8B

DEPARTMENT OF THE ARMY
UNITED STATES ARMY AVIATION AND MISSILE COMMAND
5300 MARTIN ROAD
REDSTONE ARSENAL AL 35898-5000

AMSAM-L

25 SEP 2008 S: 24 Oct 08

MEMORANDUM FOR Command Ombudsman, AMSAM-OB[redacted]
Redstone Arsenal, AL 35898-5000

SUBJECT: AR 15-6 Investigative Officer Appointment Concerning Whistleblower Report to Office of Special Counsel on Multiple Launch Rocket System (MLRS)

1. I have decided to re-open the subject investigation for which you submitted a report dated 31 July 2008, which I approved on 2 September 2008. You are hereby re-appointed as Investigating Officer pursuant to AR 15-6 to conduct a further investigation including the following matters:

a. Interview Mr. Clarence Daniels who made the disclosures which instigated the Office of Special Counsel's request for an investigation and report.
b. Interview [redacted] and [redacted] concerning the pressure reportedly imposed on them as described in their statements included in their initial report.
c. Interview [redacted] concerning her statement in your initial report describing problems with the issuance of Technical Direction Letters.
d. Reassess the need for paragraph 7. (e) on pages 19 and 20 of your initial report.
e. To the extent that there may be confusion as to the results of the various CID investigations referenced in your report, consider resolving that confusion by merely referring to the final summary of the various reports provided by the CID.
f. Clarify what was questioned by [redacted] in his statement included in your initial report.

2. Your investigation will use informal procedures under the provisions of AR 15-6, Chapters 3 and 4. All witness statements will be sworn when possible, preferably on DA Form 2823, and you will obtain Privacy Act statements from all witnesses who complete a written statement. If in the course of your investigation you come to suspect that an individual may be criminally responsible, you will seek guidance from your legal advisor prior to initiating or continuing questioning of that individual.

3. You are to have full cooperation of all necessary Redstone Arsenal personnel in the pursuit of this investigation. This is to be your primary duty until completed.

4. You have already been briefed by a lawyer from the General Law Division of the AMCOM Legal Office and that lawyer will continue to serve as your legal advisor for the duration of the investigation. You are strongly encouraged to consult your legal advisor if you have any procedural questions. You are to maintain a daily written chronology of your actions during the investigation. You will prepare a revised report of the investigation to include sworn statements,

AMSAM-L Copy

other pertinent evidence, and a completed DA Form 1574. When completed, two (2) copies of this report are to be delivered for review and determination of legal sufficiency.

5. [redacted] AMCOM Legal Office, remains available for coordination pertaining to the Office of Special Counsel aspects of this investigation.

6. Submit to my attention request for any extension of the suspense, and/or modification of the scope of this investigation. The point of contact for this action is [redacted] AMCOM Legal Office, [redacted] or DSN [redacted].

JAMES R. MYLES
Major General, USA
Commanding

9

TAB 9

LTV Aerospace and Defense Company
MISSILES DIVISION

LTV

3-62100/91L-781

28 October 1991

To: Commander
U. S. Army Missile Command
Redstone Arsenal, Alabama 35898-5280

Attn: SFAE-FS-ML-CM/[redacted]

Subj: Contract DAAH01-89-C-0336, Multiyear II Production
Preliminary Value Engineering Change Proposal (VECP) for the
Reduced Range Training Rocket (RRTR) Number MI-C1423

Encl: (1) Preliminary VECP with the Contracts Volume (I),
Cost Volume (II) and Technical Volume III Attached

1. LTV Aerospace and Defense Company, Missiles Division (the "Contractor") is pleased to submit this preliminary VECP with attached enclosures for the subject contract. The Contractor has estimated the minimum savings to be $3,400,000. This savings reflects the Contractor's estimated development and implementation nonrecurring cost to be approximately $4,800,000 with an anticipated recurring savings of $8,200,000 for the instant contract. The minimum savings does not include any estimate for the Government costs pursuant to the subject Preliminary VECP. It is requested that the cognizant Government personnel review their tasks and provide the Contractor said cost for inclusion into the estimated minimum savings reflected above.

2. The groundrules, assumptions, terms and conditions are proposed in Volume I and the Contractor's estimated cost savings are in Volume II. Volume III is the technical enclosure and describes in detail the proposed preliminary VECP.

3. You are requested to review the Enclosure (1) Preliminary VECP and issue a modification to the subject contract to reflect a minimum savings based on Contractors estimated savings less the Government's estimated cost. It is understood that upon completion of the development program, the Contractor will submit a formal VECP to reflect the applicable data as well as a firm fixed price proposal. It is understood that until such time that said formal VECP has been incorporated into the Technical Data Package, the Contractor shall retain control of the newly developed configuration.

4. Should you have any questions, please contact [redacted] for Contractual matters at [redacted] or [redacted] for Configuration matters at [redacted]

Respectfully,

G. D. Troxel
Vice President - Finance

cc: MICOM/SFAE-FS-ML-MG-A/[redacted]
DPRO-RVAC/[redacted], ACO
DCAA - Resident Auditor

ed by - Roy Johnson
Dvt. Engineer - W. Beschorner
tion Priority

PRELIMINARY VECP

1. ENGINEERING CHANGE PROPOSAL PAGE 1
(SEE MIL-STD-480 FOR INSTRUCTIONS)

DATE PREPARED: 10-28-91

PROCURING ACTIVITY NO.

ORIGINATOR NAME AND ADDRESS
LTV AEROSPACE AND DEFENSE COMPANY
MISSILES DIVISION
P.O. BOX 650003, DALLAS TEXAS 75265-0003

2. CLASS OF ECP	3. JUST CODE	4. PRIORITY
I	V	See Pg 1a U

5. ECP DESIGNATION

a. MODEL/TYPE	b. MFR CODE	c. SYS. DESIG.	d. ECP NO.	e. TYPE	f. REV	g. CORR.
--	64059	MLRS	MI-C1423	P		

6. BASELINE AFFECTED: [ ] FUNCTIONAL [ ] ALLOCATED [X] PRODUCT

7. OTHER SYS/CONFIG ITEMS AFFECTED: [ ] YES [X] NO

8. SPECIFICATIONS AFFECTED – TEST PLAN / 9. DRAWINGS AFFECTED

	MFR CODE	SPEC/DOC NO.	NOR	MFR CODE	NUMBER	REV	NOR NO
a. SYSTEM							
b. ITEM							
c. TEST PLAN							

10. TITLE OF CHANGE
Proposed Reduced Range Training Rocket (RRTR)

11. CONTRACT NO. & LINE ITEM
See Page 1a

12. CONFIGURATION ITEM NOMENCLATURE
Reduced Range Training Rocket

13. IN PRODUCTION: [ ] YES [X] NO

14. NAME OF PART OR LOWEST ASSEMBLY AFFECTED
To Be Provided in Formal VECP

15. PART NO. OR TYPE DESIGNATION
To Be Determined

16. DESCRIPTION OF CHANGE

See Pages 1a thru 1d

This Preliminary VECP is submitted in accordance with Section C-6 of Production Contract DAAH01-89-C-0336. (See Enclosure (1) for approval of VECP Concept R200).

(CR0108)

17. NEED FOR CHANGE

See Pages 1d and 1e

18. PRODUCTION EFFECTIVITY BY SERIAL NUMBER
See Page 1f and Schedules

19. EFFECT ON PRODUCTION DELIVERY SCHEDULE
None

20. RETROFIT

a. RECOMMENDED ITEM EFFECTIVITY
Not Applicable (N/A)

c. SHIP/VEHICLE CLASS AFFECTED
N/A

b. ESTIMATED KIT DELIVERY SCHEDULE
N/A

d. LOCATIONS OR SHIP/VEHICLE NUMBERS AFFECTED
N/A

21. ESTIMATED COSTS/SAVINGS UNDER CONTRACT
See Volumes I and II attached

22. ESTIMATED NET TOTAL COSTS
See Block 21

23. SUBMITTING ACTIVITY AUTHORIZING SIGNATURE
10-28-91 R. D. Johnson

TITLE
Manager, Configuration Management

10/28/91 V. E. 24. APPROVAL/DISAPPROVAL 11/25/91

a. CLASS I [ ] APPROVAL RECOMMENDED

b. CLASS II [ ] APPROVED [ ] DISAPPROVED [ ] CONCUR IN CLASSIFICATION OF CHANGE [ ] DO NOT CONCUR IN CLASSIFICATION OF CHANGE

c. GOVERNMENT ACTIVITY | SIGNATURE | DATE

DD FORM 1 DEC 68 1692 S/N-0102-020-8000 D-26320

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
4 (cont.)	PRIORITY 1. This Preliminary VECP is submitted as an urgent priority in accordance with the provisions of DOD-STD-480A. Program Year 4 turn-on for M28 Practice Rockets is scheduled for 1 December 1991. The latest date that development and testing of the RRTR must be started in order to meet PY 4 delivery is 15 January 1992. The intent of this urgent priority is to have the VECP available, as a contract mod, between 1 December turn-on date and the latest start date of 15 January to authorize production of the RRTR in lieu of the M28 Practice Rocket. Failure to meet this time frame will result in a one year delay in implementation and a loss of substantial savings to the MLRS Program. 2. Processing as an urgent preliminary VECP will facilitate having sufficient opportunity to execute the contract mod within the restricted time frame and will be a major factor in realizing the anticipated savings.
11 (cont.)	CONTRACT NO. & LINE ITEM DAAH01-89-C-0336 (MYP II) CLIN's shall be provided in the formal VECP to cover production.
6 (cont.)	DESCRIPTION OF CHANGE GENERAL: This Preliminary VECP does not contain NOR(s). The Formal VECP shall contain all drawings, associated lists and new or revised specifications necessary to document the new Rocket Pod Assembly, Rocket Assembly and Warhead Assembly. All testing conducted will be fully documented and included in the Formal VECP. Warhead Assembly (Pre-Assigned P/N 13031050). The warhead assembly will incorporate the following features: – Cylinder Section fabricated from metal pipe; – Utilize a smoke cartridge assembly so as to provide visible indication of warhead impact; – Have the approximate weight and center of gravity of the tactical warhead; – Forward end of the warhead will provide an interface for a nose cap; – Aft end of warhead will provide a warhead-to-motor interface similar to the tactical warhead; and – The major components of the warhead assembly are: -- Warhead Cylinder Section (Metal Pipe) -- Ballast -- Nose Cap -- Smoke Cartridge Assembly

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
16 (cont.)	DESCRIPTION OF CHANGE

GENERAL (Continued):

Rocket Assembly (Pre-Assigned P/N 13031060). The Rocket Assembly will incorporate the following features:

- The warhead assembly;
- Dual fin restraint assembly, P/N 13026453, common to practice rockets
- Rocket Motor Assembly, P/N 13026895, common to tactical and practice rockets;
- Fin assembly, P/N 13023954, common to tactical and practice rockets; and
- Sabot, P/N 13029568, common to tactical and practice rockets.

The method of attaching the warhead to the rocket motor will be similar to the method used for the tactical rocket assembly.

Rocket Pod Assembly (Pre-Assigned P/N 13031951). The Rocket Pod Assembly will be similar to the 13027901 Rocket Pod Assembly except for the following:

- Use the 13031912 practice rocket launch tube, 6 places with the forward umbilical slot sealed closed; and
- The existing 13027963 conduit and 13027964-2 conduit spacer will not be installed since the conduit will not be used.

Rocket Pod (Pre-Assigned P/N 13031950). The Rocket Pod will be similar to the 13027900, M26 Tactical Rocket Pod except for the following:

- The 13031951 Rocket Pod Assembly will be used in lieu of the 13027901;
- The 13031060 Rocket Assembly will be used in lieu of the 13024134;
- A new rocket pod harness will be created as the new rocket will not require a fuze interface. The rocket status indications will require rework. They presently utilize the fuze interface for the rocket status reading and this portion of the cable will be deleted. The new rocket pod will require a unique War Head (W/H) identification (ID) code which is created in the harness. The new W/H ID code will be coordinated with Software Engineering.
- A new rocket harness installation drawing will be created as the harness assembly will only interface with the rocket assemblies' igniters. The 13031060 rocket assembly will not interface with the Fire Control System (FCS);
- The 13031921 and 13031967 blast shields will not be used; and
- Rocket pod marking instructions shall be provided in the formal VECP.

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
16 (cont.)	DESCRIPTION OF CHANGE (Continued)

SPECIFICATIONS

- System requirements will be documented in an RRTR derivative system specification or a revision to MIS-26432 system specification;
- Type "B" development specifications will be prepared for the Rocket Assembly, Warhead and Rocket Pod as required;
- A product specification will be prepared for the Rocket Pod;
- A software requirement specification will be prepared for the RRTR SPAP; and
- A software product specification will be prepared, for the RRTR SPAP.

SOFTWARE:

Those tasks necessary to incorporate the LTVAD FORTRAN ballistics algorithm and RRTR-unique feature into the latest Version 6.0 Fire Control System (FCS) software release as a new Special Application Package (SPAP) selection shall be performed. The FORTRAN ballistic algorithm shall be developed based on predictions and demonstrated flight characteristics of the Reduced Range Training Rocket (RRTR) demonstrations conducted in 1988. Software modifications will be implemented in a combination JOVIAL and Assembly language targeted for the B-Processor in the IEU. The conversion will encompass converting the floating point algorithm to fixed point JOVIAL/Assembly language. No update will be required to the Common Application software. It will recognize the RRTR Rocket Pod (RP) via hardware modifications to the RP harness and load the SPAP. The contractor will update the software using existing MLRS design and coding standards for software development. The updated FCS software will be written to run on Digital's VAX family of machines and coded in Jovial and/or Assembly languages as required. The Automatic Test Computer Program (ATCP) and database shall also reside and run on Digital's VAX family of machines. To run automatic ballistics test cases, the ATCP shall simulate fire missions by interfacing with the Improved Electronics Unit (IEU) through the Payload Interface Module (PIM) monitor. The following specific actions shall be conducted.

a. Conduct a Preliminary Design Review (PDR), Critical Design Review (CDR), and In-Process Reviews (IPR's) of the RRTR modification as required.

b. Conduct the Integration Test, Functional Qualification Test (FQT) and System Test in conjunction with corresponding Version 6.05 tests.

c. Request government approval and generate a preliminary release of Version 6.05 with the RRTR SPAP following the System Test for use in RRTR flight testing (2 missions).

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
16 (cont.)	DESCRIPTION OF CHANGE (Continued) SOFTWARE (Continued): d. Prepare Technical Data Package deliverables. e. Conduct the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) for the RRTR SPAP. Enclosure (2) provides preliminary drawings for the following: – Warhead Assembly – Smoke Cartridge Assembly – Nose Cap – Ballast – Cylinder Section – Aft Bulkhead – Forward Bulkhead NOTE: For a more detailed coverage refer to Volume III, "Technical Volume" attached.
17 (cont.)	NEED FOR CHANGE The United States Army Field Artillery community has identified, through the April 1989 "Training Device Needs Statement (TDNS) for the Reduced Range Training Rocket, Multiple Launch Rocket System", a training deficiency when MLRS units conduct live fire training with the current M28 Practice Rocket. The M28's large surface danger area limits the number of firing positions that posts have to support MLRS firings. A reduced range, reduced cost training rocket will enhance MLRS crew training by increasing the availability of firing points and improving the affordability of live firings. Training Rocket Requirements Based on the April 1989 TDNS and agreed-upon changes to date, the following is required of the RRTR: – Range of 8 km minimum and 14-16 km maximum. – Significantly reduced danger zones with overhead firing potential.

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
17 (cont.)	NEED FOR CHANGE (Continued)

Training Rocket Requirements (Continued)

- Range and firing site mask clearance capabilities to allow simultaneous firings from multiple sites at the Army's most limited training range.
- Visual signature at rocket impact.
- Full training realism, e.g. loading and firing procedures, noise and blast effects identical to the tactical rocket.
- Launcher exercised by tactical firing environment – electrical and mechanical static and dynamic interfaces validated.
- No new skills required – store, transport, load and fire like tactical ammunition.
- Significant savings in cost to produce.

The LTV Aerospace and Defense Company, Missiles Division (the contractor) has designed a Reduced Range Training Rocket (RRTR) which meets the requirements of the TDNS at a significantly reduced cost. This rocket reduces range through high aerodynamic drag due to a blunt nose. The M445 fuze, center core burster, ballast (grenade simulator), foam supports, smoke canisters and deep-drawn skin are eliminated in favor of a metal pipe warhead with an impact activated smoke cartridge. Overhead firing safety is increased by elimination of the warhead event, while the smoke cartridge provides a visible signature at impact.

The RRTR concept was initially defined by the contractor in 1988, when the contractor designed, fabricated and flight tested a prototype RRTR at the White Sands Missile Range (WSMR). Two rockets were flown to demonstrate the performance of the RRTR. Technical missions were flown using the contractor's FORTRAN trajectory simulation computer program, which had been modified to match the predicted flight characteristics of the RRTR. Both rockets showed steady, stable dynamic flight characteristics which were in good agreement with pre-flight predictions.

The contractor and the U. S. government have determined that the RRTR warrants development as a Value Engineering modification to the current Multi-Year Production Program (MYP II, Contract No. DAAH01-89-C-0336).

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
18 (cont.)	PRODUCTION BY SERIAL NUMBER A total of thirty (30) rockets and five (5) rocket pods will be required during the design, development, fabrication and testing phase associated with this Preliminary VECP. For traceability each rocket assembly and rocket pod shall contain a contractor's serial number.

eet 2)

SUMMARY LIST OF AFFECTED DOCUMENTATION

DATE: 10-28-91

ECP NO: MI-C1423

TYPE DOCUMENT	DOCUMENT-ITEM NUMBER	REV.	ATTACH NOR NO.	OTHER PENDING ECP NUMBER	CONFLICTS YES	CONFLICTS NO	PROD EFF CODE	END ITEMS AFFECTED-LEGEND CODE A	B	C	D	E	F	G	H

SUPPLEMENTAL INFORMATION

, sheet shall be completed and provided with the formal VECP.

See Page 2a for tooling requirements.

See Page 2a for SIE requirements.

YES	NO	CHANGE AFFECTS
	X	INTERCHANGEABILITY
X		SIE
	X	CONTROL DWG PART NO.
	X	SPECIFICATIONS
	X	DATA RIGHTS
X		SPECIAL TOOLS
	X	TECHNICAL PUBS
	X	REPAIR PARTS
	X	PACKAGING
	X	TEST EQUIPMENT
	X	SOAP'S
	X	RELATED ECP'S
		OTHER (SEE SUPPLEMENTAL INFORMATION)

PRODUCTION EFFECTIVITY CODES

1 - EFFECTIVITY AS SHOWN IN BLOCK 2 - NEXT PRODUCTION CYCLE OF AFFECTED PART 3 - ALL PRODUCTION

END ITEMS AFFECTED

LEG'D CODE	ITEM NOMENCLATURE	PART NUMBER	MODEL/ TYPE	REMARKS
A				
B				
C				
D				
E				
F				
-				

4-11219 R1

SUPERSEDES ALL PREVIOUS EDITIONS

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
39 (cont.)	TOOLING AND EQUIPMENT REQUIREMENTS The R&D phase of this program will require only four (4) additional special shop-aid type tools. One (1) insertion tool: this tool will be used to insert and move the ballast to the correct position in the aft end of the cylinder and secure during the drilling and pinning operation. One (1) insertion tool: this tool will be used to insert and position the Smoke Cartridge Assembly in the forward end of the cylinder during the drilling and pinning operation. One (1) nose cap installation fixture will be used to position the nose cap for drilling and fastener installation. The tool will ensure the nose cap to smoke cartridge critical dimension. Two (2) V-Blocks to support the cylinder during the fabrication and/or the assembly of the Warhead Section. The only additional equipment required for the R&D phase of this program will be one (1) flat steel top work table to be used to position the cylinder for drilling the required holes using magnetic base drilling equipment. NOTE: All other tools and equipment required in the fabrication of thirty RRTR assemblies now exist in Bldg. H-104, Camden, Ark. SIE SIE will be addressed in the Formal VECP.

IGINEERING CHANGE PROPOSAL, PAGE 3
(E MIL-STD-480 FOR INSTRUCTIONS)

PROCURING ACTIVITY NO.

TOR NAME AND ADDRESS

LTV AEROSPACE AND DEFENSE COMPANY
MISSILES DIVISION
P.O. BOX 650003, DALLAS TEXAS 75265-0003

ECP NUMBER

MI-C1423

EFFECTS ON PRODUCT CONFIGURATION IDENTIFICATION, OPERATION AND LOGISTICS

(X)	FACTOR	ENCL.	PAR.	(X)	FACTOR	ENCL.	PAR.
	34. EFFECT ON PRODUCT CONFIGURATION IDENTIFICATION OR CONTRACT			X	PACKAGING DATA SHEETS	3	B
	PERFORMANCE						
	WEIGHT-BALANCE-STABILITY (Aircraft)				36 EFFECT ON OPERATIONAL EMPLOYMENT		
	WEIGHT MOMENT (Other equipment)			X	SAFETY / HFE	4	N/A
X	DRAWINGS TO BE PROVIDED IN FORMAL ECP				SURVIVABILITY		
	NOMENCLATURE			X	RELIABILITY	5	N/A
	SPECIFICATION			X	MAINTAINABILITY	5	N/A
					SERVICE LIFE		
	35. EFFECT ON INTEGRATED LOGISTIC SUPPORT (ILS) ELEMENTS				OPERATING PROCEDURES		
	ILS PLANS				ELECTROMAGNETIC INTERFERENCE		
	MAINTENANCE CONCEPT AND PLANS				ACTIVATION SCHEDULE		
	MAINTENANCE PROCEDURES				OPERATING INSTALLATIONS		
	INTERIM SUPPORT PROGRAM						
	SPARES AND REPAIR PARTS						
X	TECH. MANUALS/PROGRAMMING TAPES	3	A		37. OTHER CONSIDERATIONS		
	FACILITIES				INTERFACE		
	SUPPORT EQUIPMENT				OTHER AFFECTED EQUIPMENT/GFE		
	OPERATOR TRAINING				PHYSICAL CONSTRAINT		
	OPERATOR TRAINING EQUIPMENT				OPERATIONAL COMPUTER PROGRAMS		
	MAINTENANCE TRAINING				REWORK OF OTHER EQUIPMENT		
	MAINTENANCE TRAINING EQUIPMENT				SYSTEM TEST PROCEDURES		
	PERSONNEL						
	CONTRACT ENGINEERING TECH. SVCS.						
	VERIFICATION AND DEMONSTRATION PLANS						

8. ALTERNATIVE SOLUTION

None.

9. DEVELOPMENTAL STATUS

See Pages 3a thru 3d.

10. RECOMMENDATIONS FOR RETROFIT

Retrofit does not apply to this Preliminary VECP.

11. MAN-HOURS PER UNIT TO INSTALL RETROFIT KITS

a. ORGANIZATION	b. INTERMEDIATE	c. DEPOT	d. OTHER
N/A	N/A	N/A	

42. MAN-HOURS TO CONDUCT SYSTEM TESTS AFTER RETROFIT: N/A

13. THIS CHANGE MUST BE ACCOMPLISHED

☐ BEFORE ☐ WITH ☐ AFTER THE FOLLOWING CHANGES

N/A

44. IS CONTRACTOR FIELD SERVICE ENGINEERING REQUIRED? ☐ YES ☐ NO N/A

45. OUT OF SERVICE TIME: N/A

46. EFFECT OF THIS ECP AND PREVIOUSLY APPROVED ECP'S ON ITEM

NONE

47 DATE CONTRACTUAL AUTHORITY NEEDED FOR:

PRODUCTION 15 January 1991

ILS

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S/N 0102-020-8020

4-11214 R1

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
39 (cont.)	

DEVELOPMENTAL STATUS

Reduced Range MLRS Training Rockets shall be flight tested at White Sands Missile Range (WSMR). The flight tests are required to provide data and verify the rockets satisfy the performance requirements. The tests will be joint contractor and government efforts.

Test Planning

The contractor will conduct the planning and coordination for the RRTR test effort. A detail test plan will be prepared and submitted in accordance with DI-T-1903.

Ground Tests

Ground Tests of the RRTR Warhead (similar to Enclosure 2, SH1 of 15) will be conducted.

a. The ground testing shall measure the smoke dispensing ability of the warhead. Quantities to be measured will be time to dispense the smoke and the quanity of smoke dispensed, smoke cloud size will be recorded.

b. Firing pin testing shall determine on a GO/NOGO basis the ability of this warhead to actuate the firing pin.

c. A modal survey and joint bending, sabot interaction, and rough handling tests shall be conducted to determine the structural margins of safety and provide tip-off information to assist in establishing the range safety fan.

Environmental Test

The contractor will plan and coordinate the environmental test effort on the Rocket Pods (RPs) containing MLRS RRTR. Three (3) fully loaded RPs will be subjected to the environmental test sequences at the WSMR test facilities as shown in Figure 3.

Flight Test

Thirty RRTR rockets in five (5) RPs shall be flight tested at WSMR under the conditions shown in the Flight Test Matrix as shown in Figure 4. Eighteen of these rockets (three RPs) shall have been subjected to environmental testing. Three (3) six-round and four (4) 3-round missions will be conducted. Initial flight tests will be conducted as technical fire missions with at least two tests flown as tactical fire missions.

BLOCK NO	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
39 (cont.)	DEVELOPMENTAL STATUS Range Support Launcher. A GFE M270 launcher currently in use at WSMR will be required during the RRTR test series. Computer Van. A GFE computer van, operated by LTV/WSMR personnel, will be required to measure and record M270 FCS functions. ARMTE Instrumentation Van. A GFE instrumentation van will be required to measure and record launch environments as requested by LTVAD Engineering. National Range (WSMR). Support requirements will be defined in the Operations Requirements (ORs) for the Reduced Range Training Rocket (RRTR) which will be submitted to the National Range. WSMR Environmental Test Labs. Environmental test lab support will be required during the environmental testing of three (3) rocket pods. Reference Figure 3. Reports The contractor will prepare and submit flash reports for each of the RRTR fire missions IAW DI-T-1905 and a final test report at the completion of RRTR testing IAW DI-T-1906. Range Documentation The contractor will prepare and submit to the National Range an Operations Requirement (OR) document for each configuration of the RRTR fire missions.

Arctic Sequence	Temperate Sequence	Desert Sequence
Temperature Shock	Temperature Shock	Temperature Shock
Transportation Vibration at -30 deg. F	Transportation Vibration at Ambient	Transportation Vibration at 160 deg. F
Transportation Shock (Edge Drop, Corner Drop and Pendulum Impact) at -30 deg. F	Transportation Shock (Edge Drop, Corner Drop and Pendulum Impact) at Ambient	Transportation Shock (Edge Drop, Corner Drop and Pendulum Impact) at 160 deg. F
14 Days Low Temperature Storage at -30 deg. F		14 Days High Temperature Storage at 160 deg. F
Tactical Vibration at -25 deg. F	Tactical Vibration at Ambient	Tactical Vibration at 140 deg. F
Final Inspection	Final Inspection	Final Inspection
Flight Test at -25 deg. F	Flight Test at Ambient	Flight Test at 140 deg. F

FIGURE 3. ENVIRONMENTAL TEST SEQUENCE

REDUCED RANGE ROCKET
FLIGHT TEST MATRIX

MISSION	R/P S/N**	TUBE NO. FIRING ORDER	PRE-FLIGHT ENVIRONMENTS						LAUNCH TEMP	LAUNCH POINT	TARGET POINT	RANGE TO IMPACT	FIRE MODE	LAUNCH BAY	TRAVERSE
			TEMP SHOCK	TRANS VIB	TRANS DROPS	RAIL IMPACT	LOW/ HIGH TEMP STOR.	TACTICAL VIB							
BN-2	001	1 3 5	NONE						AMB	LC-33	G-16 SHORT*	MID	RIPPLE	R.H.	+1600
BN-3	001	2 4 6	NONE						AMB	LC-33	G-16	MAX	RIPPLE	R.H	+1600
BN-4	002	1 3 5	NONE						AMB	LC-33	G-10	MIN	RIPPLE	R H	+1600
BN-5	002	2 4 6	NONE						AMB	LC-33	G-10	MIN	RIPPLE	R.H	+1600
BN-6	003	1 2 3 4 5 6	YES	YES (AMB)	YES (AMB)	YES (AMB)	NO	YES (AMB)	AMB	LC-33	G-16	MAX	RIPPLE	R.H	+1600
BN-7	004	1 2 3 4 5 6	YES	YES -300°F	YES -300°F	YES -300°F	YES -300°F 14 DAYS	YES -250°F	-250°F	LC-33	G-16 SHORT*	MID	RIPPLE	R.H	+1
BN-8	005	1 2 3 4 5 6	YES	YES +160°F	YES +160°F	YES +160°F	YES +160°F 14 DAYS	YES +140°F	140°F	LC-33	G-16 SHORT*	MID	RIPPLE	R.H	+1600

* G-16 "SHORT" IS LOCATED OUTSIDE THE G-16 CLEARED TARGET AREA AND ACTUAL RANGE IS TO BE DETERMINED LATER
** RP S/Ns ARE NOT ACTUAL AND WILL BE CORRECTED LATER

FIGURE 4

BLOCK NO.	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
36 (cont.)	EFFECT ON OPERATIONAL EMPLOYMENT

SAFETY / HFE

Surface Danger Area Data Report

The contractor shall prepare and update a RRTR Surface Danger Area Data Report prior to and after flight test as actual flight and simulation data becomes available. The range footprint shall be constructed to a one in a million event probability criteria. It shall consider both normal and malfunctioning modes with assumptions as specified, and a description of the vehicular behavior for each malfunction possible with probability of occurrence. The Surface Area Danger Report and updates shall be in accordance with DI-H-1327.

Safety Assessment Report (SAR)

The contractor shall prepare a SAR for the RRTR in accordance with DI-SAFT-80102. This SAR will be an appendix to the basic MLRS rocket SAR.

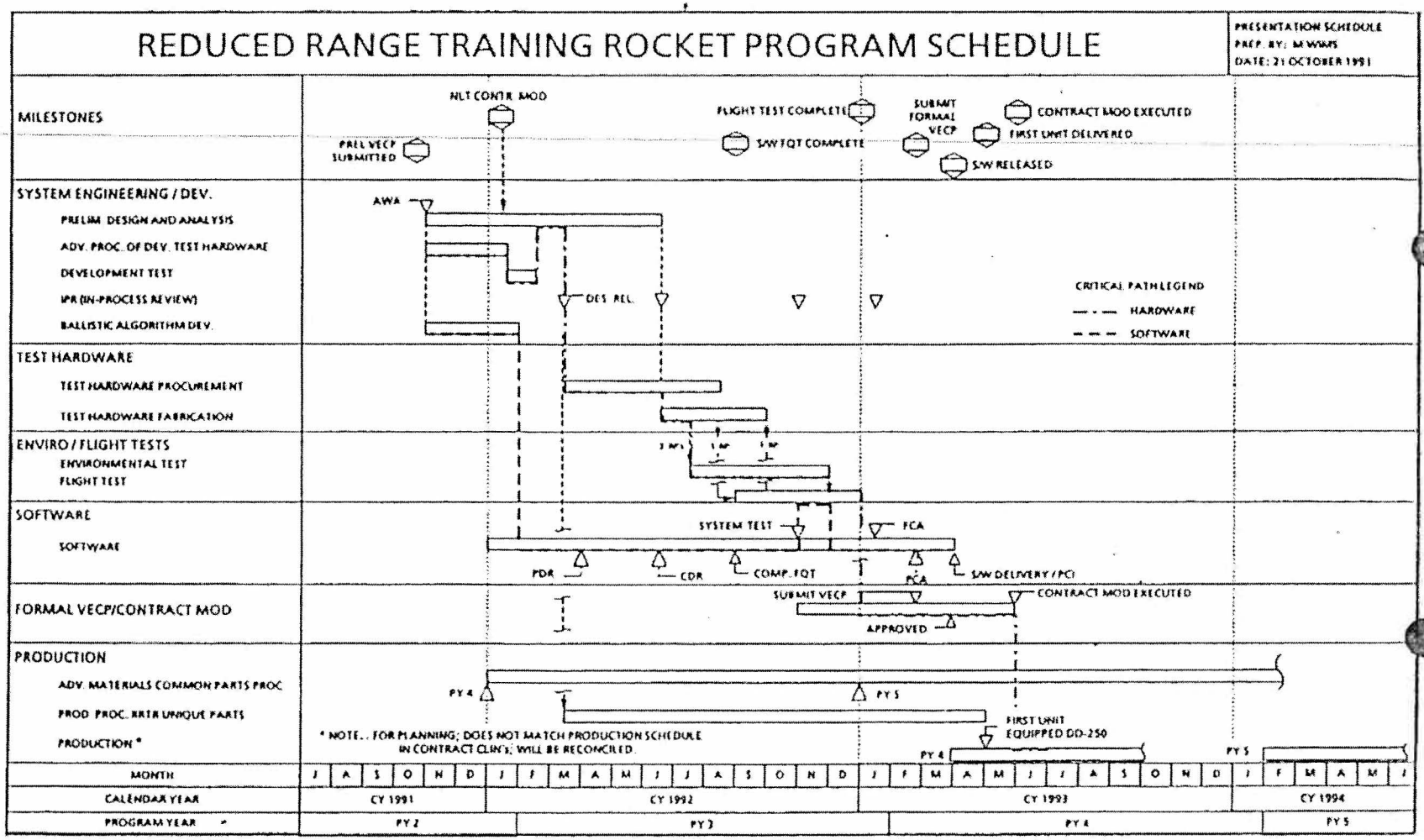
Reliability

Failure Mode Effects and Criticality Analysis (FMECA)

The contractor shall conduct a FMECA for the RRTR using the FMECA for the M26 rocket as a guide.

REDUCED RANGE TRAINING ROCKET PROGRAM SCHEDULE

PRESENTATION SCHEDULE
PREP. BY: M WMS
DATE: 21 OCTOBER 1991



RRTR

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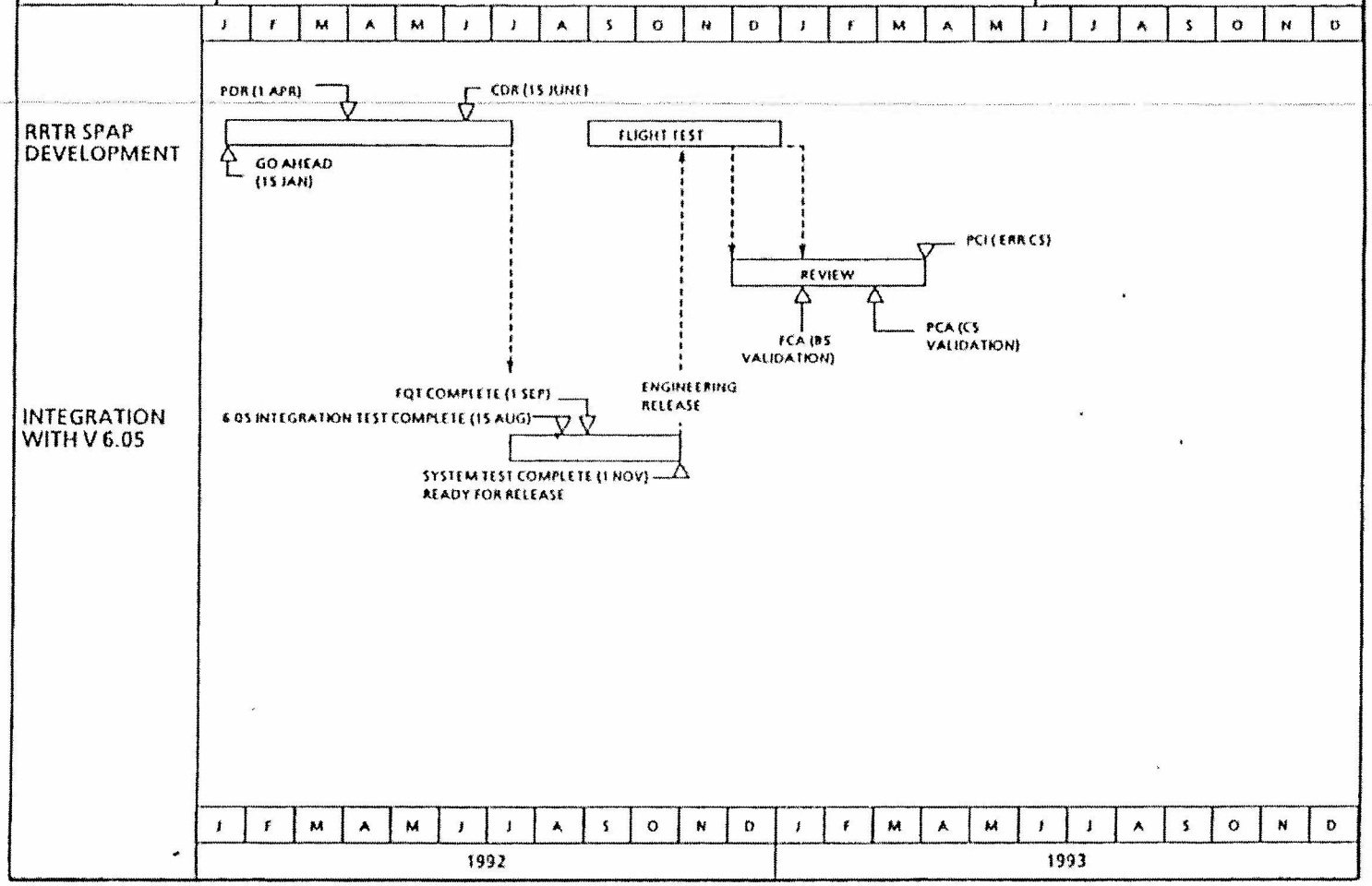
PREP: 3 SEPT 91 REV: 21 OCT 91
PREP BY: WIMS



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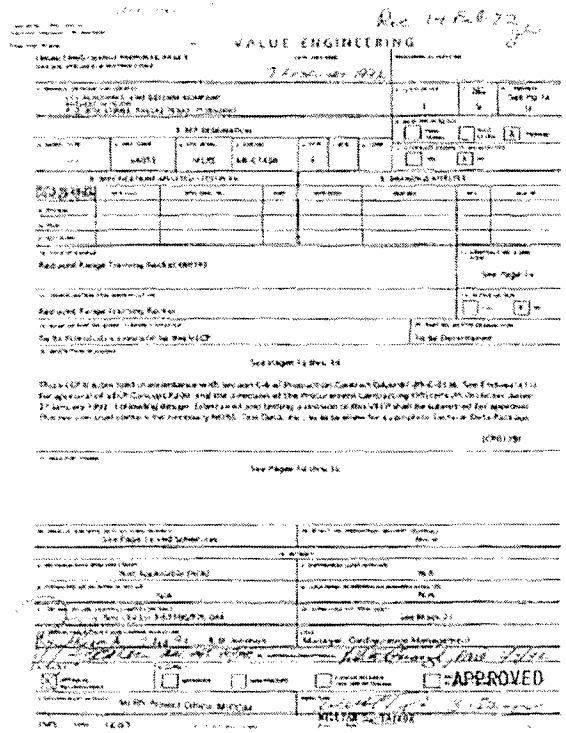
TAB 10


VALUE ENGINEERING
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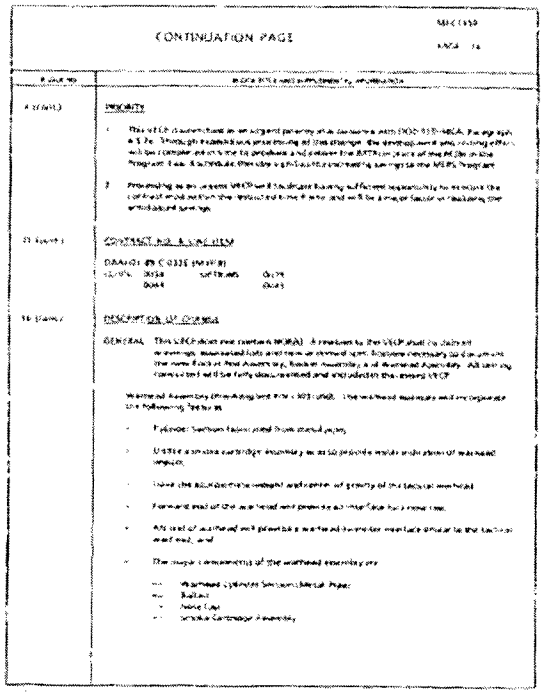
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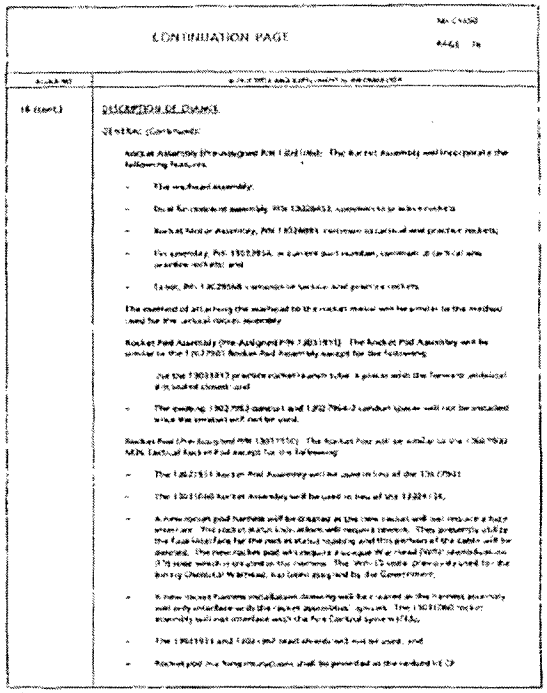
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SPECIFICATIONS

SOFTWARE

CONTINUATION PAGE

SUMMARY LIST OF AFFECTED DOCUMENTATION

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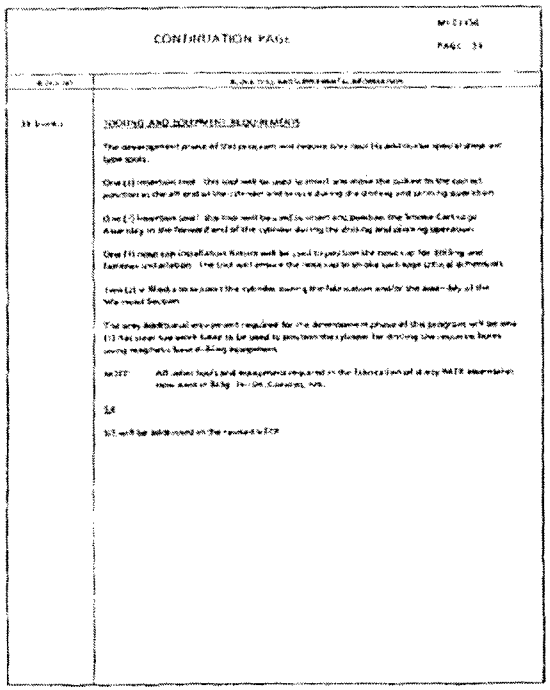
A B C



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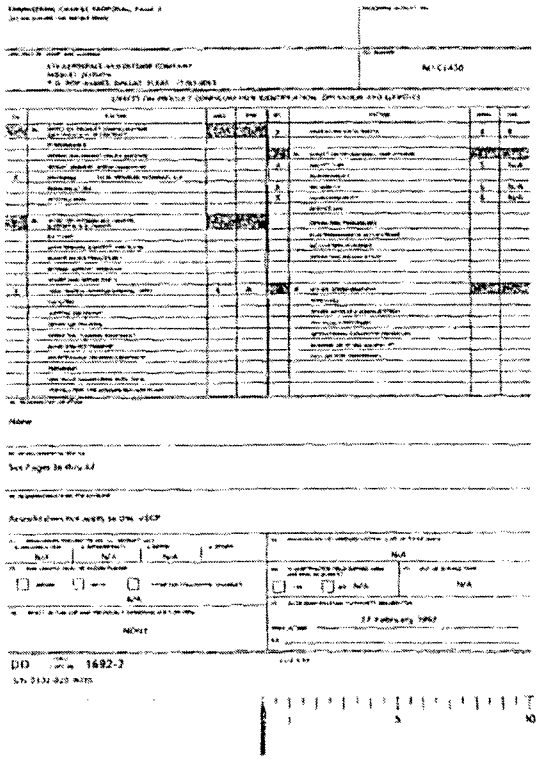

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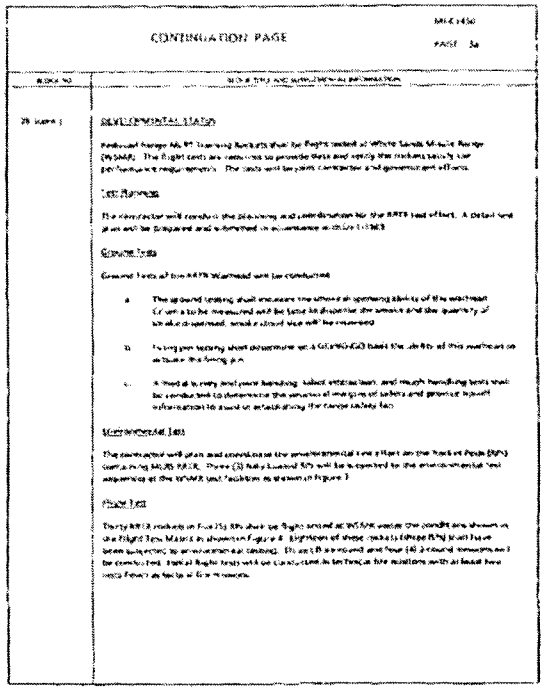

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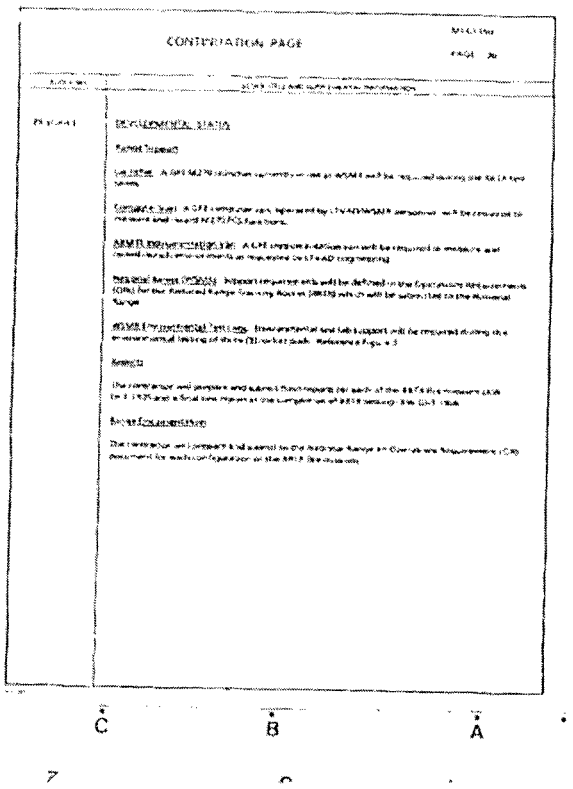
Test Planning

Ground Tests

Flight Test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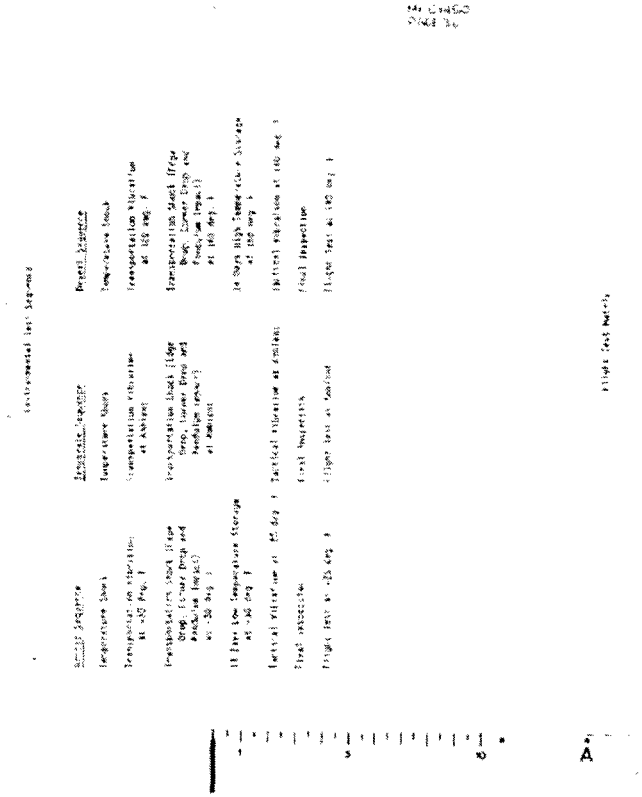
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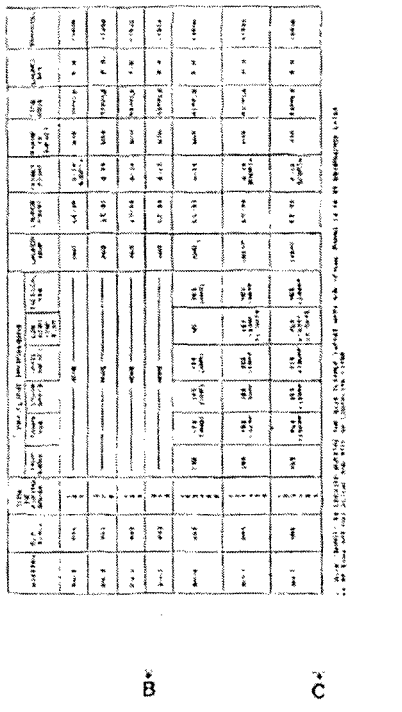
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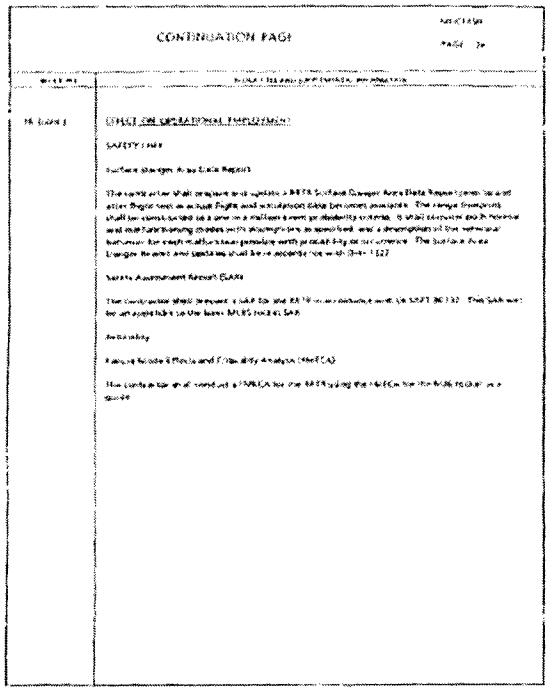
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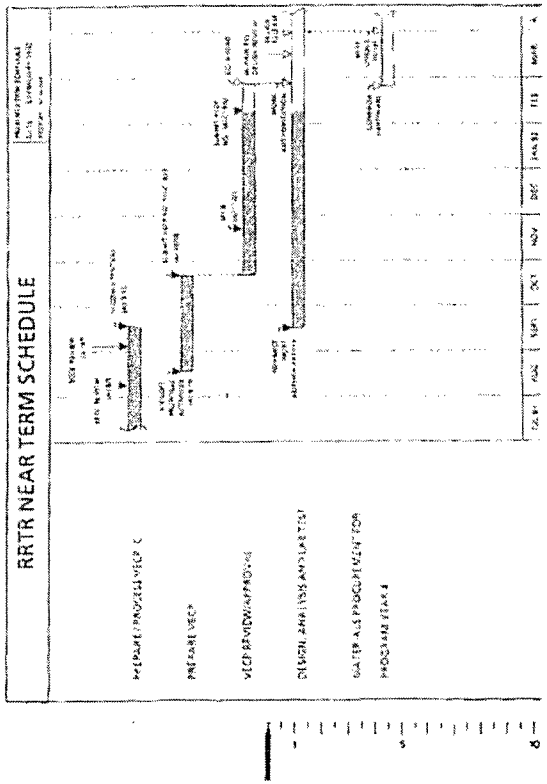
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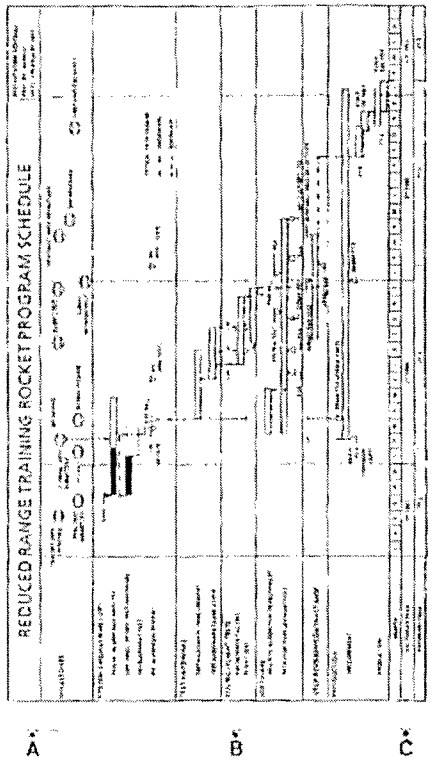
REDUCED RANGE TRAINING ROCKET PROGRAM SCHEDULE
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May 1, 2008 9:41 AM [MI-C1450_64059_EP_-_0006_0001_U_N[1].C4]

DEPARTMENT OF THE ARMY

ECP NO. MI-C1450
ENCL 1
SHT 1 OF 2

September 18, 1991

Multiple Launch Rocket
System Project Office

SUBJECT: LTVAMS Submittal of Value Engineering Change Proposal Concept, (VECP-C) Number 8210

Mr. J.A. Calaci
Project Manager, Value Engineering
LTV Missiles and Electronics Group
Post Office Box 650003
Dallas, Texas 75265-0003

Dear Mr. Calaci:

Reference LTV Aerospace and Defense Company Letter [illegible], dated August 21, 1991.

One VECP concept was submitted by LTV Aerospace and Defense (LTVAD), Missiles and Electronics Group, Missiles Division, VECP-C number 8100, "Reduced Range Training Rocket."

The concept has been reviewed by the MLRS Configuration Control Board (CCB), and comments are contained in the enclosure. The CCB concurs with concept number 8100, "Reduced Range Training Rocket"; however, Government concurrence in this case is only an indication of interest and is not a guarantee of acceptance of the completed VECP if and when it is formally submitted.

Point of contact in the MLRS Project Office for this action is Mr. Rod Kirby, (205) 876-5135.

Sincerely,

[signature]
Chief, Production Engineering
MLRS Project Office

Enclosure

DEPARTMENT OF THE ARMY

ECP NO. MI-C1450
ENCL 1
SHT 2 OF 2

January 27, 1992

Acquisition Center
MLRS Contracting Office

Mr. Jim Crouch
LTV Aerospace and Defense Corporation
Missiles and Electronics Group
Missiles Division - MLRS
Post Office Box 650003, M/S MC-09
Dallas, Texas 75265-0003

Dear Mr. Crouch:

You are hereby instructed to submit the proposal for VECP MI-C1450, entitled Reduced Range Training Rocket, directly to the Contracting Officer in accordance with Clause I-15 of Contract DAAH01-[illegible].

If further information is needed, please contact Pat McKay at (205) 876-[illegible].

Sincerely,

[signature]
Contracting Officer

RECEIVED JAN 31 1992

ECP NO. MI-C1450
ENCL 2
SHT 1 OF 4

MISSILE COMMAND SPECIFICATION

SYSTEM SPECIFICATION

FOR

MULTIPLE LAUNCH ROCKET SYSTEM

WITH THE

REDUCED RANGE TRAINING ROCKET

LTV Aerospace and Defense
Post Office Box 650003
Dallas, Texas 75265-0003

1. SCOPE

1.1 This specification establishes the design, development, performance, and test requirements for the Multiple Launch Rocket System (MLRS) with the Reduced Range Training Rocket (RRTR). This specification is a derivative of MIL-28437 as defined in 1.2.

2. APPLICABLE DOCUMENTS

2.1 Appendix I of this specification lists the applicable documents.

3. REQUIREMENTS

3.1 System definition. Applicable with the following exceptions.

3.1.1.1 The U.S. Army Field Artillery community has identified a training need that is not currently served by the M26 Artillery Rocket. The M26's minimum range and attendant surface danger zone limit the number of firing points that support MLRS training. A RRTR is required that will provide MLRS battalions the opportunity to conduct live fire from a shorter range, thereby increasing the selections available for firing sites. The RRTR will enhance MLRS crew training and will be used to train MLRS crews on those collective tasks necessary to fire any of the MLRS Family of Munition (MFOM). Additional firing points will be available due to the decreased range of the rocket.

3.1.1.2 The MLRS with the RRTR shall consist of the following elements: the M270 launcher including Fire Control System (FCS), Stabilization Reference Package (SRP), Built-in Test Equipment (BITE), and associated cabling; Rocket Pod (RP) including RRTR; Resupply Vehicle (RSV); support equipment; and training equipment.

3.1.1.3 The following is a brief description of the major functional components which shall comprise the MLRS with the RRTR configuration.

3.1.1.3.1 Rocket. The RRTR warhead shall be integrated with the MLRS production rocket motor without modification of the rocket motor. The RRTR warhead shall be designed to impact monolithically, producing a visual indication at a distance of at least 1 to 3 kilometers.

3.1.2 Launcher. A training rocket with a range significantly reduced from that of the M28 warhead rocket is required to provide realistic live fire training to user personnel. The need includes provision of training scenarios at various U.S. Army locations. A primary consideration in the mission is the requirement to identify surface danger zones that are within range constraints and the requirement for live fire training realism. The RRTR will support training scenarios that feature all aspects of the M77 operational scenarios including reload, RSVs employment, fire, and move under

3.1.3 Threat. Not applicable.

3.1.5.2 Warhead interfaces. The design of the RRTR warhead shall accommodate assembly with the 3 axis MLRS production configuration rocket motor without modification of the rocket motor.

3.1.5.4.2 An MLRS Fire Direction System (FDS) shall be dynamic to the MLRS platoon to provide the platoon leader a method for controlling platoon M270 launchers and inputting digital data such as ammunition supply locations and questions with the Fire Direction Center (FDC).

3.1.6 Government furnished property (GFP). Specific GFP to be provided shall be as specified in the RRTR integration contract.

3.1.7.1 Operational concepts. The RRTR will be used to provide live fire training for fielded MLRS units, the U.S. Army Field Artillery School, and other MLRS training components as required.

3.1.7.1.1 Target acquisition. RRTR targets will be selected by the unit commander based on available range impact points, the appropriate firing points, and the RRTR surface danger zones. Target selection will be initiated at either the FDC level and transmitted digitally to the launcher or input manually at the launcher as dictated by specific training requirements.

3.1.7.1.3 Command, control, and communications. The RRTR will be used for live firing simulation of MLRS operations. The existing command, control, and communications processors used by MLRS will be used in RRTR operations.

3.2 Characteristics. Applicable with the following exemption.

3.2.1.1.1 Range. Minimum impact range of the RRTR shall be no greater than 8 kilometers. Maximum impact range shall be no greater than 15 kilometers. Minimum and maximum ranges shall be based on standard atmosphere with sea level launcher and target altitudes.

3.2.1.1.5 Accuracy. The RRTR accuracy shall be such that the rocket and associated debris will impact within the impact area of the surface danger zone which shall be defined in accordance with the guidelines of AR 385-62 and AR 385-63.

3.2.1.2.1.1 General. The RRTR rocket shall be a tube launched, free flight rocket with a maximum range capability as specified in 3.2.1.1.1. The rocket subsystem shall include the warhead section, airframe, and rocket motor. The airframe includes those parts which constitute to the aerodynamics and structural characteristics of the rocket, including the fins used for stabilization and maintenance of spin during flight. The warhead section consists of the forward rocket assembly structure, the safety cartridge, and the nose cap. The rocket motor system consists of the propellant, case, nozzle, liner, and ignition system.

3.2.1.2.1.2 Warhead section. The warhead section shall be designed with mass properties (i.e. weight and center of gravity) similar to the M77 warhead. The warhead shall produce a smoke signature upon impact which is visible at a distance of at least 1 to 3 kilometers.

3.2.1.2.1.5 Electrical interface. The rocket shall be designed to accept signals from the fire control system for all ignition functions. Provisions shall be provided in the RP to allow a continuity check to indicate rocket presence in the launch tube.

3.2.1.2.2.1 Rocket pod. Applicable with the following exceptions. The RP shall constitute the interface mechanism between the rocket and the launcher, serve as a launch tube for the rocket, and provide protection for the rocket during handling, storage, and transportation. The design of the RP shall include the following characteristics:

b. Contains six RRTR rockets which are enclosed and launch ready.

c. The integral electrical harness for the RRTR pod shall terminate at a single electrical connector for interface with the launcher fire control system. The RRTR warhead shall require no electrical interface with the launcher.

f. Center of gravity similar to the M77 rocket pod.

3.2.1.2.2.2 M270 launcher. The M270 launcher shall include the following characteristics. The characteristics are applicable with the following exceptions:

c. Fire control equipment.

(3) Contain the configuration as described in MIS-34311 as amended for Terminal Guided Warhead (TGW) and Army Tactical Missile System (ATACMS).

(4) Compute all firing parameters including simulated fuze set time, select, arm and fire each rocket in a quick and safe order within system reaction time constraints.

(8) Provide one or more command, control and communication (C) interfaces that will allow digital communication with the battery FDC for entering data into the system and providing M270 launcher data. In addition, the fire control panel shall have the capability for entering all data required to meet performance requirements.

(9) Not applicable.

3.2.2.2 Warhead section. Nominal warhead diameter for the RRTR warhead section shall be similar to the M77 warhead.

3.2.3.1 Rocket. The combined RP Rocket firing and flight reliability design goal shall be in the range of 0.95 to 0.97. This requirement applies to any rocket stored under field conditions in the RP. The firing and flight reliability is defined as the probability that the rocket will pass all prefire checkouts and complete the firing sequence including impact with smoke ignition in the impact area of the surface danger zone.

3.2.3.1.1 Not applicable.

3.2.3.3 Storage life. The RRTR shall have a minimum storage life of ten years (8 years dormant shelf life and 2 years of accumulative time under field conditions) when stored in the sealed rocket pod. The requirement shall not be affected when the relative humidity within the launch tubes does not exceed 50 percent.

3.2.7.4 Not applicable to RRTR rocket pod.

3.3 Design and construction. Applicable with the following exceptions.

3.3.1.4 Deterioration prevention. Deterioration prevention shall be in accordance with MIL-16232 with the exception of ballast components which have no moving parts, attachment points or physical contact with other untreated metal.

3.3.6.3.3 Not applicable.

3.4 Documentation. Applicable.

3.5 Logistics. Applicable.

3.6 Personnel and training. Applicable with the following changes.

3.6.1 Personnel. Existing MOS will be used with no new MOS skill requirements or no increase to existing MLRS force structure.

3.6.2 Training. Existing MLRS training courses will be used with only minimum changes to reflect any unique RRTR requirements.

3.7 Functional area characteristics. To be determined.

3.8 Precedence. Applicable.

4 QUALITY ASSURANCE PROVISIONS.

4.1 General. Applicable.

4.2 Quality conformance inspections. Applicable with the following changes.

4.2.4.15 Acceleration. The acceleration requirements for the equipment specified in 3.2.7.3.15 shall be verified by analysis using computational and/or finite element techniques.

4.2.4.17.1 Rail impact. The rail impact requirements of 3.2.7.3.15.1 shall be verified by similarity with the basic M72 rocket pod.

4.3 Design and construction. Applicable.

4.4 Nuclear environments. Not Applicable.

4.5 Electromagnetic environments. The electromagnetic environment requirements specified in 3.2.7.5.1 through 3.2.7.5.5 shall be verified by similarity to the basic MRA1 rocket pod.

4.6 Verification methods. The minimum verification methods required to verify that the system design complies with the requirements of Section 3 of this specification shall be in accordance with the contractor master test plan (CMTP).

5 PREPARATION FOR DELIVERY

5.1 General. Applicable.

5.2 Specific requirements. Only materials appearing on the MICOM Approved Materials Listing may be used, proposed deviations shall be accompanied by request for waiver giving justification.

5.3 Detailed preparation. Applicable.

6 NOTES

6.1 Operable. Applicable.

6.2 Derivative specification. MIS-31710 is a derivative of the MLRS basic system specification, MIS-26433, in that it establishes the requirements for using MLRS to deliver a payload other than M77 grenade submunition. The derivative specification MIS-31710:

a. Agrees in principal with MIS-26432 in paragraph arrangement, numbering, and headings.

b. Where paragraphs of MIS-26432 are unchanged as a result of the derivative requirements, the paragraph numbers and titles, are shown as "applicable" to the first level of indenture (i.e. X.X). When paragraphs of MIS-26432 are affected by the MLRS RRTR derivative requirements, MIS-26432 first level of indenture paragraph numbers and titles shall be shown, followed by "applicable with the following changes". Each paragraph affected is shown in its entirety with applicable changes. Unmodified paragraphs below the first level of indenture are applicable and therefore not listed.

c. New paragraphs have been added as required.

d. In case of discrepancies between the reference specification and the derivative specification, the derivative specification will govern.

6.3 Acronyms and abbreviations. The acronyms and abbreviations used throughout this document are listed in Table VIII.

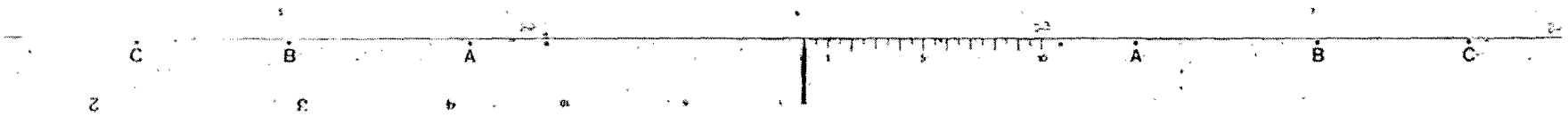
6.4 Ground handling shock load validation. Transit drop shock loads are more stringent than ground handling shock loads. Therefore, testing for transit drop loads validates both requirements.

CUSTODIAN:
Army - MI

PREPARING ACTIVITY:
U.S. Army Missile Command
Redstone Arsenal, AL 35898
[PROJECT NO.]

Table VIII. Acronyms and Abbreviations

Abbreviation	Term
BIT	Built-In Test Equipment
CMTP	Contractor Master Test Plan
FCS	Fire Control System
FDC	Fire Direction Center
FDS	Fire Direction System
GFP	Government Furnished Property
MFOM	MLRS Family of Munitions
MLRS	Multiple Launch Rocket System
RP	Rocket Pod
RRTR	Reduced Range Training Rocket
RSV	Reusable Vehicle
SRP	Stabilization Reference Package
TADMS	Tactical Missile System
TGW	Terminal Guided Warhead



11

TAB 11

Each bill of lading copy shall contain the following information:

(A) Sponsoring U.S. Government agency.
(B) Name of vessel.
(C) Vessel flag of registry.
(D) Date of loading.
(E) Port of loading.
(F) Port of final discharge.
(G) Description of commodity.
(H) Gross weight in pounds and cubic feet if available.
(I) Total ocean freight revenue in U.S. dollars.

(d) Except for small purchases as described in 48 CFR 13, the Contractor shall insert the substance of this clause, including this paragraph (d), in all subcontracts or purchase orders under this contract.

(e) The requirement in paragraph (a) does not apply to--

(1) Small purchases as defined in 48 CFR 13;

(2) Cargoes carried in vessels of the Panama Canal Commission or as required or authorized by law or treaty;

(3) Ocean transportation between foreign countries of supplies purchased with foreign currencies made available, or derived from funds that are made available, under the Foreign Assistance Act of 1961 (22 U.S.C. 2353); and

(4) Shipments of classified supplies when the classification prohibits the use of non-Government vessels.

(f) Guidance regarding fair and reasonable rates for privately owned U.S.-flag commercial vessels may be obtained from the Division of National Cargo, Office of Market Development, Maritime Administration, U.S. Department of Transportation, Washington, DC 20590, Phone 202-426-4610.

(End of clause)

I-15 VALUE ENGINEERING (84-DEV-26)
52.248-1 (DEC 1985)

(a) GENERAL. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any net acquisition savings realized from accepted VECP's, in accordance with the incentive sharing rates in paragraph (f) below.

(b) DEFINITIONS. "Acquisition savings," as used in this clause, means savings resulting from the application of a VECP to contracts awarded by the same contracting office or its successor (and by other contracting offices if included in an extended sharing base specified in the Schedule) for essentially the same unit. Acquisition savings include--

(1) Instant contract savings, which are the net cost reductions on this, the instant contract, and which are equal to the instant unit cost reduction multiplied by the number of instant contract units affected by the VECP, less the Contractor's allowable development and implementation costs;

(2) Concurrent contract savings, which are measurable net reductions in the prices of other contracts that are definitized and ongoing at the time the VECP is accepted; and

(3) Future contract savings, which are the product of the future unit cost reduction multiplied by the number of future contract units scheduled for delivery during the sharing period. If this contract is a multiyear contract, future contract savings include savings on all quantities funded after VECP acceptance.

(4) Annual acquisition savings, which are net reduction in acquisition cost to the Government of an item, resulting from an accepted VECP which the Government determines to reduce the quantity requirement on either the instant contract, concurrent and/or future contracts during the sharing period.

"Collateral costs," as used in this clause, means agency cost of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contracting office" includes any contracting office that the acquisition is transferred to, such as another branch of the agency or another agency's office that is performing a joint acquisition action.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Future unit cost reduction," as used in this clause, means the instant unit cost reduction adjusted as the Contracting
er considers necessary for projected learning or changes in quantity during the sharing period. It is calculated at the time
VECP is accepted and applies either (1) throughout the sharing period, unless the Contracting Officer decides that recalculation is necessary because conditions are significantly different from those previously anticipated or (2) to the calculation of a lump-sum payment, which cannot later be revised.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistics support. The term does not include the normal administrative costs of processing the VECP or any increase in this contract's cost or price resulting from negative instant contract savings.

"Instant contract," as used in this clause, means this contract, under which the VECP is submitted. It does not include increases in quantities after acceptance of the VECP that are due to contract modifications, exercise of options, or additional orders. If this is a multiyear contract, the term does not include quantities funded after VECP acceptance. If this contract is a fixed-price contract with prospective price redetermination, the term refers to the period for which firm prices have been established.

"Instant unit cost reduction" means the amount of the decrease in unit cost of performance (without deducting any Contractor's development or implementation cost) resulting from using the VECP on this, the instant contract or the amount of savings in annual acquisition cost per unit resulting from the procurement of a reduced total annual demand. In service contracts, the instant unit cost reduction is normally equal to the number of hours per line-item task saved by using the VECP on the instant contract, multiplied by the appropriate contract labor rate. Unit cost reduction for savings in annual acquisition cost will be determined by: Old annual demand (OAD) of the old part multiplied by old unit cost (OUC) minus new annual demand (NAD) of the new part multiplied by the new unit cost (NUC) and this quantity divided by the "new" annual demand (NAD): ((OADxOUC) - (NADxNUC)/NAD.)

"Negative instant contract savings" means the increase in the cost or price of this contract when the acceptance of a VECP
'ts in an excess of the Contractor's allowable development and implementation costs over the product of the instant unit cost
ction multiplied by the number of instant contract units affected.

"Net acquisition savings" means total acquisition savings, including instant, concurrent, and future contract savings, less Government costs.

"Sharing base," as used in this clause, means the number of affected end items on contracts of the contracting office accepting the VECP or, if the sharing base has been extended under paragraph 48.102(e) of the Federal Acquisition Regulation (48 CFR Chapter 1), the number of affected end items on contracts of contracting offices included in the extended base specified in the Schedule.

"Sharing period," as used in this clause, means the period beginning with acceptance of the first unit incorporating the VECP and ending at the later of (1) 3 years after the first unit affected by the VECP is accepted or (2) the last scheduled delivery date of an item affected by the VECP under this contract's delivery schedule in effect at the time the VECP is accepted.

"Unit," as used in this clause, means the item or task to which the Contracting Officer and the Contractor agree the VECP applies.

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; PROVIDED, that it does not involve a change--

(i) In deliverable end item quantities only;

(ii) In research and development (R&D) end items or R&D test quantities that is due solely to results of previous testing under this contract; or

(iii) To the contract type only.

(c) VECP PREPARATION. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (8) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) Identification of the unit to which the VECP applies.

(4) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

(5) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(6) A prediction of any effects the proposed change would have on collateral costs to the agency.

(7) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(8) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) SUBMISSION. The Contractor shall submit VECP's to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the VECP simultaneously to the Contracting Officer and to the Administrative Contracting Officer.

(e) GOVERNMENT ACTION. (1) The Contracting Officer shall notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer shall notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause and made either before or within a reasonable time after contract performance is completed. Until such contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Contracting Officer's decision to accept or reject all or part of any VECP and the decision as to which of the sharing rates applies shall be final and not subject to the Disputes clause or otherwise subject to litigation under the Contract Disputes Act '78 (41 U.S.C. 601-613).

(f) SHARING RATES. If a VECP is accepted, the Contractor shall share in net acquisition savings according to the percentages shown in the table below. The percentage paid the Contractor depends upon (1) this contract's type (fixed-price, incentive, or cost-reimbursement), (2) the sharing arrangement specified in paragraph (a) above (incentive, program requirement, or a combination as delineated in the Schedule), and (3) the source of the savings (the instant contract, or concurrent and future contracts), as follows:

CONTRACTOR'S SHARE OF NET ACQUISITION

SAVINGS

(Figures in percent)

Contract Type	Sharing Arrangement			
	Incentive (voluntary)		Program requirement (mandatory)	
	Instant contract rate	Concurrent and future contract rate	Instant contract rate	Concurrent and future contract rate
Fixed-price (other than incentive)	50	50	25	25
Incentive (fixed-price or cost)	*	50	*	25
Cost-reimbursement (other than incentive)**	25	25	15	15

*Same sharing arrangement as the contract's profit or fee adjustment formula.

**Includes cost-plus-award-fee contracts.

(g) CALCULATING NET ACQUISITION SAVINGS. (1) Acquisition savings are realized when (i) the cost or price is reduced on the instant contract, (ii) reductions are negotiated in concurrent contracts, (iii) future contracts are awarded, or (iv) agreement is reached on a lump-sum payment for future contract savings (see subparagraph (i)(4) below). Net acquisition savings are first realized, and the Contractor shall be paid a share, when Government costs and any negative instant contract savings have been fully offset against acquisition savings.

(2) Except in incentive contracts, Government costs and any price or cost increases resulting from negative instant contract savings shall be offset against acquisition savings each time such savings are realized until they are fully offset. Then, the Contractor's share is calculated by multiplying net acquisition savings by the appropriate Contractor's percentage sharing rate (see paragraph (f) above. Additional Contractor shares of net acquisition savings shall be paid to the Contractor at the time realized.

(3) If this is an incentive contract, recovery of Government costs on the instant contract shall be deferred and offset against concurrent and future contract savings. The Contractor shall share through the contract incentive structure in savings on the instant contract items affected. Any negative instant contract savings shall be added to the target cost or to the target price and ceiling price, and the amount shall be offset against concurrent and future contract savings.

(4) If the Government does not receive and accept all items on which it paid the Contractor's share, the Contractor shall reimburse the Government for the proportionate share of these payments.

(h) CONTRACT ADJUSTMENT. The modification accepting the VECP (or a subsequent modification issued as soon as possible after any negotiations are completed) shall--

(1) Reduce the contract price or estimated cost by the amount of instant contract savings, unless this is an incentive contract;

(2) When the amount of instant contract savings is negative, increase the contract price, target price and ceiling price, target cost, or estimated cost by that amount;

(3) Specify the Contractor's dollar share per unit on future contracts, or provide the lump-sum payment;

(4) Specify the amount of any Government costs or negative instant contract savings to be offset in determining net acquisition savings realized from concurrent or future contract savings; and

(5) Provide the Contractor's share of any net acquisition savings under the instant contract in accordance with the following:

(i) Fixed-price contracts -- add to contract price.
(ii) Cost-reimbursement contracts -- add to contract fee.

(i) CONCURRENT AND FUTURE CONTRACT SAVINGS. (1) Payments of the Contractor's share of concurrent and future contract savings shall be made by a modification to the instant contract in accordance with subparagraph (h)(5) above. For incentive contracts, shares shall be added as a separate firm-fixed-price line item on the instant contract. The Contractor shall maintain records adequate to identify the first delivered unit for 3 years after final payment under this contract.

(2) The Contracting Officer shall calculate the Contractor's share of concurrent contract savings by (i) subtracting from the reduction in price negotiated on the concurrent contract any Government costs or negative instant contract savings not yet offset and (ii) multiplying the result by the Contractor's sharing rate.

(3) The Contracting Officer shall calculate the Contractor's share of future contract savings by (i) multiplying the future unit cost reduction by the number of future contract units scheduled for delivery during the sharing period, (ii) subtracting any Government costs or negative instant contract savings not yet offset and (iii) multiplying the result by the Contractor's rate.

(4) When the Government wishes and the Contractor agrees, the Contractor's share of future contract savings may be paid in a single lump sum rather than in a series of payments over time as future contracts are awarded. Under this alternate procedure, the future contract savings may be calculated when the VECP is accepted, on the basis of the Contracting Officer's forecast of the number of units that will be delivered during the sharing period. The Contractor's share shall be included in a modification to this contract (see subparagraph (h)(3) above) and shall not be subject to subsequent adjustment.

(5) Alternate no-cost settlement method. When, in accordance with subsection 48.104-3 of the Federal Acquisition Regulation, the Government and the Contractor mutually agree to use the no-cost settlement method, the following applies:

(i) The Contractor will keep all the savings on the instant contract and on its concurrent contracts only.

(ii) The Government will keep all the savings resulting from concurrent contracts placed on other sources, savings from all future contracts, and all collateral savings.

(j) COLLATERAL SAVINGS. If a VECP is accepted, the instant contract amount shall be increased, as specified in subparagraph (h)(5) above, by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings shall not exceed (1) the contracts's firm-fixed price, target price, target cost, or estimated cost, at the time the VECP is accepted, or (2) $100,000, whichever is greater. The Contracting Officer shall be the sole determiner of the amount of collateral savings, and that amount shall not be subject to the Disputes clause or otherwise subject to litigation under 41 U.S.C. 601-613.

(k) RELATIONSHIP TO OTHER INCENTIVES. Only those benefits of an accepted VECP not rewardable under performance, design-to-cost (production unit cost, operating and support costs, reliability and maintainability), or similar incentives shall be rewarded under this clause. However, the targets of such incentives affected by the VECP shall not be adjusted because of VECP acceptance. If this contract specifies targets but provides no incentive to surpass them, the value engineering sharing shall apply only to the amount of achievement better than target.

(l) SUBCONTRACTS. The Contractor shall include an appropriate value engineering clause in any subcontract of $100,000 or more and may include one in subcontracts of lesser value. In calculating any adjustment in this contract's price for instant contract savings (or negative instant contract savings), the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs, and any value engineering incentive payments to a subcontractor, clearly resulting from a VECP accepted by the Government under this contract. The Contractor may choose any arrangement for subcontractor value engineering incentive payments, PROVIDED, that the payments shall not reduce the Government's share of concurrent or future contract saving or collateral savings.

(m) DATA. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

'These data, furnished under the Value Engineering clause of contract _____, shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations.'

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms 'unlimited rights' and 'limited rights' are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

I-16 AVAILABILITY OF CONTRACTOR RECORDS

252.215-7002 (1987 APR)

(a) Upon request by the Contracting Officer, the Contractor shall make available, in a timely manner, to the Contracting Officer or to an authorized representative of the Contracting Officer (who is an employee of the United States or a member of the Armed Forces), records of the contract and of end items under the contract for:

(1) the proposed, negotiated and incurred costs and related profit or fee;

(2) bills of materials; and

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TAB 12

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE: R
PAGE OF PAGES: 1 | 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
P0B111	10 JUL 1992	See Schedule	ACN

6. ISSUED BY: CODE W31P4Q
U. S. ARMY MISSILE COMMAND
AMSMI-PC-BCA /
MRS PAT McKAY /205-842-6311
REDSTONE ARSENAL AL 35898-5280

7. ADMINISTERED BY (If other than Item 6) CODE FY7928
AFPRO LTV AEROSPACE AND DEFENSE CO
P O BOX 655907
DALLAS TX 75265-5907
SCD A PAS NONE ADP PT FY7628

8. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP Code)
LTV AEROSPACE AND DEFENSE CO /DEBTOR IN POSSESSION
VOUGHT MISSILES & ADV PRO DIV
9314 W JEFFERSON BLVD
P O BOX 650907
DALLAS TX 75265-5907
CODE 80378 FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.
9B. DATED (SEE ITEM 11)
X 10A. MODIFICATION OF CONTRACT/ORDER NO. DAAH01-89C-A134
10B. DATED (SEE ITEM 13) 89JUN19

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 Offers ( ) is extended, ( ) is not extended.
Offers 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 amendments; (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 ACKNOWLEDGEMENT 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)
No change to obligation data

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

(X)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: ___ . 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: CHANGES CLAUSE
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ( ) is not, (X) is required to sign this document and return . copies to the issuing office.

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

Except as provided herein, all items 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)
B. N. Smith Director - Contracts and Financial Anal.	JAMES R. GANOE CONTRACTING OFFICER

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
[signature] (Signature of person authorized to sign)	10 July 1992	BY [signature] (Signature of Contracting Officer)	10 Jul 92

NSN 7540-01-152-8070
PREVIOUS EDITION UNUSABLE
30-105
STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION A - SUPPLEMENTAL INFORMATION

A-1 VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-C1450 ENTITLED "REDUCED RANGE TRAINING ROCKET (RRTR)" IS HEREBY INCORPORATED INTO THE SUBJECT CONTRACT. THIS VECP IS EFFECTIVE FOR INSTANT CONTRACT CLINs 0034AA, 0034AB, 0044, 0049AA, 0049AB, AND FUTURE CONTRACTS WHICH FALL WITHIN THE SHARING PERIOD.

A-2 VECP MI-C1450 IS ACCEPTED BASED UPON A MINIMUM NET SAVINGS OF $4,600,000 ON THIS CONTRACT, WITH CONTRACTOR AND GOVERNMENT DEVELOPMENT AND IMPLEMENTATION COST NOT TO EXCEED $4,800,000 AND $2,000,000 RESPECTIVELY. THE MINIMUM NET SAVINGS IS BASED ON CDRL B013, RRTR QUALIFICATION TEST PLAN DATED 9 JULY 1992, ATTACHED HEREIN AT ENCLOSURE 1.

MINIMUM NET SAVINGS IS DEFINED AS TOTAL SAVINGS LESS ANY APPLICABLE DEVELOPMENT AND/OR IMPLEMENTATION COSTS PRIOR TO ADJUSTMENT FOR CONTRACTOR SHARE OF SAVINGS. THE AMOUNT OF SAVINGS IS SUBJECT TO FINAL NEGOTIATIONS.

A-3 THE QUANTITIES ASSOCIATED WITH THE ABOVE MINIMUM NET SAVINGS ARE AS FOLLOWS:

	CLIN	QUANTITY
INSTANT CONTRACT:	0034AA	932
	0034AB	619
	0044	932
	0049AA	50
0049AB	68	
		2,601 ROCKET PODS

A-4 A DEFINITIZATION PROPOSAL FOR THE COST OF THE VECP CONFIGURATION SHALL BE SUBMITTED BY THE CONTRACTOR ON OR BEFORE OCTOBER 30, 1992. DEFINITIZATION WILL OCCUR NO LATER THAN 180 DAYS AFTER RECEIPT OF A QUALIFYING PROPOSAL. DEFINITIZATION WILL BE BY MODIFICATION ON A FIRM-FIXED-PRICE BASIS.

A-6 DURING IMPLEMENTATION OF THIS VECP, THE CONTRACTOR SHALL FURNISH THE FOLLOWING DATA ITEM:

CDRL B013 DI-T-1903 RRTR QUALIFICATION TEST PLAN

EXECUTION OF THIS MODIFICATION BY THE PARTIES SHALL EXTEND TO APPROVAL OF CDRL B013.

IT IS UNDERSTOOD THAT AFTER COMPLETION OF QUALIFICATION TESTING, PROJECTED FOR MARCH 1993, THE HARDWARE AND SOFTWARE BASELINE SHALL BE ESTABLISHED IN THE FINAL PRODUCTION CONFIGURATION IDENTIFICATION (PCI) TECHNICAL DATA PACKAGE (TDP). THE FINAL PCI TDP SHALL BE SUBMITTED TO THE GOVERNMENT FOR REVIEW AND APPROVAL. UPON APPROVAL OF THE PCI TDP, CONFIGURATION CONTROL OF RRTR-PECULIAR HARDWARE SHALL REVERT TO THE GOVERNMENT.

A-7 THE HARDWARE TO BE DELIVERED SHALL MEET THE REQUIREMENTS OF VECP MI-C1450 AND THE APPROVED PCI TDP BASELINE. IN THE EVENT THAT THE PCI TDP HAS NOT BEEN APPROVED BY THE GOVERNMENT AT THE TIME THE PRODUCTION UNITS ARE READY TO BE DELIVERED, THE CONTRACTOR SHALL DEFINE AN INTERIM ENGINEERING RELEASE RECORD (ERR) AND SHALL SUBMIT THE HARDWARE FOR DELIVERY UNDER A CERTIFICATE OF CONFORMANCE (COC) IN ACCORDANCE WITH PARAGRAPH E-3 OF THE CONTRACT. SAID INTERIM ERR SHALL BE SUBMITTED TO THE COGNIZANT DCAS REPRESENTATIVE AT THE CONTRACTOR'S CAMDEN, ARKANSAS PRODUCTION FACILITY FOR APPROVAL PRIOR TO EXECUTION OF THE COC.

A-8 A. THE CONTRACTOR DEVELOPED THE RRTR CONCEPT UNDER LTVAD RESEARCH AND DEVELOPMENT PROJECT NO. 531M DURING FYs 1988, 1989, AND 1990. THIS CONCEPT WAS DEVELOPED AT PRIVATE EXPENSE AND ANY TECHNICAL DATA REFLECTING SUCH CONCEPT WHICH IS DELIVERED TO THE GOVERNMENT UNDER VECP MI-C1450 QUALIFIES FOR LIMITED RIGHTS AND RESTRICTED RIGHTS AS DEFINED IN CLAUSE I-6, "RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE", DFARS 252.227-7013, PARAGRAPHS (b)(3) AND (c)(1). A DETAILED LISTING OF AFFECTED ITEMS SHALL BE

ROVIDED TO THE GOVERNMENT NOT LATER THAN THE DEFINITIZATION OF THIS MODIFICATION.

B. THE GOVERNMENT HAS NEITHER AGREED TO OR VERIFIED SUCH ALLEGATIONS AND RESERVES THE RIGHT TO INVESTIGATE THE PROPRIETY OF SUCH LIMITED RIGHTS AND RESTRICTED RIGHTS ALLEGATIONS IN ACCORDANCE WITH THE CRITERIA AND PROCEDURES IN CLAUSE I-6, PARAGRAPH (d) THEREOF. HOWEVER, PENDING ANY SUCH INVESTIGATION, THE GOVERNMENT WILL TREAT ANY TECHNICAL DATA AND COMPUTER SOFTWARE IDENTIFIED IN (A) ABOVE WHICH IS DELIVERED HEREUNDER AND PROPERLY MARKED WITH LIMITED RIGHTS AND RESTRICTED RIGHTS LEGENDS, IN ACCORDANCE WITH SUCH LEGENDS.

A-9 THE CONTRACTOR IS AUTHORIZED TO DELIVER CLIN 0006 ADVANCED MATERIAL WHICHD HAS BEEN RENDERED OBSOLETE BY THIS VECP TO THE GOVERNMENT VIA DD FORM 250.

A-10 THE FOLLOWING GOVERNMENT FURNISHED PROPERTY (GFP) IS HEREBY AUTHORIZED FOR USE IN SUPPORT OF THE RRTR EFFORT:

COMPUTER VAN
ARMTE INSTRUMENTAL VAN
SONIC WELD FIXTURE (ACCOUNTABLE TO CONTRACT DAAH01-89-C-0082)

ADDITIONALLY, THE NATIONAL RANGE AND ENVIRONMENTAL TEST LABS AT REDSTONE ARSENAL, AL AND WHITE SANDS MISSILE RANGE (WSMR), NM WILL BE MADE AVAILABLE IN SUPPORT OF THE TESTING OF THE RRTR IN ACCORDANCE WITH THE APPROVED PLAN UNDER CDRL B013.

A-11 ENCLOSURE 2 OF THIS MODIFICATION, HARDWARE DELIVERY SCHEDULE, REPLACES THE PREVIOUS HARDWARE DELIVERY SCHEDULE.

A-12 STATUS REPORTING ON THIS VECP TO THE MLRS PROJECT OFFICE SHALL BE PERFORMED AT THE REGULARLY SCHEDULED QUARTERLY PROGRAM MANAGEMENT REVIEWS.

-13 THE VECP CONFIGURATION SUPERSEDES THE PRACTICE CONFIGURATION OF CLIN 0034AB, WHICH WAS DIRECTED AND FUNDED BY MODIFICATION P00097. MODIFICATION P00097 DIRECTED THE CONVERSION OF 619 ROCKET PODS FROM THE TACTICAL TO THE PRACTICE CONFIGURATION. AS PART OF THE VECP DEFINITIZATION PROPOSAL, THE CONTRACTOR SHALL INDICATE THOSE COSTS INCURRED PURSUANT TO MODIFICATION P00097. THESE COSTS MAY INCLUDE ANY PROPOSED INCREASE IN NON-ADVANCED MATERIAL COST OF THE TACTICAL ROCKET (CLIN 0033).

A-14 IN PARAGRAPH E-3 OF THE SUBJECT CONTRACT, THE FIRST SENTENCE IS HEREBY REPLACED WITH THE FOLLOWING:

"THIS CLAUSE APPLIES ONLY TO ADVANCE MATERIALS, CLIN 0006, AND TO REDUCED RANGE TRAINING ROCKETS (RRTRs), CLINs 0034AA, 0034AB, 0044, 0049AA, AND 0049AB."

A-15 THE GOVERNMENT HAS ELECTED TO ACQUIRE DATA RIGHTS AND IMPLEMENT THE RRTR PROGRAM VIA A VECP AS OPPOSED TO A NEW CONTRACT. THIS ELECTION IS FOR CONVENIENCE IN EFFECTING AND FUNDING THIS IMPROVEMENT WHICH REPRESENTS A SIGNIFICANT SAVINGS. AS WITH PRIOR U.S. - ONLY IMPROVEMENTS, THIS PROGRAM IS OUTSIDE THE SCOPE OF THE MLRS MOU AND SUPPLEMENTS. THIS ELECTION TO USE A VECP FOR CONVENIENCE SHALL NOT BE CONSIDERED AS A BASIS TO CLAIM MOU/SUPPLEMENT COVERAGE.

A-15 EXCEPT AS SPECIFIED HEREIN, ALL TERMS AND CONDITIONS OF THE CONTRACT REMAIN UNCHANGED AND IN FULL FORCE AND EFFECT.

(End of narrative A115)

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TAB 13

SUBPART 217.74--UNDEFINITIZED CONTRACT ACTIONS
(Revised May 12, 2006)

217.7400 Scope.
This subpart prescribes policies and procedures implementing 10 U.S.C. 2326.

217.7401 Definitions.
As used in this subpart—

(a) "Contract action" means an action which results in a contract.

(1) It includes contract modifications for additional supplies or services.

(2) It does not include change orders, administrative changes, funding modifications, or any other contract modifications that are within the scope and under the terms of the contract, e.g., engineering change proposals, value engineering change proposals, and over and above work requests as described in Subpart 217.77.

(b) "Definitization" means the agreement on, or determination of, contract terms, specifications, and price, which converts the undefinitized contract action to a definitive contract.

(c) "Qualifying proposal" means a proposal containing sufficient information for the DoD to do complete and meaningful analyses and audits of the—

(1) Information in the proposal; and

(2) Any other information that the contracting officer has determined DoD needs to review in connection with the contract.

(d) "Undefinitized contract action" means any contract action for which the contract terms, specifications, or price are not agreed upon before performance is begun under the action. Examples are letter contracts, orders under basic ordering agreements, and provisioned item orders, for which the price has not been agreed upon before performance has begun.

217.7402 Exceptions.
The following undefinitized contract actions (UCAs) are not subject to this subpart, but the contracting officer should apply the policy to them (and to changes under the Changes clause) to the maximum extent practicable—

(a) UCAs for foreign military sales;

(b) Purchases at or below the simplified acquisition threshold;

(c) Special access programs;

(d) Congressionally mandated long-lead procurement contracts.

217.7403 Policy.
DoD policy is that undefinitized contract actions shall—

(a) Be used only when—

(1) The negotiation of a definitive contract action is not possible in sufficient time to meet the Government's requirements; and

(2) The Government's interest demands that the contractor be given a binding commitment so that contract performance can begin immediately.

(b) Be as complete and definite as practicable under the particular circumstances.

217.7404 Limitations.

217.7404-1 Authorization.
The contracting officer shall obtain approval from the head of the contracting activity before—

(a) Entering into a UCA. The request for approval must fully explain the need to begin performance before definitization, including the adverse impact on agency requirements resulting from delays in beginning performance.

(b) Including requirements for non-urgent spare parts and support equipment in a UCA. The request should show that inclusion of the non-urgent items is consistent with good business practices and in the best interest of the United States.

(c) Modifying the scope of a UCA when performance has already begun. The request should show that the modification is consistent with good business practices and in the best interests of the United States.

217.7404-2 Price ceiling.
UCAs shall include a not-to-exceed price.

217.7404-3 Definitization schedule.

(a) UCAs shall contain definitization schedules that provide for definitization by the earlier of—

(1) The date that is 180 days after issuance of the action (this date may be extended but may not exceed the date that is 180 days after the contractor submits a qualifying proposal); or

(2) The date on which the amount of funds obligated under the contract action is equal to more than 50 percent of the not-to-exceed price.

(b) Submission of a qualifying proposal in accordance with the definitization schedule is a material element of the contract. If the contractor does not submit a timely qualifying proposal, the contacting officer may suspend or reduce progress payments under FAR 32.503-6, or take other appropriate action.

217.7404-4 Limitations on obligations.
The Government shall not obligate more than 50 percent of the not-to-exceed price before definitization. However, if a contractor submits a qualifying proposal before 50 percent of the not-to-exceed price has been obligated by the Government, then the limitation on obligations before definitization may be increased to no more than 75 percent (see 232.102-70 for coverage on provisional delivery payments).

217.7404-5 Exceptions.

(a) The limitations in 217.7404-2, 217.7404-3, and 217.7404-4 do not apply to UCAs for the purchase of initial spares.

(b) The head of an agency may waive the limitations in 217.7404-2, 217.7404-3, and 217.7404-4 for UCAs if the head of the agency determines that the waiver is necessary to support—

(1) A contingency operation; or

(2) A humanitarian or peacekeeping operation.

217.7404-6 Allowable profit.
When the final price of a UCA is negotiated after a substantial portion of the required performance has been completed, the head of the contracting activity shall ensure the profit allowed reflects—

(a) Any reduced cost risk to the contractor for costs incurred during contract performance before negotiation of the final price; and

(b) The contractor's reduced cost risk for costs incurred during performance of the remainder of the contract.

217.7405 Contract clauses.

(a) Use the clause at FAR 52.216-24, Limitation of Government Liability, in all UCAs, solicitations associated with UCAs, basic ordering agreements, indefinite delivery contracts, and any other type of contract providing for the use of UCAs.

(b) Use the clause at 252.217-7027, Contract Definitization, in all UCAs, solicitations associated with UCAs, basic ordering agreements, indefinite delivery contracts, and any other type of contract providing for the use of UCAs. Insert the applicable information in paragraphs (a), (b), and (d) of the clause. If, at the time of entering into the UCA, the contracting officer knows that the definitive contract action will meet the criteria of FAR 15.403-1, 15.403-2, or 15.403-3 for not requiring submission of cost or pricing data, the words "and cost or pricing data" may be deleted from paragraph (a) of the clause.

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TAB 14

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT | 1. CONTRACT ID CODE K | PAGE OF PAGES 1 | 7

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ NO.	5. PROJECT NO.
P00241	8 DEC 1995		

6. ISSUED BY CODE W31P4Q	7. ADMINISTERED BY CODE S4420A
U.S. ARMY MISSILE COMMAND AMSMI-AC-CBCA MRS. CRYSTAL BLACKBURN/205-842-6381 REDSTONE ARSENAL AL 35898-5280	DPRO LORAL/VOUGHT PO BOX 655907 MS 4915 DALLAS TX 75265-5907 SCD A PAS NONE ADP PT FY7628

8. NAME AND ADDRESS OF CONTRACTOR	(X)	
LORAL VOUGHT SYSTEMS A 1701 W MARSHALL DRIVE GRAND PRAIRIE TX 75051		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MODIFICATION OF CONTRACT/ORDER NO. DAAH01-89-C-0336
CODE 64059 FACILITY CODE		10B. DATED (SEE ITEM 13) 89JUN30

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 Offers [ ] is extended [ ] is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitations 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 ACKNOWLEDGEMENT 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)
SEE CONTINUATION SHEET

C 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: 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 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: Mutual Agreement and TMCP Clause

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

E. IMPORTANT: CONTRACTOR [ ] IS NOT, [X] IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 1 COPIES TO THE ISSUING OFFICE.

14. DESCRIPTION OF AMENDMENT/MODIFICATION

DUPLICATE ORIGINAL

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remain 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)
B. N. Smith Vice President Business Operations	[redacted] Contracting Officer

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. [redacted] OF AMERICA	16C. DATE SIGNED
[redacted]	07 Dec. 1995	BY [redacted] (Signature of Contracting Officer)	8 DEC 1995

SECTION A - Supplemental Information

A-1 The purpose of this modification is to definitize Modification P000111 and P00160 to set forth a mutual agreement for an equitable adjustment resulting from the Government's acceptance and incorporation into this contract of the contractor's Value Engineering Change Proposal (VECP) No. MI-C1450. The VECP was incorporated into this contract by Modification P000111 whose effective date was 10 July 1992.

A-2 Âs a basis for negotiating this modification, the following data is mutually agreed to be valid to the best of the knowledge of both parties:

(a) Date of acceptance by the Government of the first item incorporating the VECP - 31 September 1993

(b) Originally scheduled delivery date of the last effected item under the instant contract - 31 August 1996

(c) Number of items affected in the instant contract - 2,591 each

(d) Gross Unit Instant Contract Savings - $ 6,083.82

(e) Contractor development and implementation costs - $ 4,800,000.00

(f) Government costs - $ 2,087,057.00

(g) Average annual collateral savings - $ 00.00

(h) Concurrent contracts into which the VECP has been incorporated and resultant total concurrent contract savings in each - N/A

(i) Future contracts - DAAH01-94-C-A005: CLINs 0004AA, 0004AB, 0004AC, 0004AD, 0006AA and 0009AA
Number of units: 855 each Resultant Savings: $1,922,040.00
DAAH01-89-C-0336: CLINs 0044AB and 0044AC Number of Units: 3,833 Resultant Savings: $13,165,154.75

A-3 Applying the above data as directed by the applicable Value Engineering provisions of this contract results in the following calculated factors:

(a)	Gross Instant Savings	$ 15,763,175.25
(b)	Instant Contract Savings	$ 10,963,175.25
(c)	Net Instant Acquisition Savings	$ 8,876,118.25
(d)	Government's share of Net Instant Acquisition Savings (50%)	$ 4,438,059.12
(e)	Contractor's share of Net Instant Acquisition Savings (50%)	$ 4,438,059.12
(f)	Contractor's share of Average Annual Collateral Savings (20%)	$ 00.00
(g)	Government's share of Average Annual Collateral Savings (80%	$ 00.00
(h)	Contractor's share of Concurrent Contract Savings (50%)	$ 00.00
(i)	Government's share of Concurrent Contract Savings (50%)	$ 00.00
(j)	Future Contract Unit Cost Reduction	$ 2,248.00
(k)	Contractor's Unit Royalty (50%)	$ 00.00
(l)	Government's Unit Royalty (50%)	$ 00.00
(m)	Contractor's Share of Known Future Contract Savings	$ 8,504,617.37
(n)	Government's Share of Known Future Contract Savings	$ 6,582,577.37

A-4 As a result of this modification, Section B-1, entitled "Supplies and Services" is revised to amend the total CLIN dollar amounts as follows:

CLIN	Previous Amount	Decreased by Total Net Contract Savings	Increased by Contractor's Share of Contracts Net Acquisition Savings	Added by Settlement of Concurrent and Future Contracts	Revised CLIN Amount
0034AA	$ 26,187,065.72	$ 3,495,121.16	$ 1,596,399.50		$ 24,288,344.06
0034AB	$ 17,350,446.20	$ 2,321,330.47	$ 1,060,269.63		$ 16,089,385.36
0044AA	$ 25,082,161.08	$ 3,495,121.16	$ 1,596,399.50		$ 23,183,439.42
0044AB*	$ 93,121,598.40	$ 7,129,219.91		$ 5,722,714.62	$ 91,715,093.11
0044AC*	$ 14,171,285.33	$ 1,845,063.96		$ 842,734.50	$ 13,168,955.87
0049AA	$ 1,621,429.50	$ 187,506.50	$ 85,643.75		$ 1,519,566.75
0049AB	$ 2,207,201.80	$ 255,008.84	$ 116,475.50		$ 2,068,668.46
V004*	$ 00.00			$ 1,528,640.00	$ 1,528,640.00
		$18,728,372.00	$ 4,455,187.88	$ 8,094,089.12	

* Reflects Future Royalty Contract Clins (U.S. QUANTITIES ONLY)

A-5 As a result to this modification CLIN V004 is hereby incorporated into the contract for the contractor share of "Future Royalty Contract" savings, U.S. quantities only. The government will issue another modification in the amount of $393,400.00 to reflect the contractor share of "Future Royalty Contract" savings for the FMS quantities.

A-6 As a result of this modification the estimated total contract amount is decreased by $ 6,179,095.00.

A-7 By incorporation of this modification Loral Vought System agrees to establish an option entitled "Granting of Manufacturing License for the Reduced Range Practice Rocket Warhead". This license is sufficient to allow for a foreign country, after acquiring the license, to contract with one of its national industries to manufacture and deliver Reduced Range Practice Rockets provided that contractor has the remainder of the MLRS tactical rocket technical data package. The cost of the license option is five million dollars ($5,000,000) per country, plus a royalty of five thousand dollars ($5,000) per warhead manufactured. The option may be exercised, more than once, at any time from the effective date of this modification until twenty-four (24) calendar months after the final delivery under this contract.

A-8 By incorporation of this modification the Government Data Rights resulting from the settlement of VECP M1-C1450R1 shall be governed by Clause I-6, "Rights in Technical Data and Computer Software", DFARS 252.227-7013, Paragraphs (b)(3) and (c)(1).

A-9 The clause entitled "License Rights for U.S. Government for VECP M1-C1450R1" is hereby incorporated in Section H of this contract. (Attachment 01)

A-10 By incorporation of this modification the contract remains unchanged except as specified herein.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
0034AA	PRODUCTION QUANTITY	932	EA	$ 26,060.46	$ 24,288,344.06

PRON: A12EF14859 ACRN: BZ
AMS CD: 2230592601

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918-H108
NOUN: PRACTICE ROCKET POD....EFC01B
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

0034AB	PRODUCTION QUANTITY	619	EA	$ 25,992.55	$ 16,089,385.36

PRON: A12EF18159 ACRN: BZ
AMS CD: 2230592601

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918-H108
NOUN: PRACTICE ROCKET POD....EFC01B
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

0044AA	PRODUCTION QUANTITY	932	EA	$ 24,874.94	$ 23,183,439.42

PRON: WG250001WG ACRN: CB
AMS CD: 000000
CUSTOMER ORDER NUMBER: W74VAE20650001

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918
NOUN: PRACTICE ROCKET POD
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

OFFEROR OR CONTRACTOR: LORAL VOUGHT SYSTEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
0044AB	PRODUCTION QUANTITY	3341	EA	$ 27,451.39	$ 91,715,093.11

PRON: A13EF13759 ACRN: CK
AMS CD: 2230592601

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918-H108
NOUN: PRACTICE ROCKET POD....EFC01C
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

0044AC	PRODUCTION QUANTITY	492	EA	$ 26,766.17	$ 13,168,955.87

PRON: NG200501NG ACRN: CL
AMS CD: 00000008
CUSTOMER ORDER NUMBER: W74VAE20650001

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918-H108
NOUN: PRACTICE ROCKET POD....H108
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

0049AA	PRODUCTION QUANTITY	50	EA	$ 30,391.34	$ 1,519,566.75

PRON: WG2EF02259 ACRN: CC
AMS CD: 22300000

SECTION B - Supplies or Services
and Prices/Costs
NSN: 1340-01-149-0918-H108
NOUN: PRACTICE ROCKET POD
FSCM: 18876
PART NR: 13031900
SECURITY CLASS: UNCLASSIFIED

SECTION G - CONTRACT ADMINISTRATION DATA
Accounting & Appropriation Data

LINE ITEM	PRON/ AMS CD	ACRN	OBGL STAT JOB ORD NO	PRIOR AMOUNT	INCREASE/DECREASE AMOUNT	CUMULATIVE AMOUNT
0034AA 2230592601	A12EF14859		1	$26,187,065.72	$ 1,898,721.66-	$ 24,288,344.06
0034AB 2230592601	A12EF18159		1	$17,350,446.20	$ 1,261,060.84-	$ 16,089,385.36
0044AA 000000	NG250001NG		1	$25,082,161.08	$ 1,898,721.66-	$ 23,183,439.42
0044AB 2230592601	A13EF13759		1	$93,121,598.40	$ 1,406,505.29-	$ 91,715,093.11
0044AC 000000	NG200501NG		1	$14,171,285.33	$ 1,002,329.46-	$ 13,168,955.87
0049AA 2300000	WG2EF02259		1	$ 1,621,429.50	$ 101,862.75-	$ 1,519,566.75
0049AB 000000	NG205001NG		1	$ 2,207,201.80	$ 138,533.34-	$ 2,068,668.46
V004 2230590001	A14EF40759		1	$ 00.00	$ 1,528,640.00	$ 1,528,640.00
				NET CHANGE	$ 6,179,095.00-	

NET CHANGE BY

LINE ITEM	ACCOUNTING CLASSIFICATION	ACCOUNTING STATION	INCREASE/DECREASE AMOUNT
0034AA			$ 1,898,721.66-
0034AB	21 22032 25L5L06P2230 2582 S010211EF586	W31P4S	$ 1,261,060.84-
0044AA	97 203500118 181098P22100031EA S49092APCEL41	W74VAE	$ 1,898,721.66-
0044AB	21 32032 35L5L06P2230 2582 S01021	W31P4S	$ 1,406,505.29-
0044AC	97 203500118 181098P22100031EA S49092APCEL41	W74VAE	$ 1,002,329.46-
0049AA	21 22032 2635918P2230 26EE S01021	W31P4R	$ 101,862.75-
0049AB	97 203500118 181098P22100031EA S49092APCEL41	W74VAE	$ 138,533.34-
V004	21 42032 45L5L06P2230 25CZ S01021		$1,528,640.00
		NET CHANGE	$ 6,179,095.00-

****

H-52 License Rights for VECP MI-C1450R1

Technical data pertaining to items, components or processes developed exclusively at private expense, which the Government would be entitled to have furnished with ``Limited Rights'' as defined in paragraph (a)(15) of the clause at 252.227-7013, shall, at no additional cost to the Government, be furnished with the following additional right:

> The right to disclose or provide the technical data, in whole or in part and in any manner, for Government Purposes only, and to have or permit others to do so for Government Purposes only, to any U.S. person or corporation that has executed a Standard- Non-Disclosure Agreement which establishes third party beneficiary status in the contractor. If the recipient of the technical data has executed the Standard Non-Disclosure Agreement, the Contractor shall have no claim or right of action against the Government for damages related to misuse or unauthorized disclosure of the data. For purposes of this clause, ``Government Purposes'' shall include competitive procurement in the United States, but do not include any rights to have or permit others to use technical data for commercial purposes, or for purposes for foreign manufacture or foreign procurement. Contractor shall have, and shall retain, all commercial and foreign rights including Foreign Military Sales (FMS).

All technical data furnished to the Government that is marked with ``Limited Rights'' legend shall be marked with the following additional statement:

> ``In addition to the ``Limited Rights'' specified in paragraph (a)(15) of the clause at 252.227-7013 of the contract listed above, the Government has ``License Rights'' as specified in Clause H-52 of said contract.''

****

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TAB 15

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE K	PAGE OF PAGES 1 5

2. AMENDMENT/MODIFICATION NO. P00260	3. EFFECTIVE DATE 26 JAN 1996	4. REQUISITION/PURCHASE REQ NO.	5. PROJECT NO.

6. ISSUED BY CODE W31P4Q
U.S. ARMY MISSILE COMMAND
AMSMI-AC-CBCA
MRS. CRYSTAL BLACKBURN/205-842-6381
REDSTONE ARSENAL AL 35898-5280

7. ADMINISTERED BY CODE S4420A
DPRO LORAL/VOUGHT
PO BOX 655907 MS 4915
DALLAS TX 75265-5907
SCD A PAS NONE ADP PT FY7628

8. NAME AND ADDRESS OF CONTRACTOR
LORAL VOUGHT SYSTEMS A
1701 W MARSHALL DRIVE
GRAND PRAIRIE TX 75051
CODE 84059 FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

X 10A. MODIFICATION OF CONTRACT/ORDER NO. DAAH01-89-C-0336

10B. DATED (SEE ITEM 13) 89JUN30

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 Offers [ ] is extended [ ] is not extended. Offers 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 ACKNOWLEDGEMENT 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)
SEE CONTINUATION SHEET

C 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: 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 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: Mutual Agreement and VECP Clause

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

E. IMPORTANT: CONTRACTOR [ ] IS NOT, [X] IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 1 COPIES TO THE ISSUING OFFICE.

14. DESCRIPTION OF AMENDMENT/MODIFICATION

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remain 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)
B.N. Smith Vice President Business Operations	[redacted] Contracting Officer

15B. [redacted]	15C. DATE SIGNED	16B. [redacted]	16C. DATE SIGNED
[redacted] (Signature of person authorized to sign)	25 January 9[redacted]	(Signature of Contracting Officer)	26 JAN 1996

CONTINUATION SHEET | CONTRACT NO. DAAH01-89-C-0336 P00260 | Page 2 of 5
OFFEROR OR CONTRACTOR: LORAL VOUGHT SYSTEMS

SECTION A - Supplemental Information

A-1 The purpose of this modification is to complete the definitization of Value Engineering Change Proposal (VECP) MI-C1450 entitled "Reduced Range Practice Rocket". Contract Modification P00241 definitized VECP MI-C1450 by decreasing contract DAAH01-89-C-0336 by $6,179,095.00. Paragraph A-5 of modification P00241 reflected that a future modification would be issued to reflect the contractor share of "Future Royalty Contract" savings for the FMS quantities in the amount of $393,400.00.

A-2 By incorporation of this modification P00260, contract DAAH01-89-C-0336 is hereby increased by $393,400.00 for the the contractor share of "Future Royalty Contract" savings for the FMS quantities.

A-3 As a result of this modification, Section B-1, entitled "Supplies and Services is revised to amend the total CLIN dollar amounts as follows:

CLIN	Previous Amount	Added by Settlement of Future Contract Royalty	Revised CLIN Amount
V004AB	$ 00.00	$ 53,952.00	$ 53,952.00
V004AC	$ 00.00	$ 215,808.00	$ 215,808.00
V004AD	$ 00.00	$ 26,976.00	$ 26,976.00
V004AE	$ 00.00	$ 49,456.00	$ 49,456.00
V004AF	$ 00.00	$ 47,208.00	$ 47,208.00
TOTAL	$ 00.00	$ 393,400.00	$ 393,400.00

A-4 As a result of this modification the total contract is increased by $393,400 which constitutes a firm, full and final settlement of VECP MI-C1450.

A-5 This modification constitutes a lump sum settlement of all acquisition savings for the incorporation of VECP MI-C1450. The parties hereby release each other from any and all liability under this contract for further equitable adjustments attributable to such facts or circumstances giving rise to these changes. All other terms and conditions remain unchanged.

CONTINUATION SHEET | CONTRACT NO. DAAH01-89-C-0336 P00260 | Page 3 of 5

OFFEROR OR CONTRACTOR: LORAL VOUGHT SYSTEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
V004AB	FINAL SETTLEMENT OF VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-C450, FOR FUTURE ROYALTY CONTRACT SAVINGS UNDER CONTRACT DAAH01-94-C-A005, CLIN 0004AB (FMS QUANTITIES ONLY) PRON: J56EF5845902 AMS CD: 430000 SECURITY CLASS: UNCLASSIFIED				$ 53,952.00
V004AC	FINAL SETTLEMENT OF VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-C450, FOR FUTURE ROYALTY CONTRACT SAVINGS UNDER CONTRACT DAAH01-94-C-A005, CLIN 0004AC (FMS QUANTITIES ONLY) PRON: J56EF5855902 AMS CD: 430000 SECURITY CLASS: UNCLASSIFIED				$ 215,808.00
V004AD	FINAL SETTLEMENT OF VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-C450, FOR FUTURE ROYALTY CONTRACT SAVINGS UNDER CONTRACT DAAH01-94-C-A005, CLIN 0004AD (FMS QUANTITIES ONLY) PRON: J56EF5865902 AMS CD: 430000 SECURITY CLASS: UNCLASSIFIED				$ 26,976.00
V004AE	FINAL SETTLEMENT OF VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-C450, FOR FUTURE ROYALTY CONTRACT SAVINGS UNDER CONTRACT DAAH01-94-C-A005, CLIN 0004AE (FMS QUANTITIES ONLY) PRON: J56EF5875902 AMS CD: 430000 SECURITY CLASS: UNCLASSIFIED				$ 49,456.00

CONTINUATION SHEET	CONTRACT NO. DAAH01-89-C-0836 P00260	Page 4 of 5

OFFEROR OR CONTRACTOR: LORAL VOUGHT SYSTEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
V004AF	FINAL SETTLEMENT OF VALUE ENGINEERING CHANGE PROPOSAL (VECP) MI-D450, FOR FUTURE ROYALTY CONTRACT SAVINGS UNDER CONTRACT DAAH01-94-C-A005, CLIN 0009AA (FMS QUANTITIES ONLY) PRON: J566FS885902 AMS CD: 430000 SECURITY CLASS: UNCLASSIFIED		B		47,208.00

CONTINUATION SHEET	CONTRACT NO. DAAH01-89-C-0336 P00260	Page 5 of 5

OFFEROR OR CONTRACTOR: LORAL VOUGHT SYSTEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting & Appropriation Data

LINE ITEM	FROM/ AMS CD	ACRN	OBCL STAT JOB ORD NO	PRIOR AMOUNT	INCREASE/DECREASE AMOUNT	CUMULATIVE AMOUNT
V004AB 430000	J56EF58459		1	$ 00.00	$ 53,952.00	$ 53,952.00
V004AC 430000	J56EF58559		1	$ 00.00	$215,808.00	$ 215,808.00
V004AD 430000	J56EF58659		1	$ 00.00	$ 26,976.00	$ 26,976.00
V004AE 430000	J56EF58759		1	$ 00.00	$ 49,456.00	$ 49,456.00
V004AF 430000	J56EF58859		1	$ 00.00	$ 47,208.00	$ 47,208.00
				NET CHANGE	$393,400.00	

NET CHANGE BY

LINE ITEM	ACCOUNTING CLASSIFICATION	ACCOUNTING STATION	INCREASE/DECREASE AMOUNT
V004AB	9711 X8242 1B01 X63591BJAP 00525CZ1B801021		$ 53,952.00
V004AC	9711 X8242 1B01 X63591BYWT 00125CZ1B801021		$215,808.00
V004AD	9711 X8242 JA01 X63691BWPW 00225CZJA801021		$ 26,976.00
V004AE	9711 X8242 BR01 X63591BJAX 00325CZBR801021		$ 49,456.00
V004AF	9711 X8242 JA01 X63591BWMP 00325CZJA801021		$ 47,208.00
		NET CHANGE	$393,400.00

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TAB 16

16A

DEPARTMENT OF THE ARMY
UNITED STATES ARMY AVIATION AND MISSILE COMMAND
REDSTONE ARSENAL, ALABAMA 35898-5000

REPLY TO ATTENTION OF

APR 14 1998

MLRS Contracting Office

[redacted]
Lockheed Martin Vought Systems
P.O. Box 650003, MS MC-09
Dallas, Texas 75265-0003

Dear [redacted]:

Reference AMCOM letter, March 12, 1998, regarding Industrial Engineering Services (IES) Contract DAAH01-96-C-0295, ESM 1.7.100, task for Reduced Range Practice Rocket (RRPR) redesign and testing.

This letter is to advise that the tasks required for inclusion in the budgetary cost estimate (BCE) requested by referenced letter have changed. It is currently desired that your BCE should now include the following tasks:

- Design and build of 3 one-bay ~~4 bay~~ test sections (change from 4 to 3)
- ~~Static torque test of 4 test sections~~ Delete
- Build of 9 test/demonstration rockets
- Support of tests/demonstration at ~~WSMR and~~ Ft. Sill (Delete WSMR)
- Build of 3 ~~2~~ complete RPs for qualification (change from 2 to 3)
- Support of qualification firings at WSMR
- Preparation of ECP submission

~~It is still requested that a seperate estimate be provided for the build of 2 complete RPs for a demonstration to be conducted in Hokkaido, Japan, as well as support for the firings.~~ Delete

To be added -
2 estimates:
1 - Using adhesive method
1 - Using mechanical retention method

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Bill Bartis	From Crystal Blecker
Co.	Co.
Dept.	Phone #
Fax #	Fax #

TY EMPLOYER

Your written response is requested as soon as possible, but no later than April 17, 1998. If you should [redacted] further information, please contact [redacted], [redacted], AMSAM-AC-TM-C.

[redacted]

16B

Lockheed Martin Vought Systems
P.O. Box 650003, WT-80 Dallas, TX 75265-0003
Telephone 972-603-7747 Facsimile 972-603-7000

LOCKHEED MARTIN

B. N. Smith
Vice President - Business Operations

3-19210/1998L-5093 10 June 1998

Commander
U. S. Army Aviation and Missile Command
Redstone Arsenal, Alabama 35898-5280

Attn: AMSAM-AC-TM-C/[redacted]

Subj: Contract DAAH01-96-C-0295, Industrial Engineering Services (IES)
Option Year 1997, Budgetary Cost Estimate for Reduced Range Practice Rocket (RRPR) Redesign and Testing

(a) AMSAM-AC-TM-C/JRG letter dated 14 April 1998

1. Lockheed Martin Corporation, Vought Systems Division, provided on 14 May 1998 the following Cost Plus Fixed Fee Budgetary Cost Estimate (BCE) with two options for the subject effort:

Option 1 utilizing the Adhesive Retention Method	$608,244
Option 2 utilizing the Mechanical Retention Method	$609,179

2. Option 2 utilizing the Mechanical Retention Method is provided by task as verbally requested. This is a non-separable BCE:

a. Design and build of 3 one-bay test sections	$ 66,263
b. Build of 9 test/demonstration rockets for Ft. Sill	130,267
c. Support of tests/demonstration at Ft. Sill	4,694
d. Build of 3 complete rocket pods for qualification at WSMR	242,365
e. Support of qualification firings at WSMR	67,106
f. TDP update, preparation and submittal of ECP	89,305
Total	$ 600,000

3. This BCE assumes the following is to be provided as Government Furnished Property (GFP):

task d - 4 rocket pods to download for retrievable warhead hardware
task b - hardware for the 9 rockets (including the motors and rocket pod)

4. Any questions or requests for additional information may be addressed to Ms. [redacted] at [redacted] or [redacted] at [redacted]

[redacted]

cc: AMSAM-AC-TM-[redacted]
SFAE-FS-MG-[redacted]
DCMC/M[redacted] ACO

17

TAB 17

SUPERSEDING
MIS-35095/19E
11 DEC 2001

MISSILE COMMAND DETAIL SPECIFICATION
SOFTWARE VERSION DESCRIPTION
FOR THE
RRPR WEAPON SPECIAL APPLICATIONS
COMPUTER SOFTWARE COMPONENT
OF THE
MULTIPLE LAUNCH ROCKET SYSTEM
FIRE CONTROL SYSTEM
ELECTRONICS UNIT CENTRAL PROCESSOR
CSC NO: MIS-35095/19-115

Prepared for:

U. S. ARMY AVIATION AND MISSILE COMMAND
REDSTONE ARSENAL, AL 35898

Prepared by:

LOCKHEED MARTIN CORPORATION,
MISSILES AND FIRE CONTROL
POST OFFICE BOX 650003
DALLAS, TX 75265-0003

18

TAB 18

V E C P

ENGINEERING CHANGE PROPOSAL, PAGE 1

[illegible]

LORAL VOUGHT SYSTEMS
P.O. BOX 650003
DALLAS TEXAS 75265-0003

MI-C1658

Reduced Range Practice Rocket (RRPR) - Removal of Spin Balance

See Page 1a

See Sheet 2

See Page 1a

See Page 1b

N/A

APPROVED

Configuration Management Manager

DD Form 1692, NOV 89

LORAL
Vought Systems

MI-C1658

PAGE 1a

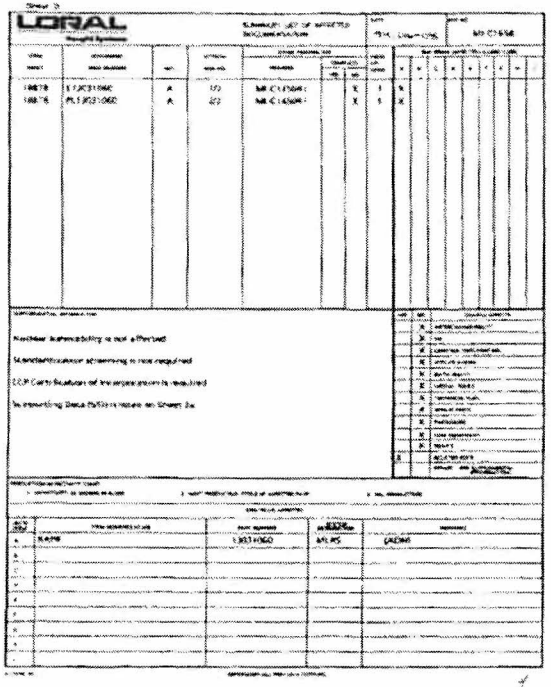
BLOCK NUMBER	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
6 (cont.)	PRIORITY
	URGENT processing of this VECP is required by 1-Jul-94. [illegible] URGENT processing [illegible]
11 (cont.)	CONTRACT NO. & ITEM
	DAAH01-[illegible] CLINs [illegible]
16 (cont.)	DESCRIPTION OF CHANGE
	[illegible] - Drawing [illegible]
	1. Note 6 - change [illegible]
	2. Note 7 - [illegible]
	3. Zone [illegible] - change inspection [illegible] quality level.
	4. Note 15 - [illegible]
	5. Note 18 - change as follows:
	a. Note 18.[illegible] - change [illegible]
	b. Add new inspection of [illegible]
	6. Zone [illegible]
	[illegible] - PL[illegible]
	1. [illegible] - delete weight entries.
	2. [illegible] - delete adhesive entry.
	3. [illegible] - delete adhesive bonding entry.

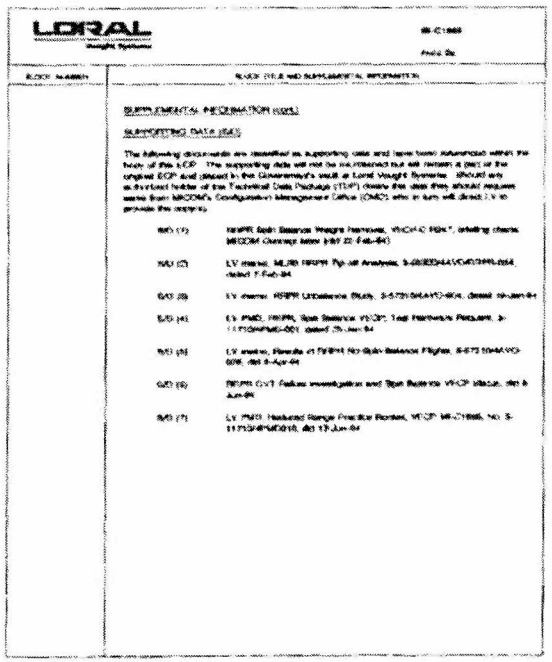
LORAL
Vought Systems

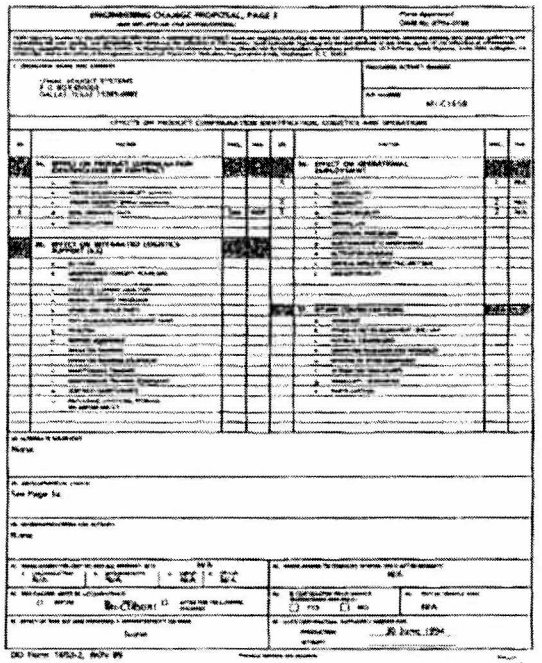
MI-C1658

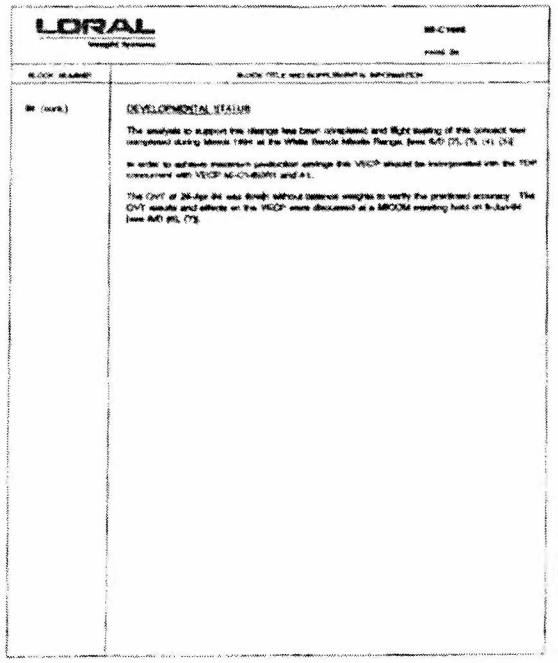
PAGE 1b

BLOCK NUMBER	BLOCK TITLE AND SUPPLEMENTAL INFORMATION
17 (cont.)	NEED FOR CHANGE
	GENERAL
	The intent of this change is to incorporate Value Engineering [illegible] Reduced Range Practice Rocket (RRPR). [illegible]
	SPECIFIC
	[illegible] - Drawing [illegible]
	1. [illegible]
	2. To delete bonding requirements since weights are no longer being applied.
	3. [illegible]
	4. [illegible] longer being applied.
	5. [illegible]
	6. To delete the weight placement requirement since weights are no longer used.
	[illegible] - PL[illegible]
	1-[illegible] To delete material entries in accordance with changes to the drawing.
18 (cont.)	PRODUCTION EFFECTIVITY BY SERIAL NUMBER
	This VECP affects the [illegible] Production contract, DAAH01-[illegible] Reduced Range Practice Rockets. This VECP will include [illegible]
22 (cont.)	ESTIMATED NET TOTAL COSTS
	Assuming incorporation of this VECP by 1-Jul-94, the net savings should be [illegible]. The net savings includes the Contracts and CLINs listed above.



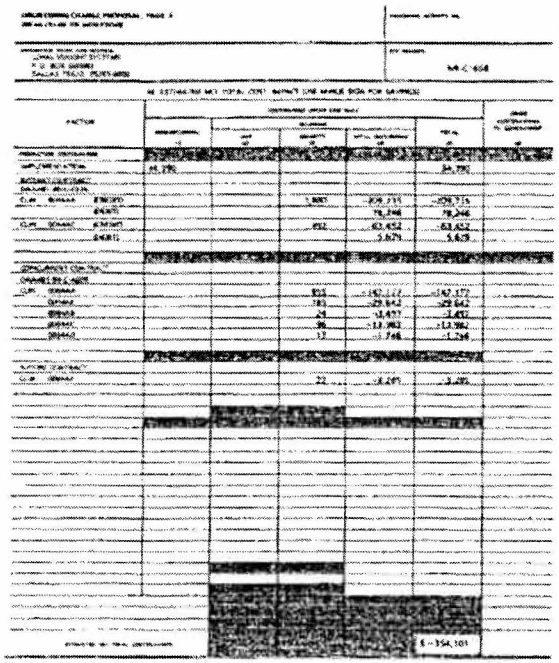




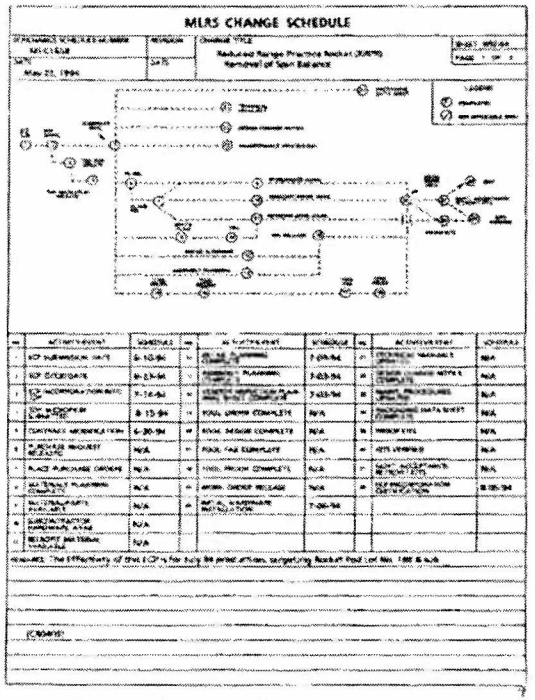


LORAL

DEVELOPMENTAL STATUS



DD Form 1692-3



MLRS CHANGE SCHEDULE

SYSTEM SAFETY ENGINEERING CHANGE PROPOSAL (ECP) IMPACT STATEMENT

ECP No. MI-C1658		SHT 1 OF 1
ECP No: MI-C1658	Date ECP Prepared: March 23 1994	RFC No: [illegible]
Action Requested: X ECP ___ Deviation ___ Waiver	Priority: ROUTINE	Need Date for Action Requested
Title of Change: RRPR Removal of Spin Balance Weights		
Name of Part	Part Number	
Description of Change: Elimination of spin balance weights in the RRPR		
Analysis Performed: Preliminary calculations for test range impact points do not indicate a problem with the safety footprint		
Test Data: N/A		
Recommendations/Comments: No safety impact resulting from changes		
System Safety Signature: Paul D. Kode	Date this Impact Statement Prepared: 23 March 1994	

ENGINEERING CHANGE PROPOSAL RELIABILITY AND MAINTAINABILITY ANALYSIS

ECP Number: MI-C1658 — Page 1 of 2

A. R&M GENERAL

1. Design changes vs. system reliability: Change does not impact predicted reliability.
2. Design changes vs. system maintainability: Change does not impact predicted maintainability.
3. [illegible] — [ ] Yes [X] No

B. R&M QUANTITATIVE ASSESSMENT

4a. Predicted failure rate prior to this ECP: N/A
4b. Predicted failure rate after proposed ECP: N/A

5. [illegible]: [ ] [illegible] [ ] [illegible] [ ] Documented analysis [ ] Engineering analysis [X] N/A
6. Predicted effect on diagnostic time: [ ] Increase [ ] Decrease [ ] No change [ ] [illegible] [X] N/A
7. Predicted effect on active repair time: [ ] Increase [ ] Decrease [ ] No change [ ] [illegible] [X] N/A

C. R&M DESIGN ASSESSMENT

8. [illegible]: N/A
9. [illegible]: N/A
10. [illegible] — [ ] Yes [ ] No N/A
11. [illegible]

D. R&M SUPPORT ASSESSMENT

	YES	NO
12. Does this change convert a "[illegible]" item to a "[illegible]" item?		X
13. Does this change add any organizational test equipment?		X
14. Does this change delete any organizational test equipment?		X
15. Does this change modify any organizational test equipment?		X
16. Does this change affect any circuit/components?		X
17. [illegible]		X
18. [illegible]		
a. Rapid fault detection		X
b. Rapid fault location to [illegible]		X
c. [illegible]		X

ENGINEERING CHANGE PROPOSAL RELIABILITY AND MAINTAINABILITY ANALYSIS

ECP Number: MI-C1658 — Page 2 of 2

E. BASELINE DATA ASSESSMENT

19. [illegible]		YES	NO	N/A
a. Reliability growth program	a.		X	
b. System requirements	b.		X	
c. [illegible]	c.		X	
d. Active repair time analysis	d.		X	
e. Diagnostic capability analysis	e.		X	

F. REMARKS

The changes called out in this ECP will not alter the reliability of the RRPR.

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TAB 19

19A

TECHNICAL DIRECTION LETTER: TR 99-001
(19 May 99)

SUBJECT: Partial Exercise of Range Option, CLIN 0018

In accordance with Engineering Services Contract DAAH01-98-C-0157, using CLIN 0018, ESMs 1.9.100, 2.9.100, and 3.9.100, it is requested that LMVS perform the following tasks:

BACKGROUND - LMVS has developed a concept for a Low Cost Reduced Range Practice Rocket (LCRRPR). The concept has been successfully demonstrated by flight but did not produce the amount of smoke/flash signature required to ensure rocket impact is within the safe area. The RRPR specification, MIS-31710A, paragraph 3.1.1.2.1, requires a visual indication of impact by an impact activated smoke cartridge. The U.S. Army Field Artillery School (USAFAS) has reiterated the requirement for RRPRs to have visible signature for verification of safe impact in a 7 Jan 99 memorandum to the MLRS PM. The AUPC contract price goal is $12,000/pod.

Task 1: Complete modification/update of necessary LCRRPRs in order to demonstrate visible smoke/flash signature; build 18 test and qualification hardware rockets; and support qualification testing at WSMR.

Task 2: Update MLRS rocket firing algorithms to support the LCRRPR. The goal is to utilize the same algorithm as the current RRPR. Life cycle cost trade studies must be performed if algorithm changes are proposed.

Task 3: Prepare Engineering Change Proposal (ECP) to incorporate LCRRPR design into MIS-31710A specification and TDP.

The expected completion date is 6 Sep 00.

The ROM for the above tasks is:

ESM 1.9.100	9178 hrs
ESM 2.9.100	1321 hrs
ESM 3.9.100	1662 hrs
ESTIMATED HRS:	12161 hrs

ESTIMATED COST: (12161 hrs * $95.39/hr) = $1,160,038

19B

[redacted]

19C

Attachment 01

From: [redacted]
To: [redacted]
Date: 7/25/01 12:52PM
Subject: IES Actions

Request you take the following actions on the IES contract:

1) Request you exercise an option for 870 hours for ESM 1.1.100 for revision B to TDL TM-99-001. Estimated value is $85,460.10 and a DA 1095 is forwarded under separate cover.

2) Out of the range option, shared CLIN, exercise 2,545 hours for TDL TR-00-003 Rev. A for 2 additional inert rocket pods. Value is $249,995.35. Funding is out of previously forwarded funds

3) Exercise hours for Aug 01 from M270 shared, 3900 hours, $383,097; M270A1 US only, 1219 hours, $119,742.37; MIF, 1057 hours, $103,829.11. Funding is out of previously forwarded funds.

[redacted]
MLRS Prof Ofc
6-1599

CC: Allen Pratte; Steve Bramlett

Attachment C

PROCUREMENT WORK DIRECTIVE - AMC FORM 1095G

TO-WORCS: DATE: 01 JUL 23 PAGE 001

	CODE D2	FROM	CODE
COM AM-AC-BM-A EDSTONE ARSENAL,AL 35898-5280		MLRS PROJECT OFC USA MICOM REDSTONE ARS, AL 35898	

PRON	AMD	PPRI	SP-PRI	SCD	PCC	SVC-CD	SVC-CMPL-DT	PM	GFM	CIIC
WG9EF14959D2	01	92					02 FEB 28		N	

NSN	ADD-NSN	NOUN/SERVICE TITLE	IMPC	ANALYST
		INDUSTRIAL ENGINEERING SERVIC		PMRSM

FIA-CD	REP-CD	WPN	FRAG-CD	PROC-ACT-NO	AMS-CD
L60EF			N		223059

TDO	PWD-EXPR-DT	ARMY-CSOR-NO	NON-ARMY-CSOR-NO
01 AUG 30	01 SEP 30	WG9D2003D101	

TYPE OF PWD	TYPE FINANCE	TY-FUNDS	JO-NO
SERVICE	C CITED FDS CERT	APA	97NG03

APROP	LMT-SUB	SUPPL-ACCT-CLASS		ACCT-STA
21 92032	0000	96X5L18P22305931E8	S01021	W31G3H

QUANTITATIVE AND PRICE CHANGE DATA

SECURITY: UNCLASSIFIED

ELEMENT	QUANTITY	TOTAL PRICE
PRIOR	0	0.00
PRIOR CONTGCY		0.00
INCR QTY/COMT	0	85,460.10
INCR CONTGCY		0.00
DECR QTY/COMT	0	0.00
DECR CONTGCY		0.00
CURR CONTGCY		0.00
CURRENT	0	85,460.10

UNIT PRICE UI
U

REP ALT/PLT/UPRC: N N N

OPT PCT/DAYS

FUND CERTIFICATION
1 COMMITTED

AUTHENTICATION [redacted] LE) Program Analyst, 24 July 01 (DATE)

AFLPU
MLRS POC IS [redacted] SFAE-MSL-ML-MG-R, 313-0780

REMARKS/PROCUREMENT DATA:

EC/EDI ACCOUNTING CLASSIFICATION
ARMY

APROP	LMT-SUB	SUPPL-ACCT-CLASS		
21 99012032	0000	9 6X 5L18 22305900000 31E8	97NG03	S01021

ACCT-STA
W31G3H

MUST BE REVIEWED BY SMALL BUSINESS OFFICE FOR SDBSA OR 8A

MANUALLY ENTERED PRON. DO NOT DUPLICATE PROCUREMENT ACTION.

MISSILE O R I G I N A L

AMC FORM 1095G

* PRON REMARKS *

TO PROVIDE FUNDING FOR ADDITION OF SCOPE TDL TR99001, REV B SOFTWARE CHANGE.
(870 HRS OF EFFORT)
LMMFC IS CONTRACTOR, CONTRACT # DAAH01-98-C-0157

REQUESTOR IS STEVE BRAMLETT, IES PRODUCT MANAGER, 876-7832

* SCOPE OF WORK *

END OF PWD

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TAB 20

AMSAM-AC-TM-C 13 May 99
Mr. Daniels/6-8980

MEMORANDUM FOR TDL Board Chairman [redacted]

SUBJECT: Acquisition comments on Technical Direction Letter (TDL), TR 99-001 proposed for incorporation into Industrial Engineering Services (IES) DAAH01-98-C-0157.

1. This TDL is for the development and documentation of an LMVS concept for a Low Cost Reduced Range Practice Rocket (LCRRPR), since there is no valid Government requirement for the LCRRPR and any previous design effort was totally voluntary on LMVS's part, any design/update costs along with costs of any resulting VECP or ECP are to be borne by the contractor for the following reasons:

This effort is for the continued design/development of LMVS developed documentation not owned or controlled by the Government. Such effort is not within the scope of the subject IES contract.

This effort also falls into the category of a Value Engineering Change (production cost reduction to the current RRPR) and could be resubmitted to the Government as a VECP by LMVS. The development and funding of voluntary VECP concepts are not within the scope of the IES contract.

2. If a valid Government requirement should exist for the LCRRPR with visible smoke/flash signature then the effort should be competed or a J&A prepared to limited competition for the negotiation and award of an appropriate separate development contract.

3. The point of contact for this action is C. Daniels, 6-8980.

CLARENCE DANIELS
Contracting Officer

Post-it® Fax Note 7671	Date 6/24/99	# of pages ▶ 2
To SHERI BASKINS	From SID GUERINGER	
Co./Dept. ACQUISITION CTR/DM	Co. MLRS PROJECT OFFICE	
Phone # 542-8151	Phone # 876-0580	
Fax # 955-8478	Fax # 876-6570	

21

TAB 21

1. Assume there is no other ongoing contract effort covering this subject.

2. I believe the intent of IES guidance and the awarded contract is to work issues/problems with fielded systems and not to conduct new programs or product improvements. Drawing a clear line between what constitutes solving issues and problems and what constitutes a new effort will not be easy.

If you read the SOW and the CSM (1.x.100) this intended limitation is clear.

3. I do not know enough background on LCRRR to tell when it fails. Finding a solution to a component which is expensive, unreliable or difficult to replace (and thereby reducing cost) is covered. Developing a replacement RRRR for funding the contractor's development of a (replacement) is not.

4. The real danger is the use of IES to do new effort and, thereby, bypass statutory requirements including FAQC.

[redacted]

22

TAB 22

STATEMENT OF WORK (SOW)

INDUSTRIAL ENGINEERING SERVICES
FOR
MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

INTRODUCTION

1. GENERAL REQUIREMENTS

The general requirements of this SOW are:

1.1 To delineate, in general terms, the overall requirements of the engineering services to be performed by the contractor, to conduct any non-repetitive investigation, inspection, analysis, test or evaluation effort which will (or may likely) impact the software or hardware, and support of fielded MLRS, its components and configuration variants including M270 Interim and M270A1 configurations not supported in other engineering, manufacturing and/or development contracts. Specific effort to be expended, tasks to be accomplished and documentation required shall be defined by individual Engineering Services Memorandum's (ESM) and sub-ESM's. The services called for here under are not related or pertinent to activities under other contracts for system production, Improved Launcher Mechanical System (ILMS), MLRS M270A1, and Extended Range - MLRS (ER-MLRS).

1.2 To obtain from the contractor the engineering manhours, supplies and other required services to accomplish the requirements specified herein, including documenting these efforts.

1.3 To obtain contractor services outlined herein without duplicating efforts that have been accomplished or are required on existing Government contracts.

1.4 To place emphasis on safety, reliability, quality, producibility, and maintainability of the MLRS through the engineering services program.

2. DESCRIPTION OF WORK

The contractor's efforts under this SOW shall include planning and managing an engineering services program, accomplishing product engineering tasks, including studies, data analysis, and documenting all such efforts in the form of reports, drawings, specifications, manuals, etc., as required herein for the basic MLRS and the M270-A1 MLRS programs.

3. LIAISON

The contractor shall furnish representatives as necessary to coordinate activities required by this SOW among the contractor, U.S. Army Aviation and Missile Command (AMCOM), other USAAMCOM contractors, and other Government agencies.

REVISED
ATTACHMENT #001
10/15/98

PART I - TECHNICAL PROGRAM MANAGEMENT

1. DEFINITIONS

1.1 Engineering Services Memorandum (ESM): An ESM is a document prepared by the contractor or the Government to obtain approval to initiate contractual effort in support of a specific task or effort. This document reflects the work to be performed, objectives to be attained, estimated cost, and the timeframe of the effort as provided by overall requirements specified in the engineering services SOW. An ESM defines a portion of the total effort to be performed under the engineering services contract. An approved ESM becomes part of the contract requiring a contract modification before it can be changed.

1.2 Sub-Engineering Services Memorandum (Sub-ESM): A sub-ESM serves the same function as an ESM, except it addresses a specific portion of the total ESM. A sub-ESM delineates discrete task to be performed as part of an overall ESM effort. A sub-ESM is not part of the contract and cannot change the terms of the engineering services contract.

1.3 Government Technical Manager: The Government Technical Manager is an individual appointed to exercise overall technical management of the engineering services contract.

1.4 Government Technical Management Monitor: The Government Technical Management Monitor is an individual appointed to be a technical liaison between the contractor and the government for each major area of the engineering services contract SOW.

1.5 Support: Support shall be understood to mean "support by analysis and input".

2. TECHNICAL MANAGEMENT

2.1 The Project Manager (PM) or his designee, is designated the Government Technical Manager for this engineering services contract. He is authorized to request, approve or cancel in writing any sub-ESM. Such written technical direction to the contractor will be provided and/or confirmed at the sub-ESM level by technical direction letters (TDLs) related to this portion of the contract. All TDLs will be serialized for control by the Contracting Officer's Technical Representative and signed by the Government Technical Manager or his designee.

2.2 The Chief, International Partnership Office, is designated the Government Technical Manager for the support for the Japan Coproduction Program portions of the engineering services contract. He is authorized to provide TDLs for sub-ESMs related to this portion of the contract.

2.3 Government Technical Management Monitors for the specific areas of activity are designated as follows:

2.3.1 System and Production Engineering - Chief, Technical Management Division, SFAE-MSL-ML-TM and Chief, Rockets and Munitions Division, SFAE-MSL-ML-TR.

2.3.2 Configuration Management, Data Management and Technical Documentation - Chief, Configuration Management Office, SFAE-MSL-ML-CM.

2.3.3 Product Assurance and Test - Chief, Product Assurance and Test Division, SFAE-MSL-ML-PT.

2.3.4 Logistics Support, CALS and Technical Publications - Chief, Logistics Division, SFAE-MSL-ML-LO.

2.3.5 Program Management - Chief, Program Management Division, SFAE-MSL-ML-MG.

2.3.6 Support for Japan Coproduction Program - Chief, International Partnership Office, SFAE-MSL-ML-IP.

2.4 Each Technical Management Monitor or his representative designated in writing has the responsibility of managing his specified major activity area and providing technical liaison to the contractor. The authority of the Technical Management Monitor extends only to the activity specified.

2.5 The contractor shall establish a point(s) of contact to exercise overall technical program management, and to provide technical liaison with the government, for each major area of the engineering services contract.

2.6 Program management shall include program control, cost, schedule and performance control, and the submittal of schedule, cost and technical reports. The contractor shall conduct liaison and coordination with USAAMCOM activities within the current SOW.

3. TASK ACTIVATION AND CONTROL

3.1 All efforts under this engineering services contract may only be performed pursuant to an approved ESM. The Government Technical Manager will designate the number of sub-ESMs required for each major area. Each ESM and sub-ESM shall be prepared in accordance with (IAW) **DI-MISC-80748.**

3.1.1 Each ESM shall contain planned monthly manhours, other direct cost elements and time phased technical milestones. Each sub-ESM shall indicate manhours allotted and a dollar value that includes overhead, general and administrative (G&A), and all other charges, excluding fee. If a sub-ESM is proposed for a specific task which cannot be completed within the contract period, an estimate of the total manhours and other direct costs required to complete the task shall be submitted with the sub-ESM.

3.1.2 The Government Technical Manager reserves the right to establish the priority of all sub-ESMs.

3.1.3 Sub-ESMs shall not be submitted for projects unless the contractor is specifically requested to do so in writing by the Government.

3.1.4 A sub-ESM shall not be submitted solely for the preparation of sub-ESMs.

3.1.5 Duplication of work covered by previous sub-ESMs or Government contracts is prohibited.

3.1.6 The contractor shall not prepare sub-ESMs which provide for effort which would result in a change adversely affecting the system performance characteristics.

3.1.7 The contractor shall discontinue work or redirect all work on any and/or all sub-ESMs when so directed in writing by the Government Technical Manager.

3.1.8 The contractor shall submit, upon written direction of the Government Technical Manager, a sub-ESM to provide the necessary effort to accomplish any task within the provisions of this SOW, including the manufacture of hardware, as required for test or checkout of sub-ESM designs or investigations.

3.1.9 Prior to the formal preparation and submission of a sub-ESM initiated by the contractor, the contractor shall prepare IAW **DI-MISC-80748** all the essential information necessary for the Government to determine the need, system impact, magnitude of the effort (manhours and cost), and desirability of the proposed effort. Preparation of sub-ESMs shall be undertaken only after the contractor receives approval from the Government Technical Manager. The number assigned to a disapproved sub-ESM shall not be used on a subsequent sub-ESM.

3.1.10 If it becomes necessary to make any addition, deletion, or revision to a sub-ESM, the contractor shall submit a revised sub-ESM. The revised sub-ESM shall be complete within itself and shall be assigned the original sub-ESM number with a letter suffix (RA, RB, etc.) to denote the revision.

3.1.11 Each sub-ESM shall contain an impact statement, when applicable, to all areas affected by the proposed effort, such as production, reliability, safety, design-to-cost, other costs, schedule, logistics, retrofit, spares, manuals, training, packaging, special test equipment, special inspection equipment, and special tooling. Each impact shall be described in detail, for example, percentage of reliability increase or pages of manuals to be changed.

3.1.12 Each sub-ESM shall state if a final report on the effort shall be submitted.

3.1.13 Manhours and dollars may be transferred between sub-ESMs by revisions to the sub-ESMs, as long as, the manhours and dollars of the basic-ESM are not exceeded.

3.2 The contractor shall plan, coordinate, and control all tasks defined in sub-ESM's.

3.2.1 The contractor shall participate in formal management and progress reviews on each sub-ESM with the MLRS Project Office every 6 months.

3.2.2 Contractor records shall be time phased based on the contractor's accounting periods so that the technical progress can be matched to the actual manhours used, and a consolidated report shall be prepared IAW **DI-MGMT-80061**.

3.2.3 Cost data shall be prepared that reflect planned and actual manhour/costs by

ESM/sub-ESM and functional category. The data shall be prepared IAW **DI-FNCL-80912.**

3.2.4 The contractor shall provide a Corrosion Prevention and Control Program (CPC). The prevention and control program activities shall be reported as part of summary engineering services progress report prepared IAW **DI-MGMT-80061.**

4. INTEGRATED PRODUCT AND PROCESS DEVELOPMENT

The contractor may integrate all the functional disciplines required to perform this SOW through the implementation of concurrent engineering principles (for example, Integrated Product Teams). The resultant integrated organization shall have access to all contractor and subcontractor facilities and data developed and utilized in the performance of this contract. The integration of required functional disciplines shall facilitate technical interchange between Government and contractor personnel on a continual basis, and shall utilize electronic media to the maximum extent possible. The integration of required functional disciplines shall facilitate the conduct of production activities in an effective and efficient manner toward meeting technical, cost, and schedule parameters.

PART II - SYSTEM AND PRODUCTION ENGINEERING

1. The objective of this section is to provide guidelines for the general requirements for systems engineering and product evaluation of the MLRS launcher and rocket systems including all MLRS equipment and components.

2. The efforts to be performed by the contractor include systems engineering analysis of the missile system and associated equipment in order to conduct any nonrepetitive investigation, inspection, analysis, test, or evaluation effort which will (or may likely) impact the software and hardware problems, including analyses and tests to:

2.1 Analyze the user-system interfaces of any proposed change to deliverable hardware to assure that Human Factors Engineering (HFE) features are enhanced or, if the proposed change is not directed toward the user-system interface, that HFE features are maintained.

2.2 Assure that impacted items are physically and functionally compatible with all components and major items of the complete weapon system. This shall include liaison with applicable Government agencies and contractors.

2.3 Assure that the current level of system safety demonstrated with the MLRS is maintained. A hazard analysis shall be performed on proposed changes which impact safety and the results included in the engineering change, whether Government or contractor controlled. A statement of impact on the safety of the system shall be included in each engineering change, whether Government or contractor controlled.

2.4 Assure that all proposed changes to the system are mechanically and electrically interchangeable without modification to all similar equipment. Components and/or parts which are required to be fitted or finished in place or permanently joined, need not be interchangeable. The contractor shall support, by analysis and input, the Government's repair parts procurement program by supporting resolution of break-out components related

to the Technical Data Package (TDP) requirements to include on-site support.

2.5 Support, by analysis and input, the MLRS command, control, communications (C3) compatibility and interoperability program.

2.6 Maintain the compatibility and interoperability established by the Fire Control System Interface Technical Group (FCSITG) during and subsequent to the maturation programs of IFCS, ILMS, and MLRS M270A1. Attend FCSITG meetings and working group meetings.

2.7 The contractor shall provide support for the hardware and software requirements and post-deployment software support (PDSS) on the MLRS Fire Control System (FCS), the Improved Fire Control System (IFCS), and hardware only support for the Maintenance Trainer (MT).

2.8 The contractor shall provide engineering support for revision or redesign of manufacturing methods, equipment and special tooling which result from technical changes required as a result of field problems.

2.9 Prepare, when required in ESMs or sub-ESMs, a technical report IAW **DI-MISC-80711.**

2.10 The contractor shall conduct analysis directed toward prevention of corrosion and deterioration of materials to include design selection of materials, techniques for deterioration prevention, deterioration of finishes and test program. A technical report shall be prepared IAW **DI-MISC-80711.**

2.11 Provide analysis for potential alternate materials, processes and supplies to support competitive procurement of materials, components, and assemblies. Perform surveys and analyses to determine long term materials and component availability. Perform qualification testing of new hardware. A technical report shall be prepared IAW **DI-MISC 80711.**

2.12 The contractor shall continue to incorporate the analyses conducted and shall maintain the technical data package incorporating all approved changes.

2.13 The contractor shall assess the impact of engineering changes, whether Government approved or contractor controlled, on the weapon system Line Replaceable Units-Printed Circuit Boards (LRUs-PCBs) and Intermediate Forward Test Equipment (IFTE) and provide technical data of their impact on Test Program Sets (TPSs) IAW Part III of the SOW for inclusion into engineering changes, whether Government or contractor controlled.

2.14 The contractor shall maintain and or update the Government Furnished Equipment (GFE) listed in attachment to this contract and located at the contractor's plant. This effort shall include providing the technical skills and coordinating contractual actions necessary to effect repair, update, and keep the GFE in proper operating condition.

2.15 The contractor shall operate and maintain test facilities to support field failure investigations, system tests, product evaluations, communications testing, software support, and system improvements. Modifications and upgrades to those facilities shall be performed to maintain compatibility with the fielded MLRS.

PART III - CONFIGURATION MANAGEMENT

1. GENERAL

1.1 The contractor shall maintain a configuration management (CM) function for hardware and software configuration control, configuration status accounting, configuration identification and configuration audits IAW the approved Contractor's Configuration Management Plan (CMP). The contractor shall continue to develop, implement, and manage a multinational CM function for MLRS hardware and software IAW the MLRS Multinational CMP. This effort shall include updating and implementing the Contractor's CMP number 4-11200/0R-001 IAW **DI-CMAN-80925.**

1.2 All changes and new design items shall be documented in the metric system of units (reference the MLRS Metric Design Program Plan number 4-71200/6R-08). However, U.S. units of measurement (inch-pounds) used on existing designs that form a part of the product baseline shall retain the units in which they were documented and approved.

2. TRANSFER OF THE TECHNICAL DATA PACKAGE

2.1 The Government may transfer control of the Technical Data Package (TDP) below the Line Replaceable Unit (LRU) level to the contractor during the term of this contract. The Government will retain the final decision on which configuration items (CIs) are transferred to contractor control.

2.1.1 Transfer of the TDP to contractor control, below the LRU level, shall be documented and submitted to the Contracting Officer in writing by the contractor to show specifically which specifications, interface control drawings, and all other technical documentation have been transferred.

2.1.2 Transfer of TDP elements to contractor control shall be by individual CIs. All technical documentation describing a CI to be transferred will change to contractor control at the same time.

3. CONFIGURATION CONTROL

The contractor shall maintain the technical data package incorporating all approved changes, whether Government or contractor controlled. All changed TDP documentation, Government and contractor controlled, shall be provided IAW Part IV, para. 2 of this SOW. Electronic storage and distribution of the technical data shall be used to the maximum extent possible.

3.1 Changes to Government Controlled Documentation

3.1.1 Government controlled and SIE/STE/ST hardware and software baselines shall be changed only as a result of a Government approved Engineering Change Proposal (ECP) with Notices of Revision (NORs).

3.1.2 ECPs shall be prepared by the contractor only by written authorization from the

MLRS Configuration Management Office (SFAE-MSL-ML-CM) to the contractor's Configuration Manager or after the government has authorized preparation by approved Change Request (CR). If expedited action is required by the Government, this direction may be accomplished by telephone conversation to the contractor's Configuration Manager with written authorization provided on an after-the-fact basis.

3.1.3 Change Requests (CRs): A change request (CR) is submitted to insure that the need for change and the cost effectiveness and logistics impact of proposed changes to the Government controlled and SIE/STE/ST TDP can be properly evaluated by all parties. Preliminary design effort shall be no greater than 10 hours before CR submittal. The contractor is required to submit a change request to the Government prior to ECP preparation.

3.2 Changes to Contractor Controlled Documentation.

3.2.1 For changes to SIE/STE/ST CD, the contractor shall submit ECP IAW **DI-CMAN-80639** and **DI-CMAN-80642**.

3.2.2 For changes to all other contractor controlled CD, the contractor shall follow his internal procedures to make changes to technical documentation under his control. The contractor shall allow Government attendance at the contractor's Configuration Control Board (CCB) as a non-voting member. The contractor shall provide notification of internally approved product baseline changes to the Government prior to implementation by means of an Internal Contractor Technical Data Report prepared IAW **DI-ILSS-81309**. This report will include a copy of the Contractor Engineering Order, the Contractor Engineering Release Record, the changed CD and all documentation supporting the change decision. Changes to the product baseline shall result in a common configuration for government operational use and maintenance activities that provides for interchangeability and interoperability to the replaceable part level. Any changes which are assessed by the Government to affect the performance of the MLRS hardware or software will be identified to the contractor.

3.3 Configuration Control Board (CCB)

3.3.1 The contractor shall establish configuration control immediately upon contract award and shall maintain this control throughout the entire contract period. To assure total impact of changes, the contractor shall establish an internal configuration control board (CCB) composed of individuals who can address the following disciplines:

a. Engineering (design and systems)
b. Logistics
c. Comptroller's office (who shall represent contract administration, legal, and procedures)
d. Manufacturing engineering
e. Master scheduling
f. Quality assurance and reliability
g. Subcontractor management and subcontractors, as applicable
h. Procurement of materials and services
i. Test
j. Safety

3.3.2 The contractor Configuration Manager shall act as chairman of this CCB and shall have sole responsibility for decisions made on each proposed change. The contractor Configuration Manager shall maintain permanent files of all CCB proceedings. An on site Government representative will attend the CCB as a non-voting member and shall be provided a copy of the documentation and/or data on the items to be considered by the CCB and a copy of the record (minutes) of each CCB meeting, as requested. The contractor Configuration Manager shall provide on-site support to the MLRS Project Office System Configuration Control Board (SCCB) to support, by analysis and input, the ECP evaluation and revision process.

3.4 ECP Preparation

3.4.1 ECPs shall be prepared electronically using the most recent version of the Multi-user ECP Automated Review System (MEARS) document type definition (DTD) furnished by the Government. ECPs shall be prepared IAW **DI-CMAN-80639** and **DI-CMAN-80642.**

3.4.2 All ECPs, irrespective of type and/or class, prepared and submitted on Government approved configuration identification baselines, require Government approval prior to incorporation into the original documentation. The contractor shall assign Government (AMCOM) numbers to ECPs prepared under this contract. These numbers shall be obtained from the Government Technical Manager. Value Engineering Change Proposals shall be submitted to the Procuring Contracting Officer (PCO)

3.4.3 Types and Classes of ECPs:

3.4.3.1 Types:

a. Preliminary ECP (PECP) - An ECP that requires investigation and testing prior to full production hardware/software incorporation.

b. Formal ECP (FECP) – An ECP for which all necessary data is available for full evaluation and production incorporation

3.4.3.2 Classes:

a. Class I - A change shall be Class I if (in general terms) it affects form, fit, or function. A change shall be Class I if it affects established baselines, performance; reliability, maintainability or survivability; weight, balance or moment of inertia; interface characteristics, electromagnetic characteristics, GFE, safety, interchangeability or interoperability.

b. Class II - A Class II change affects none of the factors specified for Class I changes. In general, Class II changes are minor ones not affecting form, fit or function.

3.4.4 ECP Criteria: The following criteria shall be applied in Formal ECP preparation:

a. For a proposed change affecting hardware manufactured by a subcontractor other than the change originator, the proposed change shall be submitted in writing to any subcontractor concerned and his written reply shall be considered when preparing the ECP. When an ECP is proposed to the design of any hardware that is not the responsibility of

the contractor, the proposal shall be submitted to the manufacturer for review and impact and his written reply shall be considered when preparing the ECP.

b. The evaluation of engineering changes affecting safety shall be made to include a statement on system safety impact. If there is no impact, the statement: "There is no impact on system safety" shall be included (SOW, Part II, para 2.3).

c. The reliability analysis shall be prepared on the format of SMI Form 1258. If no information is applicable to a particular block, "N/A" shall be entered therein. Supplementary sheets shall be used where necessary to identify the impact of the proposed change.

d. If retrofit to previously delivered hardware is recommended as part of the ECP, a draft of the Modification Work Order (MWO) shall be submitted. Otherwise, a Technical Direction Letter (TDL) from AMCOM is required to authorize MWO preparation.

e. A provisioning impact statement shall be prepared and included in each Class I ECP, which affects provisioning data.

f. Firm cost proposals for incorporating a new design into hardware manufactured by the contractor shall be submitted in contractor format. When an MWO is recommended as part of the ECP, the MWO hardware by unit/kit cost and total cost shall be quoted separately.

g. ECPS for software program changes may contain, in the NOR, the clean revised software document only. "WAS-IS" format is not required.

3.4.5 ECPs prepared by AMCOM and other Government agencies, which affect documents under the custodianship of the contractor, shall be reviewed by the contractor for MLRS system impact. Reports and recommendations shall be submitted in a letter to the MLRS Project Office for coordination. The MLRS Project Office will coordinate. If approved, these ECPs will be forwarded to the contractor for incorporation.

3.4.6 Common usage (or Common Item) documentation is documentation not controlled by the prime contractor, i.e., used by other systems, commands, or services. When changes are required to this documentation, those changes shall be initiated as separate change proposals, prepared by either the Government or the contractor, and submitted to AMCOM for coordination with the other users of the documentation. If all users approve, the documentation shall be changed and copies shall be provided to all users. If the proposed change is not approved by all users, the initiator shall be required to prepare new documentation. The change proposals shall be prepared IAW the documentation change procedures stated herein.

3.4.7 Interface and Breakout ECPs: The contractor shall review ECPs submitted by Government interface agencies and Government breakout contractors not operating as Lockheed Martin Vought System (LMVS) subcontractors for MLRS system impact. Reports and recommendations shall be submitted in a letter to the MLRS Project Office for coordination.

3.4.8 European Generated ECPs: The contractor shall review European ECPs submitted to the SCCB. Reports and recommendations shall be submitted in a letter to the MLRS Project Office for coordination.

4. STATUS ACCOUNTING

4.1 Configuration status accounting (CSA) data and information shall be recorded and reported IAW **DI-CMAN-81253**, as a service of the Contractor Integrated Technical Information Service (CITIS) described in part VI of this SOW, for all officially designated configuration identification baselines and for all types of CIs included in this SOW. This shall include the creation and maintenance of data bases which allow retrieval and reporting of:

a. Approved configuration identification
b. Status of proposed changes to the approved configuration
c. Implementation status of approved changes

4.2 The contractor's CSA system shall be subject to periodic audit by the Government to ascertain the accuracy of CSA data as compared with the current released technical documentation. The CSA system shall depict the configuration of materiel in three stages and shall be indexed for ready reporting and retrieval. The three stages are: as designed, as built, and as modified. During this contract, the contractor's CSA reporting system shall prepare the reports and data listed below IAW **DI-CMAN-81253.**

a. Initial Release Record and Change Report
b. Specification/Standard Usage List
c. ECPs, Deviations, and Waivers Report
d. Generation Breakdown List
e. End Item Modification Status Report (EIMSR)
f. Traceability Report (As-Built Data)

5. CONFIGURATION IDENTIFICATION

5.1 The technical documentation prepared under this contract shall be adequate to support the following functions:

a. Design evaluation
b. Spares procurement
c. Production
d. Qualification
e. Inspection and test
f. Provisioning
g. Cataloging
h. Operation
i. Packaging

5.2 Baselines: The previously established Functional, Allocated, and Production Configuration Identification Baselines (FCI, ACI, PCI) for which the contractor shall continue to be the custodian and continue to maintain during this contract period are:

5.2.1 Functional Configuration Identification (FCI): The FCI Document is MIS-26432.

5.2.2 Allocated Configuration Identification (ACI): The ACI consists of all development

specifications and interface control documentation (ICD) prepared and approved by the Government under validation contract DAAK40-77-C-0165 and maturation R&D contract DAAH01-80-C-0538, including all subsequent changes through the period of performance of this contract.

5.2.3 Production Configuration Identification (PCI): The PCI (product baseline) technical data package (TDP) consists of the following elements that were prepared, audited, and approved by the Government during maturation R&D contract DAAH01-80-C-0538, including all subsequent changes through the period of performance of this contract:

a. Product documentation of all tactical hardware and auxiliary/supporting equipment (drawings, parts lists, specifications, quality assurance provisions).

b. Product documentation (Computer Software Configuration Item – CSCI specifications) for all tactical software.

c. Special inspection equipment (SIE) documentation including drawings, parts lists (PLs), calibration procedures (CPs), operating instructions (OIs), and tape procedures (TPs).

d. Training hardware documentation.

e. Peculiar test, measurement, and diagnostic equipment documentation.

f. Packaging documentation.

g. Tooling documentation.

h. Interface control documentation (ICD).

5.3 New/Revised Technical Documentation: Any technical documentation revised or prepared under the contract shall conform to the requirements provided in Part IV of this SOW.

5.4 The contractor shall obtain Government authorization before creating any performance specifications under this contract. Performance specifications shall be prepared and revised IAW **DI-SDMP-81465**.

5.5 The contractor shall update the configuration end item identification book IAW **DI-ADMN-80925**.

5.6 The technical data and documentation prepared IAW this SOW, with existing TDP data, shall disclose the complete design, engineering, logistics, procurement and manufacturing requirements and quality assurance provisions applicable to materiel and software for which the effort is required under this contract. For items, components, and processes for which the contractor would assert "Limited Rights" in detailed design data, the contractor shall submit form, fit, and function technical data and documentation that is adequate for procurement from other sources of functionally and physically interchangeable items, components and processes. Otherwise, the contractor shall submit detailed design technical data and documentation with unlimited rights or Government purpose license rights with which the Government can procure from other sources identical items, components and processes without additional design effort or recourse to the original design activity. It is noted that IAW the Rights in Technical Data and Computer Software Clause, DFARS 252.227-7013(b)(1), form, fit, and function data shall be delivered with "unlimited" rights to the Government.

6. CM AUDITS AND REVIEWS

6.1 The contractor shall support Government conducted configuration audits of documentation prepared under this SOW to ensure adequacy for the intended use. The Government will conduct periodic reviews of the contractor's CM program to ensure that it is being conducted IAW the CMP and contractor internal procedures.

6.2 Audits/Review for European Production: The contractor shall support, by analysis and input, audits/reviews at European Government/contractor facilities to ensure compatibility between the U.S. and European common TDP.

7. SERIALIZATION, LOT, AND BLOCK CONTROL

The contractor shall maintain a serialization, lot and block control plan IAW the contractor's internal procedures. This plan shall be maintained as part of the CM Plan IAW **DI-CMAN-80925**. This plan shall be used for manufacturing, identification of required hardware, and lot and block control of hardware to be delivered under this contract.

8. ENGINEERING SERVICES SUPPORT FOR EUROPEAN VARIANT DESIGNS AND PROCESSING OF EUROPEAN GENERATED ECPs

8.1 The contractor shall maintain the European national variant portion of the MLRS Master TDP for the European MOU Nations IAW the revised MLRS Multinational Configuration Management Plan and this contract.

8.2 A national variant from the product baseline TDP occurs when at least one participating nation adopts a change which is not in agreement with the approved TDP. Determination of a national variant shall be made in accordance with the revised MLRS Multinational Configuration Plan. In case of disagreement concerning variants between LMVS and Europe the MLRS Project Office will make the determination.

8.3 ECP preparation and review under this SOW shall include the following:

a. Support by LMVS CM of ECP processing after a European variant determination has been made.

b. Maintenance of a CM system to conspicuously identify the variant TDP from the common baseline TDP used by the 5 nation partnership.

c. Incorporation of ECPs into a variant of the master TDP to include all drafting and checking effort for new or revised documentation per contract requirements.

d. Drafting of ICD IAW with **DI-DRPR-81000**, for drawings, or IAW **DI-SDMP-81493**, for specifications.

e. Preparation of ERRs IAW **DI-CMAN-80463** and Part III, para. 3.1 of this SOW, titled Changes to Government Controlled Documentation.

f. Delivery of the TDP IAW Part IV, para. 2.0 of this SOW, titled Technical Documentation. Note – this does not include European drawings and specifications furnished to the custodian of the master TDP.

g. Maintenance and preparation of status accounting records IAW Part III, para. 4 of this SOW, titled Status Accounting. The contractor shall also review, correct, and distribute European generated ECPs IAW **DI-CMAN-80639** and Part III, para. 3.1 of this

SOW titled, Changes to Government Controlled Documentation.

9. REQUESTS FOR OFFICIAL MILITARY NOMENCLATURE

9.1 Request for nomenclature (DD Form 61) are used to obtain official military designators for major end items and their principal components that are to be type classified. The contractor shall prepare requests for nomenclature IAW **DI-CMAN-81254.**

9.2 The contractor shall also prepare a Request for Nomenclature on any previously designated item which is changed sufficiently to warrant assignment of a new part number, or if previously supplied descriptive or technical data no longer accurately describes an item.

9.3 If a type designator nomenclature is assigned but the identified item is not authorized for fabrication, a request for cancellation, utilizing a DD Form 61, shall be prepared IAW **DI-CMAN-81254.**

9.4 Upon receipt of assigned nomenclature from USAAMCOM, the contractor shall use the nomenclature on hardware, engineering drawings, and all other documentation exactly as assigned.

10. PARTS CONTROL PROGRAM

The contractor shall maintain a Parts Control Program (PCP) for any proposed changes or additions to deliverable hardware. The PCP shall ensure maximum utilization of parts previously selected for MLRS and ensure the long-term producibility and supportability of any future part selections. The contractor shall submit new or revised parts IAW **DI-MISC-80071** or via the Modernized Parts Control Automated Support System (MPCASS) for standardization screening.

PART IV – DATA MANAGEMENT AND TECHNICAL DOCUMENTATION

1. DATA MANAGEMENT

1.1 The contractor shall maintain a data management function to deliver, distribute, and monitor status of, contract deliverable data items.

1.2 Delivery/distribution shall be accomplished IAW Section H, Para H-7, electronic submission, and IAW the Contract Data Requirements List (CDRL). All electronic data item deliveries shall be consistent with established CITIS practices.

1.3 Via CITIS, the contractor shall provide the Government with on-line access to the contractor's automated data management tracking system.

1.4 The Government may use the CITIS to comment on, approve, disapprove, or require changes to any data item submitted electronically via the CITIS. Such responses will be from the MLRS Data Manager and will be consistent with established CITIS practices.

2. TECHNICAL DOCUMENTATION

2.1 General: The contractor shall establish and maintain the Government controlled and the contractor controlled Configuration Documentation (CD) in accordance with the requirements set forth in this contract. Existing data that are considered acceptable IAW this SOW shall be used to the maximum extent possible to satisfy the CD requirements stated herein. CD shall not be prepared for items identified as Government furnished material (GFM) unless specifically directed by the Contracting Officer.

2.2. Use of Existing Data: Existing Government data shall be screened and selected for use IAW the requirements of this SOW prior to the preparation of new CD.

2.3 Quality Conformance Inspection Data: Quality conformance inspection data in the CD shall reflect use of commercial test equipment and standards, as opposed to SIE, to the fullest extent possible. The contractor is not authorized to acquire, design, manufacture or use any test equipment other than standard off-the-shelf commercial inspection equipment in the performance of this contract without prior approval IAW the Quality Assurance portion of the SOW.

2.4 Radioactive Materials: All CD pertaining to items using radioactive materials shall have the requirement suitably marked with a "CAUTION" note.

2.5 Criteria for Selection of CD: When existing documentation is not available to satisfy CD requirements, new CD shall be prepared. The forms of CD to be prepared are:

2.5.1 Program Unique Specifications: Program Unique Specifications (also referred to as Missile Specifications or MISs), including Interface Control Specifications, shall be prepared or revised IAW **DI-SDMP-81493**. The contractor shall assign Government (AMCOM) numbers to MISs prepared under this contract. These numbers shall be obtained from the Contract Technical Manager. Program unique specifications shall be prepared to conform to existing document format. Program unique specifications and Bookform Drawings shall be prepared to form part of the product baseline. Two part specifications are not authorized. Software specifications shall be prepared IAW **DI-IPSC-81433**, **DI-IPSC-81434**, **DI-IPSC-81436**, and **DI-IPSC-81442**. Changes to documents shall conform to existing document format.

2.5.2 Engineering Drawings and Associated Lists

a. Engineering drawings, associated lists, and quality assurance provisions (QAPs), shall be prepared and revised IAW the data items shown herein. The QAPs shall appear on drawings or specifications as applicable, if there is sufficient space. If there is insufficient space, separate QAPs shall be prepared and revised.

b. Product drawings, including interface control drawings, and associated lists shall be prepared and revised IAW **DI-DRPR-81000**.

c. Separate QAPs shall be prepared and revised IAW **DI-CMAN-80789**.

d. SIE drawings and associated lists shall be prepared and revised IAW **DI-DRPR-81004**.

e. Calibration Procedures (CP) shall be prepared and revised IAW **DI-QCIC-81007**.

f. Operating Instructions (OI) shall be prepared and revised IAW **DI-QCIC-81005.**
g. Tape Procedures (TP) shall be prepared and revised IAW **DI-QCIC-81006.**
h. ST/STE drawings and associated lists shall be prepared and revised IAW **DI-DRPR-81008.**

2.5.3 Source Control Drawing Approval Request: If source control drawings are to be utilized or prepared by the contractor, a source control drawing approval request shall be prepared IAW **DI-DRPR-81010.**

2.5.4 Reproduction: Reproductions, including stable base, shall be prepared IAW **DI-EDRS-80940.**

2.5.5 Classified Information: Mark and handle all CD containing classified information IAW **DOD 5220.22-M.**

2.5.6 The contractor shall retain custodianship of all technical documentation generated under this contract and previous development contracts on MLRS and shall have a central fireproof repository to accommodate original documents and computer programs. An additional storage area, in the form of an electronic vault, is required for electronic format documents.

2.5.7 The originals of all documents furnished are the property of the Government, regardless of the location of the original or the custodian thereof. The Government reserves the right to name the custodian of the original and to change the custodian at any time. Upon receipt of official notice from the contracting officer, the custodian shall ship the original as directed.

2.5.8 Government controlled CD and SIE/STE/ST CD shall not be changed without an approved ECP or removed from the storage area without official notice from the contracting officer or Government's configuration manager. The contractor shall maintain strict control and accountability of documentation and computer programs withdrawn from the repository.

2.5.9 CD Inspection procedures: The contractor shall implement CD inspection procedures that assure the CD prepared meets all contract requirements.

2.5.10 Computer Generated Drawings: When drawings are prepared using computer aided techniques, full change history shall be maintained on each computer generated/maintained drawing. When the government directs a change in the custodianship of original drawings, all computer generated drawing data shall be converted to IGES, Drawing Exchange Format (DXF), Computer Graphics Metafile (CGM), native CAD format or other presentation formats acceptable to the Government prior to delivery.

2.6 Media: The media for submission of all CD shall be as described in **MIS-52406, MIL-PRF-28000, MIL-PRF-28001, MIL-PRF-28002, MIL-PRF-28003, MIL-STD-1840,** and in the individual CDRL for each data item.

2.7 Support to Breakout Procurement: The contractor shall support the Government breakout program by preparing media for a complete certified TDP IAW **DI-EDRS-80940**

and a status accounting record in generation breakdown and alpha-numeric format IAW **DI-CMAN-81253.**

2.8 Engineering Release of Documentation: All new Government controlled CD and SIE/STE/ST CD used to define a particular baseline shall be released by an Engineering Release Record (ERR) prepared IAW **DI-CMAN-80463,** and when approved, the CD will be released into the configuration status accounting system. All CD revised or prepared as a result of an approved formal ECP (FECP) shall be incorporated into the original documentation and released by ERR IAW **DI-CMAN-80463.** Preliminary ECPs (PECP) shall not be incorporated into the original documentation. The MLRS Project Office has the approval authority for the CD and ERR. Upon incorporation of documentation changes by the contractor, the project office will review the documents for adherence to the approved NORs, and sign the ERR and the original of new or revised documentation. These actions may be accomplished by the on-site AMCOM Technical Services Office (TSO) representative.

2.9 NATO Maintenance and Supply Agency (NAMSA) Support: The contractor shall provide CD and configuration status accounting reports IAW **DI-EDRS-80940, DI-CMAN-81253,** and the CDRL TDP Delivery/Distribution Continuation Sheet.

PART V - PRODUCT ASSURANCE AND TEST

1. QUALITY PROGRAMS

1.1 The contractor shall maintain a quality program.

1.2 All quality program documentation, plans, and procedures prepared under all previous MLRS contracts shall be utilized to the maximum extent practicable.

1.3 Software Quality Programs - The contractor shall maintain the currently approved software quality program, 3-24800/SQPP-070.

1.4 The contractor's software engineering effort shall:

a. Incorporate methodologies for error prevention and/or avoidance.

b. Maintain test related media and documentation to allow repeatability of software tests.

c. Maintain a traceability matrix to identify objective evidence that the software requirements have been met.

d. Present at each formal review and/or audit objective evidence of traceability of software requirements throughout each software phase, through acceptance testing of the software.

e. Ensure the contractor's software development library accurately identifies and documents different versions of various Computer Software Configuration Items (CSCIs) and other controlled software. Procedures shall ensure that no unauthorized modifications are made, all approved modifications are incorporated, and the correct version of CSCIs are submitted for testing. The contractor shall maintain procedures to ensure other controlled software, software development and testing tools for example, are properly controlled,

installed and maintained.

f. Identify the number, status, category, open age and applicable unit names of software trouble reports (STRs) in the CITIS database that is accessible by the Government IAW Part VI paragraph 1.5 of this SOW.

g. Maintain this data in the CITIS database that is accessible by the Government IAW Part VI paragraph 1.5 of this SOW.

1.5 Software anomalies identified during design, proofing, acceptance, and certification shall be documented. The contractor shall establish a formal point of contact for independent verification and validation (IV &V) interface. The contractor shall provide the Government and its representatives access to all software, software development files, documentation, and facilities. The contractor shall receive all government technical deficiency reports and shall enter these deficiencies into the contractor's STR system.

2. QUALITY ASSURANCE DOCUMENTATION

2.1 The Contractor shall prepare and maintain quality assurance documentation as specified below.

2.2 Quality Assurance Provisions

2.2.1 QAPs are an integral part of the total technical documentation required to define an item and are stipulations of actions to be taken to determine that the manufactured item conforms to stated requirements. These provisions consist of inspection instructions that specify what is to be inspected, how many items are to be inspected, how the inspection is to be conducted (i.e., how the product is to be evaluated, examined, or tested) and the criteria to be used for determination of acceptability of the product.

2.2.2 When QAPs are required as a result of modification to existing or new designs,etc. they shall be prepared, utilized and maintained in drawings and specifications. Separate QAP forms shall not be used unless additional space is required.

2.3 SIE Documentation. The contractor shall maintain all SIE documentation. The documentation shall be maintained using the contractor's internal system to update and accurately reflect the SIE hardware and/or software configuration capability and suitability. The SIE documentation includes all documentation required to manufacture, maintain, modify and operate the SIE. New SIE shall be documentated in a manner such that the SIE may be manufactured, operated, modified and maintained throughout the SIE and product life in accordance with **DI-DRPR-81004**. Calibration Procedures (CPs), Operating Instructions (OI)s and computer software documentation (TPs) shall be prepared as separate documents in accordance with **DI-QCIC-81007**, **DI-QCIC-81005** and **DI-QCIC-81006** respectively and specified for use on the top assembly drawing. These documents shall be identified with the same Government drawing number as the top assembly and parts list but prefixed with CP, OI or TP as appropriate.

3. TEST EQUIPMENT

The contractor may develop SIE-STE equipment that requires a special design or modification to obtain those physical dimensions, functions, parameters and tolerance

ranges that cannot be readily nor economically obtained using standard commercially available test/inspection equipment. The contractor shall obtain Government approval prior to fabrication or procurement of SIE/STE. The contractor shall obtain Government approval prior to modification of existing SIE.

3.1 Validation Proofing

3.1.1 An SIE validation/proofing demonstration shall be performed to verify that the SIE will perform the functions for which it is designed. Equipment inspected by SIE shall be available for the demonstration. The demonstration shall be performed after calibration and shall include a complete functional check for all modes of operation. The validation/proofing shall demonstrate to the Government, the SIE's capability, determine electrical and/or mechanical compatibility with the item under test and shall verify the accuracy and completeness of the SIE Calibration Procedures (CPs), Operating Instructions (OIs) and computer software documentation (TPs). After validation/proofing, no changes shall be made to the test equipment that affects its performance without approval of the Government.

3.1.2 The Government shall be advised 10 days prior to the scheduled demonstration so that a Government representative can be present.

4. RELIABILITY, AVAILABILITY AND MAINTAINABILITY (RAM) REQUIREMENTS

4.1 The contractor shall continue the reliability and maintainability program developed and implemented under previous engineering services contracts. Work begun under prior contracts may be extended under this contract; however, work performed under other contracts shall not be duplicated. A reliability and maintainability analysis shall be completed on each engineering change whether Government or contractor controlled. The analysis results shall be documented in the engineering change documentation. A Reliability Status Report shall also be prepared IAW **DI-MGMT-80368.**

4.2 The contractor shall maintain the automated MLRS Failure/Repair Database which will include data from the following:

a. Red River Army Depot (RRAD) - preparation for fielding facility
b. Field Units - returned hardware
c. Contractor Field Representatives at field sites
d. Field Logistics Reports
e. Letterkenny Army Depot (Repair Data)
f. NAMSA (Repair Data)

5. TEST SUPPORT

The contractor shall provide support to Government or joint contractor/Government conducted ground and flight tests. The support shall include activities such as test planning, test plan preparation, test document review, test instrumentation checkout, MLRS peculiar hardware maintenance tooling, test conduct, data collection, data analysis, problem/failure investigation, and test report preparation. Detailed test plans for contractor conducted tests shall be prepared IAW **DI-NDTI-80566.** Test and evaluation reports shall

be prepared IAW **DI-NDTI-80809.** The above test support also includes the provision of personnel at the various contractor and Government test sites relative to the following ground and flight test programs:

a. ECP evaluation
b. Shelf-life/Stockpile reliability program
c. Special tests

6. SPECIAL ANALYSES

The contractor shall conduct special product assurance and test analyses and shall prepare a report of results IAW **DI-NDTI-80809.**

7. NUCLEAR SURVIVABILITY ASSURANCE AND MAINTENANCE

The contractor shall continue to maintain a nuclear survivability assurance and maintenance program established and approved under previous MLRS IES contracts.

8. MLRS FAMILY OF MUNITIONS (MFOM) INTEGRATION FACILITY (MIF)

The contractor shall manage, schedule, and coordinate activities in the MIF. The contractor shall provide technical support for the upgrade and maintenance of MIF assets to support contractor and government tests. The contractor shall control access to and configuration of an M270A1 launcher provided to the MIF.

9. SOFTWARE TEST FACILITY

The contractor shall operate and maintain test facilities to support field failure investigations, system tests, product evaluations, communications testing, software support and testing, and system improvements. Modifications and upgrades to those facilities shall be performed to maintain compatibility with the fielded MLRS. This effort includes test/inspection and configuration identification of tactical and test/simulation hardware.

PART VI - LOGISTICS SUPPORT

1. The objective of this section is to provide guidelines for the general requirements for integrated logistics support (ILS), CALS and fielding support for the MFOM, M270 and M270A1. When directed by ESM, the contractor shall perform the functions described in the following paragraphs.

1.1 Logistics Support Analysis (LSA).

1.1.1 The contractor shall continue the LSA program for all maintenance significant repairable assemblies contained in each of the end items, less the carrier vehicles.

1.1.2 All LSA and Logistics Support Analysis Report (LSAR) tasks shall be maintained and compatible with the existing MLRS LSA/LSAR.

1.1.3 The contractor shall prepare and maintain an automated data processing interface system (data files that shall provide the technical data required by this SOW).

1.1.3.1 The contractor shall maintain the necessary equipment to allow real time access to the MLRS data files located at the contractor's facilities in Grand Prairie, TX. This capability shall be available to IMMC Land Combat Directorate, AMSAM-MMC-LC-MA.

1.1.3.2 The system shall be capable of producing, on a CRT screen, all LSAR data in the contractor's MLRS Logistics Control Number (LCN) and part master files to include Maintenance Replacement Rates (MRR), Overhaul Replacement Rates (ORR), etc. The LSAR information shall be retrievable and reproducible as individual items or complete summaries. LSA records shall be retrievable and reproducible either by LCN or by Part Number.

1.1.3.3 Approved data, as well as other communications between PM MLRS and Lockheed Martin Vought Systems logistics personnel to include AMCOM change requirements, shall be incorporated into this system and construed as a deliverable product.

1.1.3.4 The contractor shall load existing data into the automated LSAR program. Related logistics documentation data shall be referenced to the LSAR, i.e. Provisioning Contract Control Number (PCCN), Provisioning Line Item Sequence Number (PLISN), Technical Manual (TM) Number, Figure Number, Item Number and Functional Group Codes.

1.2 Packaging Requirements.

1.2.1 Development of Packing Data. The contractor shall develop packaging data for AMCOM managed equipment/parts subjected to storage and transportation IAW **DI-PACK-80120, DI-PACK-80121, and DI-MISC-81499.**

1.2.2 Pilot Pack Test. AMCOM Packaging Branch shall be notified in writing prior to any pilot pack test proposal.

1.2.3 Specialized Containers. Contractor shall notify AMCOM Packaging Branch when a possible candidate for a specialized container exists.

1.3 Reserved

1.4 Provisioning

1.4.1 The contractor shall provide determination/verification and assignment of source, maintenance and recoverability (SMR) codes, update maintenance of the Provisioning Master Record (PMR), verification of maintenance functions, and identification of maintenance significant items. The contractor shall also provide determination/verification of assignment of essential codes, shelf life codes, precious metal indicators, Physical Security Pilferage Code, unit price, unit of measure, special maintenance category codes, and demilitarization codes, selection of support items, provide Design Change Notice (DCN) with provisioning data to update PMR, and procurement of Provisioning Technical

Documentation (PTD). The contractor shall provide requirements determination/provisioning computation, and calculate stockage criteria and quantity of both wholesale and retail based on data contained in the PMR and the End Item Parameter (EIP) file **IAW DI-ILSS-81173.** Information provided shall be compatible with the existing MLRS system used (Commodity Command Standard System (CCSS)). This data shall be prepared in the existing agreed upon format by the contractor and reviewed by the government at the provisioning and LSAR conference to be held yearly, and at the reconciliation conference to be held biannually at the agreed upon place between the government and the contractor. The reconciliation conference shall be a 100% line by line comparison utilizing government personnel and the comparison program developed by LMVS. This data shall be prepared IAW **DI-ILSS-81285, DI-ILSS-81286** and **DI-ILSS-81289** at the provisioning and LSAR reviews and conferences.

1.4.2 The following shall be prepared IAW **DI-ILSS-81173:**

a. Defense Logistics Service Center (DLSC) pre-screening for National Stock Number (NSN)

b. Determination of Federal Supply Class (FSC)

c. Assignment of Item Management Code (IMC)

d. Preparation of item description

e. Verification of technical characteristics

f. Determination of interchangeability of substitutability, and provision assignment of NSNs.

1.5 Continuous Acquisition and Life-Cycle Support (CALS)

1.5.1 General. The contractor shall support the MLRS CALS program through operation and maintenance of a comprehensive Contractor Integrated Technical Information Service (CITIS) IAW **MIL-STD-974.**

1.5.2 Contractor Integrated Technical Information Service (CITIS). The contractor shall maintain a single CITIS providing integrated data services for all MLRS Projects and Programs which the contractor supports. The CITIS shall include the procedures, specifications, software applications, and database services for the generation, integration, storage, management, exchange, delivery and distribution of technical and management data in support of all Engineering, Production, Quality, Logistics, Programming and Configuration Management functions of the MLRS Project.

1.5.3 MLRS PMO CALS Program Support. The contractor shall attend the MLRS Automation Initiative Working Group (MAIWG) and provide advice and recommend actions for the advancement of MLRS information systems and the MLRS CALS program, and develop plans and designs for implementing MAIWG initiatives. The contractor shall manage implementation of the approved MAIWG initiatives.

1.6 Materiel Fielding Team Support. The contractor shall furnish system technicians to provide technical support to the materiel fielding team during the deployment process of MLRS Launchers. The technical fielding support consists of technicians performing calibration of equipment, fire mission for MFOM, communication checks, and all maintenance manual -10 and -20 checks to assure launchers are operational before hand-off to the unit.

PART VII - POST DEPLOYMENT SOFTWARE SUPPORT (PDSS)

1. GENERAL

1.1 The contractor shall perform the PDSS, which includes the system support necessary to sustain, modify, and improve the computer software for the MLRS M270 launcher, Interim launcher, and the M270A1 launcher.

1.2 The contractor shall incorporate corrections/enhancements to the software as directed by the Government.

1.3 The implementation language for modifications to existing M270 launcher Computer Program Configuration Items (CPCIs) shall maintain backward compatibility with the current system and assembly language as appropriate.

1.4 Nondevelopmental Items (NDI) are items previously developed by the contractor or others, items fielded by other U.S. Military services or Governmental agencies, or items fielded by U.S. allies. NDI may or may not be available to the general public. Commercial "off the shelf" (COTS) are NDI developed by others and available to the general public. Any NDI software (except COTS) shall be documented and tested in the same manner and to the same extent as required for software developed IAW this SOW, Part VII, paragraph 2, Software Configuration Management.

2. SOFTWARE CONFIGURATION MANAGEMENT

2.1 The contractor shall follow the configuration management and data management requirements detailed in Parts III and IV of this SOW for software corrections and enhancements.

2.2 The contractor shall prepare and revise a Software Version Description (SVD) IAW **DI-IPSC-81442** for each version delivered.

2.3 The contractor shall prepare Software Specifications IAW **DI-IPSC-81433**, **DI-IPSC-81434** and **DI-IPSC-81436**.

3. PRODUCT ASSURANCE/TEST

3.1 The contractor shall implement the product assurance and test requirements detailed in Part V for software corrections/enhancements.

3.2 The contractor shall perform independent verification of all software changes.

3.3 The contractor shall support, by analysis and input, the Government designated Verification and Validation (V&V) agent.

3.4 The contractor shall maintain the requirements for laboratory/test equipment.

3.5 The contractor shall support, by analysis and input, system/interoperability testing.

3.6 The contractor shall maintain software test plans IAW **DI-IPSC-81438.**

3.7 The contractor shall implement software quality as described in Part V of this SOW for corrections/enhancements.

3.8 Test Readiness Reviews (TRRs) shall be scheduled at least 30 days in advance of testing and shall be conducted at a contractor facility.

3.9 The contractor shall prepare and maintain software test reports for each CSCI tested, **IAW DI-IPSC-81440.**

4. SYSTEM ENGINEERING

4.1 The contractor shall prepare technical analysis IAW **DI-MISC-80508** of reported problems/suggestions and potential enhancements relative to the launcher (hardware/software) and the MFOM.

4.2 The contractor shall provide support, by analysis and input, to launcher instrumentation activities.

4.3 The contractor shall support, by analysis and input, the Fire Control System Interface Technical Group (FCSITG).

4.4 The contractor shall maintain the requirements defining the launcher software scoring procedure and criteria by which they are judged.

4.5 The contractor shall maintain a comprehensive, integrated project activity schedule including cost, for all MLRS engineering support services. The schedule shall include any inputs from activities affecting engineering support services.

4.6 The contractor shall conduct in process reviews (IPRs) for each version. IPRs shall be scheduled at least 5 days in advance and shall be conducted at a contractor facility.

5. SOFTWARE ENGINEERING

5.1 The contractor shall provide software sustainment, modification, and enhancement for the MLRS launcher software.

5.2 The contractor shall update/maintain the tool set required to build and test the launcher software.

5.3 The contractor shall manage the software maintenance process in accordance with an approved software maintenance plan.

5.4 The contractor shall update/maintain the monitors/simulators required to build and test the launcher software.

PART VIII - MFOM INTEROPERABILITY

The contractor shall support, by analysis and input, MFOM Integration activities. The contractor shall prepare IAW **DI-ADMN-81373** information papers, technical briefings, etc. for the MFOM Integration Working Group (MIWG) and Steering Committee (MISC) and attend MFOM Utilization meetings.

PART IX - SUPPORT FOR JAPAN COPRODUCTION PROGRAM

1. DOCUMENTATION SUPPORT

1.1 The contractor shall provide interpretation/clarification of drawings, specifications, ECPs and other data IAW **DI-MISC-80711.**

1.2 The contractor shall investigate possible anomalies in coproduction data/documentation and prepare reports IAW **DI-MISC-80711.**

1.3 The contractor shall provide copies of system data and documentation IAW **DI-ERDS-80940.**

2. TECHNICAL/PROGRAM SUPPORT

2.1 The contractor shall provide administrative/technical support by analyses and input for co-production Program Review Meetings (PRMs) and Technical Review Meetings (TRMs) held at the contractor's facility.

2.2 The contractor shall provide administrative/technical support by analyses and input for information gathering visits to the contractor's production facility by Japan representatives.

2.3 The contractor shall provide engineering support by analyses and input to AMCOM in the evaluation of Japan proposed engineering changes, and prepare reports **IAW DI-MISC-80711.**

2.4 The contractor shall perform directed tasks (issued by sub-ESMs) in the area of engineering analysis/support to the co-production program, and prepare reports **IAW DI-MISC-80711.**

PART X - SUPPORT FOR EUROPEAN AT2 PROGRAM

1. SYSTEM ENGINEERING

1.1 The contractor shall provide technical support by analyses and input for AT2 Program Review Meetings (PRM) and Technical Review Meetings (TRM).

1.2 The contractor shall provide technical support for information gathering visits to the contractor's production facility.

1.3 The contractor shall provide engineering support by analyses and input to AMCOM in

the evaluation of the AT2 program.

1.4 The contractor shall perform tasks in the area of engineering analysis/support to the AT2 program when directed by the sub-ESMs.

2. DOCUMENTATION SUPPORT

2.1 The contractor shall provide interpretation/clarification of drawings, specification, ECPs, and data as errors are identified IAW **DI-MISC-80711.**

2.2 The contractor shall process CRs for proposed changes to TDP documentation and present impact of CR to the customer.

2.3 The contractor shall provide personnel, proficient in various disciplines, to define the full impact of each MLRS change.

3. PRODUCT ASSURANCE AND TEST

3.1 The contractor shall provide technical management of the quality assurance engineering services for AT2.

3.2 The contractor shall provide qualified personnel to provide an active interface between (in-house) product support activities and (off-site) test operations to effect overall test programs.

PART XI – SUPPORT FOR AMCOM FOREIGN MILITARY SALES PROGRAMS

1. The contractor shall provide, upon request, technical support by analyses and input for Program Management Reviews (PMRs) and Technical Management Reviews (TMRs).

2. The contractor shall provide, upon request, interpretation/clarification of drawings, specifications, ECPs, and other data.

PART XII - TECHNICAL PUBLICATIONS

1. GENERAL

1.1 The contractor shall prepare, deliver and distribute new, changed, revised, and backup publications pages for technical manuals (TMs), depot maintenance work requirements (DMWRs), repair parts and special tools lists (RPSTLs), and modification work orders (MWOs) for the MFOM, M270 and M270A1.

1.2 Item numbers for the RPSTL illustrations shall be provided.

1.3 The publications shall not contain copyright material unless a release has been obtained. Copies of copyright releases shall be furnished to the Contracting Officer. When the contractor cannot obtain copyright release, the Contracting Officer shall be informed.

1.4 The publications shall not contain proprietary material.

2. EFFECTIVITY OF PUBLICATIONS

The publications shall reflect the latest configuration of hardware as documented in the technical data package (TDP), unless specifically waived.

3. The publications shall be prepared in accordance with the maintenance concept/philosophy established for the target audience and reflected in the LSA/LSAR source data.

4. The contractor shall prepare reports of technical manual cost IAW DI-FNCL-80912.