and not repaired), an analysis shall be performed at the next higher indenture level. The contractor shall maintain and make available to the Government all R&M data on any vendor or subcontractor supplied item and shall inform the Government, within five (5) business days, of any part or component that will degrade system R&M requirements. The R&M program shall minimally include the following tasks:

a. The contractor shall maintain procedures and controls, which ensure products, obtained from suppliers, vendors and subcontractors meet reliability requirements.

b. Establish, implement, and maintain documented procedures, which detect and/or preclude the use of substandard or counterfeit parts in the production process, and impose similar requirements on subcontractors.

c. Provide the Government with reasonable notice of any special R&M program review meetings scheduled with subcontractors so Government representatives may attend at their discretion.

d. A methodology by which the contractor intends to validate reliability predictions.

e. A closed-loop reliability growth methodology, i.e., Test, Analyze, and Fix (TAAF) process.

3.1.8 Testability. The contractor shall develop and implement a Testability Program to ensure EPLS BIT/BITE is designed to provide the vehicle operator and technicians assurance of system operation and ease in fault isolation.

3.1.9 Grounding, Bonding and Shielding. The contractor shall ensure that EPLS and subsystems are properly grounded, bonded and shielded to prevent ground loops, and common ground returns for power/control circuits to minimize electromagnetic interference. The contractor shall ensure that all externally exposed metal parts, shields, control panels, switch handles, connectors, bushings, and other components are grounded to the system chassis.

3.1.9.1 Electrostatic Discharge Control. The contractor shall establish, implement and document an Electrostatic Discharge (ESD) Control program following the guidelines provided in EIA-625. The ESD protective measure shall be used in manufacturing, packaging, storing, and transportation of ESD sensitive components. The contractor shall ensure that ESD identification markings on all ESD sensitive subassemblies are visible during equipment installation, maintenance or repair. MIL-STD-1686 may be used for guidance.

3.1.9.2 Electromagnetic Radiation Hazards. EPLS design shall protect personnel, fuels, and ordnance from hazardous effects of electromagnetic radiation.

a. Hazards of Electromagnetic Radiation to Personnel (HERP). EPLS shall comply with current national criteria for the protection of personnel against the effects of electromagnetic radiation.

b. Hazards of Electromagnetic Radiation to Fuels (HERF). EPLS shall not create a radiated electromagnetic environment that inadvertently results in host platform fuel being ignited.

c. Hazards of Electromagnetic Radiation to Ordnance (HERO). EPLS shall not create a radiated electromagnetic environment that inadvertently results in the ignition or degraded performance of electrically initiated ordnance devices.

3.1.10 Radio Frequency Spectrum Compatibility. EPLS and subsystems (wireless devices) shall comply with Department of Defense (DoD), National and International regulations for the use of the electromagnetic spectrum (such as the NTIA Manual and DoD 4650.1). The contractor shall ensure that the EPLS design operates using the assigned or allocated frequencies. The contractor shall submit the data required to complete DD Form 1494 for obtaining an approved frequency for EPLS.

(N011) DI-MISC-80508B, Technical Report/ Study Services (RF)

3.1.11 Nuclear, Biological, and Chemical Contamination Survivability. The contractor shall demonstrate that EPLS meets the Nuclear, Biological, and Chemical (NBC) contamination survivability requirements cited in the EPLS Performance Specification. The contractor shall report results as part of EPLS testing.

3.1.12 Environment, Safety, and Occupational Health.

3.1.12.1 System Safety. The contractor shall identify and evaluate safety and health hazards, identify risk levels, and establish a program that manages the probability and severity of all hazards associated with development, use, and disposal of the system in accordance with MIL-STD-882. Residual risks will be evaluated by the Government in accordance with Tables A-I through A-IV of MIL-STD-882 and accepted as appropriate. The contractor must identify all explosive safety risks as such in the system safety documentation.

3.1.12.2 Safety Assessment. The contractor shall perform and document a Safety Assessment to identify all safety features of the hardware, software, and system design and to identify procedural, hardware and software related hazards that may be present in EPLS including specific procedural controls and precautions that should be followed. In addition, the contractor shall make recommendations applicable to hazards at the interface of the system with other system(s).

3.1.12.3 Safety Assessment Report. The contractor shall provide a Safety Assessment Report (SAR) that documents the Safety Assessment and clearly identifies any residual risks of EPLS. The SAR shall include a signed statement that all identified hazards have been eliminated or their associated risks controlled to acceptable levels and that EPLS is ready to test, field, and operate. In

addition, the contractor shall make recommendations applicable to hazards at the interface of EPLS with other systems.

(M001) DI-SAFT-80102B, Safety Assessment Report (SAR)

3.1.12.4 System Safety Working Group. The contractor shall form a System Safety Working Group (SSWG), comprised of contractor and Government members, to meet on the average of once every three months to review safety issues. The meetings shall be held at times and places mutually agreed to. As a minimum, the agenda shall provide for status reporting, analysis of problem areas, evaluation of schedules and proposed changes to the program. Open agenda items shall be assigned to a contractor or Government team member for action. Each assigned agenda item shall have a completion date and the action officer shall provide the status of action at subsequent meetings.

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.1.13 Hazardous Materials Management Program. The contractor shall implement a Hazardous Materials Management Program (HMMP) in accordance with or similar to NAS 411. The contractor shall avoid the use of toxic chemicals, hazardous materials, and ozone depleting substances in the design, installation, operational support, and disposal of EPLS. Manufacturing processes that will have a detrimental impact upon the environment shall be avoided. More information on chemicals and hazardous materials to be avoided can be obtained from the Environmental Protection Agency (EPA). The contractor shall deliver Material Safety Data Sheets (MSDS) to the Government in accordance with FED-STD-313.

(M005) DI-MGMT-81398, Hazardous Materials Management Program Plan

3.1.14 Technical Modification Instructions. The contractor shall provide Technical Modification Instructions (TMI) for each of the three EPLS platforms and each platform variant. The TMI shall include provisions for hardware, software, and data installation. All government provided information, for example vehicle ID and configuration data, shall be separately and clearly identified. The TMI shall be provided to, and approved by, the vehicle platform managers before the contractor can perform any modifications to the platform. The TMI shall provide details sufficient for the vehicle Program Managers to approve all proposed modifications to the platforms for which they are responsible.

(C001) MIL-DTL-28999C, Technical Modification Instruction for the LAV
(C002) MIL-DTL-28999C, Technical Modification Instruction for the AAV
(C003) MIL-DTL-28999C, Technical Modification Instruction for the MTVR

3.2 First Article Test/Verification

The contractor shall implement First Article Test (FAT) to demonstrate the adequacy and suitability of the contractor's integration processes and procedures for achieving the performance inherent in the specification. The results of the test shall demonstrate the techniques and processes employed meet all requirements in the EPLS Performance Specification and do not degrade the design. FAT shall be performed on 4 LAV, 4 MTVR, and 4 AAV platforms.

(D003) DI-NDTI-80809B, Test/Inspection Report (SIT)

3.2.1 FAT Plan. The contractor shall prepare a FAT Plan that encompasses all sub-system and system level testing. The FAT Plan shall be the top-level working document that ties all contractor and subcontracting test activities together. The following areas shall be emphasized in the FAT Plan:

a. Test event
b. Purpose of the test with pass/fail criteria clearly delineated
c. Date of test start and end
d. Location of the test
e. Need for Government test support, especially host platforms and laboratories
f. Overall schedule of individual tests
g. Interoperability analysis/testing

The FAT Plan shall be provided during the Preliminary Design Review upon completion of the System Function Review work effort. Updates shall be accomplished prior to later design review and completed prior to commencement of the FAT. Other revisions to the FAT Plan may be necessary if the program undergoes significant changes. The Government will advise the contractor whenever significant program changes are necessary. The contractor shall not commence testing until the Government approves the FAT Plan.

(D001) DI-NDTI-80566, Test Plan (TP)
(D002) DI-NDTI-80603, Test Procedure (SIT)

3.2.2 Software Test Plan. The contractor shall provide a Software Test Plan (STP) for both on-platform and off-platform products. Each STP shall describe the plans for qualification testing of CSCIs and software systems. Each shall describe the software test environment to be used for the testing, the tests to be performed, and provide the schedules for test activities. There shall be separate test plans for the On-Board Software Client (OBSC) and Off-Board Service Application (OBSA) to verify compliance with the EPLS Performance Specification.

(D004) DI-IPSC-81438A, Software Test Plan (STP)

3.2.3 Software Test Description. The contractor shall provide a Software Test Description (STD) for both on-platform and off-platform products. Each STD shall describe the test preparations, test cases, and test procedures to be used to perform qualification testing of CSCI or software system or subsystem. There shall be separate software test descriptions for the On-Board Software Client (OBSC) and Off-Board Service Application (OBSA) to verify compliance with the EPLS Performance Specification.

(D005) DI-IPSC-81439A, Software Test Description (STD)

3.2.4 Software Test. The contractor shall plan and conduct a software stress test. The contractor shall determine the scope of software stress testing required to ensure the software being developed meets all specified technical, operational, functional, interface, interoperability, and performance requirements and the acceptance criteria. Test data shall include

normal and abnormal, legal, and illegal inputs. All test plans and procedures shall be subject to review and approval by the Government. Test results shall be provided to the Government. EPLS shall comply with Information Assurance (IA) policies and procedures (including DoDD 8500.1 Information Assurance (IA), DoDI 8500.2 Information Assurance (IA) Implementation, DoDI 5200.40 DoD Information Technology Security Certification and Accreditation Process (DITSCAP), and interim DoD Information Assurance Certification and Accreditation Process (DIACAP) Guidance – July 2006) and shall support required MARCORSYSCOM Authority to Operate prior to testing, including Government Vulnerability Assessment Tests.

(D006) DI-NDTI-80809B, Test/Inspection Report (S/W)

3.2.5 Non-Conformance of First Article.

In the event the first articles fail to meet requirements as described in the EPLS Performance Specification, the contractor shall submit plans for the corrective action or disposition, within five calendar days, to the Government for approval. Minor failures (which will be defined upon review of the test plan/test procedures) may be corrected during the testing, with Government approval.

3.3 EPLS On-Board Computer

The contractor shall provide an EPLS On-board Computer (OBC) capable of hosting the on-board software client, interfacing with a J-1939 data bus, existing and additional sensors, and other platform data sources. The OBC shall be capable of meeting all on-board computer requirements, to include software and external interfaces, and if required input/output devices as outlined in the EPLS Performance Specification. The contractor shall ensure that the OBC (OBC, Removable Display, or other input device) is designed to allow the operator or maintainer to input data while performing tasks external to the platform. The OBC shall include the mobile load and passenger manifest capability. The contractor shall ensure all integration activities support a successful authority to connect and authority to operate.

3.4 EPLS Ancillary Kit

The contractor shall provide Ancillary kits for the LAV, AAV, and MTVR capable of interfacing with the EPLS .(OBC) and the on-board software client. The EPLS ancillary kit shall include interfaces for the MTVR J-1939 data bus, provide a J-1939 data bus for the LAV and AAV platforms, additional sensors, and access to existing platform data sources capable of meeting all requirements outlined in the EPLS Performance Specification. The contractor shall ensure all integration activities support a successful authority to connect and authority to operate.

3.5 EPLS On-Board Software Client (OBSC).

The contractor shall provide an EPLS On-board software client (gold disk) capable of running on the OBC. The on-board software client shall be capable of meeting all on-board requirements, to include software interfaces and net-centric data strategy as outlined in the EPLS Performance Specification. The contractor shall ensure all integration activities support a successful authority to connect and authority to operate.

(A004) DI-IPSC-81441A, Software Product Specification (SPS)

3.6 EPLS Off-Board Service Application (OBSA).

The contractor shall provide an EPLS Off-board Service Application (OBSA) consisting of a database and end user software capable of aggregating and manipulating data from multiple EPLS equipped vehicles into a variety of presentations (reports, lists, charts, graphs) for maintenance planning and analysis. EPLS OBSA database and software will be hosted on Government provided servers that will reside (at the lowest level) at the battalion level. Both the end user application and EPLS generated data shall be accessible via web services down to the individual maintenance section. The OBSA may be a commercially available product. The contractor shall ensure all integration activities support a successful authority to connect and authority to operate.

(B004) DI-IPSC-81441A, Software Product Specification (SPS)

3.7 Test Support – Field User Test & Evaluation (FUT&E). The contractor shall support Government test efforts encompassing Government FUT&E by providing on-site personnel and in-house support. Upon successful completion of FAT, EPLS will undergo FUT&E. Field User Testing will be accomplished in a representative Field User environment to be determined by the government. The contractor shall support each Government test by providing on-site installation, maintenance, training, logistics, and technical support for the period of the test. Test support requirements will be tailored to the test being conducted. The contractor shall provide all required organizational, intermediate, and depot level support equipment and spare parts needed to maintain EPLS and ancillary equipment during each test. The contractor shall analyze test data, conduct failure analysis, and maintain a data tracking system throughout all test efforts.

The Contractor shall provide complete system training for the FUT&E participants and other required support that is not strictly prohibited by law. The Government anticipates that the field test portion of FUT&E will take no more than thirty (30) calendar days. Upon completion, the Government will produce its Independent Evaluation Report (IER) which may take up to 30 days to produce. As a result of FUT&E, the Government may require systemic changes to EPLS, which will be effected through priced ECP.

3.7.1 Refurbishment and Retrofit of FUT&E Units. The contractor shall refurbish and retrofit all previously delivered FUT&E units to include all approved corrective actions, enhancements and modifications. All refurbished and retrofitted units must undergo Production Acceptance Test (PAT) and are to be delivered as part of the required number of contract deliverables.

3.8 Training. The contractor shall provide a training program in accordance with MIL-PRF-29612 and the Systems Approach to Training (SAT) Manual June 2004. The EPLS training shall SCORM 2004 conformant and include all metadata required by the ADL Registry and adhere to the current version (at time of contract award) of MarineNet Courseware Development Technical Guidelines as evinced by successful completion of MarineNet Technical Testing (including any remote testing required at the time of contract award). The current Marine Corps Distance Learning Network (MarineNet) Courseware Development Technical Manual Ver 3.0 May 2006 is attached as GFI. The current version of technical references can be found on the CCE Web site: http://www.tecom.usmc.mil/cce/programs/references.asp#technical. The use software plug-ins must comply with the current NMCI USMC baseline. Prior to course initiation, the contractor shall meet safety standards, which are in accordance with federal regulations.

3.8.1 Training Conduct

The Contract shall conduct training as required by the government and upon issuance of a delivery order and in accordance with the EPLS Statement of Work, and Task Action Plan (TAP). Instructor and Key Personnel Training shall be provided at the contractor's facility prior to the First Article Test for government observers.

3.8.2 Instructor and Key Personnel Training

The contractor shall be provided to the members of the government Field User Test and Evaluation (FUTE) as part of FUT&E support. The government shall provide the classroom and facilities for FUT&E training. The contractor shall provide all computers, projectors, other media and media presentation requirements.

3.8.3 Unit Level Training–

The Contract shall conduct training as required by the government and upon issuance of a delivery order and in accordance with the EPLS Statement of Work, and Task Action Plan (TAP) as part of the fielding process. The contractor shall provide all computers, projectors, other media and media presentation requirements. The Government anticipates the following major geographic locations - West Coast (Camp Pendleton and 29 Palms Ca.), East Coast (Camp Lejuene, N.C.) and Okinawa Japan. The contractor shall provide an estimate of travel cost in the Task Action Plan.

3.8.4 Training Development Management. The contractor shall appoint a Training Manager who shall be the single point of contact for training and courseware development matters. The Training Manager and other contractor personnel conducting training shall be able to read, write, speak, and comprehend the English language, including technical language and terms associated with the operation, repair, installation, maintenance, assembly, and disassembly of EPLS. The Training Manager shall have three or more years of training and managerial experience with formal military training, and shall have an understanding of all tasks to be taught under this contract, with expertise in one or more of the areas. Sixty days prior to the conduct of any training course, the contractor shall provide written certification of the proficiency and skill of the instructors to conduct the required training to the Government. Sufficient proficiency and skill is defined as either two years experience conducting formal military training

in the specific area of instruction or an equivalent level of civilian teaching experience. The Government will consider waivers to proficiency and skill levels on a case-by-case basis. The Government will review and approve contractor proposed instructors thirty days prior to the start of training. The duties of this Training Manager shall include, but shall not be limited to, the coordination of training courseware analysis, design, and development. Additionally, the Training Manager shall be responsible for the coordination of training presentation for EPLS.

3.8.5 Classroom Instruction. The contractor shall develop a training program to provide classroom instruction for Instructor and Key Personnel (I&KP), and New Equipment Training (NET) in accordance with the following subparagraphs. Upon issuance of a delivery order, the contractor shall provide this training in accordance with the delivery order and this SOW.

3.8.5.1 Instructional Performance Requirements Document. The contractor shall develop an instructional performance requirements document for Testing, I&KP, and NET that shall contain the following:

a. Mission, collective and individual task data
b. Task lists
c. Task information summary and clarification
d. Training task data
e. Training task lists
f. Collective and individual training task data
g. Training exercise data
h. Learning objectives data
i. Training course data
j. Learning objective hierarchies and flow diagrams
k. Learning analysis summary
l. Individual Training Standards (ITS)
m. ITS system data
n. ITS listings
o. Index of tasks
p. Common ITS listing
q. Table of contents

(E001) DI-SESS-81518B, Instruction Performance Requirements Document (TIN)

3.8.5.2 Training Conduct Support Document. The contractor shall develop a training conduct support document for Testing, I&KP, and NET that shall contain the following:

a. Lesson plan data requirements
b. Trainee guide data requirements
c. Instructional visual aids

(E002) DI-SESS-81523B, Training Conduct Support Document (TIN)

3.8.6 Computer Based Training. The contractor shall develop a training program to provide Computer Based Training (CBT) in accordance with the following subparagraphs. CBT to include the development and delivery of CBT in format to be embedded on the platform and hosted on The USMC Marine NET.

3.8.6.1 Instructional Media Design Package. The contractor shall prepare and provide an instructional media design package for CBT that shall contain the following:

a. Summary description of training
b. Courseware design strategy
c. Conventions
d. Course title and description
e. Course task data
f. References
g. Safety, hazard, or environmental considerations
h. Interface design and controls
i. Test design strategy
j. Abnormal operating conditions to be simulated
k. Course overview
l. Course schedule
m. Performance tracking control features for instructional media
n. Course Structure Format (CSF)
o. Lesson strategy
p. Organization and format
q. Learning objectives
r. Unit and lesson maps
s. Lesson design strategy
t. Test items
u. Lesson format guide
v. First article lesson
w. Instructional media resource requirements
x. Courseware logic flow diagrams

(F001) DI-SESS-81520B, Instructional Media Design Package (CBT)

3.8.6.2 Training Program Structure Document. The contractor shall develop a training program structure document for CBT that shall contain the following:

a. Training course data
b. Course training standards
c. Instructional media data
d. Interactive multimedia instruction
e. Operational training
f. Course learning objectives

g. Explanation of terms
h. Curriculum outline of instruction
i. Course summary and presentation schedule
j. Individual training standards
k. Fault applicability list
l. Resource requirements list

(F002) DI-SESS-81521B, Training Program Support Document (CBT)

3.8.7 Unit Training. The contractor shall develop a unit operator/maintainer training course. The content of the course shall focus on providing the operator/maintainer with the knowledge and skills necessary to perform operator/maintainer tasks including Preventive Maintenance Checks and Services (PMCS). The estimated course length shall be TBD hours of classroom instruction time and TBD hours of practical application time. The total course length shall be TBD hours. At least 50% of the course shall be practical application time. The following subparagraph further describe the unit training required.

3.8.7.1 Training Conduct Support Document. The contractor shall develop a training conduct support document for Unit Training that shall contain the following:

a. Lesson plan data requirements
b. Trainee guide data requirements
c. On-The-Job (OJT) handbook data
d. Instructional visual aids

(E003) DI-SESS-81523B, Training Conduct Support Document (UT)

3.9 Installation Services. Upon issuance of a delivery order, the contractor shall install EPLS on government-designated platforms in accordance with the EPLS Performance Specification and each platform's approved Technical Modification Instruction, and the contractor's Task Action Plan (TAP).

3.9.1 Access to Government Facilities. The Government will provide the contractor with access to Government facilities for purposes of design, test, integration, and installation of the EPLS system on the designated host platforms. The contractor shall comply with the industrial security requirements described in the National Industrial Security Program Operating Manual Supplement. The contractor shall be required to wear a contractor identification badge at all times while on Government property.

3.9.2 Installation on Host Platform. The contractor shall install all appropriate hardware and software onto/into designated host platforms following the appropriate approved Technical Modification Instruction. The contractor shall ensure full functionality of EPLS and the host platform after installation is complete.

3.9.3 Initial Data Load on Host Platform. The Contractor shall load platform class and individual data history for each unique host platform designated for EPLS installation. Unique platform data will be provided during the installation process.

3.9.4 Installation of End User Database and Software.

The contractor shall install OBSA database and software according to the approved Software Installation Plan. The contractor shall ensure full functionality of the Off-Board Service Application database, software and interfaces/data feeds with EPLS hosted platforms after installation is complete.

3.9.5 Initial Data Load of End User Software. The Contractor shall load aggregated data from designated EPLS equipped platforms. Unique unit/aggregation data will be provided during the installation process.

3.10 Spares. Upon issuance of a delivery order, the Contractor shall provide spare parts for EPLS systems and subsystems. Spare parts shall be determined upon finalization of the Provisioning Parts Lists. All spare and repair parts shall meet the requirements of this Statement of Work and the EPLS Performance Specification.

3.11 Sustaining Engineering and Technical Analysis Support. Requests for sustaining engineering and technical analysis support will come in the form of a tasking SOW. Upon receipt of a SOW, the Contractor shall describe its plan for satisfying the specific SOW, including a Rough Order of Magnitude (ROM) for the proposed time and materials based on the labor rates. General activities that may require technical support analysis include:

a. Application of EPLS to additional platforms
b. Architecture of future anticipatory logistics support systems
c. Additional end-user software requirements
d. Planning large scale logistics experiments requiring EPLS equipped vehicles
e. Return-on-investment and life-cycle cost analysis
f. Business process analysis
g. Prognostics based on EPLS data
h. Decision support systems
i. Data and message error rate analysis

(P001) DI-MISC-80508B, Technical Report (Study/Services)

3.12 EPLS Product Support and Sustainment Services

The contractor shall establish a Help Desk for requesting support, which includes telephonic and web based means that shall be available 24 hours a day, 7 days a week. The contractor shall maintain and make available to the Government all request for services, service request handoffs, corrective actions, and resolution. The system shall timestamp to the point of resolution. The system shall provide email notifications to the EPLS and Platform points of contact all incoming requests and status changes. Service requests shall be categorized into hardware and software issues. The system shall clearly indicate issues that have been closed and resolved versus issues that are still outstanding.

3.12.1 Warranty Performance System. The contractor shall establish and maintain a warranty performance system that identifies and documents all items to be warranted under this contract. Each item warranted shall be indexed and identified by serial number, model or part number, and date of acceptance by the Government. All pertinent data required for the Government to pursue warranty provisions, remedy, and relief for each item shall be maintained by the contractor for the duration of the warranty period. All warranty claims and transactions shall be documented and made available for Government review during scheduled meetings and/or reviews.

(M004) DI-SESS-81639 Warranty Performance Report

3.12.2 Standard Commercial Warranty. The contractor shall provide a standard commercial warranty covering workmanship, materials, design, and all essential performance characteristics that would effect the EPLS Performance Specification requirements of EPLS. Unless negotiated by the contractor, and agreed to by the Government, the warranty shall be for a period of 12 months. The contractor shall ensure that subcontractor and vendor warranties provide the same coverage and are passed through to the end item. The contractor shall ensure sufficient resources are available to ensure a 72-hour response time/turn around beginning from the time a warranty action is requested.

3.12.3 Contractor Logistics Support. Upon issuance of a delivery order, the contractor shall provide logistics support services for system unique items necessary to maintain the operational readiness of EPLS throughout the first four years following delivery of the end item. The contactor shall provide regional support based in Camp LeJeune, NC, Camp Pendleton, CA, and Camp Kinser, Okinawa Japan. Regional support shall include a contractor representative to assist Marines in the use and support of EPLS during the CLS period. Regional support shall include but is not limited to validation of system failure identification of components and sub-components prior to exchange, observe and support system use, provide additional training, and other tasks required to ensure the success of EPLS once fielded. Contractor Logistics Support (CLS) shall include the following:

a. Maintenance
   1) Organizational Maintenance
   2) Intermediate Maintenance
   3) Depot Maintenance/Rebuild
b. Supply
c. Component Exchange
d. Calibration
e. Maintenance Float
f. Technical Assistance
g. Failure Analysis
h. Configuration Control

3.12.4 Post Deployment Software Support.

Upon Issuance of a delivery order, the contractor shall provide Post Deployment Software Support throughout the first three years following delivery of the end item to include services, software patches, configuration and version control, documentation updates, bug fixes and tracking. EPLS software, including OBSA, OBSC, business rules, diagnostic / prognostics algorithms and routines, shall provide a feedback loop that provides for verification and correction of false alarms, false indicators, and non-indications of faults. Software Trouble Reports (STR) shall be categorized based on the nature of the software issue (software bug, installation problem, enhancement, interface issue, or similar type items) for further analysis and corrective action. The

STRs shall clearly indicate issues that have been closed, resolved, and issues that are still outstanding.

3.13 Administrative and Program Management.

(G001) DI-MGMT-80227, Contractor's Progress, Status and Management Report

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.13.1 Program Management. The contractor shall establish and maintain program management practices throughout the period of performance. Program management practices shall provide visibility into the contractors' organization and techniques used in managing the program, specifically subcontractor and data management. Documentation shall be readily available to Government representative(s) during planned visits.

3.13.2 Subcontractor Management. The contractor is responsible for performance of requirements delineated in this SOW, and shall institute appropriate management actions relative to subcontractor performance. Requirements that are contractually specified shall apply to subcontractor performance; however, the contractor shall be accountable for compliance by the subcontractors and is responsible for ensuring all deliverable products comply with the contract requirements.

3.13.3 Data Management. The contractor shall establish a single, centralized system for management of all data required under this contract. The contractor, in developing information that will be furnished to the Government, shall make the maximum use of existing data and provide maximum multiple use of technical information. Specific data management functions shall include schedule control for deliverables, maintenance of deliverables, approval of deliverable format, distribution and delivery of data products. The system shall include facilities for storage of all data developed or utilized for this contract, and shall provide equal access to data by the Government. The contractor shall ensure that all data is centrally available for Government review to ensure continuity of the system fabrication and supporting documentation. The Government reserves the right to review and access all data associated with and developed for EPLS. All data shall be the property of the Government.

3.13.3.1 Rights in Technical Data – Noncommercial items.

The contractor shall grant the Government unlimited rights to all technical data to include computer database, computer program, computer software, and computer software documentation developed under this effort.

3.13.4 Schedule Planning. The contractor's proposed Integrated Master Schedule (IMS) shall be maintained and updated during meetings and provide to the government approval. This IMS will contain all program events from start to completion of the contract that provides for the earliest delivery schedule while at the same time satisfying all requirements in a cost effective manner. The accepted and approved IMS shall become part of the contract and will be used by the contractor and Government to track all significant events, milestones, and internal and external linkages to critical management tasks such as design reviews, work planning, procurement, manufacturing, assembly, integration, and test. The contractor shall notify the Government in writing of any anticipated or projected work stoppages or delays that will impact schedules.

(G001) DI-MGMT-80227, Contractor's Progress, Status and Management Report

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.13.5 Meetings, Formal Reviews, Conferences and Audits.

3.13.5.1 Contractor Responsibilities. The contractor shall plan, host, attend, coordinate, support, and conduct all meetings, formal reviews, conferences, and audits (hereinafter called "reviews"). The reviews shall be conducted at Government and contractor facilities. Reviews requiring demonstration and/or examination of equipment involving the host vehicle shall be conducted at the designated Government facility where the host vehicle resides. All such reviews shall be included in the program schedule and may be held concurrently with the Government's approval. The contractor shall prepare and distribute seven business days prior to each review draft agendas and conference presentation materials for government approval. The final agendas and conference presentation materials shall be submitted no later than three business days prior to each review. Meeting minutes and reports shall be distributed no later than five business days following each review. The Government reserves the right to cancel any review or to require any review to be scheduled at critical points during the period of performance. Action item documentation, assignment of responsibility for completion, and due dates shall be determined prior to adjournment of all reviews. A summary of all action items, responsible parties, and estimated completion dates shall be included with the minutes.

3.13.5.2 Post Award Conference. The contractor shall host a Post Award Conference (PAC) at the contractor's facility within 30 days after Contract Award. The purpose of the PAC is for the contractor to review and demonstrate to the Government the management procedures, provide progress assessments, review of technical and other specialty area status, and to establish schedule dates for near term critical meetings/actions. The contractor shall present management, key personnel, and program implementation processes.

3.13.5.3 In-Process Review. In Process Reviews (IPR) will be held on a quarterly basis or as needed basis, at a date and location mutually agreed upon. The Government reserves the right to cancel any review or to require any review to be scheduled during the period of performance. The

contractor's progress, management, technical support services (if any), integrated logistics support, administrative, assurance of compliance with contract requirements, program status, funding, problem identification, and resolutions shall be agenda items. Actual versus expected performance of each area shall be addressed. The contractor shall prepare presentation materials providing an overview of all agenda items.

3.13.6 Assignment of Responsibility and Authority. The contractor shall identify the organizational elements responsible for the conduct of the activities delineated in this SOW. Responsibilities shall be assigned and clear lines of authority defined for determining and controlling the resources necessary to satisfy each element of this SOW. The following billets shall be considered key personnel. The contractor shall appoint all persons filling these billets and do so in writing. The contractor shall notify the Government within ten days of any changes regarding authority, responsibility, or key personnel changes made by the contractor during the period of performance.

a. Program Manager. The contractor shall designate a Program Manager (PM) who shall possess sufficient corporate authority to manage, direct, execute and control all elements of the contract. The PM shall serve as the primary point of contact between the contractor and the Government, and be responsible for the coordination of all contractor activities related to the contract.
b. Systems Engineer. The contractor shall designate a Systems Engineer who shall possess sufficient authority to manage, direct, execute and control all engineering, software and database elements of the contract.
c. Test Engineer. The contractor shall designate a Test Engineer who shall possess sufficient authority to manage, direct, execute and control all tests of the contract.
d. Configuration Management (CM) Manager. The contractor shall designate a CM Manager who shall possess sufficient authority to manage, direct, execute and control all CM elements of the contract.
e. Quality Manager. The contractor shall designate a QM Manager who shall possess sufficient authority to manage, direct, execute and control all QM elements of the contract.
f. Integrated Logistic Support (ILS)/Warranty Administration/Customer Relation Manager. The contractor shall designate an ILS/Warranty Administration/Customer Relation Manager who shall possess sufficient authority to manage, direct, execute and control all ILS/Warranty Administration/Customer Relation elements of the contract.
g. Training Manager. The contractor shall designate a Training Manager who shall possess sufficient authority to manage, direct, execute and control all training and human/machine interface related elements of the contract.

3.13.7 Travel.

The Government anticipates local, CONUS, and OCONUS travel for the EPL program requirement. All travel shall be in accordance with the Department of Defense Joint Travel Regulations (JTR). Trip reports shall accompany contractor's monthly status reports.

3.14 Government Furnished Property.

The Government will notify the contractor of the availability of Government Furnished Property (GFP). Items will be provided to the contractor within 60 days of receipt of contractor's written request to the Marine Corps Systems Command program office, PM TMDE. The contractor shall provide for accountability, security and storage for the GFP provided in accordance with contract clauses 52.245-2 and 52.245-5. The Government and contractor shall jointly inspect and inventory all GFP transferred and received, and shall identify and report any discrepancies /deficiencies to include associated costs (materials, labor and test (if applicable)) for repair of the GFP to like new conditions. Upon approval by the Government, the contractor shall conduct the necessary repair actions. The Government will forward an accountability agreement to the contractor for signature on an annual basis. The Management Control Activity, Marine Corps Logistics Base (Code 827-2/MCA), Albany, Georgia, is the control and coordination point for all Marine Corps GFP. See Section H-6 of RFP for GFP listing.

The Government will furnish the Government Furnished Information (GFI) identified in the contract upon written request from the contractor to the Marine Corps Systems Command program office, PM TMDE. See Section J of RFP for GFI listing.

(G004) DI-MGMT-80389B, Receipt of Government Materiel Report

3.15 Quality Management System. The contractor's quality management system shall ensure product conformation to contractual requirements. The contractor shall have implemented, documented, and have previously demonstrated the ability to maintain the quality management system to be used on the contract. The contractor shall make available all quality management documentation for the Government to review upon request. The contractor's plan for the quality management system shall address the following elements:

a. Management Responsibility. Procedures to define, document, and implement a policy for quality.

b. Quality System. Procedures to establish, document, and maintain a quality system, which includes a quality manual, system procedures, and quality planning.

c. Contract Review. Procedures to establish and maintain documented procedures for contract review.

d. Design Control. Procedures to establish and maintain documented procedures to control and verify design of the product to ensure conformance to specified requirements.

e. Document and Data Control. Procedures to establish and maintain documented procedures to control all documents and data (including hard copy and electronic media) including such documents as standards and Government drawings.

f. Purchasing. Procedures to establish and maintain documented procedures to ensure that purchased product, associated documents and data conform to requirements. Sub-contractors are to be evaluated and selected on their ability to meet subcontract requirements and type and extent of control exercised by the supplier over subcontractors is to be defined.

g. Control of Government-Supplied Product. Procedures to establish and maintain documented procedures for the control of verification, storage, and maintenance of Government-supplied product provided for incorporation into the supplies or for related activities.

h. Product Identification and Tractability. Where appropriate, procedures to establish and maintain documented procedures for identifying the product from receipt and during all stages of production, delivery, and installation.

i. Process Control. Procedures to identify and plan the production, installation and servicing processes, which directly affect quality and to ensure that these processes are carried out under controlled conditions.

j. Inspection and Testing. Procedures to establish and maintain documented procedures for inspection and testing activities, in order to verify that the specified requirements for the product are met.

k. Control of Inspection, Measuring and Test Equipment. Procedures to establish and maintain documented procedures to control, calibrate and maintain inspection, measuring and test equipment, (including test software) used by the supplier to demonstrate the conformance of product to the specified requirements.

l. Inspection and Test Results. Procedures to ensure that the inspection and test status of the product are identified and maintained throughout the production, installation, and servicing of the product. Further, to ensure that only products that passed the required inspections and tests (or released under an authorized concession) are dispatched, used or installed.

m. Control of Non-Conforming Product. Procedures to establish and maintain documented procedures to ensure that product that does not conform to specified requirements is prevented from unintended use or installation.

n. Corrective and Preventive Action. Procedures to establish and maintain documented procedures for implementing corrective action in the handling of Government complaints, product non-conformities, and the application of controls to ensure that corrective action is taken and that it is effective. Preventive action procedures will detect, analyze, and eliminate potential causes of non-conformities.

o. Handling, Storage, Packaging, Preservation and Delivery. Procedures to establish and maintain documented procedures to prevent damage or deterioration of product.

p. Control of Quality Records. Procedures to establish and maintain documented procedures for identification, collection, indexing, access, filing, storage, maintenance and disposition of quality records. Quality records shall be maintained to demonstrate conformance to specified requirements and the effective operation of the quality system.

q. Internal Quality Audits. Procedures to establish and maintain documented procedures for planning and implementing internal quality audits to verify whether quality activities and related results comply with planned arrangements and to determine the effectiveness of the quality system.

r. Training. Procedures to establish and maintain documented procedures for identifying training needs and provide for the training of all personnel performing activities affecting quality. Appropriate records of training shall be maintained.

s. Servicing. Where servicing is a specified requirement, to establish and maintain documented procedures for performing, verifying and reporting that the servicing meets the specified requirements.

t. Statistical Techniques. The supplier shall identify what statistical techniques are to be used for computing, documenting, verifying, and controlling both the contractor's process capability and the supplier's product characteristics. The supplier should also identify how they are to be implemented.

3.16 Producibility. The contractor shall develop a comprehensive plan for production of EPLS, delineating producibility and integration processes and procedures to ensure that the system is designed in such a manner as to facilitate production. The plan shall have appropriate linkages to and entries within the Program Schedule. As part of the production planning, the contractor shall ensure that this plan contains the elements specified in the CDRL, and include but is not limited to:

a. Documented and validated manufacturing, fabrication, assembly, and integration flow process, e.g., a factory layout and process flow that details the mix of layout, material flow, inventory control, and integrated quality control.

b. Subcontractor participation in design, production, and integration.

c. Documented Environmental Stress Screening (ESS) program that is in accordance with the Tri-Service Technical Brief TE000-AB-GTP-020.

d. Plans to ruggedize EPLS to ensure compliance with the EPLS Performance Specification, to include test and validation procedures.

e. Documented provisions for Statistical Process Control (SPC).

f. Hardware and software integration (Interface Control).

g. Documented metrics for the control of hardware and software production and integration processes.

h. A plan for the re-layout and fabrication of Circuit Card Assemblies (CCAs) as needed to eliminate white wires on CCAs for all deliveries, if applicable.

i. Strict parts de-rating guidelines in accordance with the NAVSEA TE-000-AB-GTP-010, Parts Derating Requirements and Applications Manual for Navy Electronic Equipment, or other internal contractor guidance as approved by the Government.

j. Infrastructure management processes to support production and integration activities such as maintenance, plant control, and equipment updates.

k. Worst-case circuit analysis (hardware, software, firmware).

l. Inspections, acceptance and regression testing required.

(G005) DI-MGMT-81117, Technical and Management Work Plan

3.17 Configuration Management Process. The contractor shall maintain a configuration management (CM) process for the control of all hardware, software, firmware configuration documentation, media and parts representing or comprising the EPLS. The principles contained in EIA-649 and MIL-HDBK-61 may be used for guidance. The contractor's CM process shall consist of configuration identification, configuration control, configuration status accounting, and configuration audits. Consideration for interfacing with Government/contractor integrated team to address unique platform configurations and other acquisition requirements such as design reviews, quality assurance, and other program related disciplines shall be addressed. The contractor shall designate a CM representative to serve as a primary point of contact to the Government for all CM matters. The contractor's representative shall be responsible for any subcontractor's CM efforts. The contractor shall notify the Government of any changes at the contractor's facility that affect the contractor's established CM process.

3.17.1 Configuration Identification. The contractor shall participate in a joint Government/contractor integrated team to designate configuration items (CIs) to be managed by the Government and those to be managed by the contractor at a lower level/tier. For those CIs that have been identified for Government control, the contractor shall provide form, fit, function, and interface documentation necessary for configuration status accounting. The contractor shall establish management practices for those lower level/tier CIs.

3.17.1.1 Configuration Status Accounting. The contractor shall use the USMC's CSA automated information system, Configuration Management Information System (CMIS). The contractor shall conduct sufficient analysis to determine the most suitable approach for utilizing the CMIS services. The analysis must consider access to CMIS by the contractor, sub-contractors, and government personnel. The contractor shall establish and maintain a Configuration Status Accounting (CSA) process using the CMIS database, which represents the configuration of EPLS. All baselines and changes shall be documented in by the contractor and or the sub-contractors in the CMIS database. The contractor shall use the CMIS database to reconcile any differences between the supplier information and contractor practices to provide the Government with clear

accountability of product information. Additionally, the contractor shall ensure the information contained in the CMIS database provides a reliable source of configuration information to support EPLS activities, including program management, systems engineering, logistics support, and modification/maintenance actions.

(H001) DI-CMAN-81253A, Configuration Status Accounting Information

3.17.2 Configuration Management Meetings/Audits.

3.17.2.1 Interface Control Working Group. The contractor shall be a participant in the Interface Control Working Group (ICWG) established between EPLS program and other Government program offices to include the host platforms, Command and Control (C2) systems, communications and networking systems, and logistics IT systems. The ICWG will meet, as necessary, to resolve any interface problems. Meetings shall be held in conjunction with other reviews, if possible.

3.17.2.2 Functional Configuration Audit. The Functional Configuration Audit (FCA) shall be performed to verify that EPLS and its CIs are accurate, complete, and compatible, and that each CI has achieved the performance and functional characteristics delineated in the EPLS Performance Specification. The Government and the contractor shall conduct the FCA jointly, at a time and place mutually agreed to, with the Government chairing the audit. As part of the configuration management plan/process submitted with the proposal, the contractor shall provide an approach and proposed schedule for conducting the FCA and identification of the CIs/ Computer Software Configuration Items (CSCIs) to be audited and specific units to be audited. The contractor shall participate and assist the Government in the development of the FCA, using the guidelines contained in MIL-HDBK-61A, section 8. The contractor shall be responsible for providing the system to be audited, facilities, personnel, documentation (including drawings), and other support as may be required. The contractor shall develop a configuration audit summary report after each audit. The contractor shall correct all audit discrepancies as documented in the configuration audit summary reports. The functional baseline will be validated upon completion of the FCA and resolution of audit discrepancies.

(H002) DI-CMAN-81022C, Configuration Audit Summary Report (Functional)

3.17.2.3 Physical Configuration Audit. The Physical Configuration Audit (PCA) shall be performed to verify EPLS and its CIs are accurate, complete, compatible, and that the CI has achieved the performance and functional characteristics defined in the functional configuration baseline. The Government and the contractor shall conduct the PCA jointly, at a time and place mutually agreed to, with the Government chairing the audit. The PCA shall verify the drawings reflect the "as-built" configuration of all newly developed or modified portions of the system; accurate form, fit, function information is provided on control drawings for non-developmental/commercial off-the-shelf items; and confirm the drawings accurately represent the "as-built" production configuration. Whenever possible, the PCA shall be conducted incrementally, concurrent with hardware fabrication and assembly of the first production system. As part of the configuration management plan/process, the contractor shall provide an approach and proposed schedule for conducting the PCA and identification of the CIs/CSCIs to be audited and specific units to be audited. The contractor shall participate and assist the Government in the development of the FCA/PCA, using the guidelines contained in MIL-HDBK-61A, section 8. The contractor shall document the results of the PCA after each audit and shall correct all audit discrepancies documented in the configuration audit summary reports. In the event the Government finds evidence the drawings and/or documents do not adequately represent the equipment, production shall cease until all discrepancies are corrected and the Government approves the configuration audit summary report. The product baseline will be established upon completion of the PCA and resolution of audit discrepancies.

(H003) DI-CMAN-81022C, Configuration Audit Summary Report (Physical)

3.17.3 Parts Management Program. The contractor shall establish and maintain a Parts Management Program that will ensure the use of parts that meet contractual requirements, reduce proliferation of parts through standardization and enhance equipment reliability and supportability, and proactively manage obsolescence. Within 45 days after contract award, an internal company plan or procedure shall be made available to the Government for review and use. The Government may perform audits, verifications, inspections or evaluations to ascertain program conformance and adequacy of the implementing procedures. The procedures, planning and all other documentation media and data that define the Parts Control Program and the parts selected for use shall be made available to the Government for their review and use. The contractor may utilize MIL-HDBK-512 as a guide for developing and maintaining the parts management program.

3.17.4 Baseline Management. The contractor shall be responsible for maintaining the currency and accuracy of the established baseline to ensure form, fit, function, and interface of EPLS. The contractor shall establish definitive processes, which identify how the baseline will be managed/maintained. These processes shall be defined in the contractor's configuration management plan and made available for Government review.

3.17.4.1 Product Baseline. The contractor shall establish the product baseline by the successful completion and Government acceptance of the PCA or other documentation, which describes all the necessary functional and physical characteristics of EPLS to include all verifications required to demonstrate EPLS meets all required performance parameters. The contractor shall make changes to the product baseline only through the ECP process.

3.17.4.2 Allocated Baseline. The allocated baseline shall describe the Configuration Items (CI) and Computer Software Configuration Items (CSCI) to a level of design detail, which is greater than that for a functional baseline. The allocated baseline shall be supplemented by specifications, drawings, and related data as necessary to specify: (1) the essential CI functional characteristics, as allocated from higher-level CI; (2) external and internal interface requirements for each CI; (3) physical characteristics necessary to ensure compatibility with associated systems and CI's; and (4) constraints on the design of a CI, including Government Furnished Equipment (GFE) employed, envelope dimensions, component standardization, and ILS requirements. The allocated baseline will be established upon successful completion of the overall system CDR with all associated documentation. Government approval shall be required prior to making changes to the allocated baseline.

3.17.4.3 Functional Baseline. The contractor shall utilize EPLS Performance Specification criteria when developing the functional baseline. The contractor's functional baseline shall describe EPLS functional interoperability and interface characteristics and the verification required to demonstrate the achievement of those specified characteristics. The functional baseline shall be established after the System Functional Review (SFR).

3.17.5 Configuration Control. The contractor shall implement configuration control methods and procedures, which maintain the integrity and traceability of an established baseline. Changes to established baselines shall only be made after Government approval of ECP and Request for Deviation (RFD). Sufficient supporting data to evaluate the proposed change, such as drawings, supplemental drawings, sketches, specifications, or manufacturer's data sheets, shall be submitted with ECP's and RFD's. Changes shall be identified to the affected assembly serial number, or if not part of an assembly, to the affected equipment serial number. The contractor's configuration control process shall be available for Government review. The contractor shall submit all configuration control documentation in a digital format specified by the Government. The contractor shall submit ECP's, RFD's, or Notice of Revisions (NOR's) utilizing Multi-User Engineering Change Proposal Review System (MEARS) software and MEARS website.

3.17.5.1 Engineering Change Proposals. Engineering Change Proposals (ECP) shall be submitted by the contractor for hardware and/or software, and shall be limited to those that are necessary or offer significant benefit to the Government. MIL-HDBK-61 provides guidance concerning the classification of ECP's. Class I ECP's shall be submitted when changes are required to: (a) Correct deficiencies; (b) Add or modify interface or interoperability requirements; (c) Make a significant and measurable effectiveness change in the operational capabilities or logistics supportability of the system; (d) Effect substantial life cycle costs/savings; and (e) Prevent slippage in an approved production schedule. Class II ECP's shall be submitted by the contractor to the Acquisition Contracting Officer (ACO) for approval for those engineering changes, which impacts none of the factors listed above. As a minimum, Class I ECP's shall contain the following information: (a) Date prepared; (b) Originator; (c) ECP Classification; (d) ECP Number; (e) Reason/need for change; (f) System designation (nomenclature, model, P/N); (g) Name of part (or lowest assembly) affected to include part numbers; (h) Baselines affected (to include drawings, specifications, CAGE, revision level, etc.); (i) Title of change; (j) Description of change; (k) Effect on interfaces (Interchangeability and Interoperability); (l) Total costs/savings w/ breakout; (m) Retrofit information; (n) Ozone Depleting Substances; (o) Impact on any engineering disciplines (such as quality, environmental, safety, health, reliability, maintainability, etc.); (p) Justification for change; (q) Priority of change; (r) Impacts to any logistics support elements (such as software, manuals, spares, tools, etc.) being utilized by Government personnel in support of the product; and (s) Alternatives evaluated or considered.

(H004) DI-CMAN-80639C, Engineering Change Proposal (ECP)

3.17.5.2 Requests for Deviation. The contractor shall process Requests for Deviation (RFD) from current approved configuration documentation. Authorized deviations are a temporary departure from the requirements and do not constitute a change in an approved baseline. Submission of recurring deviations is discouraged and shall be minimized. Where it is determined that a change should be permanent, the contractor shall process an Engineering Change Proposal. MIL-HDBK-61 provides guidance concerning the classification of RFDs. As a minimum, the RFD shall contain the following information: (a) Date prepared; (b) Originator; (c) RFD Classification (critical, major or minor); (d) Designation for deviation (model/type, CAGE code, system designation, and deviation number); (e) Class of deviation; (f) Part Number affected; (g) Cost/Price data; (h) Effectivity; (i) Description of deviation; (j) Need for deviation; (k) Effect on delivery schedule; (l) Recommended corrective action; (m) Alternatives evaluated and (n) Impact on any engineering disciplines (such as quality, environmental, safety, health, reliability, maintainability, etc.).

(H005) DI-CMAN-80640C, Request for Deviation

3.17.5.3 Notices of Revision. The contractor shall generate and submit Notices of Revision (NOR) concurrently with ECPs when technical documentation controlled by another contractor or Government agency requires changes following approval of an ECP. As a minimum, the NOR shall contain the following information: (a) Date; (b) CAGE code; (c) NOR number; (d) Document number; (e) Title of document; (f) Revision letter (current and new), related ECP number; (g) Configuration item (or system) to which ECP applies; and (h) Description of revision.

(H006) DI-CMAN-80642C, Notice of Revision (NOR)

3.17.6 Engineering Drawings.

3.17.6.1 Commercial Drawings/Models. The contractor shall provide all available and allowable commercial drawings/models to the Government for commercial item(s) approved for use in the design and not covered by Government or nationally recognized industry association specifications and standards. The contractor shall provide evidence that the part complies with the requirements of the applicable part documentation. Existing test data (such as supplier originated objective evidence of compliance or Government/Industry Data Exchange Program (GIDEP) reports) shall be used to the maximum extent practicable.

(J001) DI-SESS-81003C, Commercial Drawings/Models and Associated Lists

3.17.6.2 Product Drawings/Models. The contractor shall develop a complete product drawing/models package and provide it to the Government. This process may require the revision and update of existing drawings, and/or development of new drawings to meet the requirements of product drawings/models and associated lists. Revised and newly created drawings shall be developed to document any design change and shall reflect all changes resulting from Government approved ECPs. Existing, revised, and new product drawings/models and associated lists shall be used as the engineering data for procuring, controlling, and using materials, parts, and assemblies whether produced in-house or supplied by the vendor. The drawings/models shall be used for the manufacture, assembly, provisioning, inspection, testing, and configuration management of the materials, parts, modules, subassemblies, and assemblies of the equipment covered under this contract. The drawings/models and associated lists shall not carry any proprietary markings and provide the necessary design, engineering, manufacturing, and quality assurance requirements information necessary to enable the procurement or manufacture of an interchangeable item duplicating the physical and performance characteristics of the original product, without additional design engineering effort or recourse to the original design activity. The product drawings shall also include control drawings for all commercial off the shelf (COTS) items that do not conform to recognized Government or industry specifications, non-developmental items (NDI) and items developed at private expense for which the Government had not acquired unlimited rights. These control drawings shall provide the applicable performance specification of form, fit, and function and provide interface information needed for competitive re-procurement of that item or and interchangeable item. New product drawings/models shall conform to ASME Y14.100 and ASME Y14.34.

(J002) DI-SESS-81000C, Product Drawings/Models and Associated Lists

3.18 Unique Identification. The contractor shall implement specific Unique Identification (UID) marking, as defined in MIL-STD-130. The two-dimensional UID marking shall be incorporated into existing data plates, shall be machine-readable with common optical scanning devices and be accompanied by the corresponding human readable markings when practical. EPLS Modification Kit shall be marked with the UID/data plate in a position that allows scanning in an installed position.

All spare parts, secondary repairables and consumables that exceed $5,000 when purchased separately will also be marked with the UID prior to delivery to the Government.

3.18.1 UID Bar Code Identification Report. The contractor shall provide a Bar Code Identification Report for UID embedded components.

(J003) DI-MGMT-80177B, Bar Code Identification Report

3.19 Production Acceptance Test. The contractor shall develop and implement Production Acceptance Test (PAT) procedures to demonstrate the adequacy and suitability of the contractor's production processes and procedures for achieving the performance inherent in the design. The results of the test shall demonstrate the system meets all requirements identified in the EPLS Performance Specification. The contractor shall conduct testing, which will ensure that the manufacturing processes, equipment, and procedures are effective. These tests shall be conducted on a number of samples taken at random from the first production lot, and will be repeated if the manufacturing process or design change significantly, or when a second source is brought on line. The contractor shall notify the Government at least 15 days in advance of the time and place of any PAT. The Government reserves the right to observe all PAT.

(K001) DI-NDTI-80603, Test Procedure (PAT)

(K002) DI-NDTI-80809B, Test/Inspection Report (PAT)

3.20 Software.

Software shall consist of two separate products: One for processing by the On-Board Computer (On-Board Service Client, (OBSC))and one for processing by a computer/server off-platform (Off-Board Service Application (OBSA)). Both products shall be designed to run independently and shall interface with each other as specified in the EPLS Performance Specification.

3.20.1 Software Development. The contractor shall develop a Software Development Plan (SDP) utilizing IEEE/EIA 12207 for both on-platform and off-platform (end user application) products that shall define the software development processes and methods. The contractor shall utilize existing COTS and Non-Developmental Item (NDI) software and hardware products to the maximum extent possible in the development, design, integration, production and installation of EPLS. Upon Government approval, the SDP shall be used as the software development process guide.

(A001/B001) DI-IPSC-81427A, Software Development Plan (SDP)

3.20.1.1 New Software. Any newly developed software including modification of pre-existing software programs shall be developed by the contractor in accordance with open systems best practices for portability, interoperability, reconfigurability, software standards, interface standards, technology insertion, vendor independence, reusability, and scalability.

3.20.1.2 COTS/NDI

The developer shall research the availability of COTS and/or NDI software and investigate the suitability of these to augment the system software. No COTS or NDI software shall be used that requires more than 20% modification in terms of changes or additions unless an independent analysis shows that this can be done with no cost or schedule impact. Before either COTS or NDI is selected for use a thorough analysis shall determine that it is relevant to its intended application in the product/system. The Government will review and approve all such analysis of COTS/NDI before its use.

3.20.1.3 Firmware

Operational software shall include both software and firmware. Firmware is defined as the combination of hardware device(s) and code, which is needed for system performance. Once installed in the hardware, firmware cannot be readily modified. Firmware, if and where it is required to be supplied by the contractor, shall be developed, tested, installed, managed, and maintained in the same manner as other software as specified herein.

3.20.1.4 Software Allocation. . The contractor shall categorize all software as either on-platform or end user (off-platform) application software and either on-platform or end user support software categories. Each category shall comprise a Computer Software Configuration Item (CSCI) and may further be subdivided into CSCIs. The contractor shall implement an electronic system of software development folders for centrally collecting all design and test information for each software module developed.

3.20.1.5 Software Reviews. The contractor shall conduct, for all application and support CSCIs, a Software Specification Review, a System Design Review, Software Preliminary Design Review, Software Critical Design Review, and a Software Test Readiness Review.

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.20.1.6 Software Testing Program. The contractor shall establish, implement, and conduct a Software Testing Program, including Computer Software Component (CSC) integration testing and Component Software Unit (CSU) testing in accordance with software testing practices outlined in IEEE/EIA 12207.

3.20.1.7 Source Code and Executable Software. The contractor shall deliver by electronic medium, a valid copy of the tested and accepted software items and applicable software source code and associated executable software developed in support of EPLS.

(A004/B004) DI-IPSC-81441A, Software Product Specification (SPS)

3.20.1.7.1 Executable files - The developer shall provide executable files for the CSCI together with any batch files, command files, or other information files needed to install and operate the software on its target computer(s). The developer shall certify the executable files by comparing to the original, as-built executable files.

3.20.1.7.2 Source files - The developer shall provide the source files for the CSCI together with any batch files, command files, or other software files needed to regenerate the executable files for the CSCI. In order for a body of software to be considered a valid copy of the CSCI's source files, it must be shown to match the as-built source files exactly.

3.20.1.7.3 "As built" software design - Upon delivery of the software product, the contractor shall update all design documents to reflect the as-built software. Specifically, the SDD, IDD, and DBDD shall be revised. Other design documentation produced during the development effort shall be updated as required to meet the intent of this section.

3.20.1.7.4 Compilation/build procedures - The contractor shall compile and build all object code for test, delivery, and installation. The Government shall approve the use of any standard, directive, or instruction pertaining to compilation and build procedures prior to its use.

3.20.1.7.5 Modification procedures - Changes shall be made to the delivered and installed software only after approval by the Government. Unless otherwise required, all modifications to software (whether delivered or under development) shall be done in accordance with the requirements of the previous software development sections on Compilation/Build Procedures. Additionally, no changes shall be made except under the procedures of and in accordance with the project's Configuration Management Plan.

3.20.1.8 Support Software

The vendor shall provide all support software. As a minimum, this shall include support for the following:

a) Compiler and ancillary compiler software (compile, build/make, debug,).
b) Module testing.
c) Configuration monitor (version control).

3.20.2 Software Transition Plan. The contractor shall provide a Software Transition Plan (STrP) to include a listing of all Software Support Environment Tools (SSET) used to develop both on-platform and off-platform software/firmware for EPLS. Prior to all testing, the contractor shall deliver one set of all SSET including source code and executable software developed under this contract and licenses for Government use.

(A002/B002) DI-IPSC-81429A, Software Transition Plan (STrP)

3.20.3 Software Design Description. The contractor shall provide a Software Design Description (SDD) for both on-platform and off-platform products. Each SDD shall describe the design of a CSCI, CSCI-wide design decisions, the CSCI architectural design, and the detailed design needed to implement both on-platform and off-platform software.

(A003/B003) DI-IPSC-81435A, Software Design Description (SDD)

3.20.4 Software Product Specification. The contractor shall provide a Software Product Specification (SPS) for both on-platform and off-platform products. The executable software, source files, and software support information, including "as built" design information and compilation, build, and modification procedures shall be provided with each SPS.

(A004/B004) DI-IPSC-81441A, Software Product Specification (SPS)

3.20.5 Software Version Description. The contractor shall provide a Software Version Description (SVD) for both on-platform and off-platform products. Each SVD shall identify and describe a software version consisting of one or more CSCIs and shall be used to release, track, and control software versions.

(A005/B005) DI-IPSC-81442A, Software Version Description (SVD)

3.20.6 Software User Manual. The contractor shall provide Software User Manuals (SUM) for both on-platform and off-platform products. Each SUM shall describe to a hands-on software user how to install and use a CSCI, a group of related CSCIs, or software systems or subsystems. It may also cover a particular aspect of software operation, such as instructions for a particular position or task.

(A006/B012) DI-IPSC-81443A, Software User Manual (SUM)

3.20.7 Firmware Support Manual. The contractor shall provide a Firmware Support Manual (FSM) for on-platform products. Each FSM shall provide the information needed to program and reprogram the firmware devices of a system and shall apply to Read Only Memories (ROMs), Programmable ROMs (PROMs), Erasable PROMs (EPROMs), and other firmware devices.

(A007) DI-IPSC-81448A, Firmware Support Manual (FSM)

3.20.8 Software Installation Plan. The contractor shall provide Software Installation Plans (SIP) for both on-platform and off-platform products. Each SIP shall

detail the plan for installing software at user sites, including preparations, user training, and conversion from existing systems.

(A008/B006) DI-IPSC-81428A, Software Installation Plan (SIP)

3.20.9 Operational Concept Description. The contractor shall provide Operational Concept Descriptions (OCD) for both on-platform and off-platform products. Each OCD shall describe a proposed system in terms of the user needs it will fulfill, its relationship to existing systems or procedures, and the ways it will be used.

(A009/B007) DI-IPSC-81430A, Operational Concept Description (OCD)

3.20.10 System/Subsystem Design Description. The contractor shall provide a System/Subsystem Design Description (SSDD) for both on-platform and off-platform products. Each SSDD shall describe the system- or subsystem-wide design and the architectural design of a system or design of a system or subsystem.

(A010/B008) DI-IPSC-81432A, System/Subsystem Design Description (SSDD)

3.20.11 Interface Requirements Specification. The contractor shall provide an Interface Requirements Specification (IRS) for both on-platform and off-platform products. Each IRS shall specify the requirements imposed on one or more systems, subsystems, Hardware Configuration Items (HWCIs), CSCIs, manual operations, or other system components to achieve one or more interfaces among these entities.

(A011/B009) DI-IPSC-81434A, Interface Requirements Specification (IRS)

3.20.12 Interface Design Description. The contractor shall provide an Interface Design Description (IDD) for both on-platform and off-platform products. Each IDD shall describe the interface characteristics of one or more systems, subsystems, HWCIs, CSCIs, manual operations, or other system components.

(A012/B010) DI-IPSC-81436A, Interface Design Description (IDD))

3.20.13 Database Design Description. The contractor shall provide a Database Design Description (DBDD) for both on-board and off-board products. Each DBDD shall describe the design of a database, that is, a collection of related data stored in one or more computerized files in a manner that can be accessed by users or computer programs via a database management system (DBMS). It shall also describe the software units used to access or manipulate the data, as applicable.

(A013/B011) DI-IPSC-81437A, Database Design Description (DBDD)

3.21 Integrated Logistic Support. The contractor shall plan and conduct an Integrated Logistics Support (ILS) program, which shall govern the management of the ILS effort. The ILS effort shall be conducted as an integral part of the development and integration process to define the range and depth of the required support, and address all applicable and related elements of logistics.

3.21.1 ILS Management Team/Integrated Product Team. A joint Government/contractor ILS Management Team/Integrated Product Team (ILSMT/IPT) shall be established to monitor the status of the ILS program implementation. The ILSMT/IPT shall provide a means for coordinating logistic matters, schedules, and SOW performance, ensuring adequacy and timeliness of Government inputs and action, and assisting the Government ILS manager in discharging their responsibilities. The Government will appoint the chairperson of the ILSMT/IPT. Sub-teams or committees may be established as necessary to monitor such program elements as tests or demonstrations.

3.21.2 ILSMT/IPT Meetings. On the average of once every other month, the joint ILSMT/IPT shall meet to review ILS program progress. The meetings shall be held at times and places mutually agreed to by the Government and contractor. As a minimum, the agenda shall provide for status reporting, analysis of problem areas, evaluation of schedules and proposed changes to the ILS program. Each open agenda item shall have a completion date and the action officer responsible shall provide the status at subsequent meetings. ILSMT/IPT meetings shall normally be conducted in conjunction with IPR's.

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.21.3 Integrated Logistics Support Process. The contractor shall have a documented ILS process that identifies how the ILS elements will be used to meet the logistics support requirements for EPLS. The ILS process shall also assign responsibilities and establish milestones for executing the ILS program. The contractor shall describe the process, involving both the Government and the contractor, which shall be employed in planning, developing, and acquiring the logistics resources for test support and operational support at all specified maintenance levels. The ILS process shall ensure EPLS, when fielded, will satisfy all supportability criteria. The contractor shall review and update the Integrated Logistics Support Plan (ILSP) to reflect changes emanating from program changes, reviews and other actions affecting the logistics aspects of the program. The contractor's program/process shall be available for Government review, upon request.

(G001) DI-MGMT-80227, Contractor's Progress, Status and Management Report

3.22 Maintenance Planning. The contractor shall conduct maintenance planning to define optimal maintenance activities based on a level of repair analysis, which fully support EPLS maintenance concept. Design influence for maintenance planning shall be affected. The maintenance concept for EPLS is defined below.

3.22.1 Organizational Maintenance. Organizational maintenance shall consist of simple tasks performed by the user and simple repairs performed by organizational maintenance technicians. No special purpose tools or test equipment shall be required at the organizational maintenance level. Organizational maintenance shall consist of the following:

a. Preventive maintenance includes visual inspection, testing, cleaning, tightening, and other minor adjustments, making external adjustments on equipment and performing operational checks using authorized tools, manuals and test equipment. Examples would include changing oil in a motor vehicle, checking tire inflation, and checking critical fluid levels.

b. Corrective maintenance includes the performance of minor cable and cable connector repair, isolating the cause of equipment malfunction to the defective Line Replaceable Unit (LRU) by the use of Built-in Test (BIT), removing and replacing LRUs, and returning equipment to full operational capability with minimum downtime.

3.22.2 Intermediate Maintenance. Intermediate maintenance shall consist of repair tasks performed by trained technicians. Repairs authorized are the continued fault isolation of the LRU/circuit card using standard tools and test equipment, identification and replacement of defective components, alignment (if required), calibration (if required), and the return of the equipment to full operation with minimal downtime. Defective LRUs/circuit cards may be repaired at the intermediate level however, they shall be considered for depot level corrective maintenance. Those items already in the DoD inventory shall follow their established intermediate level maintenance procedures.

3.22.3 Depot Maintenance. Depot maintenance shall consist of complete repair, major overhaul, or complete rebuild of the parts, assemblies, subassemblies, and end items, including the manufacture of parts, piece part repair, modification, and testing that is beyond the capability of the intermediate level of maintenance. Depot level maintenance shall be performed by the production contractor/Government for those items unique to EPLS and by the appropriate depot for those items already in the DoD inventory.

3.23 Supply Support.

3.23.1 Conferences.

(G002) DI-ADMN-81249A, Conference Agenda

(G003) DI-ADMN-81250A, Conference Minutes

3.23.1.1 Provisioning Guidance Conference. The contractor shall host the Provisioning Guidance Conference (PGC) and furnish provisioning data as one product of the PGC at mutually agreed upon intervals prior to the provisioning conference(s). The Government will clarify any provisioning issues during the evolution of the data cleansing process.

3.23.1.2 Provisioning Conference. The contractor shall host a Provisioning Conference(s) at the contractor's facility. The contractor shall provide and disassemble production grade equipment, as deemed necessary by the Government, during this conference to validate and verify all provisioning documentation.

3.23.2 Provisioning Plan. The contractor shall establish, manage, and execute a Logistics Management Information (LMI) program in accordance with MIL-PRF-49506. MIL-HDBK-502 may be used for additional guidance. The LMI program shall be the basis for the integration of the logistics support element, and provide the interface between the engineering and integrated logistics effort used in the systems engineering effort. The objectives of the LMI program are to provide optimum material readiness, economical logistics support, and identify/evaluate resources required to develop and manage an effective support system. All design, modification/alteration, and engineering activities shall require LMI. Provisioning status, identification of problem area(s), and necessary resolutions to problems addressed shall be discussed at each ILSMT/IPT.

(N001) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (Provisioning Plan)

3.23.3 Provisioning and Other Preprocurement Screening Data.

a. The contractor shall identify provisioning and other preprocurement screening data to be submitted for Government screening. Provisioning and other preprocurement screening data is used to identify existing National Stock Numbers (NSNs) for an item, validate currency of an NSN, and aid in maximum use of known assets.
b. Screening data shall be prepared in accordance with MIL-PRF-49506.

c.

1) Use a fixed length record format as indicated below:

CARD COLUMN (CC)	DATA ELEMENT	REMARKS
1-3	Document Identifier Code	Enter "LSR"
4-6	Package Sequencer Number	Enter "Z01" or if two P/Ns Use "A01" and "Z02"
7	Priority Indicator Code	Use "4"
8-9	Activity Code Use "PA"	
10-26	Submitter's Control Number (See Below) cc 10-13: Cataloger Team/Desk cc 14-16: Provisioning Control Code cc 17-23: PLISN IAW MIL-PRD-49506 (Field shall be right justified)	
24-26	Leave blank	
27-31	Destination Code	Contractor's CAGE code
32	Type of Screening Code	Use "F"
33-36	Output Data Request Code	Use "9911"
37	Statistical Indicator Code	Use "A"
38	Single/Multiple Output Code	Use "1"
39	Blank	
40	DIDs Segment Code	Use "2"
41	Reference Number Category Code	Leave Blank
42	Reference Number Variation Code	Leave Blank
43	Commercial or NATO Supply Code for Manufacturing (CAGE) or NATO Supply Code for Manufacturer (NSCM)	Use Commercial and Government Entity Code
48-79	Reference Number	Enter Reference Number
80	Continuation Indicator Code	Use "1"

2) Submit Provisioning Screening transactions to Defense Logistics Services Center (DLSC) in the above format via one of the following ways: MADS (electronic transmission) or on CD-ROM. All CD-ROMs for Provisioning Screening (P/S) shall be processed at the following address:

DEFENSE MEGACENTER COLUMBUS
ATTN: Tape Librarian/Bldg 23/FLIS-PROVISIONING
3990 E. Broad Street
COLUMBUS, OH 43216-5000

(N002) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (POPS)

3.23.4 Provisioning Technical Documentation. The contractor shall develop/document Provisioning Technical Documentation to include, a Provisioning Parts List (PPL), Tools and Test Equipment List (TTEL), Common and Bulk Items List (CBIL), and any Design Change Notices (DCN). These lists shall contain the Data Products selection list. The Government at the Provisioning Guidance Conference (PGC) shall designate the format and medium of delivery. The frequency for submission of such lists shall also be designated at the PGC.

(N003) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (PTD)

3.23.4.1 Provisioning Parts List. The Provisioning Parts List (PPL) shall contain the end item, component or assembly and all support items which can be disassembled, reassembled, or replaced, and which, when combined, constitute the end item, component or assembly and shall include items such as parts, materials, connecting cabling, piping, and fittings required for the operation and maintenance of the end item, component, or assembly. The PPL is a tool used to determine the range of support items required to maintain the end item for an initial period of service. This includes all repairable COTS items unless excluded by the provisioning requirements. It does not include a breakdown of Government furnished equipment. The PPL shall include items such as parts, materials, connecting cabling, piping, and fittings required for the operation and maintenance of the end item/equipment. The PPL shall contain repair kits and repair parts sets required to maintain the end item, component, or assembly equipment unless excluded by the provisioning requirements or meeting the requirement for CBIL inclusion.

(N004) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (PPL)

3.23.4.2 Tools and Test Equipment List. The contractor shall provide a Tools and Test Equipment List (TTEL) that shall contain those support items required to inspect, test, calibrate, service, repair, or overhaul an end item.

(N005) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (TTEL)

3.23.4.3 Common and Bulk Items List. The Common and Bulk Items List (CBIL) contains those items that are difficult or impractical to list on a top down/disassembly sequence PPL, but for which provisioning may be required to support the operation of the end item/equipment. These items are subject to wear or failure, or otherwise required for maintenance, including planned maintenance of the end item/equipment. The contractor shall indicate the material type, grade, class, etc. The contractor shall submit sufficient information to enable the Government to relate the material/specification number to the pertinent item.

(N006) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (CBIL)

3.23.4.4 Design Change Notice. The contractor shall use a Design Change Notice (DCN) to identify changes to Provisioning Technical Documentation, which adds to, deletes, supersedes, or modifies previously listed items that are approved for incorporation into the end item.

(N007) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (DCN)

3.23.5 Engineering Data For Provisioning Engineering Data For Provisioning (EDFP) is technical data used to describe parts/equipment and consists of data such as specifications, standards, drawings, photographs, sketches and descriptions, and necessary assembly and general arrangement drawings, schematic drawings, schematic diagrams, wiring and cable diagrams necessary to indicate the physical characteristics, location, and/or function of the item. At a minimum, EDFP must provide:

a. Technical information of items for maintenance support considerations
b. Item identification/descriptions necessary for;
   1) Cataloging actions and assignment of a National Stock Number
   2) Review for item entry control
   3) Standardization to include standardization/interchangeability
   4) Item management coding
   5) Identification/procurement of initial spares
   6) Preparation of allowance/issue lists

The contractor shall furnish EDFP in the following order of precedence:

a. Government or industry recognized specifications or standards
b. Engineering drawings
c. Commercial catalogs or catalog descriptions
d. Sketches or photographs with brief descriptions of dimensional, material, mechanical, electrical, or other descriptive characteristics

EDFP shall be submitted in hard copy. EDFP shall be marked in such a manner as to identify the proprietary rights (limited or unlimited). EDFP shall also be marked with the Provisioning Line Item Sequence Number (PLISN) in the upper right hand corner. EDFP shall NOT be provided when the item is:

a. Identified as a Government specification or standard which completely describes the item including its dimensional, mechanical, and electrical characteristics
b. Previously cataloged/assigned an active National Stock Number with type 1 item identification

(N008) DI-ALSS-81529, Logistics Management Information (LMI) Data Product (EDFP)

3.23.6 Request for Nomenclature. The contractor shall submit a Request for Nomenclature in accordance with MIL-STD-196 for EPLS. This requirement is mandatory for use in type designation of communications and electronic materiel.

(N009) DI-CMAN-81254A, Request for Nomenclature

3.24 Power.

3.24.1 Lithium Batteries.

Lithium batteries shall be certified and approved for use by the Naval Ordnance Safety and Security Activity (NOSSA) before testing and fielding of EPLS in accordance with MARCORSYSCOM Acquisition Policy Letter No. 3-04.

3.24.1.1 Lithium Battery Safety Qualification. The contractor shall develop a safety data package that shall document and demonstrate the stability of design and validity of the lithium battery selection IAW NAVSEAINST 9310.1B and TM S9310-AQ-SAF-010. The contractor shall provide data from contractor testing of the complete system/item.

(N010) DI-MISC-80508B, Technical Report/ Study Services (LB)

3.24.1.2 Lithium Battery Test Articles. The contractor shall provide five batteries within 30 days after Government notification. The contractor shall include battery safety test results in its System Safety Program Plan and Safety Assessment Report.

3.24.1.3 Lithium Battery Safety Assessment. The contractor shall document all contractor and Government lithium battery safety assessment efforts in the Safety Assessment Report (SAR). The SAR shall include the lithium battery risk assessment, recommendations, procedures and other corrective actions to reduce hazards to an acceptable level.

(M001) DI-SAFT-80102B, Safety Assessment Report (SAR)

3.25 Technical Publications.

3.25.1 System Interactive Electronic Technical Manuals. The contractor shall develop an EPLS System Interactive Electronic Technical Manual, which shall include all information required for the installation, operation and maintenance of EPLS. The manuals shall reference the commercial and military manuals associated with the specific equipment comprising EPLS.

(L001) TMCR NDMS-070025-000 Technical Manual Contract Requirement (SIETM)

3.25.2 Commercial Manuals. The contractor shall provide COTS manual(s) for EPLS, to include supplemental data as necessary. The manual(s) shall contain installation, operation, troubleshooting, and maintenance instructions. The manual(s) shall

include a complete repair parts lists (including exploded views of all assemblies and subassemblies) and special tools lists.

(L002) DI-TMSS-80527B, Commercial Off-the-Shelf (COTS) Manual and Associated Supplemental Data

3.25.3 Copyright Release. The contractor shall identify copyrighted material, if any, and shall obtain the written approval of the copyright owner. The contractor shall furnish appropriate copyright release giving the Government permission to reproduce and use copyrighted information. When the contractor uses a manual, which covers a vendor's component(s) or a portion thereof, and the vendor's manual contains copyrighted material, the contractor shall be responsible for obtaining a copyright release from the vendor and providing the copyright release to the Government.

3.25.4 Change Pages/Modification Instructions. The contractor shall provide change pages/modification instructions to the manuals of the host platform and EPLS as a result of approved changes to the baseline system. The Government requires notification of all changes and revisions to the manuals for the duration of this contract. Notice of new models/equipment, when they are available, is also required for Government information. The contractor shall develop change pages/modification instructions in accordance with Technical Manual Contract Requirements.

(L003) TMCR NDMS-070033-000 Technical Manual Contract Requirements (CP)

3.26 Support Equipment. The contractor shall provide a listing of support equipment, which is defined as tools, test equipment, automatic test equipment, and BIT/BITE. Items currently in the Marine Corps inventory to the maximum extent practical shall satisfy the requirement for support equipment. Listings of support equipment resident in the Marine Corps inventory are available from the Government upon the contractor's written request. If the contractor has determined that support equipment is not required, then an explanation is required on how and for how long the system is going to be maintained.

3.26.1 General Purpose Support Equipment. The contractor shall provide a listing of General Purpose Support Equipment (GPSE), which is defined as tools and test equipment currently in the Marine Corps inventory. Listings of GPSE resident in the Marine Corps inventory are available from the Government upon the contractor's written request.

(M002) DI-ILSS-80294A, Maintenance, Test and Support Equipment Requirements List (GPSE)

3.26.2 Built-In Test/Built-In Test Equipment. The contractor shall provide a listing of BIT/BITE within the system. A calibration and measurements requirements summary (CMRS) shall be provided for each BIT/BITE. BIT is a test approach using BITE or self-test hardware and software that are internally designed into the supported system, subsystem, or equipment to test all or a part of that system, subsystem, or equipment. BITE is any device that is part of a system, subsystem, or equipment and is used for the express purpose of testing the system, subsystem or equipment. BITE is an identifiable unit of the system, subsystem or equipment.

(M003) DI-QCIC-80278A, Calibration and Measurement Requirements Summary (CMRS) (BIT/BITE)

3.27 Packaging, Handling, Storage and Transportation. The contractor shall be responsible for preservation and packaging of the deliverables under the terms of this statement of work. Packaging data shall be developed in accordance with MIL-STD-2073-1 and all appendices for the End Item and all repairable components assigned Source, Maintenance, and Recoverability (SMR) Codes PA, PB, PC, PD, PE and PG. Items excluded from data development shall be those items with Contractor and Government Entity Code (CAGEC) of 1T416, 21450, 83024, 96906, 10060, 24617, 80205, 99237, 80244, 81343, 81346, 81348, 81349, 81352, and 88044.

a. Preservation and Packaging. Items scheduled for domestic shipment for immediate use shall be Preserved and Packaged (P&P'd) in accordance with the best commercial practices of ASTM D3951. Items scheduled for overseas shipment for immediate use shall be P&P'd in accordance with the best commercial practices of ASTM D3951, Export Requirements. Items scheduled for long-term storage, as identified by the Program Manager, shall be P&P'd in accordance with the level "A" requirements of MIL-STD-2073-1. Spare or repairable components, not declared to be ESD shall be P&P'd in accordance with the best commercial practices of ASTM D3951. Items declared to be ESD shall be P&P'd in accordance with the Level "A" requirements of MIL-STD-2073-1, Appendix J, Table J.Ia., Specialized Preservation Code "GX" and shall be packed into a reusable fast-pack container. Hazardous materials (HAZMAT) shall be P&P'd in accordance with the requirements of Federal Regulation 49CFR and the FED-STD-313.

b. Classification and Data Development. The contractor shall classify the selected items as common, selective, or special in accordance with MIL-STD-2073-1, Appendix A, paragraph A.5.1, and shall develop data as required by MIL-STD-2073-1, Appendix E, paragraph E.4. The contractor shall provide logistics information sufficient for the Government to determine the adequacy of the data submitted.

c. Validation. The contractor shall validate preservation processing and packaging for selective and special group items in accordance with MIL-STD-2073-1, Appendix F, and ASTM D4169-01e1, Assurance Level II, Acceptance Criteria 1, Distribution Cycle 18. Exceptions to validation requirements shall be as delineated in MIL-STD-2073-1, paragraph 5.6. The contractor shall report fully all steps taken during the validation process in accordance with ASTM D4169-01e1, Section 16.

d. Development of Marking Requirements. Marking shall be in accordance with MIL-STD-129 and the Communications Security Material System Policy and Procedures Manual, CMS-1A/21A.

APPENDIX A: ACRONYMS

AAV	Amphibian Assault Vehicle
ASME	American Society of Mechanical Engineers
ATE	Automatic Test Equipment
BIT	Built-in test
BIT/BITE	Built-in test/built-in test equipment
C2	Command and Control
CAGEC	Contractor and Government Entity Code
CBIL	Common and Bulk Items List
CBT	Computer Based Training
CCB	Configuration Control Board
CDR	Critical Design Review
CIs	Configuration items
CLS	Contractor Logistics Support
CM	configuration management
CMRS	calibration and measurements requirements summary
COTS	Commercial Off-The-Shelf
CPCP	Corrosion Prevention and Control Plan
CSA	Configuration Status Accounting
CSC	Computer Software Component
CSCI	Computer Software Configuration Item
CSU	Component Software Unit
DBDD	Database Design Description
DCN	Design Change Notice
DII COE	Defense Information Infrastructure Common Operating Environment
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
ECP	Engineering Change Proposal
EDFP	Engineering Data For Provisioning
EMI	Electromagnetic Interference
EMITP	Electromagnetic Interference Test Procedures
EMITR	Electromagnetic Interference Test Report
EPLS	Embedded Platform Logistics
EPROMs	Erasable PROMs
ERR	Engineering Release Record
ESD	Electrostatic Sensitive Devices
ESDS	Electrostatic Discharge-Sensitive
ESH	Environment, Safety and Health
ESOH	Environment, Safety and Occupational Health

FAT	First Article Test
FCA	Functional Configuration Audit
FS	Formal School
FSM	Firmware Support Manual
FUT&E	Field Users Test and Evaluation
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GIDEP	Government/Industry Data Exchange Program
GPSE	General Purpose Support Equipment
HAZMAT	Hazardous materials
HERF	Hazards of Electromagnetic Radiation to Fuels
HERO	Hazards of Electromagnetic Radiation to Ordnance
HERP	Hazards of Electromagnetic Radiation to Personnel
HHA	Health Hazard Assessment
HMMP	Hazardous Materials Management Program
HSI	Human Systems Integration
HWCIs	Hardware Configuration Items
I&KP	Instructor and Key Personnel
I&RTS	Integration and Run-Time Specification
IAW	in accordance with
ICWG	Interface Control Working Group
IDD	Interface Design Description
IETMs	Interactive Electronic Technical Manuals
ILS	Integrated Logistics Support
ILSMT/IPT	ILS Management Team/Integrated Product Team
IPR	In Process Reviews
IRS	Interface Requirements Specification
ISO	International Organization for Standardization
IT	Information Technology
ITS	Individual Training Standards
LAV	Light Armored Vehicle
LLTIL	Long Lead Time Items List
LLTIL	Long Lead Time Items List
LMI	Logistics Management Information
LRU	Line Replaceable Unit
MCOTEA	Marine Corps Operational Test and Evaluation Activity
MEARS	Multi-User Engineering Change Proposal Review System
MTVR	Medium Tactical Vehicle Replacement
NAS	National Aerospace Standard
NBC	Nuclear, Biological, and Chemical
NDI	non-developmental items
NDI	Non-Developmental Item
NEPA	National Environmental Policy Act
NET	New Equipment Training
NOR	Notice of Revision
NSNs	National Stock Numbers

NTIA	National Telecommunication and Information Administration
O&SHA	Operating and Support Hazard Analysis
OCD	Operational Concept Description
P&P'd	Preserved and Packaged
PAC	Post Award Conference
PAT	Production Acceptance Test
PCA	Physical Configuration Audit
PDR	Preliminary Design Review
PGC	Provisioning Guidance Conference
PM	Program Manager
PMCS	Preventive Maintenance Checks and Services
PPL	Provisioning Parts List
PROMs	Programmable ROMs
R&M	Reliability and Maintainability
RFD	Request for Deviation
ROMs	Read Only Memories
SAE	Society of Automotive Engineers
SAR	Safety Assessment Report
SAT	Systems Approach to Training
SCOM	Software Center Operator Manual
SD	Supportability Demonstration
SDD	Software Design Description
SFR	System Functional Review
SHA	System Hazard Analysis
SIOM	Software Input/Output Manual
SIP	Software Installation Plan
SMR	Source, Maintenance and Recoverability
SOW	Statement of Work
SPS	Software Product Specification
SRR	System Requirements Review
SSDD	System/Subsystem Design Description
SSET	Software Support Environment Tools
SSHA	System Safety Hazard Analysis
SSP	System Support Package
SSWG	System Safety Working Group
STD	Software Test Description
STP	Software Test Plan
STR	Software Test Report
STrP	Software Transition Plan
SUM	Software User Manual
SVD	Software Version Description
TBD	To be determined
TMCR	Technical Manual Contract Requirement
TMI	Technical Modification Instruction
TRR	Test Readiness Review
TTEL	Tools and Test Equipment List

TTEL	Tools and Test Equipment List
UID	Unique Identification
USMC	United States Marine Corps
UT	Unit Training
VP	Video Production