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US ARMY
MATERIEL DEVELOPMENT
AND
READINESS COMMAND

ANNUAL HISTORICAL REVIEW

FISCAL YEAR 1979

HEADQUARTERS
US ARMY
MATERIEL
DEVELOPMENT
AND
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COMMAND
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U. S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

ANNUAL HISTORICAL REVIEW

FISCAL YEAR 1979
(RCS-CSHIS-6 (R3))

Prepared by

Historical Office

Headquarters, U.S. Army Materiel Development and Readiness Command

30 September 1981

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DECLASSIFY ON: 1 October 1985

PREFACE

This Annual Historical Review, prepared in accordance with the provisions of AR 870-5, covers the seventeenth year of life for the US Army Materiel Development and Readiness Command (DARCOM). The history was prepared from submissions from historical officers of staff elements discussed in the text, and from sources assembled through various research programs. The review is the official history of the Command. It is used for orienting newly assigned personnel and for providing history and precedent upon which to base Command operations. It is also a reference work for the preparation of more comprehensive Command and Army histories. Detailed histories of DARCOM major subordinate commands, installations, and activities are preserved in the DARCOM Historical Office Archives.

FY 1979 was another year of change and challenge for DARCOM. The AMARC realignments were scarcely completed with the organization on 1 January 1978 of two new research and development commands (ERADCOM and CORADCOM) and one new readiness command (CERCOM) from former ECOM elements when DARCOM placed the entire AMARC structure, which had been evolving since 1974, under review. As a consequence of this review, the missile research and development command (MIRADCOM) and the missile readiness command (MIRCOM) were consolidated to form the missile command (MICOM) effective 1 July 1979. Other consolidations and realignments were scheduled to follow in the tank-automotive and electronics areas.

As in FY 1978, total Army logistics readiness continued as a major concern for DARCOM in FY 1979. There was a continuing erosion of the wholesale logistics base and a growing loss of technical expertise in both DARCOM and industry. It was another year of declining monetary and personnel resources and increasing workloads, a condition impacting adversely on logistics and Army readiness. DARCOM's efforts to meet the challenge of doing more with less are discussed within the text.

The preparation of the history was a team effort. The project director was Myles G. Marken, Sr. who planned the history and also wrote Chapter VII - Highlights and Trends. George J. Stansfield wrote Chapter I - Command Management. Andrew A. Putignano prepared Chapters II - Resources Management; IV - Project Management, Weapons; and VI - Materiel Readiness. Major Howard K. Butler, TROSCOM Command Historian, prepared Chapter III - Materiel Development. Don E. McLeod prepared Chapter V - Project Management, Equipment and Management Systems. The manuscript was edited, typed, and proofed by Mrs. Betty J. Thomas, Mrs. Guyanne Parker, and Ms Dianne M. Alexander. The cover was designed by Ms Sally Thornburg of the HQ DARCOM Graphics Facility.

The HQ DARCOM Historical Office wishes to pay special tribute to Mrs. Thomas, who labored heroically to complete the history until her final illness just a few short days before her death. Her life, work, and undying spirit remain an inspiration to the entire staff. This history is dedicated to her.

MYLES G. MARKEN, SR.
Senior Historian
Project Team Leader

DALE BIRDSELL
Chief Historian

General J. R. Guthrie
Commander, DARCOM
May 1977 - August 1981

LTG E.J. Baer
Deputy Commanding General
for Materiel Development
September 1977-June 1980

LTG E.J. D'Ambrosio
Deputy Commanding General
for Materiel Readiness
January 1976-May 1979

LTG H.F. Hardin, Jr.
Deputy Commanding General
for Materiel Readiness
June 1979-

MG R.L. Bergquist
Deputy Commanding General
for Resource Management
March 1978-

MG R.L. Moore
Chief of Staff
February 1978-July 1980

CSM H.W. Shedd
Command Sergeant Major
August 1975-August 1980

MG R.J. Lunn
Director of Development
and Engineering
July 1977-May 1979

MG T.H. Brain
Commander, US Army
Security Assistance Ctr.
Director of
Security Assistance Ctr.
October 1976 - March 1979

MG J.R.D. Cleland
Director of
Security Assistance Ctr.
July 1979 - August 1980

BG E.A. Vuley, Jr.
Director of
Materiel Management
Sep 1977 - Dec 1978

MG P.M. Roddy
Director of
Materiel Management
Dec 1978 - Nov 1979

MG G.S. Patton, Jr.
Director of Readiness
Feb 1979 - Sep 1980

MG J.W. Sharp
Director of Procurement
and Production
May 1977-June 1980

BG W.H. Schneider
Director of Personnel,
Training and Force Development
January 1979-June 1980

COL Edward Honor
Director of Plans,Doctrine
and Systems

BG A.J. Cade
Conptroller
December 1977-December 1978

MG E.J. DeLaune
Comptroller
December 1978 - August 1980

U.S. ARMY MATERIEL DEVELOPMENT
AND READINESS COMMAND
ANNUAL HISTORICAL REVIEW
FISCAL YEAR 1979

TABLE OF CONTENTS

CHAPTER		PAGE
I	COMMAND MANAGEMENT	1
	Command Overview/Introduction	1
	Program Plans and Policies	2
	Headquarters Reorganization	2
	Establishment of US Army Missile CMD (MICOM)	4
	1979 Security Assistance Highlights	4
	Administrative Developments	4
	Security Assistance - Africa	6
	Security Assistance - Europe	6
	Security Assistance - Far East	10
	Security Assistance - Latin America	12
	Security Assistance - Middle East	12
	Product Assurance	21
	Army Quality Engineering	21
	Test Data Collection	22
	RSI Standardization	22
	US Army Metrology and Calibration System	23
	DARCOM Ammunition Surveillance Program	27
	DARCOM Supply and Maintenance Quality Assurance Program	27
	Rationalization, Standardization, Interoperability (RSI) US/GE Army Staff Talks	29
	Management Information Systems	32
	Equal Employment Opportunity Office	34
II	RESOURCES MANAGEMENT	37
	Personnel, Training and Force Development	37
	Introduction	37
	Manpower Program Development	38
	Manpower Utilization, Standards and Policies	39
	Personnel Space Authorization and Strength	39
	Civilian Manpower Guidance and Ceilings	42
	Manpower Analysis	42
	Manpower Accountability	42
	Manpower Management Information Systems	44
	Civilian Personnel Management	45
	Career Management	45
	Position and Pay Management	45
	Labor-Management Relations	47
	Military Personnel Management	47
	Introduction	47
	Army Continuing Education System	47
	Reserve Components Funding Shortage	48
	Enlisted Strength	48

TABLE OF CONTENTS

CHAPTER		PAGE
II	-Continued	
	Reenlistment	49
	Remote Terminal Access to DARCOM Personnel Management System	49
	Officer Personnel Management System	49
	Schools Management	50
	Introduction	50
	US Army Management Engineering Training Activity	50
	Education and Training Career Program	54
	Military Equal Opportunity Program	54
	Introduction	54
	Equal Opportunity Program Guidance	54
	Staff Assistance	55
	Alcohol and Drug Abuse Office	56
	Introduction	56
	Prevention and Education	56
	Identification and Rehabilitation	56
	Organizational and Personnel Management	57
	Introduction	57
	Organization Changes	57
	Civilian Personnel Management	58
	Military Personnel Management	58
	Comptroller	59
	Introduction	59
	Resources and Programs	64
	Cost Analysis	66
	BCEs and BCE Reassessments	69
	Finance and Accounting	70
	Internal Review and Audit Compliance	76
	Management Review and Analysis	77
	Plans and Analysis	91
	Special Inspection of Army Nuclear Matters (SIANM)	92
	Master Urgency List (MUL)	93
	ARRCOM Test of Delegated Authority	98
	CITA	98
	Status of Closing Frankford Arsenal	99
	Depot System Command (DESCOM) Relationships With HQ DARCOM Functional Managers	99
	Lexington-Blue Grass Depot Activity	100
	Surface Launched Unit Fuel Air Explosives (SLUFAE)	100
	Establishment of US Army Missile Command	101
	Test Measurement of Diagnostic Equipment (TMDE)	101
	Aviation Depot Maintenance Roundout	102
	Installations and Services	103
	Mission and Organization	103
	DARCOM Energy Program	103

TABLE OF CONTENTS

CHAPTER		PAGE
II	-Continued	
	Environmental Quality	106
	Engineering	110
	Master Planning	110
	Pollution Abatement	113
III	MATERIEL DEVELOPMENT	117
	Overview	117
	Development and Engineering	117
	Introduction	117
	Systems Evaluation and Testing	118
	General	118
	STINFO	118
	Defense Standardization Program (DSP)	119
	Technical Data Program/Acquisition Management Systems and Data Requirements Control Program	119
	GIDEP	119
	ACT	119
	OSD/DA Special Interest Items	119
	Individual Soldier, Training Devices, Support Systems Team	120
	Documents	120
	Equipment	120
	Aviation	121
	Program Status	121
	CH-47 Helicopter	121
	RSI	121
	Field Artillery	122
	Special Munitions	122
	Laboratory and Development Command Management	122
	Meetings	122
	Youth and Women	123
	International Research and Development	123
	Background	123
	Accomplishments	124
	Data Exchange Agreements	124
	Cooperative R&D	124
	Professional Exchange Program	124
	US/CA Defense Development Sharing Program	124
	Battlefield Systems Integration	125
	Reorientation	125
	Mission and Personnel	125
	Activities	126
	Suppression/Counterfire	126
	Air Defense	127
	Battle Support/Reconstitution	128
	Force Mobility	128

TABLE OF CONTENTS

CHAPTER		PAGE
III	-Continued	
	Surveillance/Fusion	129
	Automated IPB	129
	C^3/EW	129
	System Integration Data Base	130
	Recap and Future	130
	Manufacturing Technology	131
	Management	131
	Actions	132
	Product Improvement Program (PIP)	132
	Joint Review	133
	PI Management	133
	Evolutionary Development	133
	PI Instruction	134
	Actions	134
IV	PROJECT MANAGEMENT: WEAPONS AND WEAPONS SYSTEMS	135
	Office of Project Management	135
	XM1 Tank System	137
	Organization	137
	Significant Events	138
	US Army Audit Agency (AAA) Inquiries	140
	Management Procedures	140
	Reliability, Availability, Maintainability Status (RAM)	140
	Technical and Testing Activities	141
	International Programs	147
	Tank Main Armament System Development and Production	149
	Integrated Logistics Development Activities	152
	Procurement & Production/Facilitization	154
	Financial and Cost	159
	Fighting Vehicle Systems	161
	Establishment	161
	Mission	162
	Personnel/Organization	162
	IFV/CFV Production	163
	Multiple Launch Rocket System (MLRS)	165
	Armament Engineering	166
	Logistics Management	168
	Supply Management	168
	Product Assurance Test and Evaluation	169
	Procurement and Production	171
	Program Management	173
	Project Manager for Nuclear Munitions	176
	Organization and Personnel	176
	XM785 Nuclear Projectile	177

TABLE OF CONTENTS

CHAPTER		PAGE
IV	-Continued	
	XM753 Nuclear Projectile	178
	LANCE	179
	PERSHING II	180
	The M454/M197/M198 Compatibility Program	180
	PERSHING Ia	181
	Power Supplies for Permissive Action Link (PAL) Equipment	181
	NIKE HERCULES/HONEST JOHN W31 Weapon Systems	182
	Armor Blanket	182
	Chemical Decontamination	182
	Stockpile Reliability Test Program	182
	Value Engineering (VE)	183
	Publications and Maintenance of Nuclear Launch Equipment by Friendly Nations	183
	Product Improvement Proposals	183
	NUWAX - 79	183
	MK76 Shaped Charge	184
	ILS, General	184
	Command Control and Security	184
	Charter Revision Proposal	185
	BLACK HAWK	185
	Organization and Staffing	185
	Fiscal Year 1979 Funding	186
	Production Verification Testing	187
	Maturity Phase Ground Testing	188
	Maturity Flight Testing	189
	Product Assurance	189
	Reliability, Availability and Maintainability	190
	Maintenance Publications	190
	Training	191
	ILS Accomplishments	191
	Advanced Attack Helicopter (AAH)	192
	Introduction	192
	Background	192
	FY 1979 Program Development	194
	TADS/PNVS	197
	AAH Program Management Structure	197
	Program Manager's Role	198
	Program Cost Estimate	198
	PM Smoke/Obscurants	198
	RDT&E Programs	198
	Advanced Development: Smoke Munitions & Materiel	198
	Engineering Development: Smoke Munitions & Materiel	199
	Countermeasure Test Program	200

TABLE OF CONTENTS

CHAPTER		PAGE
IV	-Continued	
	Procurement and Production	201
	Committees and Interfaces	202
	Smoke Symposium III	203
	Toxicology	203
	PATRIOT Air Defense System	204
	Engineering Development	204
	Support Planning	206
	Readiness for Production	206
	PATRIOT RSI Activity	207
V	PROJECT MANAGEMENT, EQUIPMENT & MANAGEMENT SYSTEMS	209
	US Army Communications Systems Agency	209
	Background	209
	Mission	211
	The Product	211
	The Project Manager/Commander	212
	Organizational Structure	212
	Functional Elements	213
	Cost Analysis	215
	Logistics Directorate	217
	Procurement and Product Control Directorate	220
	Field and Liaison Offices	223
	USACSA Field Office - CONUS	223
	USACSA Field Office - Europe (EFO)	224
	USACSA Field Office - Korea (KFO)	224
	DARFAX	227
	USACSA Liaison Office, Washington, DC	232
	Command and Control Systems	232
	Research and Development Systems	238
	Switched Systems	240
	Telecommunications Automation and Control Systems	246
	Territorial Command Network - Spain	249
	Transmission Systems	249
	Worldwide Military Command and Control Systems (WWMCCS)	252
	Mobile Electric Power	254
	Other Programs	258
	Logistic Management	261
	Munitions Production Base Modernization and Expansion (MPBME)	263
	Mission, Organization, and Manpower	263
	Administrative Support Office	265
	Joint Services and Analysis Office (JSAO)	266
	Support to Single Management for Conventional Ammo-	266
	Research and Development/Transition Planning Activities	268

TABLE OF CONTENTS

CHAPTER PAGE

V -Continued
Policy and Procedures for R&D Coordination--------- 269
Mobilization Planning---------- 272
Additional Involvement During FY 1978---------- 272
Program Management Division---------- 273
The Program---------- 280
Technical Support Division---------- 291
Propellants and Explosives Division---------- 297
Other Activity---------- 302
Selected Munitions & Engineering Support Branch---- 302
Pollution Abatement Program---------- 306
Load, Assemble and Pack Division (LAP)---------- 309
Tank, Chemical & Nonballistic Munitions Acty------- 320
Metal Parts Division Activities---------- 330
Nuclear Munitions---------- 339
Nuclear Weapons Logistics Management Conference---- 339
XM785 Nuclear Projectile---------- 339
XM753 Nuclear Projectile---------- 340
LANCE---------- 341
PERSHING II---------- 342
The M454/M197/M198 Compatibility Program---------- 342
M422 Program (8 inch)---------- 343
Atomic Demolition Munition (ADM)---------- 343
PERSHING 1a---------- 343
Power Supplies for Permissive Action Link (PAL) Equipment---------- 344
NIKE HERCULES/HONEST JOHN W31 Weapon Systems------- 344
Armor Blanket---------- 344
Electromagnetic Radiation (EMR)---------- 345
Chemical Decontamination---------- 345
Nuclear Survivability---------- 345
Stockpile Reliability Test Program---------- 345
Value Engineering (VE)---------- 346
Life Cycle Systems Management Model (LCSMM)-------- 346
Life Cycle System Cost Model (LCSCM)---------- 346
Publications and Maintenance of Nuclear Launch Equipment by Friendly Nations---------- 346
NUWAX - 79---------- 347
MK74 Shaped Charge---------- 347
ILS General---------- 347
Command, Control and Security---------- 347
Summary---------- 348
Training Devices (TRADE)---------- 349
Review of PM TRADE for FY 1978 and 1979---------- 349

TABLE OF CONTENTS

CHAPTER		PAGE
VI	MATERIEL READINESS	361
	Materiel Management	363
	Key Supply Performance Trends	363
	Army and Joint Oil Analysis Programs Background	364
	Storage	370
	Transportation	371
	Packaging	372
	Toxic Chemical Munitions	373
	Inventory Accounting	374
	Cataloging Provisioning System (CPS) Phase I	375
	Depot Maintenance Plant Equipment (DMPE)	375
	Test Measurement and Diagnostic Equipment (TMDE)	375
	Transfer of Investment End Items	376
	Secondary Items - Management and Budgeting	376
	Cryptologic Activities	377
	Communications Security (COMSEC)	377
	Supply Depot Operations	378
	Supply Management Operations	378
	First Destination Transportation	378
	Second Destination Transportation	379
	Oversea Port Units (MILVAN/CONEX Control)	379
	Depot Materiel Maintenance & Support Activities	380
	The Direct Support System - CONUS (DSS-C)	381
	Air Line of Communication - Korea (ALOC-K)	381
	Improvement of EW/SIGINT Support	381
	Maintenance Interservice Support Management Office	382
	Readiness	384
	Personnel Changes	384
	Major Activities or Events	384
	DARCOM Readiness Evaluation System (DRES)(FS)	386
	Total Logistics Readiness/Sustainability (TLR/S) Analysis (FS)	386
	Logistic Support of Reserve Components (FS)	386
	Reserve Components Dedicated Maintenance Program(FS)	387
	Reserve Units and Full Mobilization	387
	Readiness of Missile Systems Worldwide (FS)	389
	US Support to United Nations Peacekeeping Forces(FS)	389
	Logistic Assistance Program Organization Restructuring (FC)	389
	Camouflage Painting of Vehicles	390
	Chemical Resistant Finish for Army Equipment	391
	ILS Management/Meetings	392
	New Initiatives in ILS	392
	ILS Policy Improvements	393

TABLE OF CONTENTS

CHAPTER PAGE

VI -Continued
DARCOM Resources for Integrated Logistic Support (ILS) Management---------- 394
Logistic Supportability Guidance---------- 394
Contractor Logistic Support (CLS)---------- 395
DARCOM Force Modernization Office---------- 395
System Training Device Acquisition---------- 396
Accelerated Fill of Prepositioned Materiel Configured to Unit Sets (POMCUS)---------- 396
Procurement and Production---------- 397
Industrial Base---------- 397
Special Studies---------- 401
Defense Materials System (DMS) and Defense Priorities System---------- 401
Cost Performance Reporting---------- 403
Procurement Program - Army Appropriations---------- 404
Procurement---------- 404
Special Assistant for Small Business---------- 409
Materiel Readiness Plans, Doctrine, and Systems---------- 410
Organization and Mission---------- 410
DARCOM Readiness Evaluation System (DRES)---------- 411
Rationalization, Standardization and Interoperability (RSI)---------- 411
Coordination of Tables of Distribution & Allowances (TDA)---------- 412
Army-Wide Training Literature Program (ATLP)---------- 412
Phase II Study-Logistics Operations in the Communications Zone (COMMZ)---------- 413
Selected Item Management System-Expanded (SIMS-X)-- 414
Standard Army Maintenance System (SAMS)---------- 414
Total Army Equipment Distribution Program (TAEDP)-- 415
Logistics Systems Review Committee (LSRC)---------- 415
DARCOM Disaster Control Plan---------- 415
Command Post Exercise---------- 416
War Planning---------- 417
Prepositioned War Reserves---------- 418
VII HIGHLIGHTS AND TRENDS---------- 421
Mission and Priorities---------- 421
CITA Functions---------- 422
Resource Trends---------- 422
Increased Workload---------- 428
RESHAPE---------- 428
Accomplishments---------- 432
Materiel Management---------- 432
Expansion of DSS and ALOC---------- 432
Improved Support of New Item Deployment---------- 432

376-617 O - 82 - 2

TABLE OF CONTENTS

CHAPTER PAGE

VII -Continued
Skill Performance Aids Program (SPAS)---------- 437
Care of Supplies in Storage---------- 437
Procurement Work Measurement System---------- 438
DARCOM ADP Support---------- 438
DARCOM ADP for the 1980s---------- 440
P7 Maintenance Program Productivity Gains---------- 440
Manufacturing Methods and Technology Program------- 440
Manufacturing Methods and Technology Value Engineering Proposals and Savings---------- 441
Acquisition/Adaptation of Commercial Products------ 442
Program/Project/Product Managed Items Realigned-Reduced---------- 443
Advanced International Military Rationalization, Standardization, and Interoperability Program---- 444
Calibration Support Mission---------- 444
Toxic Chemical Munition Count Savings---------- 444
Joint Service Guidance---------- 444
Energy Consumption---------- 445
DARCOM Pollution Abatement Military Construction Program (MCA)---------- 445
Equal Employment/Affirmative Action Programs------- 447
Problems---------- 447
Delayed Release of OMA-AFP Funds---------- 448
Army Management System (AMS) - Planning, Programming, Budget System Disconnect (PP-BS)---------- 449
Updating Sets, Kits, and Outfits (SKO)---------- 449
People Programs---------- 450
Trends---------- 450
Security Assistance Program---------- 450
Readiness---------- 455
Supply Effectiveness---------- 456
Summary--Supply Effectiveness---------- 462
Procurement and Production---------- 463
Manpower Summary - FY 1979---------- 476
Charts
HQ, DARCOM, October 1978---------- 479
HQ, DARCOM, January 1979---------- 481
HQ, DARCOM, October 1979---------- 483
DARCOM, January 1979---------- 485
DARCOM, October 1979---------- 487
Glossary ---------- 490
Distribution List---------- 495

CHAPTER I

COMMAND MANAGEMENT

Command Overview/Introduction

(U) During FY 1979, General Guthrie continued to be faced with increasing workloads within the command and decreasing personnel to meet the Army goals established in 1977 relating to readiness, personnel, materiel, strategic deployment, and future development, and management for which corresponding DARCOM goals had been prescribed.

(U) The magnitude of the problem could be measured by the size of the DARCOM budget which was in excess of $13 billion, being approximately 60 percent of the Total Army Budget excluding personnel costs. The management of the Army's materiel inventory investment involved additional responsibility for nearly 300,000 different line items worth over $41 billion.

(U) The Headquarters fortunately had only one senior officer change during the year as LTG Harold F. Hardin, Jr. became Deputy Commander for Materiel Readiness in June 1979, succeeding LTG Eugene J. D'Ambrosio who retired at the end of May 1979.

(U) Total personnel strength continued to decline during Fiscal Year 1979. In the area of civilian personnel, the total actual strength of 107,320 in November 1978 fell to an actual strength by September 1979 of 103,798. During this year, DARCOM was able to generate an additional 2,000 man years of effort, however, through the careful management of overhires with the result that at the end of the year the actual strength was 99.97 percent of its Department of the Army authorized strength ceiling of 103,822.

(U) Military personnel had also seen a similar decline from 22,300 in 1962 to the current strength of 10,200.

(U) One result of an awareness of this problem was the creation of a study group under the leadership of the DARCOM Deputy Commanding General for Resource Management, which completed the DARCOM Manpower Baseline Requirement Study, for which the base period was 1968-1974. The study validated for Fiscal Year 1978 peacetime requirements of 112,110 personnel needed for materiel readiness, 29,108 for Research, Development, Test and Evaluation and 1835 for DARCOM Headquarters. This validated total of 143,053 personnel was in contrast to an actual total of 114,000.

(U) During the years since the end of Vietnam operations during which time the personnel resources available to DARCOM decreased, several events took place which placed more rather than less responsibilities upon DARCOM.

(U) The Army itself increased from 13 to 16 Divisions with an additional level of requirements emanating from all Divisions having heavier equipment and more sophisticated weapons systems.

(U) Support activities saw increases in readiness and to friendly nations whose purchases of billions of dollars of new advanced weapons depended on the US Army, which action was further expanded when DARCOM became the executive agent for all Army Security Assistance.

(U) Because of economic pressures overseas, depot reductions and closures, DARCOM had to assume this additional responsibility and began to provide support from pre-positioned inventories in area-oriented depots in the United States.

(U) The impact of the decision to have DARCOM appointed single executive manager for conventional ammunition meant that the Armament Readiness Command performed "all procurement, production, wholesale inventory, transportation and traffic management functions" for the Army, Navy and Air Force.

Program Plans and Policies

(U) During 1978, a detailed study was made on the possibility of consolidating the US Army Logistics Systems Support Activity, Chambersburg, PA, with the US Army Logistics Management Systems Activity (ALMSA) at St. Louis MO. On 28 November 1978, DARCOM supported "the continuation of the current organization and geographical alignment of LSSA and ALMSA" since it was concluded that expected economic benefits would be lost "through increased TDY costs and staff disruption." [1]

(U) On 1 April 1979, the Procurement Management Review Staff of DARCOM became a field operating agency of the Office Assistant Secretary of the Army, Research, Development and Acquisition (RDA), and was designated Department of the Army Acquisition Management Review Agency (DAAMRA). [2]

Headquarters Reorganization

(U) By direction of the Chief of Staff, the following headquarters reorganization became effective 9 April 1979.

(U) The Environmental Quality Office was transferred from the Directorate for Plans and Analysis to the Directorate for Installations and Services as the Environmental Quality Division. The Military Plans

---

1. Letter (FOUO) 28 November 1978, to HQDA(DALO-ZA), sub: Base Realignment Program - Consolidation of . . . (LSSA) and . . .(ALMSA), signed by BG Robert L. Moore USA Chief of Staff, DARCOM.

2. Letter, 5 March 1979, Redesignation and Transfer of Procurement Management Review Function signed by the Adjutent General (HQDA Ltr 715-79-1) Enclosure to Ltr 23 March, same subj. signed by D. J. Shearin, Acting Director Plans and Analysis HQ DARCOM.

and Operations Division was transferred from the Directorate for Plans and Analysis to the Directorate for Plans, Doctrine and Systems as the Associate Directorate for Military Plans and Operations. And the management of the Commercial Industrial-Type Activities Program was transferred from the Directorate for Installations and Services to the Directorate for Plans and Analysis. A new Resource Analysis and Evaluation Division was created within the Directorate for Plans and Analysis with combined personnel assets from the Directorate for Installations and Services and the Mission and Organization Division to carry out this new function. This new division was also responsible for Concept Studies and Case Study Justification Folder (consolidations, realignments, reductions, closures, and conversions) functions.

(U) A Nuclear-Chemical Office was organized as a separate office within DARCOM on 10 May 1979,[3] reporting to the Chief of Staff combining the existing Chemical Staff Officer, and Special Assistants for Chemical and Nuclear Security. The corresponding US Army Toxic and Hazardous Materials Agency (USATHAMA) and the DARCOM Surety Field Activity (SFA) were also placed under the operational control of the Chief of Staff DARCOM Vice Deputy Commanding General for Materiel Readiness.[4]

(U) On 12 July 1979, the Quality Assurance Directorate, HQ DARCOM, was reorganized into three divisions. The Reliability and System Assessment Division was redesignated the Engineering Division and retained all of its former missions and functions with the exception of system assessments and evaluation functions. The Product Quality Division retained its name and all of its functions except materiel release management and problem hardware monitoring (DRCQA-111 Report). The new division, the Systems Assessment Division, was headed up by LTC John T. Klausner, Jr., and was responsible for the following general functional areas: Systems Assessment/Discipline Reviews, Materiel Release Program, LOGCAP/RECAP/IPR review and follow-up, Monitoring significant hardware problems (DRCQA-111 Report), and Command Review and Analysis R&A) Program for the DARCOM HQ programs.

(U) The Quality Assurance Directorate was also redesignated the Product Assurance Directorate, which redesignation aligned the directorate title more closely with accepted commercial terminology for activities performing similar functions.

(U) On 7 September 1979, a series of DARCOM Regulations was issued restating the "Relationships" of many commands to Headquarters, DARCOM organizations (i.e., DARCOM Regulation 10-71, Change 4).

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3. DF 21 May 1979, subj: DARCOM Reorganizations signed COL L. A. Hergenroeder, Deputy Chief of Staff, DARCOM.

4 Ltr, 7 March 1979, subj: Management of Chemical Materiel Program, To HQDA(DACS-ZD) signed by General Guthrie.

Establishment of US Army Missile Command (MICOM)

(U) DARCOM announced, on 26 April 1979, the establishment of the US Army Missile Command (MICOM) at Redstone Arsenal, Alabama, effective 1 July 1979. It was formed by consolidating the assets of the US Army Missile Materiel Readiness Command (MIRCOM) and US Army Missile Research and Development Command (MIRADCOM) both colocated at Redstone Arsenal.

(U) Implementation of consolidation was phased over an 18-month period to hold personnel turbulence to a minimum. Total employment remained at established MIRCOM and MIRADCOM personnel levels.

(U) The Commander of MICOM reported to the Commander, DARCOM, and the new command served as a single manager for research, development, and materiel readiness of Army missile systems.

(U) The realignment was to reduce indirect overhead costs, permit better use of missile engineering talent and improve the ratio of employees to supervisors. It would also help facilitate transition from developmental to operational missile systems.

(U) The merger of the two commands was the result of a continuing DARCOM review of its installations and agencies to use available resources in the best possible manner.

1979 Security Assistance Highlights

(U) Security Assistance during the fiscal year saw developments in administrative procedures and continuance of assistance in varying degrees to all major areas of the world in support of United States national security interests.

Administrative Developments

(U) The Army Customer Order Control System (ACOCS) Phased Implementation. The Department of the Army, in compliance with the Wacker Memorandum for dollar control of the Foreign Military Sales Program, instituted the Army Customer Order Control System (ACOCS). This system was implemented at USASAC in stages over the fiscal year 1979.

(U) In Stage A, USASAC performed the role of total Foreign Program Control (FPC) and obligational control. The Centralized Integrated System for International Logistics (CISIL) system was redesigned and programmed to record obligational authority at case level, record customer order issues and adjustments, and implemented the X8A/X9A system of document number level. The CISIL data base was structured to contain obligation authority (OA) sectors in the Materiel Request History Status File (MRHS) and the International Logistics Information File (ILIF). Interfaces of OA data were established with the Security Assistance Accounting Center and the Major Readiness Commands (MRCs).

(U) In Stage A1, the CISIL data base was restructured to control total FPC and to control Obligation Authority (AO) for stock fund business, while the MRCs assumed control for Army Procurement Appropriation (APA) business. The X8A/X9A system was eliminated and the CISIL data base reset to FPC data elements. During this stage, USASAC designed and implemented a forecasting system that utilized the FPC data to provide a product to the case managers for forecasting of OA.

(U) While changing the CISIL data base to serve as the interim control system, USASAC was required to redesign CISIL for the Stage B concept. The Stage B concept removed the OA control from CISIL and established the control within ACOCS. Stage B included daily interfaces between CISIL/ACOCS to accomplish the OA control. USASAC continued to maintain the forecasting system under Stage B.

(U) Army Military Articles and Services List (MASL). The DA Military Articles and Services List (MASL) was changed to include two new elements of data into the data file. The new data elements are the Ceiling Code (CC) and Major Defense Equipment (MDE) Code. These codes were required on the DD Form 1513, Letter of Offer and Acceptance, to provide the level of detail currently needed to record ceiling related FMS Case items and separately identify Major Defense Equipment. On 1 September 1979, USASAC converted the CISIL data base to display the codes in the Army MASL and implemented programs to interface codes with Army supply agencies and the Defense Security Assistance Agency (DSAA).

(U) Foreign Military Sales (FMS) Lessons Learned Program. The FMS Lessons Learned Program was established in 1976 under the auspices of the DOD Military Components Joint Logistics Commanders. The program was governed by a joint regulation, Army designator DARCOM-R 795-16.

(U) During 1979, USASAC participation in the FMS Lessons Learned Program was revitalized. Screening of Army Audit Agency, General Accounting Office and Defense Audit Service reports for likely subjects was initiated. As a result, 17 FMS Lessons Learned were added by USASAC to the Defense Logistics Studies Information Exchange (DLSIE) Library since mid-1979.

(U) Transfer of Training Case Responsibility to TRADOC. During the latter part of 1978, an agreement was reached between USASAC and TRADOC to transfer all FMS training cases from USASAC-NCAD to TRADOC. On 2 January 1979, a tentative plan of action was developed at HQ USASAC to transfer training case responsibility. Subsequently, USASAC transferred 431 cases to TRADOC in six increments, with the final increment mailed to TRADOC 22 June 1979.

(U) Transportation and Traffic Operations. The Transportation and Traffic Operations Division USASAC was involved in the coordination of expedited materiel movements to the countries of Costa Rica, Egypt, Iran, Liberia, Thailand, Turkey and Yemen.

(U) MILSTRIP/MILSTAMP/MAPAD orientation was given to 538 personnel at 20 CONUS activities which included DCASR/DCASMA, Army Depot, US Marine Corps, commercial freight forwarded and foreign country personnel.

(U) A cost savings/avoidance of $1,248,537.00 was made by finding and/or responding to misdirected or frustrated foreign military sales materiel in the hands of carriers, freight forwarders, MAAGS, and foreign customers. An additional $99,270.00 of transportation expenditures was avoided by changing unauthorized air shipments to surface shipments via the air challenge procedures.

Security Assistance - Africa

(U) United Republic of Cameroon. Sale of 150 ¼-ton trucks and 80 ¼-ton M825 carriers and equipment, valued at $3.6 million was made in March with deliveries to start in August 1979.

(U) Kenya. Foreign Military Sale of 32 model 500 MD Hughes Helicopter (non-standard) at an estimated cost of $44 million was completed in May 1979. First deliveries of the helicopters to Kenya were scheduled to begin in November 1979 and those of the 500 MD-TOW to begin in April 1981. The US Army Technical Assistance Team was scheduled to begin operations on 9 November 1979 and its commander was designated Chief of the Kenya-United States Liaison Office (KUSLO) in August 1979.

(U) This FMS program is unique in that, except for the TOW System and the DA Technical Assistance Field Team, all equipment and services were commercially available from the primary contractor, Hughes Helicopters.

(U) Liberia. Liberia's operational immediate Foreign Military Sales materiel requirements involved transport of 29 items including various vehicles, ammunition and individual support equipment for 1000 men, which was directed to DARCOM, by the Department of the Army on 20 April 1979. Items valued at $1.1 million from 9 CONUS locations were processed on an expedited basis so that all materiel was air lifted for Monrovia 29 and 30 April on schedule.

Security Assistance - Europe

(U) HAWK European Limited Improvement Program (HELIP) with NATO. This project permited the participating countries (Belgium, Denmark, France, Germany, Greece, Italy, and the Netherlands) to convert their Basic HAWK Missile System to Improved HAWK (IH) configuration. The

project provided for the acquisition of data, technical assistance, and materiel relating to the USIHP and the right of participating countries to use them for consortium production in Europe. The NATO HAWK Production and Logistics Organization (NHPLO) used the NATO HAWK Management Office (NHMO) as an operator for this purpose.

(U) The major program involving 4868 Tactical Missiles and 103 Battery Sets was begun in 1974 and had a total dollar value of $1,000,000,000 of which an estimated $600,000,000 would be spent in the United States. Amendments to basic and new agreements occurred in CY 1979. Various difficulties arose during the period 1974-1979 which were not all resolved during the fiscal year. The loan of 108 US missiles to NHPLO also was extended to 30 September 1979 when they were returned. The I HAWK System was expected to remain in the inventories of all present HAWK European NATO countries until about 1995 when modifications/improvements will be required.

(U) Austria. Austria purchased 50 M60A3 tanks with a total value of $47.2 million in the fall of 1978.

(C) Canada. An agreement was reached in the fall of 1978 for testing the Drone AN/US/502 Long Range Surveillance System by Canada and its participating partners, Germany and France, using range facilities at the US Army Yuma Proving Ground and the US Army Electronic Proving Ground. Tests were to be conducted from 1 October 1979 through December 1981 at a cost of approximately $5.4 million.

(U) Germany. The importance of German-American relations during FY 1979 could be seen by the magnitude of the in-country review by a USASAC/SAAC team in May 1979 when the status of 467 Foreign Military Sales cases worth $924.04 million were examined. In FY 1979 a FMS case involved the sale of M48A2 Tank Gasoline Engine and Transmission Spare Parts valued at $31.95 million, which was agreed to in December 1978. It was decided, however, in February 1979 that 300 M548 vehicles could be purchased directly from the manufacturer.

(U) Coproduction of Modular Thermal Imaging Systems with Germany involved the utilization of technology and products required by the US Government during the development of FLIR common modules and applied to multiple thermal imaging systems. Following the signing of the basic Memorandum of Understanding, 3 March 1978, discussion continued throughout the fiscal year. Technology transfer involved was valued at $16.9 million and the manufacturing value for over 8000 systems was estimated at $568 million.

(U) During October 1978, due to REDEYE Missile malfunctions all REDEYE ASP/AIT firings were suspended as the result of added safety restrictions being established. Suspension of firings was was lifted and German Army, CONUS, firings scheduled for 25 September 1979 were approved subject to adherance to safety precautions prescribed at the time.

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(C) Greece. During FY 1979, the Government of Greece continued their Tank Modernization Program. Two cases, one of 300 and the other of 600 conversion kits to convert the M48A1 tank to the M48A3 version, were forwarded to Congress and to Greece on 8 February 1979. A requirement for parts was indicated in August 1979, in order to keep the production line in operation. Following Department of the Army approval, 360 M60 machine guns were diverted to Greece 15 August 1979.

(C) Israel. Major foreign military sales to Israel in FY 1979 included 200 M60A3 tanks at a cost of $216 million, 45 conversion kits for the M48 tanks from A1 to A5 at a cost of $1.5 million, 800 armored personnel carriers, 25 M881 recovery vehicles, and six AH15 helicopters. The sale of 200 M10921B 155mm Howitzers included a facilitization cost of $11.8 million to increase production of Howitzers from 30 to 50 per month. In the next 26 months 2406 TOW missiles were to be delivered to Israel. Starting in August 1979, 93 I HAWK missiles were obtained from the Iran Program, 85 thermal night sights for the DRAGON, and 50 thermal night sights for the TOW were also delivered. The purchase included several lots of ammunition. In addition, 30,000 LAW rockets were sent to Lone Star Ammunition Plant, Red River, Texas in February 1979, to be reworked in order to prevent a split in the rocket motor. The renovated rockets were to be returned to Israel during the next four or five months.

(U) Italy. The only major co-production project involving Italy during 1979 was the M113 armored personnel carrier (APC) family of vehicles, based upon the original 1963 Industry to Industry agreement. Italy procured components, sub-assemblies, finished and other materiel from the United States. The US Government furnished orientation and technical assistance on a reimbursable basis. During 1979, 19 M548 cargo carriers were completed and an FMS Management Review was held in Rome 26-30 March 1979.

(U) Netherlands. The Government of the Netherlands was concerned with the possible purchase of the XM1 tank in 1978, but decided in March 1979 to purchase the German Leopard II. The Netherlands became the first NATO country to purchase the DRAGON Missile System, valued at $36.5 million, with delivery to begin in October 1979. Eight mortar locating radars AN/TPQ36 were also obtained.

(U) The co-production of 86 M109A2 Sp 155mm Howitzers was completed in FY 1979. The chassis, turret, and technical assistance were purchased from the United States, with the cannon mount and cab interior components produced in the Netherlands. The Netherlands would also complete final assembly and testing.

(U) A third supplement to the General Arrangement for cooperative production was signed on 2 March 1979 for the Netherlands, and on 14 April 1979 for the United States.

(U) A revised delivery schedule for the chassis was necessitated by a strike at the BMY Plant early in 1979.

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(U) Norway. The major project with the United States was the co-production of the NATO LAW M72 Rocket both with Canada and separately. This project saw $881,400 worth of components purchased in the United States during July-December 1978; $667,771 worth of components during January-June 1979; and $119,482 worth of items during July-December 1979.

(U) Spain. The Spanish Telecommunications Network (TCN) Program evolved into one of the most complicated and sensitive RMS programs the Army has undertaken. Discussions regarding TCN Program problems between the United States and Spain continued throughout FY 1979 with much progress made in negotiation proceedures by the end of the year.

(FOUO) In other areas of assistance, 4 Batteries of Improved HAWK (I HAWK) were forwarded about 12 March 1979 to replace the Basic HAWK Batteries, with MIRCOM personnel available to monitor off-loading. Foreign Military Sales of M113 Family vehicles 18 M109 A1B plus support items was accomplished in October 1978. On 7 November 1978, DSAA directed the expedited delivery of 2,970 LAW Rockets, under Grant Aid, which were air lifted 14 January 1979, consonant with a 7 January deadline.

(U) Also, 78 DRAGON Missiles with associated equipment were expedited for delivery to Spain. The delivery of the DRAGON Missiles and Trackers to the Spanish Marine Corps was directed by DSAA, and were airlifted to Rota, Spain by 1 August 1979.

(U) Switzerland. Two on-going major Swiss programs were the purchase of and co-production of DRAGON Missiles and ancillary equipment, and the purchase/co-production of M109SP 155mm Howitzers. On 19 September 1978, Switzerland purchased 12,000 missiles at a cost of $5.2 million as the second segment of a planned purchase of over 30,000. This sale was connected with the co-production of ancillary equipment under agreements signed on 3 June 1977 and 21 December 1977 (revised 10 April 1979 and amended 30 May 1979). The first delivery of the purchased missiles was planned for July 1979. A Memorandum of Understanding for co-production of the missile itself, based upon negotiations begun during the fiscal year, was still in process at the end of the fiscal year.

(C) With regard to Howitzers, the Government of Switzerland was notified on 30 March 1979 that the President had approved co-production of 207 Howitzers and 100,000 rounds of M735 ammunition for Swiss use only. On 4 September, the Swiss Parliment voted approval for funding purchases of about $120 million for the Howitzers, including long range items, following a USDAO Switzerland briefing. Discussions of implementation of co-production continued, however, beyond the end of the fiscal year.

(C) Also, by 9 May 1979, it had been agreed that 160 M548 Cargo Carriers were to be purchased under Foreign Military Sales at a cost of $19.5 million with 225 M113 A1 Armored Personnel Carriers to be obtained directly from the manufacturer at a cost of $25.2 million.

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(C) The magnitude of these purchases can be measured by the fact that it was understood the procurement of the Howitzers and vehicles constituted about 70 percent of the Swiss military budget in 1979.

(U) Turkey. The President signed an International Security Assistance Act on 26 September 1978. At the same time he sent a memorandum to the Secretary of State ordering resumption of arms shipments to Turkey, to which an embargo on shipments of Grant Aid had been in effect since February 1975.

(U) OSD directed MAC to provide 10 sorties for delivery of Grant Aid materiel. The first sortie departed CONUS on 5 October and the last on 28 October. The shipments included four sorties of Army Materiel previously held in storage at New Cumberland Army Depot.

(U) In November, surface shipments to Turkey were approved, and action was taken to inspect, repair and to make the first major shipment, which arrived at Derice, Turkey on 25 February 1979.

(U) Inter-country visits and reconciliation/status meetings were held from December 1978 through September 1979. By August, the last major equipment items effected by the embargo had been shipped. In mid-August and September, approval of the lease/purchase of one complete M48A5 tank with upgrade kit was made to be used as a working model for the M48 series tank upgrade program within the Turkish Land Forces Command. In this connection a Turkish team visited TARCOM 12-14 September 1979.

(U) United Kingdom. Relations with the United States involved USASAC assistance in the support of Exercise HICKORY STICK, involving the 1st Battalion British Parachute Regiment's deployment to Fort Campbell, Kentucky for six weeks, beginning 1 March 1979. Sale of eighteen 109 A2 155mm Howitzers valued at $17.0 million was completed in June 1979.

(C) Yugoslavia. A meeting was held in Yugoslavia on 12-14 December 1978 for the purpose of establishing a US-Yugoslavia Joint Committee for Military Technical Cooperations, and which discussed the formation of a Memorandum of Understanding. Yugoslavia also obtained 20 DRAGON Practice Missiles, ancillary equipment and Contractor Engineer Support. The materiel arrived by air in Split on 13 March 1979, and the Contractor Engineering Team was in country 17 March-2 April 1979.

Security Assistance - Far East

(U) India. On 23 May 1979, 15 guided missiles and components which were sold to India were shipped by air. Training was conducted in India in June 1979.

UNCLASSIFIED

(U) Korea. United States relations with Korea during the fiscal year were extensive. An Army plan to provide assistance in many areas developed by USASAC was for creation of a US-Korea R&D/ Production Cooperation Program. The plan was approved by the CG, DARCOM, and submitted to DA/DOD on 5 September 1978. A DOD Implementation Team for the program visited Korea 28 October-8 November 1978, and JUSMAG-K was to provide USASAC details on the implementation of the program.

(U) Major end items, support equipment and repair parts which included watercraft, trucks, fire-fighting equipment and materiel handling equipment were transferred from the United States Eighth Army as part of United States Forces partial withdrawal from Korea and amounted in value to approximately $800 million. USASAC was the designated DA agency responsible for controlling monitoring and reporting to DSAA progress on this transfer which began 27 November 1978.

(C) Under Phase 1 of the Tank Upgrade Program 427 M48A1 "as is" US tanks were purchased and the final shipment of 126 tanks arrived in Korea in December 1978.

(U) In February 1979 1182 TOW missiles were diverted from the FMS Program by Headquarters, Department of the Army authorization to Korea. These were sent to Korea in May 1979, and it was expected an additional 96 missiles available from the distribution of materiel originally scheduled for Iran would be forwarded later in the fiscal year.

(C) The Secretary of Defense approved a joint Republic of Korea/ United States development program in April 1979 to increase the range of the existing RDK M114A2 Towed Howitzer (155mm) to equal that of the US M198 Towed Howitzer. Development was to be performed at ARRADCOM, Rock Island Arsenal and Watervliet Arsenal over an eighteen-month period at an estimated cost of $2.3 million.

(C) Republic of China (ROC) - Taiwan. Foreign Military Sales of five batteries of I-HAWK, valued at $125.4 million, was implemented on 15 November 1978.

(U) Guidance on current relations between the United States, The Peoples Republic of China, and the Republic of China was provided in Department of State Munitions Control Letter No. 69, March 1979. New procedures for processing sales of military materiel and services to Taiwan were prescribed in USASAC Policy Statement #79-16, 12 April 1979. Modified forms to be used complying with the Taiwan Relations Act were identified in USASAC Policy Statement #79-23, June 1979.

(U) Japan. During the year several meetings were held to provide reconciliation of Foreign Military Sales cases; the last 18-20 April 1979

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reconciled 41 FMS cases and 64 ROIDS. In addition, there was coproduction of the Improved HAWK missile and limited coproduction of Air Defense control and coordination systems for HAWK and NIKE HERCULES during the year as part of on-going projects established in earlier years. There were amendments to Memorandum of Understanding regarding the HAWK missile system, signed 22 September 1978 and 29 May 1979.

(C) Thailand. As the result of Thailand's urgent requirements, authority to divert or expedite several items of materiel was given during FY 1979. Diversion of 1.1 million rounds of ammunition was made in March 1979 and 119 106mm recoilless rifles were processed for delivery in 4th Qtr FY 1979 and 1st Qtr FY 1980. Expedited delivery of 30 M101A1 Howitzers taken from USMC assets in August 1979, was made with 12 being airlifted 18 September and 18 more about 21 September, to meet a 30 September deadline. Replacement to the Marine Corps was planned within the next six to eight months.

Security Assistance - Latin America

(U) Helicopter Observer Support for the Organization of American States. On the basis of DSAA/DA direction, 12 FMS cases were developed and implemented on an expedited basis for two US Army helicopters to patrol a disputed border area between El Salvador and Honduras, from 16 July 1978 through 15 January 1980. The total value of this series of cases, which commenced in July 1976, was approximately $2.3 million by the end of FY 1979.

(U) Costa Rica. Costa Rica urgently needed 51 different items, mostly uniforms and personal equipment valued at $142,000, which was expedited within DARCOM starting 12 June, so that all items arrived in Miami, Florida for forwarding on schedule by 22 June 1979.

(U) Guatamala. In support of USCINC SOUTH interest DSAA directed preparation of an emergency Foreign Military Sales case to enable Guatamala to recover a downed aircraft. The inception, acceptance and funding ($45,000) took place within 24 hours.

(C) Nicaragua. On 22 September 1978, State and Defense Departments directed suspension of all deliveries to Nicaragua and all Security Assistance was terminated 17 March 1979.

(U) Venezuela. A survey team inspected crash sites within Colombia of two Venezuelan Air Force UH-H helicopters at the request of the US Military Group Venezuela in January 1979 at a cost of $49,000.

Security Assistance - Middle East.

(U) Egypt. As part of the larger and new long-term Security Assistance relationships being developed between the United States and

Egypt, a Department of Defense delegation under the overall supervision of the Deputy Undersecretary of Defense for Research and Engineering (Acquisition Policy) visited Egypt during the period 8-15 September 1979. The supporting Army team was led by Commander, USASAC. The establishment of a US/Egyptian Defense Cooperation Program was considered to be one of the highest priority projects within the Department of Defense.

(U) The Program's objective was to assist Egyptian defense industry particularly in the Supply and Maintenance needs of their armed forces, including the upgrading of equipment already in Egyptian inventories. The DS delegation's effort was expected to provide the basis for a joint definition of this program and its relationship to security assistance. DARCOM was committed to provide maximum support to this effort.

(U) The Foreign Military Sales Program for Egypt. The FMS for Egypt included the purchase and expedited receipt of 50 M113 A2 armored personnel carriers (12 with TOW Launching Kits), 12 TOW systems with missiles and support equipment during FY 1979. A credit agreement for $1.5 billion was consumated in August 1979 and in anticipation of this agreement extensive preliminary actions applicable to the sale of I-HAWK Systems were undertaken. Agreements to purchase additional armored personnel carriers, and 26 coproduction projects were consumated during the 4th Qtr FY 1979.

(U) Iran. At the end of FY 1978, the Iran program was one of the largest programs managed by USASAC with a total program value of $4.5 billion. Among major on-going programs was the helicopter program which was valued at $1.8 billion, and included purchase of 332 214 series helicopters and the establishment of a helicopter logistics system and training base. The I-HAWK Program included up to 37 batteries of missiles, battery equipment and support to a value of $870 million.

(U) In late September 1978, the Government of Iran signed a Foreign Military Sales case for $4.1 million for a product improvement program for the LTC 48-8 1 engine on the 214 helicopter.

(C) At the end of October, the Government of Iran terminated the FMS TOW co-production program with Hughes Aircraft valued at $4.1 million.

(U) The last Foreign Military Sales case delivered to Iran involved $10 million worth of cold weather equipment which was signed on 12 January 1979 and the materiel airlifted to Iran on 11 and 15 January 1979. In the meantime, the Shah and his family were in exile in Egypt by 16 January. On 30 January, the Project Manager for I-HAWK, COL Wittaker, MICOM, briefed General Graves, Director DSAA, on the status of I-HAWK support to the Government of Iran.

(C) By the first week of February 1979, planning efforts were underway with DSAA, DA and USASAC for possible diversion to Army stocks or to other FMS customers of selected major undelivered end items on approved cases for Iran financial data on possible termination costs and planned future disbursements on selected Iranian cases with high dollar value. Undelivered items were also provided to DSAA.

UNCLASSIFIED

(C) During the week 8-14 February 1979, the DSAA/DA directed that 99 M825 ¼-ton trucks be diverted to Thailand and 1182 TOW missiles be diverted to Korea. The reprogramming of FY 1979 Army appropriation was also being done to accept 1 AVLB and bridge. Israel was to be solicited regarding acceptance of 4492 rounds of 155mm high explosive (HE) ammunition.

(C) On 16 February, the United States stated it would continue diplomatic relations with the new Iranian Government. The announcement signified that formal recognition of Premier Bozoragan's Government was made of severing of US ties with the Shah. On 17 February 1979 a temporary suspension of shipments was placed on all Iranian FMS materiel under the control of the United States. In addition, Iranian requisitions on file for issue from stock were suspended.

(C) The next step, occurring during the first week of March, following approval by the Secretaries of State and Defense was to send survey messages to selected Security Assistance customers to determine their potential requirements for materiel previously allocated to Iran. Items under consideration included 90mm, 105mm, and 155mm ammunition, DRAGON HEAT, and I-HAWK missiles. Response was requested by 16 March 1979, after which date priorities were to be determined and further actions processed.

(C) On 23 March 1979, the aviation program for Iran was terminated in accordance with instructions from DSAA; and a survey was conducted 27-29 March by a representative of DPSC for the purpose of reconciling DPSC records with USASAC records for all Iran clothing and textile cases.

(C) During a visit of USASAC personnel to the Government of Israel Procurement Mission, during the week of 8-14 March 1979, a query was made regarding Israel's interest in obtaining additional items previously in the Iran Program. These were: General Purpose Trailers, 90mm, 105mm ammunition, I-HAWK and DRAGON HEAT missiles, and cannon assemblies, M175mm for the M113A1 armored personnel carrier.

(U) In mid-April, some of the Iranian assets of 155mm ammunition components were sent to North Yemen. From 24 to 26 April, representatives of MAAG Iran and TRADOC visited USASAC-NCAD for a joint review of all open Iranian training cases. Twenty-six out of 63 were identified for immediate closure action and all cases were then forwarded to TRADOC.

(U) Since the suspension of deliveries to Iran in February 1979, significant progress had been made by early May in closing out (45 percent) of the 10,700 requisitions open when suspension was announced. Up to this time, 4824 requisitions valued at $14 million had been cancelled without cost to the Iranian program and shipping status had been received for 424 requisitions valued at $89 million based upon verification of records shipped since 1976.

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(C) In mid-May, in response to a Secretary of Defense-Department of the Army request, a list of major items with potential third country requirements at that time in the Iranian Inventory was developed. The list included medium and heavy self propelled Howitzers recovery vehicles, the M113 family of vehicles; the DRAGON/I-HAWK and TOW missile systems, and UH-IH helicopters.

(U) By 23 May, requisitions open as of the suspension of deliveries to Iran had been reduced more than 50 percent. Cancellations by then totalled 5604 requisitions valued at $22.1 million. The review of shipping status indicated that 502 requisitions since 1976, valued at $95.5 million had been shipped.

(U) Redistribution of Iranian assets involved airlifting 1100 of the 1182 TOW missiles to Korea on 7 and 14 May, with 1800 additional TOWs being considered. Also 28 I-HAWK missiles were offered to Korea valued at $2.8 million, but an answer was not immediately received. The Government of Iran announced 10 August that it had cancelled $9 billion in arms agreements with the United States that had been arranged by the Government of the Shah.

(U) The last weeks of September 1979 the Islamic Iranian Republic Ground Forces (IIRGF) requested four BOE cases for a total value of $3 million and two FMSO cases. Approval to prepare the Letters of Offer had not been received from the Secretary of Defense by the end of FY 1979.

(U) During this same week the Government of Israel accepted a Letter of Offer for 93 I-HAWK missiles at a cost of $9.8 million which had originally been produced for Iran.

(U) Important actions subsequent to the end of FY 1979, were the seizure of the American Embassy in Teheran by militants on 4 November 1979, and the reassumption of the temporary suspension of the Security Assistance Program directed by the Department of State during the week of 29 November-5 December 1979.

(C) Jordan. A major program in the Mideast area centered around Jordan. As of 31 July 1978, the program included potential Foreign Military Sales of $670.4 million found in 180 open cases of which $467.9 million had not yet been delivered. Grant Aid items at a value of $57.2 million were also undelivered, out of a total of $87 million. Thirteen M110A1 Howitzers were in process in mid-August out of a potential of 30, and M109A1B Howitzers were also to be included in the program.

(U) Numerous reviews and briefings regarding the total program were conducted during Fiscal Year 1979.

UNCLASSIFIED

(C) The related Jordan Air Defense Program was planned to consist of 14 I-HAWK batteries of which five had been delivered prior to the start of the Fiscal Year 1979. The PM Kuwait/Jordan Missile Office is responsible for the program.

(C) Battery seven arrived in January 1979 and number eight in February 1979 with later deliveries scheduled for June and August 1979.

(C) In addition, the program included 100 VULCAN Air Defense Systems (VADS) training and services, to include Program Management. The first 36 VADS were shipped in increments through April 1977, and additional VADS were scheduled for delivery during the first half of calendar year 1979.

(C)Kuwait. In response to an urgent requirement, six Howitzers M109A1B were diverted from Saudi Arabia and were to be replaced by June 1979. The Howitzers together with six cargo carriers M548A1 and one command post M77A1, were to leave North Carolina on 11 December by sea with an ETA at Kuwait City on 6 January 1979.

(U) On 18 November 1978, the fourth and last I-HAWK battery was to be sent and an Improved Assault Firing Unit (IAFU) was airlifted. On 16 January 1979, a US team performed a successful demonstration of the I-HAWK Air Defense System which was followed on 22 January by KADF personnel using the same mission scenarios to successfully conduct their own demonstration.

(C) Follow-on I-HAWK material was processed at a cost of $96.2 million. In May 1979, 20 TOW launchers and 1350 missiles with support equipment were released to Kuwait with a case value of $11.1 million.

(U) Morocco. The United States had a cooperative Logistics Supply Support Arrangement (CLSSA) with Morocco. In January 1979 three items with a value of $188,273 were dispatched and in March 3 avionic end items valued at $1,291,256 were also dispatched.

(U) The Kingdom of Morocco also deployed VULCAN Air Defense Systems (VADS) prior to completion of prescribed training relative to system usage. Improper country handling in movement of the VULCAN equipment resulted in 15 being found defective and 12 inoperative among the 40 VADS shipped from the contractor. This resulted in the Government of Morocco expressing grave dissatisfaction with the VULCAN equipment.

(U) In an effort to instill "good faith" and confidence in US Produced equipment, a US Army six-man survey/repair team was deployed to inspect/repair the systems and assist the Royal Moroccan Army personnel in related logistics procedures. The team utilizing repair parts hand carried to country were able to repair and make all systems operational within a period of two weeks. This success essentially enhanced US/Moroccan relationships.

(U) Saudi Arabia. Saudi Arabian Foreign Military Sales account is one of the the largest and most important programs in which the United States is involved. The equipment, follow-on support, and services account for FY 1978 was $2.285 billion, and for FY 1979 was $1.947 billion which complemented a parallel construction account of $1.852 billion for FY 1978 and $4.483 billion for FY 1979.

(U) The current program began in 1974 as the result of a DOD Survey Team visit and recommendations to improve the country's defense posture. There are two major programs which USASAC supports. The first is a $1.9 billion program for the Saudi Arabian National Guard (SANG) and the second for the Saudi Arabian Land Forces (SALF) for $1.5 billion to convert two infantry brigades to mechanized brigades by 1982. Mobile Training Teams, Quality Assurance Teams, and Technical Assistance Field have been coordinated with delivery of equipment.

(U) The Saudi Arabian National Guard (SANG) Program was under the office of a Program Manager and involved the modernization of four mechanized infantry battalions (MIBS) into four Combined Arms Battalions (CABS) as part of a long range program.

(U) In May 1978, the reorganization of the first unit marked the beginning of the third CAB. In October of that year, the third CAB was evaluated combat ready with the exception of the artillery battery which did not pass itsSANGTEP until December under a new commander.

(U) In December, the fourth CAB began formal modernization training and the third CAB moved to its permanent cantonment area on the 26th.

(U) In February 1979, in response to directive from HQ SANG, the first and second MIBs began conversion to become the first and second CABs, respectively; completing conversion in March. The three Battalions participated in the first major SANG field training exercise (FTX) promising start 25 April - 4 May. Training of all Battalions continued during the rest of the fiscal year. Because of the crisis in Yemen, modernized units of the SANG began alert status 28 February 1979. They remained on full alert status during the month of March and most of April for this reason, and also as a security precaution in relation to the Mid-East Treaty. The Battalions did not deploy, however, from their garrison locations.

(U) In regard to the Project Manager's Master Plan (PMMP) the Arabic version for Phase I of the follow-on program was published in October 1978, and the initial PMMP for Phase II and the revised edition for Phase I was begun in January.

(U) They were completed and published in English during March 1979. The ammendment DA SANG ZAC (A4) value $220 million was signed and hand carried 2 March to the US. In April, the Phase 2 PMMP and Draft ZAC-5 Amendment were hand carried to USASAC. In May the Arabic edition of the revised Phase I PMMP uses completed and published, and contract negotiations for Phase I began. In June the Arabic edition of the revised Phase I PMMP was forwarded to HQ SANG, which also began review of the Phase I contract (in English.)

(U) In July 1979, HQ SANG approved manpower requirements for the logistical support battalion to be trained in Phase I of the follow-on program.

(U) In August, the first payment ($70 million) toward Phase I of the follow-on program was received; and a joint wage and benefits review committee was established for the purpose of sampling the international labor market in an effort to locate cheaper labor for the OPM SANG contractor, Vinnell Corporation,for Phase I of the follow-on program. The Phase II PMMP (in Arabic and English) was delivered in late August to HQ SANG for review. In early September the PM SANG briefed the SANG Modernization Committee on ZAC-5 and the PMMP for Phase II of the follow-on program. The Commander, SANG officially signed and accepted it on 29 September 1979; ZAC-5 providing $1.2 billion funding for Phase II of the SANG Modernization Program.

(U) In regard to OPM SANG, its office began relocation to a new office building in Riyadh in April, BG Barlett assumed command 30 June, and additional manpower authorizations were received for 3 officers and 7 GS echelon in July and for 3 more officers, 15 GS civilians and 6 third-country civilians in September.

(U) Visits to Saudi Arabia during FY1979, by Government representatives reflected American concern with this major program. During 14-27 October 1978, a three-man GAO team examined the SANG Project at Congressional request to gain an understanding of how the Department of Defense and State Department Agencies interact in the decision and implementation of phases of Foreign Military Sales Programs. Of special interest was the impact of presidential restraint on arms sales. Deputy Secretary of Defense, Duncan also was briefed on and met with HRH Prince Abdullah, Commander of the SANG in October.

(U) In February 1979, the Secretary of Defense visited Riyadh; was briefed on the SANG Modernization Program, and met with the Deputy SANG Commander (HRH Prince Badr).

(U) Senators Harry E. Byrd and William V. Roth visited Riyadh in April 1979, were briefed on the program, and met with HRH Prince Abdullah. In June OPM SANG was visited by a representative of the Surgeon General's Office for the purpose of surveying the requirement for medical support to SANG through the OPM.

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(C) Major items involved with the Two Brigade Mechanization Program were M109A1, M60, M113, DRAGON LAW and REDEYE. In November 1978, 86 M60A1 tank chassis were purchased to which was to be installed the Swiss Oerlikon Air Defense System to be used in the forward defense role of the SALF. This number was reduced, however, to 60 by 2 August 1979 at a value of $43.4 million. The fifth semi-annual review of the program was conducted by USASAC 8-12 January 1979. On 1 March, the Chief of the US Military Training Mission requested assistance to expedite various ammunition and missile items, which also coincided with US concern regarding the situation in neighboring North Yemen.

(U) On 23 February, Mr. Slade, Saudi Arabia Division USASAC, hand carried the US Military Training Mission (USMTM) FMS support case valued at $18.4 million to Saudi Arabia. The case covered the period 26 May 1979 through 14 May 1980, and was presented to the Saudi Arabian Government on 26 February. It was signed by HRH Prince Sultan, 20 March 1979, but was finally reduced to $18.2 million. Also in March, Saudi Arabia signed a $1.64 billion commercial contract for a Command, Control and Communications System.

(U) During the week, 21-24 May, a complete review of the SALF Two Brigade Mechanization Program was conducted by USASAC, involving a line-by-line review of all open PM cases totaling $1.4 billion.

(C) On 12 and 14 July, 510 REDEYE Missiles, miscellaneous test sets and supporting equipment were forwarded by a special airlift mission completing the cases involved.

(U) The Saudi Arabian Army Ordnance Corps (SAAOC) had a large backlog of shipping containers at Al Khay Depot awaiting unloading. This was not shown in SAAOC stock records. USASAC agreed to assist the DIVINGER in identifying the location of the materiel by providing data extracted from Behring Shipping Company Manifests on key punched cards which cross referenced NSNs and document numbers to shipping container numbers. The first portion of the key punching effort covered vessels which sailed in August and September 1978 and was completed in early February 1979. Additional manifests were expected to be key punched and forwarded in subsequent months.

(U) On 3 October 1978, the first requisitions ever transceived from Saudi Arabia arrived at USASAC. Four batches totaling 685 requisitions were sent over Corps of Engineers leased lines from Riyadh to Berryville, Virginia, hand carried to a transceiver site in Martinsburg, West Virginia, and forwarded to MCAD, thus reducing requisition receipt time by 10 days. This was only on a one way Saudi Arabia to OCONUS basis at that time.

(U) Delivery of the CHAPPARRAL Missile System to Tunisia. The first Army major weapon system (CHAPPARRAL) was delivered to Tunisia in June 1979 and successfully deployed by August 1979. This was in addition to a TOW Weapon System being implemented during the fiscal year.

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(C) Yemen Arab Republic (North Yemen). As the result of the border war between North and (Soviet supplied and advised) South Yemen during February and March 1979, President Carter, on 7 March 1979 invoked waiver of the Arms Export Control Act to expedite forwarding of $400 million worth of military equipment under emergency measures to North Yemen.[5] His decision was justified citing "serious fighting in the southern part of the YAR, resulting from an invasion from the Peoples Democratic Republic of Yemen (PDRY)".[6] The equipment forwarded was financed by North Yemen's neighbor, Saudi Arabia, whose security was directly affected.[7] In addition, small American training teams were assisting the Yemen Armed Forces to operate and maintain this equipment.

(C) Immediate airlift of 6975 LAW Rockets already had been forwarded 1 March, as well as 541,000 rounds of 20mm ammunition on 3 March 1979. On 6 and 9 March, three Foreign Military Sales cases were processed under emergency procedures for immediate airlift to North Yemen. These included 20,736 rounds of 40mm ammunition, 200 grenade launchers, 12 tubular launchers, 240 surface guided missiles and 24 practice guided missiles. About this same time, 32 M60 tanks were airlifted from Saudi Arabia directly to North Yemen.[8] On 26 March, 32 more M60 tanks, 50 M113A1 armored personnel carriers and 5000 rounds of 155mm ammunition left the United States by sea with an estimated time of arrival (ETA) of 13 April 1979.

(C) Diversion of 155mm ammunition components was made about 18 April from Army Inventory and sent for training purposes. The remaining requirements were to be met from expedited normal procurement and Iranian assets.

(C) On 28 June Yemen requested expedited delivery of other items scheduled to be delivered in September. Such major items as 12 M11A1 Howitzers, 1500 DRAGONS, 38 VULCANS, 9015 LAWS with associated support and additional military training teams left the United States by sea on 28 July and were expected to arrive on 16 August 1979.

(C) On 2 September 1979, the Yemen Arab Republic made an emergency request for US assistance in repairing US-delivered heavy equipment transporters (HET) to be used prior to the 26 September 1979 National Day Parade. An airlift flight left on 15 September and arrived 17 September to include the HET spares, HET repair team and miscellaneous VULCAN spare parts. All HET repairs were completed by 26 September so that the Yemen Arab Republic displayed a majority of US delivered equipment on 26 September. This display was a significant departure from prior years in which all Soviet equipment was displayed.

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5. US Congress 96th 2nd Sess. House Foreign Affairs Subcommittee on Europe and the Middle East. Hearings "US Interests in, and Policies toward the Persian Gulf, 1980. Washington, GPO, 1980 p. 168,418.

6. Ibid, p. 416.

7. Department of State Bulletin, April 1979, p. 41.

8. US Congress, op. cit. Hearings, p. 168.

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Product Assurance

(U) On 12 June 1979, the Chief of Staff, DARCOM approved a reorganization of the Quality Assurance Directorate into three divisions, which were redesignated The Product Assurance Directorate, effective 12 July 1979.

(U) Reorganization. Creating a new Division out of existing assets, the reorganization consolidated all evaluation and assessment functions in the new System Assessment Division, allowing the other two divisions to concentrate on the functional discipline of Product Assurance. The new division would be responsible for an all encompassing systems look at the hardware that DARCOM manages determining how well it conforms to the users needs. In cases where the user is not satisfied, the evaluation process identifies opportunities for improving performance. The name change for the directorate also recognized the broader scope of responsibilities long exercised by that organization and title into conformance with commercial practice.

(U) Army RAM - Reliability, Availability, Maintainability (RAM). The emphasis in reliability, availability, and maintainability during FY 1979 was on developing policy, and implementing the MOA signed in November 1978 by the commanders of DARCOM, TRADOC and OTEA on operational RAM. A RAM Review Panel, consisting of representatives of the three commands, had been meeting throughout the year to develop procedures and policy for setting and evaluating operational RAM requirements of Army Materiel. The first policy change was to DARCOM Supplement 1 to AR 702-3 to clarify scoring conference procedures and to establish the RAM Assessment Conference to evaluate the success of corrective actions taken to eliminate failure modes discovered during test.

Army Quality Engineering

(U) Quality Assurance Provisions (QAP) Regulation (DARCOM-R 702-40). The QAP regulation was completed and transmitted for implementation in May 1979. This regulation defined the format, content and requirements for QAPs; established the organization responsibilities for establishing, maintaining, preparing, changing and improving QAPs; emphasized the requirement for a coordinated effort from all involved engineers; established the relationship of QAPs to acquisition activities in each phase of the life cycle and provided for configuration management and technical audit of QAPs.

(U) Quality Assurance Provisions Handbook. A QAP handbook, to provide management and technical guidance to the elements responsible for assuring the quality of Army weapon systems, was initiated in April 1979 and was scheduled for completion early in FY 1980. Both narrative and examples were found to show "how" to prepare and maintain QAPs while providing an understanding of the total quality concepts.

(U) Quality Readiness Reviews (QRRs). QRRs, an analysis of the documentation and procedures used to insure a product of acceptable quality, were accomplished on six items during FY 1979. This review provided assurance that documentation existed which defined the quality assurance, inspection, and acceptance procedures of the product, and components thereof, and that the final product would satisfy user requirements. The review findings were developed so that its recommendations could be incorporated into the Technical Data Package with minimal delay and cost.

(U) Quality Engineering (QE) Handbook. The synoptic outline for the QE handbook was completed and preparation of the text was begun. The handbook would help the practicing Army Quality Engineer select, from the many possible quality assurance examinations and tests, those few which would ensure producing adequate materiel at a reasonable price, provide a reference handbook of otherwise scattered or unavailable material, provide training text material for instructing individuals who would be entering the Army QE field, provide an explanation to executives at the Command Group level the benefits and costs of the QE effort.

Test Data Collection

(U) Common Test Data Collection System (CTDCS). Significant progress was made in FY 1979 in developing CTDCS. MICOM let a contract in late FY 1978 for development of a missile test data collection system that would provide the foundation for a system that could be used on all commodities by all test agencies. Overall CTDCS development was managed by an AMSAA chaired Task Force that had representation from all the DARCOM commands. A HQ DARCOM Steering Committee (chaired by DRCDE-R) monitored progress of the Task Force by conducting quarterly reviews.

(U) The CTDCS software was developed in 3d Qtr FY 1979 and tested in 4th Qtr FY 1979. The testing was conducted as a piggyback data collection effort on the General Support Rocket System at Aberdeen Proving Ground. The test demonstrated the forms utility and that the software would produce the required product.

RSI Standardization

(U) Quadripartite Working Group on Proofing, Inspection and Quality Assurance (QWG/PIQA). The Quadripartite Working Group was established under the provision of the Basic Standardization Agreement 1964 and the Quadripartite Standing Operating Procedures (QSOP). It reported to and was managed by the Quadripartite Working Groups Management Committee (QMC) to whom recommendations for amendment to Terms of Reference were to be submitted.

(U) The group identified and recommended to ABCA Armies means of establishing common or compatible proofing, inspection and quality assurance procedures, techniques, terms and definitions to enable such Armies to recognize each other's methods and responsibilities and to accept each other's standards. QWG/PIQA Project Officers for each project within each Army were responsible for producing the detailed work of the QWG, initially under information exchange conditions to establish the feasibility of standardization. Later, following Principal Member approval, Project Officers develop QSTAGs to the final draft stage, with the Project Officer of the Custodian Army leading in Project development. The QWGs structure was thus three tiered, with Principal Members acting mainly as a steering group, Project Officers as action officers and the Standing Chairman acting as overall Director/Coordinator.

(U) Mr. S. J. Lorber, Director of Product Assurance, DARCOM, was appointed Standing Chairman of the QWG, 11 January 1979. Mr. Dale Adams, Director of Product Assurance, ARRADCOM, was appointed US Principal Member to replace Mr. S. J. Lorber, 9 February 1979.

(U) Materiel Deterioration Prevention and Control Program (MADPAC). Materiel deterioration prevention and control continued to be a major problem that degraded Army Readiness. The Product Assurance Directorate was assigned the responsibility to establish an Army-wide program. In turn, as the Lead Laboratory for Materials Technology, the US Army Materials and Mechanics Research Center (AMMRC) was tasked on 4 April 1979 to develop an Army-wide corrosion prevention and control program.

(U) The Directorate prepared DARCOM-R 702-24 "Materiel Deterioration Prevention and Control", dated 16 October 1979; staffed with the MSCs/PMs/Activities and DARCOM Headquarters; revised it including appropriate comments, and published it.

(U) The regulation assigned the Director of Product Assurance the responsibility for the Army MADPAC Program, established a DARCOM MADPAC Action Office, and established and chaired a Central Steering Committee. The MADPAC Program was to be managed and implemented based on advise from the Central Steering Committee, the technical assistance of AMMRC, to assure that all major materiel acquisition programs were subject to a MADPAC review in compliance with the established policy

US Army Metrology and Calibration System

(U) General. Fiscal year 1979 saw new developments and continued improvement in the Army Metrology and Calibration Program.

(U) Activation of the US Army TMDE Support Activity Europe (USATESAE). On 20 November 1978, the Vice Chief of Staff, Army approved a new concept for support of Test, Measurement, and Diagnostic Equipment (TMDE). The

Development and Readiness Command (DARCOM) was assigned total responsibility for support of all general purpose TMDE belonging to the Army. The Army Metrology and Calibration Center (USAMCC) under the US Army Missile Command (MICOM) was given the responsibility for implementing the TMDE support mission, worldside. The plan called for MICOM assumption of the TMDE support mission in Europe to begin on 1 October 1979 with corresponding TMDE support programs in the Western Pacific in 1980 and in the Continental United States in 1981. On 1 August 1979, a provisional HQ US Army TMDE Support Activity Europe (USATESAE), a MICOM activity reporting to the USAMCC, was established and given operational control of the USAREUR TMDE mission utilizing USAEUR's resources. During the operational control period (1 August 1979-1 October 1979), the USAREUR resources were realigned in accordance with the new concept, and HQ USATESAE was in the process of being staffed. USATESAE was augmented with USAMCC personnel to assist in management and the development of the new TMDE program. On 1 October 1979, HQ USATESAE was activated, and DARCOM was officially given the responsibility for total support of the TMDE mission in Europe. Activation ceremonies were held at Zweibruecken, Germany with Major General Louis Rachmemer taking part in the ceremonies.

(U) Development of Warplans for Implementation of New TMDE Support Concepts in USAREUR. USAREUR operations plans were revised and proposed revisions reflecting the new organization and support concept coordinated in Theater. MACOMs were requested to make corresponding revisions of supporting plans down to division level and to identify proposed initial deployment locations for attachment of ATSTs. The USATESAE Operations Plan in process was to be updated as this information became available. HQ USAREUR was expected to incorporate proposed changes during the following cyclic revision of operations plans to commence 1 December 1979.

(U) Replacement of the CONUS Calibration Vans. Contractor testing and initial inspection were completed in August 1979. Following correction of many deficiencies noted, delivery of the first article to Redstone Arsenal was anticipated in October 1979 for additional Government testing. Twenty-three truck chassis had been delivered to the van body contractor, and fifteen bodies (in varying stages of production) had been mounted on chasis by the end of September 1979.

(U) Reconfiguration of Secondary Transfer Calibration Set. Testing, evaluation, and provisional approval of the first article set was completed in August 1979. The contractor was notified that he must resubmit replacement items for unacceptable components for additional testing and evaluation.

(U) Technical Inspection Program. A total of eight satisfactory inspections were conducted during this reporting period for three Army Area Calibration Teams, three Army Calibration Laboratories, and two Army Internal Calibration Facilities.

(U) Technical Measurement Audits. The Technical Measurement Audit Program was resumed in July 1979. Audits were conducted at eight Army Area Calibration Laboratories and 14 Army Internal Calibration Laboratories.

(U) Calibration Procedures Program. The in-house production during this last quarter of FY 1979 was 24 technical bulletins, 21 changes, 44 DA Forms 2028 and 46 calibration requirement worksheets. In addition, 64 procedures were reviewed and 17 dynamically evaluated for other commands during this period. Effort was continued for implementing the improved TMDE calibration and repair program in Europe. Approval to obtain microfiche reader/printers was obtained and procurement was initiated. Microfiche for 128 maintenance manuals had been obtained from industry and the Government Industry Data Exchange Program for use in Europe.

(U) Foreign Military Sales. Current US Army Metrology and Calibration Center involvement with foreign military sales activities was in final stages of providing calibration facilities and services to Jordan. It was anticipated that current personnel resources would be reallocated in FY 1980 in support of upcoming cases for Egypt, Greece, Saudi Arabia, Morocco, Korea and Jordan.

(U) Command, Control and Technical Management. Changes were made to the AR 750-25-1 and TB 750-25-1 to make these documents effective in Korea on 1 October 1979. Effective date included command and control by DARCOM of the ACRC in Korea.

(U) FM 29-27, "Test Measurement and Diagnostic Equipment (TMDE) Calibration and Repair Services in the Theater of Operations." The draft revision of FM 29-27 was forwarded to interested commands for review 22 August 1979. Organizational changes in the TOEs would require further revision and future coordination.

(U) Revision to MIL-C-45662A, Calibration System Requirements. Industry and DOD comments were compiled and evaluated. Essential changes were incorporated and the revision was to be a Military Standard. The MIL-STD was expected to be published by February 1980.

(U) Training. A tentative program of instruction was prepared for fielding the new transfer set and prepared a formal On-The-Job-Training Program to convert MOS 35B personnel to MOS 35H. The first class of students was scheduled to begin on two military installations with 24 students attending.

(U) National Bureau of Standards Support Services. Implementation of the planned National Bureau of Standards reduction in Primary Standards calibration support had no significant impact on the Physical or Electrical Standards Laboratory's ability to trace calibration of primary standards to the National Bureau.

(U) Additional Calibration Systems. To accommodate a new requirement for calibration of a Voltage Divider (Dynalized), used by US Army Medical Corp., a new calibration system was developed and put in service during this period. This system would not only meet the X-ray machine calibration requirements of the US Army but could be utilized to fill like requirements of AF and Navy.

(U) Type I Consolidation. The DOD directed study of operations of the individual service's primary reference facilities and related engineering functions was completed in mid-1979. The study recommended the closure of the US Navy's Eastern Standards Laboratory and the establishment of a working group to exchange information among the agencies involved. Remaining operations were to remain status quo. The Army nonconcurred with the study recommendations in that the study did not adequately address alternatives directed to be considered by OUSD and the GAO.

(U) Metrics. As the United States moves toward conversion to the metric system of measurement (International System of Units (SI)) the Army continues to play an active role in DOD metrication as a member of the DOD Metrication Steering Group. This Group prepared a revision to DOD Directive 4120.18, "Use of the Metric System of Measurement," to implement the recent OSD reorganization and to formalize the Steering Group. It was to be coordinated only within the OSD staff as publication was expected by early 1980.

(U) The DOD Metrication Steering Group also prepared a draft DOD Instruction, DODI 4120-XX, "Department of Defense Metrication Plan," to both supplement DOD Directive 4120.18, and to formally establish the DOD Metrication Plan. The Army was to develop a Military Handbook to aid Program Managers or other involved executives in determining whether or not (and when) to "go metric" in new designs. The target date for completion was February 1981.

(U) A Metric Directory DARCOM-P 700-5 was published in November 1978 and identified metric points of contact within DARCOM and included key contact points within OSD, DA, AF and Navy.

(U) Plan for Conversion of the DOD Metrology and Calibration System to the Metric System. A plan was developed under the auspices of the Joint Technical Coordinating Group for Metrology and Calibration (JTCG-METCAL). Coordination of the plan was completed with the Logistics Commands OPRs and JLC Secretariats during July 1979. The Chief of Staff, AFLC, submitted the plan to HQ, USAF, in July 1979 for review and forwarding to the Chairman, DOD Metrication Steering Group.

DARCOM Ammunition Surveillance Program

(U) Quality Assurance Specialist (Ammunition Surveillance) (QASAS) Career Program. The Commanding General, DARCOM, as functional head of the QASAS career program, is responsible for providing trained careerists to support various Department of Defense installations, activities and commands engaged in the receipt, storage, maintenance, issue, use and disposal of ammunition and explosives. Careerists were assigned to various worldwide positions under a mandatory rotational system. During FY 1979, there was a slight improvement in the number of vacant QASAS positions from 68 to 62. This improvement was made possible by assigning GS-7 interns to DESCOM TDAs for the duration of their training. During the year, the number of QASAS authorized positions grew from 440 to 473, due to additional positions generated by USAREUR. The trend for increased demand for QASAS services was expected to continue based on USAREUR and ARRCOM projections. To meet future demands and alleviate the deficit of trained QASAS, the US Army Defense Ammunition Center and School at Savanna, Illinois, was planning to train 128 interns during FY 1980 and 1981, and 96 interns in FY 1982. It was anticipated that the QASAS career program would be able to fulfill all of its personnel requirements by 1982.

(U) The Product Assurance Directorate served as the headquarters focal point for briefings presented to the Vice Chief of Staff of the Army on Fielded and Developmental Ammunition. Briefings were presented in December 1978 by ARRCOM and ARRADCOM with input from MICOM and MERADCOM.

(U) Progress was made on several subprograms of the Ammunition Stockpile Reliability Program during FY 1979.

(U) Toxic Chemical Agent Sampling Program. Due to the restrictions on firing toxic chemical filled ammunition, the program for determining agent purity was continued during FY 1979. Analysis of samples to date indicate agent purity is relatively stable.

DARCOM Supply and Maintenance Quality Assurance Program

(U) General. During FY 1979, a number of significant accomplishments were made relative to the Supply and Maintenance Quality Assurance Program. Some of these accomplishments are:

(U) DESCOM Quality Assurance Directorate for Quality Assurance Realignment. In recognition of increasing workload and broadening responsibilities to include Metrology and Calibration, photodosimetry, ammunition surveillance and data feedback and analysis, a joint DESCOM/DARCOM review was performed to realign and restructure the DESCOM quality organization. The DESCOM quality assurance mission and functions were revised

for accuracy and proper relationship to other elements such as the Quality Assurance Field Activity (QAFA), DARCOM QA, the Army Metrology and Calibration Center and the Defense Ammunition Center. A plan was developed whereby the DESCOM QA workforce would be increased from 6 to 15 by 1 January 1980 and to 21 on or about 1 June 1980. The DARCOM QA Directorate also reduced the QAFA workforce by three spaces and added three to the DESCOM QA TDA without transfer of functions. This action was expected to greatly improve DESCOM's ability to manage and direct the Depot Quality Assurance Programs and to improve interface with the readiness command elements in coordinating Depot Supply and Maintenance workloads.

(U) DARCOM Quality Assurance Field Activity. With the realignment of DESCOM Quality Assurance, the QAFA strength was reduced from 24 to 21. The QAFA mission was and is of primary support to the headquarters on procurement matters and involvement in user quality assurance support and assessment. QAFA reorganized into two branches, the Programs and Data Branch and the Logistics Quality Branch, which will support the post procurement of activity as relates to DARCOM level activities, i.e., Care of Supplies in Storage (COSIS) studies, Shelf-Life Program Reviews and overall supply and maintenance policy. Another major effort was the coordination for implementation of a new Defect Reporting System through the Commodity Command Standard System (CCSS).

(U) DA/DARCOM Steering Group. A DA/DARCOM Steering Group was established in December 1975 to review the depot maintenance quality program. Reconditioning programs for the AN/PPS radar and the M107/110 SP Howitzer were presented by Sacramento and Letterkenny respectively, to the Steering Group in FY 1979. While these completed the formal DA/DARCOM presentations; the Director of QA, DARCOM, directed that joint DARCOM/DESCOM reviews be continued to assure compliance with DOD/DA/DARCOM maintenance policies and procedures. The DESCOM initiated such a review, to be completed in 2d quarter FY 1980, in coordination with CERCOM to assess the VRC-12 radio program.

(U) Army Shelf-Life Program. Two glaring weaknesses in this program over the past 10 years have been the lack of a single DOD Shelf-Like Program Administrator and the lack of a usable shelf-life report. These two items were surfaced again in FY 1979 through a Defense Logistics Analysis Office (DLAO) study and a General Accounting Office (GAO) review. As a result, DARCOM was then serving as the Army representative on a DOD intra-service/agency committee, responsible for implementing the findings of these two recent reviews. When the revision is complete, the program was to have a single program administrator assigned to Defense Logistics Agency (DLA), a shelf-life report containing inventory and disposal data, and a standard storage serviceability standard for each of the services/agencies.

(U) Maintenance Information System for Quality (MIS-Q). Anniston Army Depot was tasked to assess the overall effectiveness of the MIS-Q program as implemented by the maintenance depots. The assessment was completed in January 1979, and the results were briefed to the DESCOM Quality Assurance Office in February 1979. Fifteen improvements were outlined which were expected to greatly reduce the administrative effort required to use the program and to increase visibility of maintenance quality programs.

(U) DARCOM-R 702-7 (Depot Quality Assurance System). A revised 702-7 was published in January 1979. This revision contains increased coverage in the areas of supply, maintenance and ammunition surveillance procedures and addresses interface between depot and readiness command quality elements. With the realignment of DESCOM-Q, the proponency of the regulation was transferred from DARCOM QA to DESCOM QA. Simultaneous with the action, the QAFA was tasked to develop a new DARCOM Supply and Maintenance Policy document. Also, DESCOM tasked Letterkenny Army Depot to develop the depot procedures and methods into a new DESCOM depot quality assurance regulation.

(U) Depot Testing Realignment. The CG, DARCOM, issued a testing policy statement which directed review of all testing operations toward accomplishment of acceptance testing by quality assurance personnel. Further, each depot was directed to establish a testing review committee, chaired either by the CO or the Director for Quality to milestone actions in complying with the policy. Significant achievements were made by ANAD and LEAD and time-phased actions were developed by the other depots. This action was a result of the DA/DARCOM Steering Group recommendation based on review of selected maintenance reconditioning programs.

(U) Certification Program for Quality Assurance Personnel. Eighty-one percent of the total depot quality workforce participated and became certified. This is an increase from 68 percent reported for FY 1978. Tooele Army Depot published a Handbook entitled, "Inspector and Quality Specialist Training," which contained ideas and suggestions for inducing inspectors and specialists to participate. Also, it suggested a means of developing a mandatory training program for the entire QA workforce to assure understanding and capability to perform full spectrum of quality duties.

Rationalization, Standardization, Interoperability (RSI) US/GE Army Staff Talks

(U) Recognizing that there had been a marked increase in the magnitude of American and US Army efforts during the previous two years to improve cooperation with allies, the Vice Chief of Staff of the Army stated Basic Army RSI priorities (in FY 1979) emphasized US relations with our NATO allies as follows:

a. Implementation of the NATO Long-Term Defense Program.

b. Support of the OSD/JCS High Priority Areas.

c. Standardization of doctrine, requirements and procedures.

d. Interoperability and standardization of weapons systems and equipment.

(U) Command Policy and Guidance regarding RSI was established in a Circular issued in February 1979, applicable to all pertinent DARCOM programs including development, non-development, and product improvement/system enhancement programs, development/acquisition programs for which the Army is designated the lead Service, programs for which the Army participates with another military Service or foreign government and programs which are established/developed as a result of international agreements.

(U) Early in 1979, General Guthrie stressed the importance (within DARCOM) of proper US Army negotiation, preparation and implementation of International Standardization Agreements (STANAG/QSTAG) and requested a review by all MACOMs and HQ Staff Agencies, of their internal management and prior compliance with provisions of these agreements.[9]

(U) This statement of priorities reflected actions which previously occurred during Fiscal Year 1979. General Guthrie had represented the Vice Chief of Staff as head of the US Delegation to the general meeting of the American, British, Canadian, and Australian Armies meeting (TEAL XXI) held during October 1978 in Melbourne, Australia. One result of the meeting was that the four Armies "agreed to audit implementation of quadripartite standardization agreements (QSAGS) and to give special attention to Quadripartite Working Groups (QWOS) performance in the future".[10]

(U) On 21 December 1978, the responsibilities of the Chief DARCOM Logistic Offices in Europe (LAO-E) were expanded as well as the scope of his authority. As DARCOM direct representative to the Commander-in-Chief USAREUR, he was to serve as the "central DARCOM focal point for the resolution of logistic readiness problems and matters of mutual interest to DARCOM and USAREUR." He was also to now serve as the DARCOM senior liaison officer to USAREUR and advisor to CINCUSAREUR and his staff.[11]

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9 Ltr, DRCIRD, Gen Guthrie to Distribution 2 Jan 79, subj: US Participation in International Military Standardization Agreements.

10 Ltr, DRCIRD, Gen Guthrie (Jack) to Gen Bernard W. Rogers, Chief of Staff (Chief), 4 Jan 79.

11 Ltrs, 21 Dec 78 to Gen Blanchard, CINCUSAREUR/Seventh Army, and Col Norman C. Zeller, Signed by General Guthrie.

(U) GE/US Army Staff Talks. From October 1978 through September 1979 the United States and German Army staffs held two Steering Committee meetings and two staff talks. A Steering Committee meeting (VI) was held in Bonn, Germany 17-20 October 1978, and concentrated on designing procedures for a systematic approach to cooperative materiel development. Agreement was reached on a Military Equipment Characteristics Document for Non-Major Items (MEDC-NMI).[12]

(U) Staff Talks (VI) was held at Fort Sill, Oklahoma 11-15 February 1979, in which two tactical concepts: NBC Defense and Night Operations, were prepared for signature by the two Armies' Chiefs of Staff by March 1979. Agreement in principle was reached to complete the command control and tactical communications concept papers by the time of Staff Talks VII which was planned for the coming September in Munich.[13]

(U) The German staff briefed on the scope of a proposed concept "of armor combat forces of the 1990s" and also presented an outline for a systematic approach to cooperation on materiel, training, and logistics. The United States staff briefed on the status of war games scenario/analysis. A decision was reached to incorporate smoke operations into the deception and camouflage concept paper. Military equipment characteristics document (MECD) status reports were reviewed for major and non-major items which were accompanied by updating the situation on specific materiel candidates for the MECD process.[14]

(U) German Army/US Army staff talks - Combined Steering Committee meeting was held at Fort Monroe, Virginia 29 May-1 June, 1979, and was preceded on the 29th by HQ DARCOM briefings for the GE Steering Committee. A major event was the first US/GE MECD, for a RPV, signed under procedures which were established at Staff Talks V, held at Hanover, Germany in June 1978.[15] Among many other accomplishments was the agreement that concepts on armor forces of the 1990s (to have GE lead) and C^2 (to have US lead) are "fundamental areas of overriding importance", and these papers were to have "priority of effort."[16]

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12 Ltr, DRCIRD, Bryan R. Dunetz to Distribution, 29 March 1979, subj: US/GE Materiel Cooperation, Appendix B; Synopsis of US/GE Army Staff Talks Meetings 1975-1978, p. 47.

13 IBID, p. 47-48.

14 IBID, p. 48.

15 Memorandum for Record, ATCD-1As, LTC (P) Raymond E. Haddock, GS, 12 June 1979, Subj: GE/US Army Staff-Combined Steering Committee Meeting, 29 May - 1 June 1979.

16 IBID, Inclosure 2 & 1C.

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(U) The German Army/United States Army Staff Talks (VII) were held at Munich, Germany, 4-7 September 1979. A major result of these talks was the delegation heads' direction to the Steering Committee to "focus" on the following priorities: concepts for command control, and for Armor Combat Forces for the 1990s. Interoperability demonstration goals for the TACFIRE/ADLER and TOS/HEROS, and Barrier/Counterbarrier as a non-major theme item.[17] Another achievement was that requirements were established and task assignments made for specific concepts.[18]

Management Information Systems

(U) During Fiscal Year 1979, the Command's operations continued to be supported by DARCOM Standard Systems and by unique systems in areas not yet standardized. The systems performed well, but the computers were early third generation models and their capabilities were limited in comparison to newer equipment. Recognizing the need to formulate a comprehensive plan to guide the DARCOM efforts to take advantage of the capabilities and advantages of the new automation technology, DARCOM, in November 1978, published the "Blueprint for DARCOM Information Processing in the 1980s".

(U) This Blueprint set forth a concept for evolutionary development of one of DARCOM's most valuable resources--information processing. It was prepared as a central part of the DMIS ten-year planning effort, aimed at staying ahead of the power curve in this rapidly changing environment. It was DARCOM's intention to harness the latest available computer technology in areas such as narrative data processing, data base management systems, digital graphics systems, computer based message processing, office automation tools, remote terminals, personal computers, computer communication networks, and large data storage and retrieval facilities.

(U) To facilitate management, the planning and implementation for DARCOM information processing in the 1980s was clustered into several thrusts, each addressing a specific area. There were four primary thrusts: architecture, distributive processing, narrative processing, and digital technical data system.

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17 Ltr, ATCD-1A PD, BG J. W. Woodmansee Jr.GS, 15 October 1979 to Distribution, subj: Results/Requirements from GE/US Army Staff Talks, 4-7 September 1979, Munich, Germany.

18 Memorandum for Record, ATCD-1A PD, BG J. W. Woodmansee, Jr. GS, 15 October 1979, subj: Requirements for GE/US Army Staff Talks 4-7 September 1979, Munich, Germany (Incl 1 to Ltr)

(U) The Architecture Thrust presented a sound, versatile, cost-effective approach to accommodating the long-range ADP needs of the command and all its components. It offered flexibility to support a continually changing environment; preserving the bulk of the past investment in computer peripheral devices; and facilitating a phased migration from old equipment to new, with minimum disruption to on-going operations. This thrust took advantage of technological progress in the computer industry without rendering obsolete large quantities of equipment and software; and eliminated the requirement to launch a large scale systems redesign and redevelopment effort when new equipment was required; significantly reducing the size and processing lead-time of procurement actions. The thrust also broke equipment and software procurements into smaller pieces, thereby limiting the risk and investment of any one action; making possible standardization at the DARCOM level, not at the sub-MACOM and depot levels. It offered greatly increased system reliability by spreading the work among many computers which would provide back-up for each other. During FY 1979, major efforts for the Architecture Thrust were associated with developing the detailed plans for contractual actions during FY 1980 and their implementation during FY 1981. The ADP Architecture Thrust represented a significant advance in providing improved ADP support for DARCOM in the future.

(U) The first Distributed Functional Processing (DFP) System developed was the Procurement Automated Data and Document Systems (PADDS) in support of procurement functional area requirements. Planned definitions of functional requirements, computer hardware problems (i.e. less than acceptable response times), and software problems caused the rescheduling of the PADDS prototype from 2d Quarter FY 1979 to 3d Quarter FY 1980. Briefings were given to management personnel in other functional areas where analysis had shown the potential for DFP to significantly improve operations. These included the Maintenance, Materiel Management, Security Assistance, Technical Data, and Logistics Support Analysis Record/Integrated Logistics Support Functional Coordinating Groups. Detailed functional systems requirements (DFSR) were completed in support of the following DFP projects: Automated Planning and Tracking System (APATS); Procurement Automated Manpower Utilization Projection System (PAMUPS), both as adjuncts to the procurement functional area. Also, work was completed on the Requirements Determination and Execution System/Item Study Interrogation System (RDES/ISIS) DFSR. Only the economic analysis portion of this system remains to be completed for submission to DA for approval. DFSRs are under development for Security Assistance Provisioning and Technical Data. The DFP hardware and software specifications to support these applications are being processed by the Computer Systems Selection and Acquisition Agency (CSSAA) with the Request for Proposal (RFP) scheduled to be released in 1st Quarter FY 1980.

(U) During FY 1979, planning for the Narrative Processing Thrust was finalized. A paper entitled "Narrative Description of the Personal Access Computing Environment" was developed and disseminated throughout DARCOM. The paper provided an overview of the action and generally described the short, mid-term, and long-term strategies for achieving this thrust. The initial strategies for achieving this would be accomplished in FY 1980 by the installation of a prototype "cluster" computer in HQ DARCOM. There were about 800 users of personal-access computing tools throughout DARCOM at the end of FY 1979.

(U) The DARCOM Digital Technical Data System Thrust presented a new approach in addressing the handling of technical data packages throughout the materiel life cycle. At present, the DARCOM thrust is to build a prototype digital technical data system. During FY 1979, plans were completed for two DARCOM Commands to be actively involved in the development of the digital technical data system.

Equal Employment Opportunity Office

(U) Introduction. During FY 1979 the Equal Employment Opportunity (EEO) Office continued to implement the requirements of the Equal Employment Act of 1972 to provide EEO in Federal employment without discrimination because of race, color, religion, sex, national origin, age or physical/mental handicap.

(U) A DARCOM EEO/Civilian Personnel Officer (CPO) Conference, attended by EEO Officers, CPOs, Federal Women's Program Managers (FWPM), Hispanic Employment Program Managers (HEPM) as well as representatives of Headquarters Department of the Army, Health Services Command, US Army Training and Doctrine Command, Military Traffic Management Command, US Army Civilian Appellate Review Agency, US Army Sergeants Major Academy, US Army Air Defense School, 11th Air Defense Artillery Group and the 3rd Armored Cavalry Regiment was held in El Paso, Texas 29 October - 2 November 1978. As a result of the conference, the DARCOM Affirmative Action Plan for FY 1978-1979 was updated to include many of the excellent ideas and recommendations generated there.

(U) In FY 1979 181 formal complaints were filed throughout the command. The bases for the alleged discrimination were shown.

(U) A total of 62 formal complaints were closed in FY 1979 with a finding of discrimination in 5 or 8.1 percent of the cases.

(U) In fiscal year 1979 the total workforce continued on a downward trend from 30 September 1977 to 30 September 1979. There was a decrease in the lower grades (GS/WG 05-09) of 946, the middle grades of 184 and the high grades of 410. In spite of the decline in the total workforce, there were slight gains for minority and female employees in the middle and high grades.

(U) Hispanic Employment Programs. During 1979, the Command Hispanic Employment Program Manager (HEPM) visited various DARCOM installations with a predominant number of Hispanics in the work force. During these visits, his efforts concentrated on on-site advice with the HEPM and HEP committee. The Command HEPM tried to direct their efforts in the community toward bringing awareness to young Hispanics of opportunities of employment with the Army in various career programs. The number of Hispanics in all pay plans at the end of FY 1979 totaled 4,995 or 4.8 percent of the total work force. This total decreased by 143 from the number in the work force at the end of the previous fiscal year. The percentage remained constant at 4.8 percent, however, because of the downward trend in the total work force. The number of Hispanics decreased in the grades GS 5-9 by 48 from FY 1978 but increased slightly in grades GS 10-12 by 15 and grades GS 13-15 by 4.

(U) The Command HEPM continued to serve as a resource person with the DARCOM Field Placement Office, Atlanta. As a result of participation in recruitment visits to the University of Puerto Rico, Mayaguez Campus, the HEPM helped to recruit 16 Hispanic Engineers for employment in DARCOM.

(U) Federal Women's Program. The representation of women in the DARCOM work force increased by 1.4 percent during FY 1979. Specific emphasis was directed toward recruitment of women into the wage system positions with the result that a slight increase in the number of wage leader and wage supervisor positions occurred. Progress was also reflected for women in the mid and upper level grades of GS-9-14. In the GS 13-14 category, the number of women increased by 28 in FY 1979 as compared with an increase of only 11 in the prior year.

(U) The first of three motion pictures, "DARCOM Women on the Move", designed to depict employment opportunities for the progress of women within DARCOM, was completed during this fiscal year. These films were to be distributed to subordinate organizations to be used in training and recruitment efforts and for the public relations activities.

Equal Employment Opportunity Complaints
1 October 1978 - 30 September 1979

		No. Closed	
	No. Filed	No Discrimination	Discrimination
Race/Color	84	31	3
Religion	1	0	0
Age	32	8	0
Sex			
Female	22	5	1
Male	4	1	0
National Origin	11	2	0
Handicap	22	9	1
Other (Reprisal, Harassment, etc.)	5	1	0
	181	57	5

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PROGRAM STATISTICS

	30 Sep 1977			30 Sep 1979		
	Total	Minority	Females	Total	Minority	Female
Lower Grades (GS/WG 05-09)	43,557 (100%)	8,577 (19.7%)	13,434 (30.8%)	42,611 (100%)	8,303 (19.5%)	14,604 (34.3%)
Middle Grades (GS/WG 10-12)	32,388 (100%)	3,543 (10.9%)	2,384 (7.4%)	32,204 (100%)	3,712 (11.5%)	2,862 (8.9%)
High Grades (GS 13-15 and WG 13-19)	11,606 (100%)	601 (5.2%)	252 (2.2%)	11,196 (100%)	606 (5.4%)	290 (2.6%)
Supergrades (GS 16-18)	55 (100%)	2 (3.6%)	0	114 (100%)	1 (0.87%)	0

CHAPTER II

RESOURCES MANAGEMENT

Personnel, Training and Force Development

Introduction

(U) Brigadier General Leslie R. Forney, Jr., Director of Personnel, Training and Force Development, retired on 30 September 1978 and was replaced on 22 January 1979 by Brigadier General William H. Schneider. In the interim, Mr. William S. Charin served as acting director.

(U) Effective 1 October 1978,[1] the Headquarters Civilian Personnel Office was removed from the technical supervision of the Civilian Personnel Division, Directorate for Personnel, Training and Force Development and placed directly under the supervision of the Chief of Staff. The Headquarters Civilian Personnel Office continued to receive administrative support from the DARCOM Personnel Support Activity.

(U) The trend in FY 1979 was increased workload and decreased resource allocations. This was reflected in the Program Analysis and Resource Review (PARR) which was submitted to DA in January 1979 and stressed a concern for the inadequacy of personnel strengths. DARCOM's civilian strengths actually decreased by 3,082 spaces from the end of FY 1978 figures. The FY 1979 military strengths were 144 over that of FY 1978, but 1,393 less than the 10,509 spaces authorized for end FY 1979. To combat the decreased on-board strengths, DARCOM undertook a massive program of overhires to fill the void. The program was very successful in that the end FY 1979 strengths were only 15 less than the DA authorized ceiling.

(U) A six-week Resource Management Course was introduced to DARCOM manpower managers and other resource managers during FY 1979. The course, given at Syracuse University, New York, provided attendees with more imaginative alternatives to manage the DARCOM shrinking resource allocations.

(U) As a result of the DARCOM Baseline Study, the Deputy Commander for Resource Management concluded that manpower surveys conducted by HQ DARCOM should be suspended.

Advances in manpower management were made or initiated. For example, TDA processing time was cut from 72 days per document in FY 1978 to 46.6 days in FY 1979. Also, a DA automated system called FORDIMS (Force Development Integrated Management System) was being developed to support manpower accountability. DARCOM manpower data was to be loaded into the system by April 1980. Actions were initiated to improve the manpower reporting process, both in data required and

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[1] DF, DRCPT-C, subj: Headquarters Civilian Personnel Office, 25 Sep 78, (eff 1 Oct 78); DF, DRXMM-CO, subj: TDA Change, 26 Jul 79; DF, DRXMM-SM, 3 Aug 79, subj: TDA Change.

management information available. Looking to the future, a fact book was prepared for DA containing an analysis of continuing initiatives, non-controllable influences, and possible DA actions to expand DARCOM's manpower management capabilities.[2]

(U) The development of the manpower program was an integral part of the DARCOM Program and Budget System. It provided objectives, policies, and procedures for the management of civilian and military manpower by appropriation and program to accomplish missions assigned. The overall program was based on the DA Program and Budget Guidance (PBG), and on the Five Year Defense Plan (FYDP).

Manpower Program Development

(U) The Program Analysis and Resource Review (PARR) for the five year period - FY 1981 thru FY 1985, was developed and submitted to DA in January 1979. DARCOM stressed a continued concern for the inadequacy of personnel strengths. The DARCOM Manpower Baseline Requirement Study of August 1978 established required levels of strengths corresponding to REDCON 1 thru 4. It was concluded in that study that at REDCON 3, DARCOM would be able to achieve maximum peacetime efficiency and, at the same time, provide an adequate mobilization/surge capability. The corresponding level of manpower, military and civilian, was 143,053. This program submission supported only 117,813 at the guidance level. The PARR submission was based upon the DA October 1978 Program and Budget Guidance, which assumed a certain level of resources in support of workload in FY 1979 and FY 1980 as the springboard for the PARR years of FY 1981-85. However, significant cuts were being made in FY 1979 and FY 1980 programs and budgets. Consequently, the backlog of unaccomplished workload deferred into FY 1981 as a starting point for the PARR years had to increase, and this would compound and increase in many functional areas the resource requirements for those PARR years.

(U) The Program and Budget Estimate (PABE) for the five year period FY 1981-85 was submitted to DA in March 1979 and contained the manpower resource posture for FY 1981. This PABE described the DA prescribed Core resource levels for each program element, provided program element level manpower and dollar detail for each Program Development Implement Package (PDIP) affecting DARCOM, provided revised narrative justification for specified DARCOM PARR PDIP's and, in the form of an Executive Summary, portrayed the FY 1981 resource posture.

(U) The Command Operating Budget (COB) for FY 1980-1981 was submitted to DA on July 1979 and reflected a good effort at a balanced manpower, dollar, and workload program within the constrained resources delineated in the May 1979 DA Program Budget Guidance (PBG). The budget was formulated with the basic objective of supporting the FY 1980 President's Budget and the FY 1981 Army Program Objectives Memorandum (POM). PT&FD did, however, make some necessary adjustments to

[2]Fact Book, DRCPT-SR, "DARCOM Manpower Management," July 1979.

reflect changes in requirements and/or priorities since FY 1980 Command Operating Budget Estimate (COBE) and FY 1981 Program and Budget Estimate (PABE).

Manpower Utilization, Standards and Policies

(U) A DARCOM contract with Syracuse University called for the training of 60 students in Resource Management (Manpower). The first class of 28 students attended from 20 May through 29 June 1979 and the second class of 31 students attended for six weeks beginning 10 September 1979. Coming from all the sub-MACOM's, the majority of students were manpower managers at Grades GS-9 through GS-14. The students attending were a mix of officers, manpower managers and Comptroller people who were selected on the basis of their past experience, training and potential. EEO considerations were a significant part of the selection process. The need for the training of military and civilian manpower analysts was emphasized in the report of a recent General Accounting Office study of the Army's manpower career program.

Personnel Space Authorization and Strength

(U) Civilian. The DA program reduced DARCOM's civilian space authorization by 4,400 from the end of FY 1978 to end FY 1979. This net decrease included DA adjustments for transfer of 1,555 DARCOM Career Intern spaces to DA control, and retransfer of 163 spaces to Intelligence and Security Command for Vint Hill Farms Station. Other reductions included those related to the Army Industrial Fund overhead and productivity; Congressional (Leach Amendment) and the National Capital Region; and a general decrease in lieu of Reserve Management reduction. Actual (on-board) civilian strength decreased from 106,876 at the end of FY 1978 to 103,794 at the end of FY 1979 (-3,082 including 1,401 interns transferred to DA).

(U) Military. DARCOM was increased by a net of 103 military spaces from the end of FY 1978 to the end of FY 1979 by DA. This was primarily in enlisted spaces associated with increased staffing for the Electronic Proving Ground, Digital Communications Test Company in support of TRI-TAC.

(U) Actual (on-board) military strength increased from 8,972 at the end of FY 1978 to 9,116 at the end of FY 1979, an increase of 144. This military strength was materially below the authorized level at the end of FY 1979; i.e., 10,509 authorized versus 9,116 actual (-1,393). DARCOM's low standing on the Department of Army Master Priority List (DAMPL), and the Personnel Structure and Composition System (PERSACS), resulted in a low distribution capability in FY 1979 precluding high rate of fill for military positions.

REFLECTS THE ADJUSTMENTS IN DARCOM MILITARY AUTHORIZATION AND CIVILIAN EMPLOYMENT PROJECTIONS

DA PROGRAM TO DARCOM (OCT 79 PBG)

	MILITARY				CIVILIAN EMPLOYMENT PROJECTION		
	TOTAL	OFF	WO	EM	TOTAL	FTP	TPT
END FY 78	10406	3210	239	6957	106985 1/	105392	1593
END FY 79	10509	3188	249	7072	102585 2/	100784	1801
FY 79 (+/-)	+103	-22	+10	+115	-4400	-4608	+208

1/ Excludes 541 overhire authorized by DA.

2/ Excludes 1224 overhire authorized by DA, and 1521 authorized by DARCOM (TOT = 2745).

DARCOM PROGRAM (OCT 79 PBG)

	TOTAL	OFF	WO	EM	TOTAL	FTP	TPT
END FY 78	10354	3196	242	6916	108166	106147	2019
END FY 79	10476	3179	249	7048	102598 2/	100862	1736
END 79 (+/-)	+122	-17	+7	+132	-4468	-5285	-283

NOTE: DARCOM Program for military spaces differs from DA Program due to administrative lead time in implementing/reporting military changes.

DARCOM Program for civilian spaces exceeds DA Program for end FY 78 based on DARCOM's over-allocation of spaces in anticipation of hire lag (Authority: paragraph 4-4e, AR 570-4; and paragraph 3-8, DA Pamphlet 570-4).

For explanation of increases to DARCOM's end FY 79 military and reduction in civilian authorizations refer to narrative Chapter 1 "Personnel Space Authorization and Strength."

MAJOR DARCOM ACTIVITIES
ACTUAL CIVILIAN STRENGTHS

	FY 78 30 Sep 78 TOTAL	FY 79 30 Sep 79 TOTAL	DIFFERENCE AS OF 30 Sep 79
TOTAL	106,876	103,794*	-3,082
(FTP)	(103,827)	(100,660)	(-3,167)
(TPT)	(3,049)	(3,134)	(+85)
HQ DARCOM	1,214	1,276	+62
SUB-MACOMS	60,877	60,554	-323
DEPOTS (DESCOM)	37,172	35,897	-1,275
PROJECT MANAGERS	1,310	1,143	-167
RESEARCH LABS	771	765	-6
ALL OTHER	5,532	4,159	-1,373

*Excludes 359 DA Career Interns (reported on DARCOM roles, actually assigned to DA).

Civilian Manpower Guidance and Ceilings

(U) DARCOM closely monitored civilian on-board strengths throughout the year in order to preclude exceeding end FY 1979 DA ceilings and at the same time, utilize the available civilian ceiling to the maximum extent. Projected employment data solicited from subordinate commands/activities initially forecast year end strength above the DA ceiling. Accordingly, firm strength targets were established for subordinate commands to avoid exceeding ceilings.[3] The above action resulted in DARCOM experiencing only a minor shortfall in civilian employment. DARCOM ceiling from DA for the end of FY 1979 was 102,585 civilian authorizations plus 1,224 overhires for a total ceiling of 103,809. This ceiling of 103,809 versus actual strength of 103,794 resulted in DARCOM being only 15, or .0144 percent, under the DA civilian ceiling.

(U) Effective 24 October 1978, the President imposed a "1-for-2" hiring limitation. For the period October 1978 - February 1979, when the limitation was cancelled, DARCOM absorbed total losses of 1028 as a direct result of the reduced hiring.

Manpower Analysis

(U) FY 1979 was a year of major turbulence. As a result of the DARCOM Baseline Study, the Deputy Commanding General for Resource Management, DARCOM, concluded that manpower surveys conducted by HQ DARCOM should be suspended and so informed the Deputy Chief of Staff for Personnel.[4] Deputy Chief of Staff for Personnel replied that his staff would review DARCOM's letter and provide an official response to the command. By the end of the fiscal year, the official response had not been received. In the absence of a normal manpower survey program, survey branch analysts were utilized in one-time manpower studies.

(U) Five manpower surveys covering approximately 2,700 spaces were accomplished by HQ DARCOM out of fifteen surveys, covering 21,000 spaces, which were scheduled. Seventeen manpower surveys, covering approximately 4,200 spaces, were conducted by Major Subordinate Commands in FY 1979 and reviewed by HQ DARCOM prior to forwarding to DA.

Manpower Accountability

(U) Systems. HQ DARCOM received guidance from HQDA which emphasized the DA policies and procedures related to identification, in a timely manner, of force structure changes in the Army Force Program. An automated system (Force Development Integrated Management System--FORDIMS), which encompassed the Army Force Program, the Civilian Budget System, the Force Accounting System, and The Army Authorization

[3]Msg, DRCPT-SA, "Civilian Strength Targets for 30 Sep 79," 181800Z Sep 79.
[4]Ltr, DCGRM to DCSPER, 22 Nov 78.

Document System, was being developed to support manpower accountability. The system was scheduled to be operational by 1 April 1980.[5]

(U) The Manpower TDA Branch Charter for functioning within the Manpower Accountability Program was outlined by Chief, Force Development Division. The charter required automated support capable of identifying mismatch between manpower Program Budget Guidance and Troop List and Troop List and TDA/MTOE.[6]

(U) A system change request was being developed to provide required manpower accountability automated support. The Automated Manpower System (TAMS) was scheduled to be operational about 1 December 1979.[7]

(U) Improved TAADS Procedures. HQDA policy required an up-to-date budget and current TAADS document in the TAADS data base at all times. To meet this requirement, a TDA/MTOE was prepared and then updated four times during the TAADS cycle, which covered a period of 33 months. On 11 May 1979, DARCOM forwarded a letter to HQDA recommending that the number of TDA/MTOE's prepared during the TAADS cycle for each fiscal year be reduced from five to three. The documents to be eliminated were the ones prepared before the budget year began (commonly called the Program Year document), and the one prepared to close out the current fiscal year. If adopted, the procedure would reduce considerable frustration and workload associated with TDA/MTOE preparation by DARCOM units and Manpower TDA Branch personnel. However, on 24 July 1979, HQDA disapproved the request stating that such a change would adversely affect the DA military personnel management system by not providing sufficient lead time in the identification of skills and training requirements.[8] HQDA reevaluated the policy for documentation of manpower spaces in TAADS and, by letter, informed HQ DARCOM of new policy guidance.[9]

(U) Documentation of TAADS. HQ DARCOM initiated an intensive management effort in August 1977 to comply with Army Force Program requirements for completing TDA/MTOE update actions. Goals for this action were reached by 1 October 1978.

(U) During FY 1979, the average time to process TAADS documents was less than that of previous years. The cumulative average of 46.6 days for FY 1979 represented a significant decrease from the 72 days per document in FY 1978.

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[5]Ltr, HQDA, DAMO-FDP, 6 Jul 78, subj: Manpower Accountability (CSGPO-396).

[6]SOP, HQ DARCOM, DRCPT-SU, 20 Aug 79, subj: Manpower Accountability (CSGPO-396) Reporting System.

[7]HQ DARCOM, System Change Request with Impact/Benefit, 13 Sep 79.

[8]Ltr, DRXMM-TM, HQ DARCOM, 11 May 79, subj: Improved TAADS Procedures and HQDA, DAMO-FDU, 1st Indorsement, 24 Jul 79.

[9]Ltr, DAMO-FDU, HQDA, 19 Oct 79, subj: Improved TAADS Procedures.

(U) Mobilization TDA (MOBTDA) Guidance. Lack of emphasis on documentation of requirements in MOBTDA gained Army-wide recognition. To alleviate the condition, HQDA conducted a MOBTDA Planning Conference on 18-20 June 1979.[10] The conference provided information for the publication of additional guidance for preparation of MOBTDA.[11] Guidance provided in this letter was to be followed in updating all DARCOM MOBTDA by 30 September 1980.

(U) Mobilization Requirements for Retired Army Personnel. For over a year, the Army was engaged in planning for the use of Regular Army/Reserve retirees as mobilization assets. It was anticipated that recall of retirees for assignment to CONUS positions was to assure the efficient operation of CONUS installations while permitting reassignment of significant numbers of younger persons for the performance of more demanding tasks.

(U) HQDA tasked DARCOM to identify positions on DARCOM's Mobilization TDA's that were not appropriate for fill by retired military personnel upon mobilization.[12] A letter was dispatched to the field[13] and the information was obtained and forwarded to the US Army Reserve Components Personnel and Administration Center (RCPAC), St. Louis, Missouri.[14]

Manpower Management Information Systems

(U) As a result of a survey of field activities, manpower reporting requirements were revised in an effort to improve the quality, timeliness and accuracy of the information systems involved.[15]

(U) Automated extracts from manpower management reporting systems were made available to headquarters offices through the MARS terminal.[16] located in the Force Development Division. The MARS terminal accesses both the 1978 Report data and the CIVPERSINS data. Program formats provided wide flexibility and could be designed to meet the particular needs of each user.

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[10] Ltr, HQDA, DAMO-FDU, 8 Jun 79, subj: Letter of Instruction - MOB TDA Planning Conference.

[11] Ltr, HQDA, DAMO-FDU, 10 Aug 79, subj: Mobilization TDA Guidance.

[12] Ltr, HQDA, DAPE-MBP(M), 6 Nov 78, subj: Mobilization Requirements for Retired Army Personnel (RCS: CSGPA-OT-1514).

[13] Ltr, DRXMM-TM, 8 Jan 79, subj: Mobilization Requirements for Retired Army Personnel (RCS: CSGPA-OT-1514).

[14] Ltr, DRXMM-TM-B, 22 Feb 79, subj: Mobilization Requirements for Retired Army Personnel (RCS: CSGPA-OT-1514).

[15] Ltr, DRCPT-SR, Manpower Management Information Requirements, 10 Apr 79; Ltr, DRCPT-SR, Manpower Management Information Requirements, 31 Aug 79.

[16] DF, DRCPT-SR, Availability of Extract Programs from Manpower Management Reporting Systems, 31 Aug 79.

Civilian Personnel Management

Career Management

(U) During FY 1979 efforts were continued to improve career management in DARCOM.

(U) The DARCOM SKAP Study. Completed in March 1979, the study was made for the purpose of identifying specific problems and developing recommendations for improvement in the Skills, Knowledge, Abilities and Personal Characteristics (SKAP) evaluation process. The results of the study were published in April 1979. There were 15 recommendations arising from the study, 12 of which had been or were being implemented. Those not yet implemented required further study at the DA level.

(U) Materiel Acquisition and Readiness Executive Development (MARED). During FY 1979 there were over 400 applicants for MARED participation, of which 146 were nominated and 75 were selected by the MARED Board. Of these 75 selectees, 8 were minority and 7 were women. This significant percentage of minority and female selectees was attributable to the personal involvement of installation commanders in insuring that DARCOM activities actively encouraged qualified minority and female nominees for MARED. The 285 people currently in MARED have, in their first three years of activity, achieved 63 promotions, 63 developmental assignments, and 626 training courses, some of which included the 19 and 20 week Logistics Executive Development and Program Management courses, as well as the Industrial College of the Armed Forces. Other significant developmental activities engaged in by MARED participants during FY 1979 were several Department of Army and Department of Defense level assignments. Additionally, the first three selectees for the newly initiated one-year ASA(RDA) Procurement Staff Development Program were MARED participants.

Position and Pay Management

(U) DARCOM Grade Control Program. The average grade program was held in abeyance. However, the end September 1979 CIVPERSINS average grade was 8.53 which was an increase of .03 over last year's 8.50. DA authorized DARCOM to test the alternative plan for civilian grade control on a selective basis. The DARCOM proposal was for baseline salary controls by organization. OMB Bulletin No. 77-11, 28 June 1977, established a program for monitoring, evaluating, and controlling increases in the average grade by reference to specific General Schedule occupations. The first group (10) of DA grade reduction targets was issued on 16 November 1977, with a general explanation of the program. As a result of this first effort and evaluation of more recent statistical data, six of the series were dropped and a group of average grade targets (9) were issued by DA

letter on 2 July 1979.[17] Of the nine grade reduction targets there were only four series in which there were significant concentrations of DARCOM population (GS-330, Digital Computer Systems Administration; GS-334, Computer Specialist; GS-1310, Physics; and GS-2005, Supply Clerical and Tech).

(U) DARCOM Reduction of Senior Level Civilian Positions Program. As of end FY 1979 the on-board high grade population GS-13 and above, including PL 313's, was 10,444, or 107 below the DA assigned ceiling of 10,551. In the FY 1978 DOD Appropriations Authorization Act, Congress levied a reduction in the number of civilian senior grade (GS-13 and above) positions proportional to the reduction of the number of general/flag officer positions for FY 1978-FY 1980 which was directed by the same legislation. This amounted to a two percent reduction for each year, and would have amounted to another two percent reduction for FY 1980. DARCOM guidance for FY 1979 was issued to subordinate commands/activities by letter in March 1979.[18] Through DARCOM initiative Congressional support was obtained and House-Senate conferees have approved an amendment to the Department of Defense Appropriation Bill which will delay implementation of the final two percent high grade reduction for one year; i.e., until 30 September 1981. The amendment was pending final approval by the House and Senate. Action was being taken by DARCOM in conjunction with Air Force and Navy Logistics Commands to develop a proposal to eliminate entirely the remaining FY 1980 two percent reduction.

(U) Grade-Level Impact of Emergency Medical Technician (EMT) Duties in Firefighter Jobs. At some activities with minimal medical facilities, firefighters were given the responsibility of performing ambulance driver/emergency medical technician duties in addition to firefighter duties. A description and evaluation of EMT duties was furnished to the field on 5 September 1979.[19] Where the EMT duties were added to a Firefighter job evaluated at GS-5, the job was to be classified as Firefighter - Emergency Medical Technician, GS-303-5. In those cases where the EMT duties were added to a Firefighter job evaluated at the GS-4 level, the job was to be classified as Emergency Medical Technician, GS-699-5, since the EMT portion of the job would constitute the higher skill level and the grade controlling portion of the job.

[17] HQDA letter 690-79-27, 2 Jul 79, subj: Position and Grade Management-Civilian Positions.

[18] Ltr, DRCPT-CP, HQ DARCOM, 9 Mar 79, subj: Reduction of Senior Level Civilian Positions.

[19] Ltr, DRCPT-CP, HQ DARCOM, 5 Sep 79, subj: Grade-Level Impact of Emergency Medical Technician (EMT) Duties in Firefighter Jobs.

Labor-Management Relations

(U) The provisions of Title VII of the Civil Service Reform Act, which made major changes in the Federal Government's labor-management relations program, became effective on 11 January 1979. Title VII of the Reform Act supersedes Executive Order 11491, as amended. This law made it imperative that negotiations at the local level be carefully coordinated with DARCOM headquarters and with headquarters DA/DOD. Also, the law shortened the period for the post-audit review of negotiated agreements by headquarters DARCOM from 45 days to 30 days. Headquarters DARCOM guidance on implementation of Title VII of the Civil Service Reform Act was issued to major subordinate commands and activities on 16 January 1979. In executing this guidance, all activities had to consult with this headquarters prior to declaring a union proposal nonnegotiable. Also, all activities had to provide a copy of the negotiated agreement as soon as it was in typed final form and prior to "sign off" by the activity and the union. Subsequently, a copy of the signed agreement, noting any differences between it and the copy previously forwarded had to be furnished as soon as possible after the "sign off." In practice, this worked very well and modifications could be made before the agreement was formally signed. In the past, modifications required as a result of the post-audit review were provided after the formal "sign off" and adverse union reaction was often a problem for local management negotiators.

Military Personnel Management

Introduction

(U) FY 1979 continued to demand unrelenting attention to coordination with MILPERCEN for timely quantitative and qualitative fill of vacancies. Maximum utilization of assigned military and civilian personnel was a daily concern in meeting the challenges of "doing more with less." Professional development opportunities were stressed to enhance quality of support to key missions. Maintaining cohesiveness simultaneously with personnel turbulence demanded supervisor command and control of human resources.

Army Continuing Education System

(U) The Basic Skills Education Program was implemented by the 10 DARCOM Education Centers as the Army's primary weapon to combat functional illiteracy among new enlistees and to reduce failures in the training base. This program was necessitated by Congressional action which precluded the continuance of the high school completion program on duty and which directed the Army to conduct only job-related courses during duty hours.[20]

[20] Information Paper, HQDA(DAAG-EDA), 10 Sep 79, subj: Army High School Completion Program.

376-617 O - 82 - 5

(U) General education program administration improved through physical rearrangement of the Dugway and Yuma Proving Grounds, Sierra and Sacramento Army Depots, and St. Louis Area Support Center education facilities and the functional reorganization of the Redstone Arsenal Education Center, all such changes being in consonance with recommendations made by this headquarters during staff assistance visits. All DARCOM Education Centers also expanded the range of study programs available for individualized study in their Learning Resource Centers. The presence of these facilities facilitated the development of civilian training learning centers on those installations having Army Education Centers, and also proved valuable in support of the quality of life program by providing self developmental opportunities for all members of the military community.

(U) One significant action was begun during FY 1979 which will culminate in April 1980; headquarters DA requested DARCOM to sponsor the 1980 DA Education Services Conference for an estimated 225 Army educators. The selection of St. Louis was made as a centrally located conference site and initial contact was established with action officers at TSARCOM and St. Louis Area Support Center to facilitate the transfer of funding from headquarters DA and the negotiation of a contract with a conference facility.[21]

Reserve Components Funding Shortage

(U) During the 4th Quarter, FY 1979, a severe funding shortage at the US Army Reserve Components Personnel and Administration Center resulted in certain limitations. A prime consequence was that approximately 80 percent of Mobilization Designee personnel scheduled for this quarter were not permitted to train, representing overall about 24 percent of DARCOM Mobilization Designees. Also, the Counterpart Training Program was terminated Army-wide for the remainder of the fiscal year. Of the 223 reserve personnel scheduled for the year, 69 were cancelled. Another result was that the Associate Logistics Executive Development Course of the US Army Logistics Management Center was cancelled, affecting approximately 361 reserve personnel.

(U) The termination of funds created problems for the individual reservist; i.e., failure to meet point requirements, and rescheduling problems with civilian employment. Further, training installations/offices were unable to utilize the reservists as scheduled and desired.

Enlisted Strength

(U) During FY 1979, the DARCOM operating strength averaged above 90 percent of authorized level. Average overall assigned strength for

[21] Ltr, HQDA(DAAG-ED), 9 May 79, subj: Army Education Conference, 1980.

FY 1979 was 6,522. During the 4th quarter, the Department of the Army Master Priority List was increased from three groups to five groups with DARCOM being placed in group four for personnel requirements.

Reenlistment

(U) DARCOM received a first-term objective of 391 and reenlisted 267 for 68 percent during FY 1979. During the same period, DARCOM received a careerist objective of 892 and reenlisted 754 for 84 percent. DARCOM's requirements for non-traditional skills which were in demand in the civilian job market appeared to be a factor which affected retention. Many soldiers came in the Army to receive training in particular skills, then leave to accept more lucrative employment with private organizations. First-term soldiers were particularly in this category. Careerists with 8 to 10 years' service felt that they did not have enough time invested in the Army to remain, and consequently decided to get out. Isolation, lack of adequate facilities, job satisfaction, and the uncertainty of the retirement system were other reasons cited by soldiers for not reenlisting.

Remote Terminal Access to DARCOM Personnel Management System

(U) At the completion of detailed system analysis and several IPR's which began in early 1978, two UNIVAC Terminal System 400 (UTS 400) were installed in September 1979 for direct access to the DARCOM Personnel Management System Data Bases at the Edgewood area. One terminal was resident in the Military Personnel Division at HQ DARCOM; the other with the Military Personnel Management Detachment at Edgewood. Forty-one members of the Military Personnel Division were taught System 2000, the query language used to operate the terminal and interact with the UNIVAC 1108 computer at Edgewood. Data bases were constructed for Officer, Enlisted and Mobilization Designees (MOBDES).

Officer Personnel Management System

(U) MILPERCEN, in coordination with all major commands, made the decision to change to an annual Officer Distribution Plan (ODP). This ODP would run on a calendar year versus fiscal year basis; the first run of the annual ODP scheduled for January 1980. October through December 1979, the interim period, was covered by extending the 4th quarter fiscal year ODP.[22]

[22] Ltr, DAPC-ODP-P, 20 Jun 79, subj: Extension of Officer Distribution Plan, 4th Quarter, Fiscal Year 1979.

(U) DARCOM was granted an excepted status in two of its most critical specialties, Research and Development (Specialty Code 51) and Procurement (SC 97). The first increment of this excepted status was in the form of a supplemental ODP allocation. A net of 60 ODP spaces and redistribution of the entire ODP resulted from the supplemental ODP along with numerous internal and DA directed changes. As a result of the supplement, the percent of ODP to authorization supported was 86. Additional ODP in SC's 51 and 97 was to be allocated and distributed during the first spread of the annual ODP in January 1980.

(U) The following was a recapitulation of the year ending strengths for the command (LTC through WO3):

Authorizations:	3267		
ODP:	2821	Percent ODP to Authorization:	86%
Assigned:	2666	Percent assigned to Authorization:	95%

Schools Management

Introduction

(U) It had been estimated that as a result of manpower cuts during FY 1979, DARCOM schools would not be able to provide sufficient training to satisfy requirements. However, by increasing instructor platform hours and the on-site mode of instruction, DARCOM schools trained 37,458 persons during FY 1979, 5 percent above FY 1978 training accomplishment.

US Army Management Engineering Training Activity

(U) On 15 September 1979, a fire occurred in Building 90 at Rock Island Arsenal.[23] Building 90 was the main building of AMETA, and contained offices, classrooms and an auditorium. Severe fire damage occurred in the basement where the fire started. Also severely damaged from intense heat was the center portion of the three story structure. This building of 40,680 square feet was constructed by prisoners of the Civil War. Efforts were undertaken to restore this historic building at an estimated cost of $750,000.

(U) AMETA lost only one day of operation due to this fire. Temporary classroom space was provided by Rock Island Arsenal and the US Naval Reserve. Additionally, AMETA has scheduled more on-site classes.

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[23] MFR, DRCIS "SITREP on Fire at AMETA," 20 Sep 79.

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DARCOM SCHOOLS
ATTENDANCE BY TYPE COURSE
FY 1979

SCHOOL	RESIDENT	ON-SITE	CORRESPONDENCE	TOTAL
ALMC	7,684	6,276	5,372	19,332
AMETA	5,428	5,358	32	10,818
AMMO	1,668	609	0	2,277
JMPTC	1,958	1,640	1,433	5,031
TOTAL	16,738	13,883	6,837	37,458

UNCLASSIFIED

DARCOM SCHOOLS
ATTENDANCE BY MAJOR USER
FY 1979

SCHOOL	OTHER ARMY	DARCOM	OTHER SERVICES	NON-DOD	TOTAL
ALMC	6,482	7,056	5,344	450	19,332
AMETA	1,503	5,556	3,467	292	10,818
AMMO	501	1,631	98	47	2,277
JMPTC	1,568	584	2,541	338	5,031
TOTAL	10,054	14,827	11,450	1,127	37,458

DARCOM SCHOOLS
ATTENDANCE BY TYPE PERSONNEL
FY 1979

SCHOOL	MILITARY	CIVILIAN	TOTAL
ALMC	4,838	14,494	19,332
AMETA	975	9,843	10,818
AMMO	378	1,899	2,277
JMPTC	2,406	2,625	5,031
TOTAL	8,597	28,861	37,458

UNCLASSIFIED

UNCLASSIFIED

Education and Training Career Program

(U) During Career Week (13-17 August 1979) two presentations were offered to a total audience of 24 persons interested in the Education and Training (E&T) Career Intern Program. A brief overview of the E&T Career Field was presented to the participants. However, it was indicated that the input into the program is small or non-existent (only one intern in FY 1978).

Military Equal Opportunity Program

Introduction

(U) FY 1979 saw significant changes and improvements in the overall management of the DARCOM Equal Opportunity (EO) program and the development of an organizational structure which combined the efforts of the military and civilian Equal Opportunity programs. DARCOM EO policies and reporting procedures which were under study in FY 1978 were completed in FY 1979 resulting in the consolidation of numerous regulations into one policy document. Efforts were directed in FY 1979 toward increasing the assistance provided by the command EO Office to subordinate activities whose EO programs are staffed on an additional duty basis. Contributing to a more effective management of DARCOM equal opportunity efforts were the issues that surfaced at the annual PT&FD Conference in January 1979, assistance visits to all depots, publication of a monthly information letter, and consolidation of policy documents. The final approach in FY 1979 for a realignment in FY 1980 of the command military and civilian EO offices into one organization increased the cooperation and joint efforts during FY 1979 and held the potential for increased effectiveness in FY 1980.

Equal Opportunity Program Guidance

(U) Publication of DA Pamphlet 600-26, The Department of the Army Affirmative Actions Plan, in October 1978 and the analysis of the FY 1978 results of DARCOM's improved statistical measurements resulted in the need to revise the reporting requirements. This opportunity was also used to review other DARCOM regulations and resulted in the rescinding of DARCOM-R 600-3, DARCOM Race Relations/Equal Opportunity and Equal Employment Opportunity Orientation and Training Program, 12 July 1977; DARCOM-R 600-4, DARCOM Equal Opportunity Narrative and Statistical Report (RCS DRCPT-304), 7 June 1978; and DARCOM Suppl 1 to AR 600-21, Equal Opportunity Program in the Army, 26 August 1977; and the consolidating of all policies and reporting requirements into a

new DARCOM Suppl 1 to AR 600-21.[24] Through the participation of subordinate commands, the resulting supplement not only became the only reference document needed to cover policy and reporting matters but it also accurately reflected the diversified needs of the various commands and activities within DARCOM. Flexibility was allowed for subordinate commands to specify their own implementing policies, therefore supplementation at the major subordinate commands and depot level was required.

(U) Publication of the new Army AAP also resulted in the publication of DARCOM Pamphlet 600-26, DARCOM Affirmative Actions Plan, July 1979. Although the new DARCOM plan updated the previous edition, the principal change was conversion to the pamphlet format. This allowed for more uniform distribution and standardized and simplified procedures for future updates.

Staff Assistance

(U) Staff assistance in FY 1979 was oriented toward those DARCOM activities which had part-time EO staffs. Efforts in this regard included staff visits to each activity by a Defense Race Relations Institute (DRRI)-trained headquarters staff member.[25] The emphasis during these visits was on assistance rather than inspection and resulted in both an improved rapport with part-time personnel and more

[24](a) DARCOM Regulation 600-4, DARCOM Equal Opportunity Narrative and Statistical Report (RCS DRCPT-304) 7 Jun 78; (b) DARCOM Regulation 600-3, DARCOM Race Relations/Equal Opportunity and Equal Employment Opportunity Orientation and Training Program, 12 Jul 77; (c) DARCOM Affirmative Actions Plan, 24 Feb 78; (d) DA Pamphlet 600-26, The Department of the Army Affirmative Actions Plan, 1 Oct 78; (e) DARCOM Pamphlet 600-26, DARCOM Affirmative Actions Plan; (f) DARCOM Suppl 1 to AR 600-21, Equal Opportunity Program in the Army, 26 Aug 77; (g) DARCOM Suppl 1 to AR 600-21, Equal Opportunity Program in the Army, 4 May 79.

[25]Ltr, DRCPT-R, Trip Report - DARCOM EO Staff Assistance Visit to MIRCOM, 2 Oct 78; (b) Memo for Record - EO Staff Assistance Visit to LEAD, 6 Mar 79; (c) Memo for Record - DARCOM EO Staff Assistance Visit to RRAD, 23 Mar 79; (d) Memo for Record - Staff Assistance Visit to SAAD, 24 Apr 79; (e) Ltr, DRCPT-R, DARCOM EO Staff Assistance Visit to CCAD, 19 Mar 79; (f) DRCPT-R, Memo for Record - Staff Assistance Visit to TOAD, 12 Apr 79; (g) DRCPT-R, Memo for Record - Staff Assistance Visit to NCAD, 12 Apr 79; (h) Memo for Record - Staff Assistance Visit to SHAD, 24 Apr 79; (i) Memo for Record - Staff Assistance Visit to SIAD, 24 Apr 79; (j) Memo for Record - Staff Assistance Visit to TEAD, 24 Apr 79; (k) DRCPT-R Memo for Record - Staff Assistance Visit to ANAD, 12 Jun 79; (l) DRCPT-R, Memo for Record - Staff Assistance Visit to TARCOM, 2 Jul 79; (m) Memo for Record - Staff Assistance Visit to SEAD, 5 Jun 79.

professionally managed EO programs. Assistance was also provided through the publication of monthly informational letters.[26] These letters included articles on current court decisions affecting equal opportunity, availability of professional development courses, reviews of films and books and other materials for improving program management. Also through this medium EO staffs shared their training and program ideas with EO staffs throughout the command.

Alcohol and Drug Abuse Office

Introduction

(U) The Alcohol and Drug Abuse Prevention Program continued the highly successful trend upward during FY 1979 in accomplishing its objectives of prevention, identification and rehabilitation. With the Command emphasis given to field programs and their response to this emphasis, FY 1979 marked the highest rate of admissions for civilians since the inception of the program. This increase was spread throughout the Command.

Prevention and Education

(U) During FY 1979 the prevention and education phase of the program shifted from emphasis on nonsupervisors to supervisory personnel for two reasons: (1) to give relief to the program staff and also to give consideration to the cost, (2) to impact on program admission. The goal for supervisory training was increased from 50 to 80 percent which was easily surpassed.

Identification and Rehabilitation

(U) There was a total of 506 civilians admitted to the program during FY 1979 which marked the highest rate of admissions since the inception. The completion rate for FY 1979 was 70 percent. Woman admissions increased this year to 1.5 per 1000 versus .7 for FY 1978.

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[26] (a) Ltr, DRCPT-R, Idea Exchange, 14 Feb 79; (b) Ltr, DRCPT-R, Idea Exchange #2, 21 Mar 79; (c) Ltr, DRCPT-R, Idea Exchange #3, 29 Apr 79; (d) Ltr, Idea Exchange #4, 23 May 79; (e) Ltr, DRCPT-R, Idea Exchange #5, 18 Jun 79; (f) Ltr, DRCPT-R, Idea Exchange #6, 17 Jul 79; (g) Ltr, DRCPT-R, Idea Exchange #7, 23 Aug 79; (h) Ltr, DRCPT-R, Idea Exchange #8, 19 Sep 79; (i) Ltr, DRCPT-R, Idea Exchange #9, 22 Oct 79.

Organizational and Personnel Management

Introduction

(U) During FY 1979, Headquarters DARCOM successfully completed DA directed reductions to attain National Capital Region (NCR) and Army Management Headquarters Activities (AMHA) goals.

Organization Changes

(U) As directed by DA, an Associate Director for Battlefield Automation Management was established in the Directorate for Development and Engineering in FY 1979.[27]

(U) On 5 March 1979, DA directed the Associate Director of Procurement Management Review function and staff, in the Directorate for Procurement and Production, be redesignated a field operating agency of the Office, Assistant Secretary of the Army (ROA), effective 1 April 1979.[28] During FY 1979 the following major changes occurred within Headquarters DARCOM:

(U) The Special Assistants for Chemical Surety and Nuclear Surety in the Deputy Commanding General for Materiel Readiness (DCGMR) organization were disestablished and a Nuclear/Chemical Office was established as a special staff office reporting to the Chief of Staff, DARCOM.

(U) The Systems Assessment Division was established in the Directorate for Quality Assurance.

(U) The Associate Director for Prepositioning of Materiel Configured Unit Sets (POMCUS) was established in the Directorate for Readiness.

(U) The Department of Defense Materiel Distribution System Office (DODMDS), Directorate for Plans, Doctrine and Systems was disestablished.

(U) The Environmental Quality Office, Directorate for Plans and Analysis was transferred to the Directorate for Installations and Services.

(U) The Military Plans and Operations Division, Directorate for Plans and Analysis was transferred to the Directorate for Plans, Doctrine and Systems.

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[27](a) DA TWX, 14 Apr 78, subj: Automation Interoperability System Engineering; (b) Ltr, DAMA-CSC, 21 Jun 76, subj: Management of Computer Resources in Major Defense Systems.

[28]HQDA ltr 715-79-1, SAAA-SS(M), 5 Mar 79, subj: Redesignation and Transfer of Procurement Management Review Function.

(U) The Commercial and Industrial-Type Activity (CITA) function was transferred from Directorate for Installations and Services to Directorate for Plans and Analysis.

Civilian Personnel Management

(U) In January 1979, Headquarters Civilian Personnel began to establish a learning resource center for the headquarters which would assist management in developing and maintaining a well trained work force in spite of expected dwindling of future resources. The project came to a reality on 17 August 1979 when the Headquarters DARCOM Learning Resource Center opened its doors. The learning center was open 10 hours daily to accommodate employees who needed training on duty for work-related purposes and to employees who wished to take advantage of self-developmental opportunities off duty.

(U) Courses covered a wide range of topics including secretarial, supervisory, and management development. In the future, emphasis was to be placed on developing programs directly related to occupations which existed in Headquarters DARCOM in order to move closer to the goal of maintaining a well trained work force.

Military Personnel Management

(U) Officer Evaluation Reports. Early in the year of 1979 the Military Personnel Center announced it would institute a new Officer Evaluation Reporting System. Responsibility for the implementation of the new system throughout DARCOM was given to Headquarters Military Personnel Office. The new system involved a major change in the designation of rating officials, and introduced three new forms to replace the current one. During the period 15 September to 31 October 1979, every officer in DARCOM will receive one last report under the current system, and on 1 November 1979 DARCOM will be under the new system.

(U) Affirmative Actions Plan. During FY 1979 the Headquarters DARCOM Affirmative Actions Plan was reviewed to identify areas requiring revision. The current Affirmative Action Plan expires in December 1980. A revised Affirmative Actions Plan was developed and scheduled for publication in January 1980. Major areas under revision were the Equal Opportunity monitoring system and the Education and Training Program. New procedures were developed for monitoring Headquarters DARCOM's accomplishments of the Affirmative Actions Plan goals and objectives. The Education and Training Program was redesigned to incorporate an executive-level training session.

Comptroller

Introduction

(U) Major General Elton J. Delaune, Jr. was designated Comptroller in December 1978 replacing Brigadier General Alfred J. Cade who retired.

(U) During FY 1979, the major objective of the Comptroller Directorate was to improve the financial management and the administrative control of funds throughout DARCOM. Some of the major projects utilized to accomplish this objective included the development and maintenance of a Funds Control System; development and establishment of policy for contingency reserves; assisting the DCG for Resource Management in support of the DA Steering Group relative to improvement in managing resources; and maintaining a balanced workforce in conformance with the DARCOM EEO Affirmative Action Plan.

(U) Major improvements consisted of actions to automate aspects of financial management to encompass finance and accounting, funds control, budgeting and resource management. Other actions included continued development of the Command Performance Indicator Review (CPIR) reflecting the Commander's concern for overall management improvement of Development, Readiness and Resources Programs throughout the Command. Also, Comptroller conferences and workshops were held to assure coordination and dissemination of financial and accounting policies and procedures throughout the Command.

(U) In May 1979, the Comptroller initiated a series of actions to improve performance management for Comptroller organizations and individuals in DARCOM, including key steps towards implementing changes in the evaluation processes arising from the Civil Service Reform Act (CSRA) of 1978, and the revisions in the Officer Evaluation Reporting System (OERS). Meetings, surveys of values, and other actions led to a Comptroller Performance Management Workshop on 21-23 September 1979 with products which included draft statements of values, norms, missions and objectives. These actions proved to be in line with the latest developments in performance management at Headquarters DARCOM and Headquarters DA.

(U) As the fiscal year drew to a close, special attention was focused on year-end certifications; on re-evaluating missions, goals and objectives; and on reaffirming the Comptroller's support of affirmative action in EEO. Special effort was also placed on enhancing the automation of budget, reporting and other financial processes to improve planning and management.

(U) Career Management Office. During FY 1979 the Comptroller Career program functions were transferred from Management Review and

Analysis Division to Office of the Comptroller. The functions of the Career Management Office included the management of the various training Comptroller programs for Headquarters DARCOM and subordinate commands, the DARCOM intern program, and general program management including the Skills, Knowledge, Abilities and Personal Characteristics System (SKAP). This organization should provide an improved career management program. The goals and objectives of the career programs for FY 1980 were: improved professionalism/competence of the DARCOM Comptroller workforce; improved personnel management; and equal opportunity for all.

(U) Resources and Programs. Despite the late receipt of $5.8 million due to a reprograming action, the FY 1979 OMA program was executed in a successful manner. Approximately 99.9 percent of the $2.6 billion available in OMA was obligated. This was attributed to positive actions taken by Headquarters DARCOM and by subordinate commands and activities.

(U) The FY 1981-1985 Program Analysis and Resource Review (PARR) was submitted to HQDA in January 1979. In addition, a new program/budget document, the Program and Budget Estimate (PABE), was submitted to DA in March 1979. The PARR and PABE submissions resulted in an increase of $180 million in DARCOM FY 1981 OMA funding.

(U) The FY 1980/81 Command Operating Budget (COB) which was submitted to DA in July 1979 displayed dollar and manpower data in a single funding level based on DA guidance and eliminating much of the detail in the previous year's Command operating Budget Estimate. The FY 1980/81 COB included a 64 page Executive Summary of the OMA program.

(U) Cost Analysis. Extensive effort was placed on review and validation of weapon system cost estimates, including Logistics Command Assessment of Projects (LOGCAP), Review and Command Assessment of Projects (RECAP)Department of the Army Program Reports (DAPR), Independent Parametic Cost Estimates (IPCE), and Baseline Cost Estimates (BCE). Input or support was provided for the FY 1981 Military Construction Army (MCA) Program, the Army Cost Estimating and Monitorship Subcommittee, the BLACK HAWK Depot Maintenance Study, the XM1 Facilitization Study, the Weapon System Resource Summary, and the updating of the Deobligation Forecast Model. In addition, a contract was awarded for the development of a Detailed Functional Description for the Operating and Support Cost Management Information System (O&SCMIS).

(U) Finance and Accounting. The Finance and Accounting Division's major emphasis during FY 1979 was directed toward enhancing the finance and accounting framework to effect a more efficient utilization of resources. The accomplishment of this major effort was evidenced under the topical actions: Depot maintenance cost accounting, the Army Customer Order Control System, Fast Payback Investments, DARCOM Standard Accounting Systems, Program and Fund Control System, Arthur Young and Company, and DARCOM APARS office.

APA FUNDING
FY 1979
(MISSIONS OF DOLLARS)
(DIRECT AND REIMBURSABLE)

As of 30 Sep 79

FISCAL YEAR	Aircraft (2031)	Missile (2032)	Weapons & Tracked Vehicles (2033)	Ammunition (2034)	Other (2035)	TOTAL
Available						
77	47.4	23.5	91.4	100.7	162.2	425.2
78	115.1	95.2	192.0	286.2	526.7	1,215.2
79	1,001.8	1,167.9	1,909.3	1,632.9	1,669.4	7,381.3
TOTAL	1,164.3	1,286.6	2,192.7	2,019.8	2,358.3	9,021.7
Obligated						
77	32.4	11.1	52.9	52.0	102.5	250.9
78	84.4	74.2	94.9	127.0	368.6	749.1
79	837.9	968.1	1,714.7	1,322.0	1,312.2	6,154.9
TOTAL	954.7	1,053.4	1,862.5	1,501.0	1,783.3	7,154.9
Unobligated						
77	15.0	12.4	38.5	48.7	59.7	174.3
78	30.7	21.0	97.1	159.2	158.1	466.1
79	163.9	199.8	194.6	310.9	357.2	1,226.4
TOTAL	209.6	233.2	330.2	518.8	575.0	1,866.8

O&MA FUNDING
FY 1979
(MILLIONS OF DOLLARS)

As of 30 Sep 79

Appropriation	Direct	Reimbursable	Total
Available			
Central Supply Activities (Program 7S)	1,131.9	191.7	1,323.6
Depot Materiel Maintenance & Support Activities (Program 7M)	952.9	80.6	1,033.5
Support of Other Nations (Program P10)	--	105.6	105.6
Other Programs	142.1	30.8	172.9
Total	2,226.9	408.7	2,635.6
Obligated	2,225.2	408.7	2,633.9
Unobligated	1.7	0	1.7

RDT&E FUNDING
FY 1979
(MILLIONS OF DOLLARS)

As of 30 Sep 79

	FISCAL YEAR	DIRECT	REIMBURSABLE	TOTAL
Available	78	119.4	51.4	170.8
	79	2,160.0	404.2	2,564.2
	Total	2,279.4	455.6	2,735.0
Obligated	78	118.6	49.1	167.7
	79	2,055.7	323.4	2,379.1
	Total	2,174.3	372.5	2,546.8
Unobligated	78	.8	2.3	3.1
	79	104.3	80.8	185.1
	Total	105.1	83.1	188.2

DARCOM DIVISION, ARMY STOCK FUND
FY 1979
(MILLIONS OF DOLLARS)

As of 30 Sep 79

	PROGRAM	TOTAL
Obligation - End of FY	1,154.0	1,134.5
Sales	1,009.7	891.5
Collections	1,018.6	896.8
Cash	248.3	262.6
Accounts Receivable	49.1	59.8
Inventory	1,953.0	2,124.8

376-617 O - 82 - 6

Resources and Programs

(U) Programing. On 31 January 1979 the Program Analysis Resource Review (PARR) was submitted to DA. PARR was used to express to DA this Command's total resource requirements for the FY 1981-1985 POM development period. The fundamental decision unit used for expressing these requirements was the Program Development Increment Package (PDIP). PDIP was a multi-appropriation document that represented total requirements but addressed only the Command's unfinanced requirements.

(U) For the first time ever, a new program/budget document, the Program and Budget Estimate (PABE), was submitted to DA on 15 March 1979. The PABE was a refinement of the PARR and addresses only those unfinanced requirements remaining in competition for Army resources.

(U) As a result of the enhanced presentation of requirements in these documents, DARCOM gained $180 million in FY 1981 in the Operation and Maintenance, Army (OMA) appropriation.

(U) DA Obligation Plan, RCS DD Comp (M) 1442. In compliance with a DA request, DARCOM submitted a monthly obligation plan for all approved programs and funds. Based on field projections, the initial plans were forwarded to DA on 8 December 1978. The OMA obligation plan was prepared in accordance with the automated reporting requirements of DARCOM Circular 37-1.

(U) DA requested subsequent updates of the initial plans to reflect funding changes made by OSD/OMB during the review of the FY 1980 budget. Consequently, DARCOM submitted a revised OMA plan on 2 February 1979 which reflected net increases of $10 million in direct and $10 million in funded reimbursable obligations from the initial plan. The final direct and reimbursable OMA obligation plan to DA/OSD totalled $2.612 billion.

(U) Actual performance against the plans was intensively monitored on a monthly basis, and a deviation analysis was furnished to DA when obligations were not within $5 million or five percent of the plan.

(U) DARCOM executed the total OMA program substantially as projected in the plan. Overall performance throughout the fiscal year was outstanding, and DARCOM exceeded the FY 1979 plan by one percent.

(U) Year-end Funding Procedures. DARCOM issued year-end funding procedures for OMA funds on 1 August 1979. Three formal status reports were required. The first report was submitted as of 15 August 1979, with two follow-on reports during September 1979. These reports covered unfinanced requirements, excess funds, and reimbursable earnings from the International Logistics Program and non-Army customers.

The DARCOM Staff reviewed field submissions, prioritized requirements, and submitted to DA its hard-core requirements for year-end funding. In addition, during the last 10 days of FY 1979, regular conference calls were made to the activities which were the major users of OMA funds. Data for all field elements were maintained on unobligated balances, critical deficiencies, and excess funds. Funding adjustments were made daily and field elements having special problems were provided staff assistance. Due to this close monitoring and control of funds, the FY 1979 direct OMA unobligated balance was $1.6 million and total obligations were 99.9 percent of available funding.

(U) Scope of Army Industrial Fund (AIF) Operations. DARCOM operated the following installations and activities during FY 1979 under the AIF system: two subordinate commands, seven arsenals, eleven depots, and four research and development facilities. The FY 1979 AIF operating program totalled $2.1 billion.

(U) In order to implement a uniform financial system in the area of DARCOM testing operations, a study was completed and approved by OSD to remove Aberdeen Proving Ground and Dugway Proving Ground from the AIF system effective 1 October 1979 (FY 1980).

(U) FY 1980 AIF Annual Budget. The FY 1980 Budget Estimates, as submitted to DA, reflected the following operating data:

(MILLIONS OF DOLLARS)

	FY 78 ACTUAL	FY 79 ESTIMATE	FY 80 ESTIMATE
Orders	$ 2,214.2	$ 2,084.6	$ 2,166.6
Revenue	2,041.8	2,155.6	2,203.5
Costs	2,073.0	2,203.0	2,201.2
Civilian End Strength	67,274	65,366	61,912
Civilian Man-Years	66,760	66,713	63,351

Adjustments subsequently made by DA and the Program Budget Decisions issued by OSD resulted in the following budget estimates:

	FY 79	FY 80
Orders	$ 2,084.6	$ 2,128.8
Revenue	2,189.4	2,177.4
Costs	2,199.1	2,142.6
Civilian End Strength	63,131	59,115
Civilian Man-Years	66,580	62,254

(U) First Destination Transportation (FDT). Beginning in FY 1979, FDT was partially transferred from the Procurement Appropriations (PA) to the OMA appropriation. Transportation costs associated with a particular weapons system and those included as part of the contractor's responsibility (FOB destination) remained in the PA accounts. As this program was considered a "special interest item," all resources were "fenced," precluding any reprograming by this Command. This restriction compounded problems of forecasting and scheduling deliveries under the new FTD funding procedures and gave rise to problems in accounting for Defense Logistics Agency and Foreign Military Sales transactions.

(U) FY 1979 OMA Overprograming. The FY 1979 OMA Program and Budget Guidance issued to DARCOM subordinate commands and activities contained overprograming of $5.8 million. This overprograming was based on a request to Congress to reprogram funds from the Procurement of Ammunition, Army (PAA), to the OMA appropriation in order to finance the storage of field and industrial stocks at certain Government-Owned Contractor-Operated Army ammunition plants. This was done because the House Appropriations Committee had determined that effective in FY 1979, OMA would fund the storage of such stocks in plants where active production was less than 50 percent of capacity, while PAA would continue to fund the balance. While Congressional approval of the transfer was not received until 24 September 1979, the delay did not prevent the full obligation of funds.

(U) Management of Contingency Funds of the Secretary of the Army. In May 1979, DARCOM was advised that Contingency Fund Limitarion .012 was needed at DA. Following a review at Headquarters DARCOM and subordinate commands, DA was advised that $6,000 was excess to requirements, leaving a total DARCOM program of $19,000.

Cost Analysis

(U) Weapon System Resource Summary (WSRS). Cost Analysis developed this WSRS in order to organize and display the pertinent resource data that was vital to the financial management of Army weapon systems. This computerized data base consisted of cost and manpower resources devoted to each of the 64 major Army weapon systems, including both fielded systems and those still in research and development. For each system, the data base contained both dollar and manpower resources by appropriation for each fiscal year from 1978 to 1985 as reflected in the BCE, Program Objective Memorandum, President's Budget and Congressionally approved budgets. Unfunded requirements were displayed in each instance.

(U) Inflation Guidance. Two consolidated inflation guidance letters were issued in FY 1979. The first, dated 17 May 1979, replaced guidance of July and August 1978. Revised indices were issued in a

second guidance letter dated 17 September 1979, which superseded the first. These newer inflation rates were to be used in the development of cost estimates in FY 1979, 1980, and 1981 constant dollars and preparation of Product Improvement Management Information Reports, as well as being reflected in the FY 1981 Budget submission.

(U) FY 1982 MCA Program. The FY 1982 DARCOM MCA Program was presented by the D/I&S to the Program Budget Advisory Committee (PBAC) for approval on 16 July 1979. It contained 40 projects consisting of three categories: Mission Support (9), Air and Water Pollution Control (21) and Energy Conservation (10). Each of the projects was reviewed by this office relative to the application and acceptability of economic analysis (EA). Based on the review, the following statistical summary was compiled:

	Number	Percentage
Projects	40	-
EA Application	40	100
Adequate Application	40	100
Revision Required	0	0
Initial EA Required	0	0

(U) Defense Logistics Agency (DLA) Proposal on Item Management of Consumables. A joint military services study group was formed in January 1979 to evaluate a DLA proposal to assume inventory management responsibility for all consumable items. A mini-economic analysis of the DLA proposal was prepared by this office and incorporated into the DARCOM response to DCSLOG. The analysis concluded that the projected DLA savings of 4912 spaces and $124 million annually was based on erroneous assumptions and badly outdated personnel, cost and workload data.

(U) Division 86 Study. The Division 86 Study in FY 1979 largely involved obtaining new requested cost information requested by TARADCOM. Building upon the effort started with the Division Restructuring Evaluation (DRE) in 1978, the Combined Arms Combat Developments Activity (CACDA) enlarged this effort to optimize the personnel/equipment allocations to the heavy division in April 1979. Only a few difficult equipment items remained to be completed in DRE; however, Headquarters TRADOC/CACDA requested that costs be revalidated and that DRE items previously expressed in FY 1979 dollars be restated in FY 1980 dollars. A costing format, discarded by CACDA, DARCOM and COA in the DRE study and reinstated in the Division 86 Study, increased requirements for DARCOM cost/logistic data. This requirement was being reviewed by CACDA and DARCOM Cost Analysis to minimize effort where possible. The expected impact of Corps 86 and other similar studies following the Division 86 effort necessitate this review.

(U) Army Cost Estimating and Monitorship Subcommittee (CE&MS). Under the direction of the Assitant Secretary of the Army, the CE&MS

conducted an assessment of the contribution of existing cost estimating procedures to cost growth of major weapons/projects. The purpose of the assessment was to isolate cost growth due to program changes from that due to the inherent predicting inaccuracy of the cost methodology. This office provided the committee BCE's using the original methodology with current program parameters and assessments of these new estimates for 10 major weapon systems. In addition, a full-time member was provided to the study group.

(U) Army Aircraft Avionics Study (A^3S). This study was initiated by TRADOC during FY 1979 to determine the Communications, Navigation, Identification and Instrumentation (CNII) requirements and types of systems for Army aviation in combat operations into the 1990's. Proliferation of Army aircraft CNII equipment resulted in inadequate standardization and commonality of equipment. Further, the CNII equipment was not suitable for a mid-intensity environment. This division recommended to TRADOC a framework for the management and control of cost data needed to support the study. Cost data from DARCOM was expected to be extensive. The A^3S is scheduled for completion in the latter half of CY 1980.

(U) LOGCAP's. LOGCAP's were prepared to provide timely review of acquisition programs, including consideration of Integrated Logistics Support, identification of "supportability issues," and meeting of operational and readiness requirements prior to deployment. LOGCAP reviews during FY 1979 included the following systems:

VIPER	SEMA	M224 MORTAR
GLLD	ROLAND	TSC-85
ASE	BLACK HAWK	TSC-93
COBRA	PATRIOT	TSC-86
M113 FAMILY	TSQ-73	SANG

(U) RECAP and DAPR Presentations. RECAP's and DAPR's covering technical performance, schedule and cost information on selected systems were prepared by the Project Managers to provide timely program review by higher authorities. RECAP's were submitted to the Headquarters DARCOM level and DAPR's to Headquarters DA because of special interest in those projects at those levels. During FY 1979, CH-47 Modernization Program, PATRIOT, BLACK HAWK and High Energy Systems were under the DAPR system and the projects listed below under the RECAP system:

HELLFIRE	MPBME	TOS/GAMO
GSRS	DSCS	ATACS
COBRA	FVS	SANG
SEMA	NUC MUN	LANCE

ASE	PLRS/JTIDS	DCS (ARMY)
CHAP/FAAR	MSCS	FAMECE
STINGER	SINCGARS	XM915
GPS (NAVSTAR)	2.75 ROCKET SYSTEM	TRADE
GMFSC	TOW & DRAGON	TSQ-73/TAC/TADS
HET	AAH	REMBASS
NAVCON	FIREFINDER	

(U) IPCE's. DOD policies governing the materiel acquisition process required an Independent Parametric Cost Estimate (IPCE) for each major weapon system undergoing a milestone review by the Defense Systems Acquisition Review Council (DSARC). Additionally, selected IPR systems require an Independent Cost Estimate (ICE) for systems undergoing a review by the Army Systems Acquisition Review Council (ASARC). The IPCE or ICE was used to assess the reasonableness of the PM's estimate of the cost resources required to complete the program. IPCE/ICE activity during FY 1979 included the following systems:

Completed

GPS (NAVSTAR)	PERSHING	ROLAND
FVS	STINGER	BLACK HAWK
M113	HELLFIRE	COPPERHEAD
XM1	ASH	DIVAD
TOS		

In Process

SATCOM	AAH
XM1 (Update)	PATRIOT
AN/TTC-39	GSRS

BCE's and BCE Reassessments

(U) Baseline Cost Estimates (BCE) normally were prepared by the Project Management Offices and reviewed and coordinated by the Cost Analysis Offices at the major subordinate commands and Headquarters DARCOM. BCE's formed the basis for the audit trail/track throughout the life cycle of a weapon system. Reassessments were made at major decision points and tracked to the initial BCE. The following systems required BCE's or reassessments during FY 1979:

Completed

GPS (NAVSTAR)	AN/TTC-39	FVS
ITV	TACV (TRUCKS)	XM1
TOS	COPPERHEAD	FAMECE
DIVAD	UET	ITV
RPV	BLACK HAWK	STINGER
HELLFIRE	ASH	ROLAND
PERSHING		

In Process

SATCOM	PATRIOT	XM1 (Update)
AAH	GSRS	

(U) Selected Acquisition Reports (SAR). SAR's were standard, comprehensive, summary status reports on major defense systems, prepared for management within the Department of Defense and for submission to Congress and other Government Agencies. SAR's were required for all programs designated as major defense systems by the Secretary of Defense, but were usually limited to those systems for which Five Year Defense Program estimates required total cumulative financing for Research, Development, Test and Evaluation in excess of $50 million or cumulative production investment in excess of $200 million. SAR's summarized current estimates of technical schedules, quantity, and cost information. They were normally prepared by the Project Management Offices and reviewed and coordinated by the major subordinate command's Cost Analysis Offices and Headquarters DARCOM. The following major systems were under SAR reporting during FY 1979:

ROLAND	PATRIOT	HELLFIRE	PERSHING
GSRS	AAH	STINGER	CH-47 MODERNIZATION
BLACK HAWK	TACFIRE	IFV	DIVAD
COPPERHEAD	XM1 TANK	AN/TTC-39	M198

Finance and Accounting

(U) The Army Customer Order Control System (ACOCS). Directed by OSD to establish ACOCS, a major effort was devoted to its development and installation during FY 1979. All major subordinate commands were involved in this system and training effort. As a result of this, major accomplishments were achieved, and the ACOCS became the Official Customer Order Control System for the Army on 1 October 1979. ACOCS was being accepted as a DOD-wide system and accordingly, it had a number of advantages not only to the Army/DARCOM, but also to other services. ACOCS was a real time reporting system providing DARCOM immediate access to a picture of what an FMS reimbursable case looked like and what obligational authority DARCOM had against this type of case. It was anticipated that in FY 1980 and in future years there would be many improvements to ACOCS, required to cover those FMS cases on either a direct cite or a reimbursable basis.

(U) Financial Review of FMS Cases in Support of the Saudi Arabia National Guard (SANG) Modernization Program. A review of subject FMS cases was made at the request of the Project Manager (OPM) Saudi Arabia National Guard (SANG) Modernization Program during the period April-May 1979. This review was made for the purpose of determining total costs of the US Government; identifying all billing problems; corrective actions required, and to consider the need for a fiscal station with OPM, SANG for attaining financial control. The scope of this review

included examination of the financial records, reports and documents of the Project Manager's Office (PMO) and USASAC, New Cumberland. As a result of this review, additional billings were determined to be justified and were processed. In addition to the above findings, the review team concluded that it was not appropriate, at that time, to establish a fiscal station in Saudi Arabia.

(U) One Percent Assets Use Charge For Stock Issues to FMS Customers. Interim Change 101 to AR 37-60, 15 December 1978, implemented the requirement to add a one percent asset use charge to the standard inventory price of procurement secondary and stock fund items. Accordingly, initial steps were taken to implement the system changes needed within the Commodity Command Standard Systems (CCSS) through issuance of System Change Requests. However, DA/OSD were requested by this office to authorize SAAC to directly apply this charge as a "below-the-line" cost on each FMS case. Ultimately, approval for SAAC to apply this charge was received, and SAAC began in June 1979 to apply a one percent asset use charge for stock issues to FMS customers. On 28 August 1979, ALMSA was advised to cancel our System Change Request to modify CCSS. Consequently, the requirement to include a one percent asset use charge for stock issues to FMS customers is being accomplished by the SAAC with minimal impact on DARCOM resources.

(U) Removal of Second Destination Transportation Surcharge from Standard Prices of Stock Fund Materiel. Interim Change 101 to AR 37-60, 15 December 1978, implemented the requirement that nonexcess stock fund materiel be sold to FMS customers at standard prices less the second destination transportation surcharge. The intent of this requirement was to provide for the maximum use of FMS funds in the transportation of materiel sold to FMS customers. In May 1979, actions were taken to implement the systems changes needed within CCSS. Based upon workload factors at ALMSA, the requested change was scheduled for implementation in November 1979; however, at SAAC's request, the implementation was rescheduled to May 1980. When implemented, guidance to the field will be provided requiring the use of collect commercial bill's of lading (CCBL) to the maximum extent possible and discontinuing the citation of Army stock funds on GBL's used for FMS shipments.

(U) Submission of Bills for Logistics Support to United Nations (UN) Peacekeeping Forces. In accordance with DA Pam 700-15, all billing documents for logistics support to UN Peacekeeping Forces were submitted to DRCCP-FP for review and for fiscal control prior to being forwarded through USAFAC to the UN for payment. Also, all follow-up correspondence on unpaid UN bills was submitted to DRCCP-FP. The volume of subject correspondence and the review and analysis required prior to appropriate action consumed about 25-35 percent of one man-year. Concern of the various suppliers was evident because of the quantity of long outstanding accounts receivable balances which required

follow-up. Also, concern was expressed by the UN over the delay in being billed for its requisitions submitted. Increased emphasis during FY 1979 on the reconciliation between bills submitted through DRCCP-FP and the bills paid by the UN resulted in the UN closing out a large volume of requisitions issued prior to 1979. Also, it was determined that the pricing of logistics support to the UN by individual billing activities had not always been in complete compliance with DA Pam 700-15. DA Pam 700-15 required pricing in accordance with AR 37-60. Issuance of clarifying guidance was tentatively scheduled for release by DRCCP-FP on or about 1 November 1979.

(U) Reconciliation of Headquarters DARCOM Accounts at MDW. As a result of an Internal Review briefing to the DARCOM Chief of Staff and the Commander, MDW on 5 April 1979, a decision was made to establish a joint DARCOM/MDW team to reconcile the DARCOM accounts maintained by the MDW FAO. This team, consisting of four personnel from MDW and DARCOM, commenced work on 16 April 1979, and terminated on 10 August 1979. The objectives of this joint reconciliation effort were to reduce invalid line items, validate existing line items, and to correct obvious errors; e.g., incorrect codings for elements of expense and document identifier numbers.

(U) This joint reconciliation effort was terminated on 10 August 1979 when it was determined that 85 percent of the open line items had been reviewed and adjusted. The remaining open line items (15 percent) could be handled by the functional elements at MDW and DARCOM which were normally responsible for reconciling these accounts.

(U) Transfer of Payroll and Accounting Support from MDW to APG. Final approval to transfer the accounting and payroll support for DARCOM Headquarters and several other DARCOM activities from the MDW FAO to Aberdeen Proving Ground (APG) was made by the DARCOM Chief of Staff on 16 August 1979. To effect this transfer as of 1 October 1979 (FY 1980), it was decided that only the FY 1980 allotments would be issued to the APG FAO with the prior years' accounts remaining in MDW until their completion.

(U) MDW was to continue disbursement actions on a Transaction for Others (TFO) basis until sufficient personnel were on board at APG to assume this function scheduled for 1 December 1979. In addition, MDW was to continue to provide payroll services until APG was staffed to assume this function, currently planned for 16 December 1979. For calendar year 1980, DARCOM employees were to be placed in an alternative pay period; the pay period beginning 13 January 1980 made by APG was to be for one week. Personnel were to receive pay checks on the Friday following the close of the pay period (no change to current procedures). However, to insure checks are received timely, a dedicated daily courier service between APG and DARCOM will be established.

(U) Return of Defective RT-246 Radios From Israel. Israel reported as defective, 583 radios valued at over $2 million dollars received in connection with a foreign military case in December 1976. This major Report of Item Discrepancy (ROID) required extensive coordination and correspondence with the Department of the Army and the Office of the Assistant Secretary of Defense, Comptroller and General Counsel to arrive at mutually acceptable solution. In October 1979, the last barrier for reimbursement to Israel was removed and action was initiated to reimburse Israel for the value of the defective radios.

(U) Report of Item Discrepancy (ROID). Headquarters DA's guidance on the funding and processing of ROIDS was promulgated to all field commands on 12 February 1979. This guidance cited the procedures for processing ROIDS under specified conditions. ROIDS submitted by FMS customers are to be resolved through corrective supply or billing actions. Responsibility for ROIDS was required so that reimbursement from a non-Army element such as contractors or shippers could be realized. Some ROIDS could be alleviated by granting financial credit to an FMS customer in an equitable amount determined by the USG. When fault could not be conclusively established, the FMS administrative fee account was to be charged for payment to equitably close out a ROID. Although some ROIDS were charged against the administrative fee account, the Army could still deny credit when, in its judgment, there was no fault attributable to the USG.

(U) Depot Maintenance Cost Accounting. A pilot test was conducted beginning 1 January 1976 at five DOD depot maintenance activities, including Corpus Christi Army Depot, the Army's test site. On 1 October 1976, the DOD 7220.29 Handbook became effective for all depot maintenance and maintenance support activities throughout DOD. Since the effective date, DOD has published two changes to the Handbook. Such changes reflected the discussions that DOD had with Service staffs, the JLC work group and subordinate activities, namely DESCOM. The proposed Change #2 regarding the costing of underutilized plant was cancelled, and the proposed Change #3 became the official Change #2. However, several key changes which were expected for Army were not included in Change #2. In this regard, Army would have had to identify in writing the specific changes it sought or make such changes to evidence compliance with the DOD Handbook. The major changes which Army was seeking included: job order size, costs of backrobbing, cannibalization, calibration, defective work and job cancellations, allocation basis for operations overhead, and general and administrative expenses. DOD indicated it would take up these changes one at a time instead of the omnibus changes in the past which included numerous changes. Except for the changes indicated, Army was in substantial compliance with the requirements of the DOD Handbook.

(U) AIF Study. The study was initiated in FY 1978 and completed in FY 1979. Based upon field coordination, it became apparent that an increase in personnel would be required by eliminating industrial fund accounting and replacing it with appropriation accounting together with stock funding. Another factor that had an impact on the study decision was the contracting out opportunities stemming from OMB Directive A-34. Weighing all these factors, the CG DARCOM decided to continue only the effort to eliminate the industrial fund system at Aberdeen and Dugway Proving Grounds. Jefferson Proving Ground was a candidate for contracting out, so the OMA accounting system would continue. All other activities industrially funded would continue without change.

(U) Fast Payback Investments. AIF activities prior to FY 1978 had an option between using Fast Payback Procedures where the AIF would finance the acquisition of investment items and Quick Return on Investment Procedures (QRIP), in which case the financing was provided by appropriation purchases account (APA). In the majority of situations, the latter method of financing was used in view of the AIF cash situation.

(U) The Assistant Secretary of Defense had directed that greater emphasis be placed on the Industrial Fund Fast Payback Program. In accordance with this increased emphasis, this headquarters was allocated an additional $1 million in AIF working capital. In addition, revisions were made to accounting procedures for fast payback investments. These revisions considered stabilized billing policies, through establishment of a reserve (revenue set aside), for fast payback items in advance of actual investment. Also, new accounts were established which provided for an analysis of fast payback savings through comparison of amortization of the fast payback period and actual use of the fast payback item.

(U) In line with the increased emphasis on the Industrial Fund Fast Payback Program, Comptroller had to develop new accounting procedures, (DRCCP-FW letter dated 10 Jan 79), and coordinated with management on the implementation of DARCOM-R 5-10.

(U) GAO indicated that changes were being made to revise the accounting guidance for fast payback investments at industrially funded activities. The latest proposals indicated changes were to be made in accounting procedures for FY 1981. Comptroller contemplated putting out instructions for the field and to send an amended version of AR 37-110 to DA in order to incorporate the forthcoming changes.

(U) Army Ammunition Revolving Fund (AARF). The AARF was a proposed funding system that would provide a method for the procurement and delivery of ammunition in filling customer's requirements. It

would provide a continuing basis for procurement of ammunition. It would consolidate identical ammunition and items, components and related services into a singular procurement work directive and contract line item number for the purpose of providing a means for simplifying accounting and control of operating cost for ammo mission. Costs incurred and charged by GOCO, GOGO, and COCO were to be charged to customers as their orders are filled. Customer's funds were to be obligated when the order was accepted by the AARF and ammunition fund would be obligated when contracts are awarded.

(U) The AARF would simplify the administration of the procurement process and improve the controls over the accounting and costing of the ammunition acquisition mission.

(U) An ASD (Comptroller) Memo, 19 September 1979, approved the Ammunition Stock Fund concept for implementation on 1 October 1980.

(U) Arthur Young and Company Study. During FY 1979, Arthur Young and Company personnel conducted the DARCOM segment of an Army-wide review of the Army's financial management practices. The DARCOM installations that were selected for participation in this study were TECOM, TSARCOM, LEAD, and WVA.

(U) At the conclusion of the Army-wide review, the contractor made the following major recommendations to the DA staff:

(U) Short term (one to three years): identify and develop a body of consistent accounting principles; refine and develop a more responsive Army Management Structure (AMS); develop a centralized financial data base.

(U) Mid-term (four to eight years): expand the role of the Comptrollership function; develop advance reporting principles and practices (responsibility reporting, performance measurement, expense-based reporting principles and practices); develop an Army-wide accounting system; develop an effective ADP capability.

(U) Long-term (nine to 15 years): integrate funding and missions; complete development of Resource Management Information System.

(U) As a result of the Arthur Young and Company study, the DA entered a subsequent contract with the same contractor to perform a review and provide a revision to the AMS in order to reduce the volume and complexity of the AMS and to make it a more meaningful management tool.

Internal Review and Audit Compliance

(U) Inspector General Act of 1978 Reporting. During FY 1979 reporting to DA under the Inspector General Act of 1978 was implemented. The requirement under this act was for a semiannual report (RCS:DD-CPMP(SA)1515) on fraud and waste. The contents of the reports pertained to prevention and detection of fraud and waste, significant changes in costs of operations, and data on the results of operations for the period. Certain reports included number of reports issued by categroy, potential fraud cases referred for investigation, and significant findings of uneconomical and inefficient practices. Because this was a major project, Comptroller obtained input from all DARCOM field installations for consolidation into the finished product.

(U) The report for the first half of FY 1979 stated that in DARCOM the total number of persons assigned to internal review was 255 and the total cost for their operation during the period was $3,338,516. Findings of waste for the period included lack of control over material susceptible to pilferage and lack of controls in the purchase of equipment. Instances of potential fraud reported included two in the pay and allowances area and three in the nonappropriated fund area.

(U) The report for the second half of FY 1979 covered findings of uneconomical and inefficient practices for overtime controls, ineffective controls over special projects stock, duplication of record keeping, under utilization of facilities, failure to collect nonrecurring costs on sales, and failure to obtain price adjustments on purchases.

(U) Timeliness and Quality of External Audit Positions. The cumulative timeliness average for FY 1979 was 91 percent, as compared to 89 percent in the previous year. The average for the 4th quarter of FY 1979 climbed to 95 percent, two percentage points above the annual DARCOM on-time target of 93 percent. Only two of the 41 positions processed in the 4th quarter were late. This was the best timeliness mark for a single quarter that DARCOM had in the past four years.

(U) The quality ratings of DARCOM positions on external audits for FY 1979 improved to 90 percent, with the rating for the 4th quarter reaching 91 percent. The DARCOM goal for quality of positions was 93 percent.

(U) GAO Written Statement of Tentative Findings. On 7 May 1979, DARCOM headquarters wrote to DA to suggest that GAO should provide organizations within the Department of Defense with written statements of their tentative findings and recommendations during the course of audits. This would aid in making exit conferences more valuable and would allow additional time to all concerned to develop command responses.

(U) The suggestion was approved by DA and DOD and accepted by GAO as a major alteration in their current policy. DARCOM's justification was based on the fact that GAO drastically speeded up their coordination process; e.g., DOD now received only 30 days to respond to routine GAO draft reports and frequently received less time on cases designated by GAO as priority.

(U) On 11 September 1979, GAO sent a published statement on this matter to all of their auditors (in the GAO Management News). Key paragraphs of that statement follow:

(U) "Discussions and written communications of tentative findings and possible solutions with responsible agency officials at all levels during the audit are an essential part of GAO audit procedures. This practice usually results in more complete draft reports and reduces the formal comments. Also, it helps reduce report processing time, enabling more timely release of final reports.

(U) "GAO's policy is to discuss fully and openly the information developed in its work, including tentative findings and proposed recommendations. When possible, a written statement of the tentative findings and proposed recommendations should be furnished prior to the exit conference so that agency officials will be familiar with the issues to be discussed. Using this technique is even more important in view of the office's increased emphasis on obtaining agency comments on draft reports in a timely manner."

(U) The Director of the Army Staff later wrote to DARCOM to state that the new policy would assist the Army in meeting short deadlines for responses to GAO reports. Also, the policy change would be included in the next revision to AR 36-20.

Management Review and Analysis

(U) The CPIR System. The Headquarters DARCOM CPIR System was initiated by the CG, DARCOM in August 1977 and had since then evolved into a hard hitting management review system. On behalf of the Comptroller, DARCOM, the Management Review and Analysis Division, Comptroller was responsible for the development, conduct and overall management of the CPIR System for the CG, DARCOM. The CPIR was the primary management tool used by the CG, DARCOM, to keep abreast of performance of the DARCOM mission. Each quarter the CG and his Command Group met with all 32 of the DARCOM Headquarters staff directors/office chiefs for a command performance review. At these reviews, the directors/office chiefs personally presented to the CG the performance indicators that they used to manage their portion of the DARCOM mission, discussing those indicators where performance deviated from a norm or standard and highlighting good and poor performance. These reviews covered

every aspect of management which accomplished--or failed to accomplish--the DARCOM job. The presentations covered performance of all missions and functions through which DARCOM supplied and supported the Army--ranging from development of new hardware to procurement of existing hardware--from rebuilding equipment to providing troops with the parts to keep their equipment running. The sessions generally lasted two days and all directors/office chiefs were required to be in attendance for all presentations. Prior to each quarterly CPIR, the Comptroller prepared and provided the CG with a handbook listing all performance indicators the directors/office chiefs used to manage their areas of responsibility including the planned targets for each performance indicator and whether or not the target was achieved. As a follow through, an MFR covering each quarterly CPIR was prepared and distributed to the staff, containing Directed Actions placed by the CG on the staff. Following each quarterly CPIR, the Commander's Handbook of Performance Indicators, a set of charts and narrative presented at the CPIR, and a copy of the MFR covering the CPIR were distributed to the 15 DARCOM major subordinate commanders and the Director, US Materiel Systems Analysis Activity.

(U) Summary of DARCOM CPIR's Conducted in Fiscal Year 1979. During the 4th quarter FY 1978 review, the CG issued or restated four general policy statements directed at both the CPIR system and the need for the headquarters staff to manage operations in an effective manner. In the mission area, he issued 34 directed actions to 15 headquarters staff elements participating in the 4th quarter FY 1978 CPIR.

(U) The CG issued or restated during the 1st quarter FY 1979 CPIR six policy statements directed at the conduct of the CPIR by the headquarters staff.

(U) Particular emphasis was placed on the use of the CPIR as a management technique available to provide the staff with an overall picture of the health of the command. He cautioned against collecting data needlessly and stressed the need for standardization of charts. He provided guidance and comments to other members of the Command Group in six broad mission areas. Finally, he issued 53 missions related directed actions to 21 headquarters staff elements.

(U) During the 2d quarter review general guidance provided to the staff related to the CPIR was minimal. Instead, the CG expressed his concern in problem areas of mutual concern to all members of the staff such as energy, property accountability, EEO, reenlistments, a solid suggestion program, reducing the use of administrative vehicles, and reducing mileage overall. The CG stated that progress was being made in the CPIR but more improvement was necessary. Further, the CG's guidance to the Command Group was directed at problem areas emanating from DARCOM major subordinate commands. Finally, 28 mission area directed actions were issued to 13 headquarters staff elements.

(U) Seven general policy and guidance statements related to CPIR utility, application and techniques were reiterated by the CG to the staff during the 3d quarter review. These comments were prompted in part by the Summary Analysis CPIR Briefing for the First Half FY 1979 which was provided to him by the Comptroller on 24 August 1979. In addition, the CG issued 70 mission area directed actions to 22 of the 32 headquarters staff elements participating in the 3d quarter FY 1979 CPIR.

(U) Performance Management. In May 1979, the Comptroller directed the Management Review and Analysis Division to provide support - including a facilitator to assist the Comptroller - for a series of actions which the Comptroller initiated to improve performance management for organizations and individuals engaged in Comptroller activities throughout DARCOM, beginning with team building in the Office of the Comptroller, Headquarters DARCOM. Meetings and other actions led to a DARCOM Comptroller Performance Management Workshop on 21-23 September 1979. Products of the workshop included draft statements of values, norms, missions and objectives. These products were displayed in Room 3N25, Headquarters DARCOM, during the last week of September, with all Comptroller personnel being invited to suggest improvements.

(U) Comptroller Evaluation Surveys (CES). The evaluation of Comptroller Offices throughout DARCOM continued during fiscal year 1979. Nine surveys were conducted during the year, two of which were made to colocated commands. These were the first surveys of AVRADCOM and TARADCOM since their creations, and both were rated as performing satisfactorily. Major changes in the rating system were tested during the latter half of the surveys. In order to emphasize corrective actions and place less priority on ratings, the assignment of an overall rating to the Comptroller Office was discontinued. This meant that each functional area received a rating, and it placed increased responsibility on the individual analyst. In addition, in order to simplify the rating system, the categories were reduced from four to three. An outstanding rating is no longer one of the options available. It was presumed that all activities were working at satisfactory levels.

(U) The CES team recommended an overall rating of excellent for TSARCOM Comptroller operations. It was particularly pleasing to note the report of outstanding organization for and performance of the Financial Management Review and Improvement function, a unique and effective interactive combination of financial and management audit activities. Two areas of moderate concern were the continuing finance and accounting turbulence attributable to the AMARC reorganization and less than desirable control over obligation rates.

(U) An overall rating of satisfactory was assigned the AVRADCOM Comptroller Office, based on satisfactory ratings of operations

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associated with each function assigned that office. An outstanding rating was assigned operations associated with the cost analysis function of the Directorate for Plans and Analysis.

(U) It was noted that despite the turbulence created by the AMARC reorganization, particularly on AVRADCOM Comptroller staffing and operational changes, all Comptroller functions were being accomplished in a satisfactory or better manner. The outstanding accomplishments of cost analysis operations was particularly notable. Achievement in overcoming the problems associated with the reorganization were commendable. However, further improvement in a number of areas was desirable.

(U) MERADCOM Comptroller Office was assigned an overall rating of satisfactory. Cost analysis and review and analysis were assigned excellent ratings. There was an overall improvement in the performance of Comptroller functions since the 1977 survey, with no unsatisfactory ratings. The management analysis observations were most disappointing and unless the trend was reversed, the program was in danger of attaining an unsatisfactory posture. Finance and accounting, previously unsatisfactory, showed marked improvement as did the review and analysis and internal review and audit compliance functions.

(U) The LEAD Comptroller Directorate was assigned an overall rating of excellent with one function receiving an outstanding rating and the other six rated as excellent. The CES team noted a substantial improvement in Comptroller operations since 1975.

(U) The CCAD Comptroller Career Program was rated as excellent and all other functions rated as satisfactory. Although no unsatisfactory ratings were assessed, the observations of the Review and Analysis and Quick Return on Investment Programs were disappointing. Unless actions were initiated to reverse this situation, both programs were in danger of attaining an unsatisfactory posture.

(U) TEAD received a rating of excellent in the performance of program and budget, finance and accounting, and internal review and audit compliance responsibilities. The report of unsatisfactory accomplishment of responsibilities for independent program and management analysis, which were essential Comptroller functions, caused concern. It was understood that inadequate staffing is the primary contributing cause of this situation.

(U) One of the six functions at NARADCOM received an excellent rating and none received an unsatisfactory rating. Methods and standards functions were not reviewed; management improvement program received a cursory examination. Management analysis activity, although satisfactory, required additional effort to prevent a decline in future performance.

(U) Of the eight Comptroller functional areas at TARCOM, three were assigned excellent ratings, three were satisfactory, and two were found to be unsatisfactory. These ratings were determined on the basis of whether regulatory and assigned Comptroller functions were being accomplished and with what degree of success.

(U) Three of the seven functions received excellent ratings at TARADCOM. Although no unsatisfactory ratings were assessed, the observations relating to the work measurement program were disappointing. Unless action was initiated to establish a rudimentary work performance reporting system, the DARCOM Productivity Program was in danger of attaining an unsatisfactory posture.

(U) Methods and Standards (M&S) Program. During FY 1979, a total of six M&S Program reviews were conducted throughout the depot system. In addition to reviewing program administration, particular emphasis was placed on the validity of data and its application and utilization in support of manpower and fiscal requirements. Summary level standards for depot supply and maintenance functions were developed and integrated into the quantification of budget and manpower requirements.

(U) On 28 October 1978, a concept for the consolidation of all M&S staff for major subordinate commands' headquarters (except DESCOM and TECOM) was approved by the CG DARCOM. This action was necessitated by the fact that over the years, the M&S program and staffs had eroded to the extent that the program was no longer viable. The IMSA, located at Redstone Arsenal, Alabama, was to be composed of four teams responsible for conducting methods and standards studies throughout all functional areas of major subordinate commands. Summary standards will be developed at the appropriate levels for use by managers in quantifying manpower and budget requirements. The IMSA will also be responsible for developing a standard Labor Production Reporting System for use by all major subordinate commands.

(U) The DARCOM Directorate for Procurement and Production was involved in the development of a Procurement Automated Manpower Utilization and Projection System. This system was to be dependent upon the system of performance standards to be developed by the IMSA, as discussed above. Using these standards, coupled with an evaluation of past history and a projection of future workload, the system was to provide an evaluation of current performance and a quantifiable basis for determining future manpower requirements.

(U) DARCOM Compotroller Financial Management Information System (DCFMIS). At the request and with the assistance of the Management Review and Analysis Division, the Logistic Systems Support Activity (both Letterkenny and Tobyhanna elements) developed DCFMIS during FY 1979. This system established a data base within the DARCOM Headquarters

Management Information System consisting of planned, flash, and actual obligations. Each of these data sets included the following characteristics:

(U) Covered each of the major appropriations (five separate procurement appropriations) and revolving funds; went to sub-program in OMA, to limitation code for Army Stock Fund; each year was separated in multi-year appropriations.

(U) Data were cumulative, monthly, current fiscal year to date.

(U) Data were at General Operating Agency (essentially major subordinate commands) level.

(U) Data were accessible through terminals in the headquarters using the Multi-Access Retrieval System.

(U) DCFMIS became fully operational during the second half of FY 1979 and was used to provide the Command Group, the Comptroller, and various appropriation directors with a variety of output products showing the deviation of flash and actual obligations from plan. The products included charts prepared on a Tektronix computer graphics terminal, as well as automated spread sheets showing performance deviations by appropriation, by program year, and in many cases by individual commands. The availability of these products, a result of the automated process, permitted enhanced effectiveness of financial management.

(U) Further expansion of DCFMIS was planned during FY 1980.

(U) Management Analysis Study of Headquarters DARCOM Budget and Programs Office. The study was directed by the Chief of Staff on 7 March 1979 as a result of an audit conducted by the Headquarters DARCOM Comptroller Internal Review and Audit Compliance Office. This audit report pointed out that the Headquarters Budget and Programs Office was not adequately performing the functions of funds control and reconciliation; was performing unrelated functions (payroll and working group cashier); and that higher-graded personnel were doing lower-graded type work such as time and attendance reports review and cashiering.

(U) The study was conducted to determine whether, from an organizational standpoint, operations could be improved by relocating the Headquarters Budget and Programs and the payroll and cashier functions, and if the work within the Headquarters Budget and Programs Office could be redistributed.

(U) As a result of the systematized management investigation, it was recommended: (1) that Headquarters Budget and Programs Office remain

in the DARCOM Service Support Activity; (2) that the payroll and cashier functions remain in the Headquarters Budget and Programs Office; (3) that the DARCOM Service Support Activity strongly spell out to Headquarters staff offices their responsibility for accurate T&A reporting; (4) that the Headquarters Budget and Programs Office be the focal point only for T&A reporting; (5) that the duties of the personnel authorized the Headquarters Budget and Programs Office be realigned; (6) that the Headquarters Budget and Programs Office be organized into a Budget and Programs Team and Analysis and Reconciliation Team.

(U) In April 1979, the Chief of Staff was briefed and approved all of the study recommendations.

(U) Management Analysis Study of Headquarters DARCOM Comptroller Resources and Programs Division. The study was conducted to determine whether improvements could be made in the organizational structure and operations of the Resources and Programs Division, and in the degree of management control.

(U) This study was approached in two phases. The investigation probed into, first, the arrangement of the functions among the branches and, second, how the branches were organized internally to carry out those functions.

(U) Major disadvantages were discovered in the organization then being utilized. Basically, the functions, responsibilities, and authority were split between branches. Workloads peaked in one branch because both formulation and execution actions were proceeding at the same time. This impaired other operations that also required attention and resulted in an uneven distribution of workload.

(U) The study team recommended that the functions be grouped to manage by the budget cycle. This would result in an orderly workload schedule, and field execution problems could be handled by one branch while another was involved in program and budgeting formulation. Moreover, program budget actions could be operating simultaneously in two branches without encountering conflicts and priority determinations. A balance could be achieved in terms of functions, responsibility and personnel.

(U) The Comptroller approved all of the study recommendations. They were implemented within current manpower authorization and all civilian grades retained.

(U) CPIR Summary Analysis Briefing - First Half FY 1979. The purpose of the briefing was to present to the CG and the Command Group a picture of the health of the command during the first half of FY 1979 using material contained in the CPIR system. The briefing was held on 24 August 1979.

(U) At the conclusion of the first CPIR Summary Analysis to the Command Group on 21 February 1979, the CG directed the Comptroller to prepare and present a CPIR Summary Analysis to the Command Group semi-annually. The briefing was based on selected performance indicators grouped in the areas of materiel development, materiel readiness, output assessment of development and readiness, and resources and management. These indicators were then arrayed to summarize overall DARCOM performance and highlight relationships.

(U) During the briefing, it was noted that input to the CPIR by the staff had improved in both quality and quantity providing a better perspective of DARCOM's performance. The accumulation of information resulted in the presentation of longer trends for analysis and in making comparison with earlier performance.

(U) At the conclusion of the presentation, the Deputy Commanding General for Materiel Development (DCGMD) pointed out that CPIR coverage in the materiel development area was too limited and that the staff must do better in this area--particularly with regard to cost growth and product improvement. The DCGMD also noted that Integrated Logistic Support milestone estimates may not be realistic and that more emphasis was needed on the Engineer Inern Program. The CG agreed with the remarks made by the DCGMD and called attention to the 42 systems scheduled for deployment that DA had selected for special management attention. He asked that a way be found to track their performance by developing a reasonable set of milestones against which the performance of the 42 systems could be measured and analyzed. Planned performance should also be related and compared with FY 1979 experience. The CG also stated that when the CPIR system was sufficiently refined, CPIR summary analyses would be taken to the Army Policy Council.

(U) With respect to overall DARCOM performance, it was concluded that coverage in the DRCLDC and DRCDE areas was too limited to develop an adequate assessment of overall materiel development performance; however, program performance of certain nonmajor systems appeared to be satisfactory; supply performance improved but may be adversely affected in the future by declining procurement performance; low Integrated Logistic Support and Product Improvement Program milestone accomplishment could impact on materiel fielding and readiness; quality and completeness of output and availability of equipment continued to improve; and most trends in key resource and management areas were favorable. Conclusions regarding the CPIR system were that staff input had improved but that more coverage was needed particularly in the materiel development area.

(U) The Commanding General directed the following: (1) the Comptroller was to recommend the staff element to be tasked with tracking the DA selected 42 materiel systems across all functional areas.

Selected staff element was to present the results of tracking the 42 systems in the 1st quarter FY 1980 CPIR. (Subsequent to the briefing it was learned that the CG was to receive a briefing by the Deputy Commanding General for Resource Management on this subject.); (2) the Comptroller was to present CPIR summary analyses to the Army Policy Council after the CPIR system was sufficiently refined--following the 4th quarter FY 1979 CPIR; (3) the Comptroller was to present the summary analysis briefing to the Headquarters staff at the 3d quarter FY 1979 CPIR.

(U) CPIR Summary Analysis Briefing. At the conclusion of the 4th quarter FY 1978 CPIR, BG Cade indicated that the Comptroller would prepare and present to the CG an assessment of DARCOM's performance using the information presented at the FY 1978 CPIR's. The CG agreed and indicated he was interested in getting a "wrap-up" of performance described in the CPIR's.

(U) This briefing was based on selected performance indicators grouped in the areas of Materiel Development, Materiel Readiness, Output Assessment of Development and Readiness, and Resources and Management. These indicators were then arrayed to summarize overall DARCOM performance and highlight relationships.

(U) During the briefing the inadequacy of the interface among related performance indicators was illustrated. It was also shown that quantified goals' targets for many key indicators had not been met for the periods covered by data presented at the CPIR's and that a significant number of indicators had no quantified goals/targets. Finally, several of the indicators presented by the staff were based on short term data. This restricted adequate analysis of performance trends.

(U) At the conclusion of the presentation, the CG pointed out that as long as DARCOM decentralized management, it must look to the staff to do trend analysis. Although Comptroller could not track everything, some things probably should be tracked more frequently than they were. The CG said that one area that had not been given sufficient attention in the CPIR was the 42 systems to be fielded in the future. DCGMR stated that he was taking the lead in this matter. The Comptroller said that he was preparing funding "spread sheets" on the 42 systems.

(U) With respect to overall DARCOM performance, it was concluded that cancellation of new starts and low schedule performance could result in possible delay in improving the Army's combat capability; decline in supply performance could adversely affect readiness, quality and completeness of output and equipment availability appear to be improving, and that most trends in key resources and management areas were up.

(U) Conclusions regarding the CPIR System were that it improved management by causing the staff elements to look more closely at their areas of responsibility, improved communication by bringing the staff together to see what the other staff elements were doing and what their indicators were showing, and brought issues into focus by bringing before the Command Group and the staff exceptional performance and actual and potential problems. However, there was inadequate interface among performance indicators to bring out cause and effect relationships and many goals were not met or set.

(U) Plan for Improving the CPIR System. The plan was prepared as a result of discussions between the CG and the Comptroller following the 1st quarter FY 1979 CPIR, and was designed to correct continuing shortcomings.

(U) Contained in the briefing was a summary of the CG's guidance on the CPIR System; a discussion of major problems or shortcomings primarily resulting from failure to follow the CG's guidance; and the actions proposed to correct these shortcomings.

(U) During the briefing, shortcomings in the following seven areas were identified and discussed: (1) coverage not adequate in a number of mission areas; (2) interfaces not adequately covered; (3) goals and targets not established where they could be; (4) trend data, particularly long-term, in many areas not developed or presented; (5) analysis often did not identify problems and their cause and effect; (6) charting in general did not follow guidance; and (7) presentations in a number of cases were loosely organized or address matters not appropriate for a performance indicator review.

(U) Past efforts at the action officer level to correct shortcomings have had mixed results making it necessary to get the personal support of directors and office chiefs. Also, action is required to obtain better compliance with guidance and to improve guidance where necessary.

(U) The following recommendations were made: (1) have one-on-one discussions between directors and the Comptroller on ways to eliminate shortcomings; (2) Comptroller critique CPIR presentations and give results to each director individually some time after each CPIR; (3) Comptroller improve the Handbook of Performance Indicators by assuring that all key missions and functions were covered and that DARCOM goals and objectives were covered by indicators; (4) directors and office chiefs prepare texts for all CPIR presentations; and (5) include mandatory charts showing the status of directed actions and a list of the indicators they used to manage their part of DARCOM's mission.

(U) The CG approved the recommendations and added that the chart showing the list of indicators be shown at the start and end of each staff presentation.

(U) Quick Return on Investment Program (QRIP). A FY 1979 Appropriation provided $4-9 million ($3.9 OPA, $1.0 PAA) for the Army QRIP. Congress, however, constrained the use of the funds by imposing a $40 thousand per project ceiling and by requiring a plan for prioritizing the investments and for past investment audit summary. The plan was submitted and the program became active during the second quarter.

(U) During the fourth quarter, Congress agreed to reinstate the $100,000 project limit effective 1 October 1979, including FY 1979 projects that were in the system prior to 30 September.

(U) DARCOM FY 1979 investments totalled $1,171,561 with projected annual savings of $1,206,750 (including 17 manyear equivalents).

(U) The AIF portion of QRIP, the Fast Payback System, funded investments of $1.5 million expected to provide annual savings of $1.4 million.

(U) Labor Saving Capital Investment Program. In August 1979 this program was announced by DOD which established an investment fund of $105 million thru FY 1985. Projects had to represent a $1 million investment, payback in four years or less, and at least 50 percent of the savings had to be labor. DARCOM Program and Budget Advisory Committee formed the DARCOM program from projects submitted. The DARCOM program consisted of nine projects with a FY 1981 requirement of $27 million and a total requirement for $102 million.

(U) Productivity Enhancing Capital Investment (PECI). PECI provided a special display or highlighting of requirements for projects which will payback within five years or less and which were being funded with traditional appropriations. There were two categories: major for projects over $900 thousand and intermediate for projects under $900 thousand. The PECI display was first provided in FY 1979 for the five year defense program, 1981-85.

(U) Comptroller Portion of the CPIR. During FY 1979, DARCOM Comptroller Management Review and Analysis Division was given overall responsibility for the accumulation of indicator candidates, the receipt and analysis of indicator status information, the overall presentation of charts and narrative discussion, and the final presentation to the Comptroller and his staff of the Comptroller's portion of the CPIR presentation.

(U) Early attempts to integrate the diverse activities of the Comptroller divisions resulted in fragmented responsibilities;

surfaced a lack of clarity in instructions in indicator, chart and narrative preparation, and generally resulted in a disjointed presentation.

(U) In order to eliminate these shortcomings, beginning with the 3d quarter FY 1979, the Comptroller established a mini CPIR for the Comptroller organizations. Under this system, preliminary preparation for the Comptroller's portion of the CPIR was achieved by having the Comptroller division and office chiefs brief the Comptroller on the various programs and operations they manage. From these presentations, the Comptroller could better select those indicators he wished to emphasize at the CG's CPIR and thus provide for a more meaningful briefing.

(U) Comptroller Responsibilities Related to Contracting Out Study. In March 1979, the Office of Management and Budget (OMB), Executive Office of the President, substantially revised OMB Circular A-76, establishing revised policies and detailed procedures for arriving at decisions as to whether to accomplish government, commercial or industrial type activities (CITA) under private sector contract or in-house. Principal among procedures established by the circular was the requirement for a detailed cost comparison of CITA accomplishment under contract versus in-house. Specific Comptroller responsibilities associated with CITA study requirements and changes in the method of operations (contract or in-house) based on decision thereon had to be established. A detailed study of revised CITA procedures and their impact on assigned DARCOM Comptroller responsibilities was therefore initiated.

(U) The study addressed the principal ground rules established by the OMB Circular and the provisions that affected financial management operations. Additionally, it surfaced critical areas in which Headquarters Department of Army decision had not been reached concerning responsibilities of Army major commanders versus other Department of Army agencies, and the impact of decision alternatives on the respective areas of Comptroller responsibility. The study addressed both Comptroller staff and operating responsibilities, and centralization versus decentralization of the latter as they related to CITA actions. Specific potential impacts of OMB CITA provisions on programing and budgeting, finance and accounting, cost analysis, and auditing were discussed. The study was provided the Comptroller, and his staff was briefed on the highlights and conclusions of the study.

(U) Project Comptroller Organization Evaluation (CORE) Concept Plan. Project CORE was directed by the Comptroller to unify in one project several studies aimed at improving the efficiency of the Headquarters DARCOM Office of the Comptroller, while at the same time reducing the size of the office on the Headquarter's TDA.

(U) A concept plan was written which contained the objectives of the project, the scope (essential elements of analysis), phasing, a milestone schedule and responsibilities. The objectives embodied the four studies that comprised the project:

(U) A priority listing of Comptroller functions at the current civilian authorized strength of 239 spaces. This study was to determine which whole functions were to be discontinued if the Comptroller was reduced 5, 10 or 15 spaces. This would be an FY 1980 plan.

(U) A study which was to show the Comptroller organization on the headquarter's TDA at between 120 to 125 spaces. This study was to consider different locations for the functions--HQ TDA, a Comptroller service activity, DARCOM subordinate activity, or other agencies. This study was called the optimum organization study.

(U) An administrative support study to determine the automated support requirements for the Comptroller organization resulting from the organization study.

(U) A priority listing of Comptroller functions at the planned civilian strength of between 120 to 125 spaces. This would be an FY 1981 plan.

(U) The project was scheduled to begin with the optimum organization and FY 1980 functional priority studies. After the optimum organization portion of one division was completed, the administrative support requirements of that division would be developed. After the optimum organization and administrative support studies were completed, the FY 1981 functional priority listing would be done.

(U) A milestone schedule including the time needed ny Civilian Personnel to put into effect the actions had been constructed. Target date for implementation of a provisional optimum organization was 1 October 1980.

(U) Financial Management Executive Workshop. In May 1979, the decision was made to initiate the DARCOM Financial Management Workshop Executive program. This program was intended to provide financial management training to senior DARCOM officials who made and/or directly influenced financial decisions but were not experts in the field. This program was patterned after the COA Financial Management Executive Workshop which was universally considered to be very helpful and a great success. The COA program, however, could not accommodate all DARCOM personnel who needed the training and was open to the military only. It was planned that the DARCOM program would hold three workshops a year and train up to 100 persons annually. It was visualized

that the participants would include the major subordinate commands and activities' commanders who had not attended the COA workshop, their deputies, chiefs of staff, functional directors, and other key personnel. The case study method was to be used as the main instructional tool, and supplemented by lecturers and guest speakers. Each workshop was scheduled to last a week with the first workshop planned for January 1980. Most of the preparatory work, however, was done in Fiscal Year 1979; the development of case studies was practically completed, the participants' selection mechanism was set up, and the information on possible facilities for the workshop was collected.

(U) Civilian/Military Mix and Conversions. During FY 1979 the Comptroller of the Army continued to emphasize the policy of optimizing the civilian/military mix for key resource managers where application of the policy was consistent with mission requirements. In support of the Comptroller of the Army policy, the DARCOM Comptroller directed the Management Review and Analysis Division to intensively manage this mixture issue. After identifying each military position in Specialty Codes (SC) 44 (finance) and 45 (comptroller) and charting their locations in association with a study of civilian key resource management resources, a letter was forwarded to DESCOM recommending the conversion of either the comptroller or deputy comptroller position at Corpus Christi Army Depot to military incumbency. That same letter also recommended the establishment of military deputy comptrollers on the mobilization TDA's at Sierra and Seneca Army Depots. Neither depot had an authorized deputy comptroller position. These three DESCOM position conversions/establishments were in-process pending Department of the Army approval.

(U) Establishment of the proper civilian/military mix for key resource management positions was also the basis for DA approval of the conversion of the comptroller position at the US Army Tank-Automotive Research and Development Command from civilian to military incumbency. DARCOM conversion action was pending, based on location of an 06 Officer Distribution Plan (ODP) validation.

(U) ODP Activities. Department of the Army annually published the Officer Distribution Plan (ODP) which dictated the percentage of TDA authorized spaces by grade and specialty that DARCOM may fill through requisition during the ODP cycle. The Management Analysis Branch, Management Review and Analysis Division, was tasked with the management of ODP for military comptroller career field Specialty Codes (SC) 44 and 45 throughout DARCOM.

(U) The Comptroller of the Army was concerned with balanced military/civilian incumbency mixes in Army comptroller position as well as visibility and job progression in SC 44 and 45 career fields. To comply with the Comptroller of the Army objectives in this matter,

a study was conducted which recommended that Department of the Army provide DARCOM with 100 percent ODP fill in SC 45 career field positions. This request was not approved by Department of the Army because of priority guidance established by the Department of the Army Master Priority List which regulated the distribution of officers in shortage specialties throughout the Army.

(U) In order to more intensively manage comptroller military assets, a listing was prepared integrating TDA authorized spaces, ODP supported positions and approved Army Education Requirements Board requirements. The goal was to automate the above listing in order to insure more accurate and timely information for use in management decisions.

(U) Other key issues currently under review were ODP support for two recently authorized SC 45 06 positions, the Comptroller at the US Army Tank-Automotive Research and Development Command, and the Resource Manager at the US Army Troop Support and Aviation Materiel Readiness Command.

Plans and Analysis

(U) Management by Goals and Objectives. The FY 1979 DARCOM Program Plan, containing the command goals, objectives and DARCOM-wide tasks, was published in November 1978. It was the initial program plan containing objectives and tasks which were developed by Headquarters DARCOM in concert with the 16 major subordinate commands (MSC).

(U) The regulation for the DARCOM System of Management by Goals and Objectives (MGO) (DARCOM-R 11-4, Volume 2) was revised on 13 April 1979. This revision reflected the new concept, procedures and responsibilities for MGO which were in line with the Commanding General's philosophy of participative management; i.e., the direct involvement of field commanders in the establishment of objectives and tasks for which they will have some responsibility for accomplishment.

(U) The revised regulation also contained a series of milestones which, if followed, would result in the publication of the annual DARCOM Program Plan prior to the start of the program year. However, in FY 1979 the initial milestone; i.e., the distribution of a request for proposed FY 1980 objectives, was delayed from 11 June to 23 July due primarily to Deputy Commanding General for Resources Management Task Group proposal. Basically, this proposal was to change the MGO from a system of management by exception to one in which the objectives and tasks would be related to the Army Resource Management Structure so that all performances could be viewed and decisions made in the context of resource availability.

(U) Using the thirty-one FY 1979 DARCOM objectives as a baseline, the MSC's and Headquarters staff proposed over 100 changes (additions, deletions and revisions) to bring them into FY 1980. A predominance of the MSC's and Headquarters staff (19 to 7) recommended that the proposal to relate the objectives to the resource management structure either not be adopted or adopted with certain reservations.

(U) The proposals and comments of the MSC's and Headquarters staff were reviewed and plans were made to obtain implementing tasks and to publish the FY 1980 DARCOM Program Plan early in November 1979.

Special Inspection of Army Nuclear Matters (SIANM)

(U) As directed by the Chief of Staff of the Army, the Department of the Army Inspector General (DAIG) performed an Army-wide Special Inspection of Army Nuclear Matters (SIANM) in the summer and fall of 1978. LTG Trefry led the entire effort with BG William Schneider as the team chief. In the first quarter of FY 1979, the DAIG finalized and presented the report to the Chief of Staff of the Army. The basic findings and philosophy of the report were approved and the DCSOPS was assigned overall responsibility for implementation.

(U) In December 1978, the CG DARCOM and his senior staff were briefed by the DAIG team. The major findings and recommendations were discussed and Command support of the CSA decisions was pledged.

(U) By letter dated 13 February 1979, the DCSOPS distributed copies of the Executive Summary of SIANM and an extract of all recommendations with action/coordinative assignments. Assignment of the Command POC was made on 28 February 1979 to Directorate for Plans and Analysis. A DCSOPS letter dated 26 February 1979 forwarded a copy of the full report to DARCOM. In order to preclude unwarranted disclosure of any findings or corrective action, reproduction of the Executive Summary and the SIANM Report was forbidden. The single DARCOM copies were classified SECRET and access was strictly controlled.

(U) In the listing of action assignments, DARCOM was named on 20 recommendations as the principal action agency and on 58 as having a coordinating role. A working meeting on 2 March 1979 kicked off DARCOM compliance with the DCSOPS actions. All actions were assigned to Headquarters elements and a system for reporting progress in accomplishment of the actions was designed. An interim reply to Headquarters DA was formulated and dispatched on 12 March 1979 under Chief of Staff signature.

(U) A decision briefing for the CG DARCOM was scheduled for 19 March 1979. The DARCOM Chief of Staff took the briefing instead, and the CG reviewed a written summary and copy of briefing. The CG directed that all of his major commanders be informed of his support

and interest in this project. By DARCOM letter, DRCPA-O, this subject, 23 March 1979, the plan of action for each of the 20 recommendations assigned as action to DARCOM were forwarded to Operations and Plans, Office of the Deputy Chief of Staff (DAMO). The CG direction to inform the field was implemented by letter, DRCPA-P, 9 April 1979.

(U) During the year, individual offices pursued their actions independently and most were completed. The report's effect on DARCOM fell in three general areas:

(U) Management. Several recommendations pointed toward more specific, recognizable organizational entities for management of nuclear functions (including security). It also decried some previous loss of personnel resources and hoped they could be reinstated.

(U) Inspections. Overall direction of the report was toward fewer, but more complete and objective inspections. The function was to move from technical to IG inspection responsibilities.

(U) Logistic Support. There were several areas for improvement in maintenance, quality assurance and supply management which were pursued immediately.

(U) In June 1979, the DCSOPS began planning and arranging for a world-wide SIANM Conference with the purpose of a general overview of SIANM and progress toward attaining the completion of actions. That conference was held on 11-12 September 1979. Attendees from DARCOM represented the Nuclear-Chemical Office, Quality Assurance Directorate, Management Information Systems Directorate and Security Office as well as Plans and Analysis. All Commands were in similar posture; i.e., they were in process of implementing the actions and reporting progress-to-date. The conference was chaired by BG Fulwyler, DAMO-NC, with LTG Trefry, TIG and BG Schneider, DRCPT in attendance.

(U) A status of all actions as of 30 September 1979 is shown on Chart .

Master Urgency List (MUL)

(U) There were instances when several developmental items competed for the same resources at the same time; e.g., test facilities. When this occurred, a logical basis for establishing priority was required. The Deputy Under Secretary of Defense (Acquisition Policy) was concerned about this basis and caused an investigation into the problem. After study, he published a memo to the effect that no new system was needed, but that the Master Urgency List (MUL) could be used. The memo was published on 14 May 1979, signed by Secretary Church.

DARCOM ACTION ITEMS
SIANM

NUMBER	SUBJECT	STATUS	SYNOPSIS OF ACTION
A-1,2	Review internal management of nuclear matters.	Complete	Nuclear-Chemical Office set up on Special Staff. Augmentation with officer spaces in process. Had technical control over Surety Field Activity at Dover, NJ.
B-11,9	Review job sheets of civilian guards at storage sites to insure physical requirements were covered.	Pending DCSPER action	DARCOM had gone through this drill for chemical guards. Secy LaBerge sent a letter to OPM for guidance. DARCOM reviewed these job descriptions and was to take appropriate action when DAPE guidance was received.
C-1,4	Review MTOE 19-097 for each storage site and make appropriate revisions for response forces.	Complete*	A physical security plan was prepared for each site including both air and surface defense plans. The air defense plans were reviewed in March, and TOE/MTOE were updated within 30 days after plan approval. The problem was that without DCSOPS granting high enough priority, TOE update achieved nothing.
C-4,13	Review custodial agent forms.	Complete	DESCOM performed review of forms at installation level. No unnecessary or duplicate forms were discovered. This was primarily a USAREUR problem.
C-6,2	Obtain a system security service of the computer system supporting nuclear storage.	4th Qtr FY 80	DESCOM requested INSCOM to inspect. INSCOM was scheduling the service as part of System Security Enhancement Program (SSEP). Four depots were scheduled in 4QFY79 and five in 1QFY80.

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Chart --Continued.

NUMBER	SUBJECT	STATUS	SYNOPSIS OF ACTION
D-9,20	Ensure that MTOE were properly coded under AR 220-1	Complete*	Ongoing action. ERC coding was simultaneous with entry of TOE line in computer. Changes were reviewed and entered during windows allowed by Management of Change (MOC) procedure.
E-1,1	Review cataloging functions. Revise if necessary.	Complete	Procedures were reviewed and found adequate. Non-ARRCOM items took longest, but even the DLA-GSA maximum was 165 days, well below allegations.
E-1,2	Improve quality control over contract specifications.	3d Qtr FY80	Current procedures were reviewed by PM-NUC who proposed a change to the DOD directive. The change would require government personnel on-site at contractor. Change was being evaluated.
E-1,3	Review ARRCOM Nuclear Maintenance Engineering Division structure.	Complete	ARRCOM was directed to restudy on an operational and cost effective basis. After the review, they dropped previous request for transfer and recommended structure remain as it was.
E-2,4	Standardize calibration responsibility for torque wrenches.	Complete#	Calibration responsibilities were standardized and "P" manuals were to be updated. AR 750-25 and TB 750-25 updated to implement USAREUR - 1 Oct 79, West Pac - 1 Apr 80.
E-2,5	Standardize tech manuals. Develop better dissemination procedures.	1st Qtr FY80	The manuals were standard under joint procedures. A Memorandum of Agreement for publications distribution was developed by DARCOM, USANCA, and Tag Cen. This was being staffed.

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Chart --Continued.

NUMBER	SUBJECT	STATUS	SYNOPSIS OF ACTION
E-3,6	Repair or replace unserviceable warhead assemblies.	Complete	Review of status was completed and the operating procedures at NICP/NMP looked at. Procedures were reinforced to insure timely follow-up. System was improved per recent performance.
E-3,7	Review maintenance feedback reporting.	Complete#	The major redundancy was in non-defect reporting. The Ad Hoc Committee for revision of TB 9-1100-803-15 took on this review as part of their ongoing operation. Change 5 (May 79) reduced non-defect reporting by 60 percent. Further study was looking at eliminating all non-defect reporting.
E-3,8	Increase priority of developing retest procedures for Type II shelf-life extendable materials.	Complete	New procedures were staffed with USAREUR by ARRADCOM. The TB on Nuclear Weapons Expendables was revised, incorporated retest procedures, and went to TAG in 4th Qtr FY 79.
E-4,10	Tool Kit Authorization Lists for Nuclear Weapons should be reviewed.	4th Qtr FY80	All the kits are scheduled for review. The reviews were scheduled throughout the year to be completed by end FY 80. Results were to be changes to the Supply Catalog Component Lists and TAADS documents.
E-4,11	Develop scope of work in support of Nuclear Weapons Stockpile Reliability Program.	Complete	Current procedures were adequate in that they identified components, made DMWR's available, and utilized detailed instructions for each test. However, PM-NUC was asked to review procedures, and some minor changes to the scope of work were published.

Chart --Continued.

NUMBER	SUBJECT	STATUS	SYNOPSIS OF ACTION
E-5,12	Develop DMWR for recertification of stockpile reliability samples.	Complete	ARRCOM evaluated the depot recertification procedures which were contained in the maintenance and inspection chapters of the technical publications. The procedures in the TM's were considered adequate and no DMWR was needed.
F-3,5	Assure that, prior to initiation of a new program, survivability criteria is approved by the NSC.	Complete*	The policy, procedure and responsibility was all in AR 70-60. DARCOM's Director of Development and Engineering was a member of the NSC and also was DARCOM approval official on all requirements documents.
F-3,6	Require PM's to consider hardening and survivability at the start of their programs.	Complete*	The overall requirements for these items came from the user. PM's were required to address nuclear hardening at decision reviews such as IPR's, ASARC and in-house reviews. Provisions of AR 70-60 were reemphasized to the PM community.
F-8,1	Review DARCOM organization and functions and assign adequate numbers of people.	Complete	The Nuclear-Chemical Office was established and DA approved an increase of three officers. DARCOM was generating one space to accommodate the HQ nuclear safety function.

* Continuing action was required on either a periodic or as required basis.
\# Specific recommendation completed, but internal DARCOM actions continue.

(U) General Guthrie published a letter 22 June 1979 emphasizing the use of DX and DO Defense Priority Ratings in the DARCOM acquisition process. To insure that these same MUL priorities were used in the allocation of DARCOM in-house resources, a policy letter was prepared and distributed on 21 August 1979.[29]

(U) The DOD MUL was to be used in all phases of the acquisition cycle, and when conflicts in claims on in-house resources occurred, they were to be prioritized by utilizing the DOD MUL.

ARRCOM Test of Delegated Authority

(U) On 27 July 1978, the Director of the Army Staff approved the US Army Armament Materiel Readiness Command Delegation of Authority Test Plan. The test plan delegated to ARRCOM the authority to determine the applicability of regulatory requirements governing vehicle control and facilities inspections for all Government-Owned, Contractor-Operated Army Ammunition Plants. This plan was approved for a one year period with the condition that ARRCOM abide by the constraints/restrictions imposed by statue, executive order of Department of Defense. Department of the Army staff proponents identified the constraints and restrictions.

(U) On 20 March 1979, an In-Process Review of the test was conducted at Headquarters ARRCOM. As a result, the CG ARRCOM directed the test be extended to the end of the fiscal year, from 27 July 1979 to 30 September 1979, to determine the true efforts and costs. On 6 June 1979, DA approved the extension of the test date with a final test report to be forwarded to DA approximately 60 days after completion of the test.

CITA

(U) Effective 9 April 1979, responsibility for managing the Commercial and Industrial-Type Activity (CITA) Program was transferred from the Director, Installations and Services (DRCIS) to the Director, Plans and Analysis. DRCPA also assumed operational control over the CITA efforts of the DARCOM Installations and Services Activity. In order to accomplish this additional major mission, a new division was organized. The Resource Analysis and Evaluation Division (DRCPA-R) was formed with a nucleus of four positions transferred from DRCIS augmented by eight spaces from P&A's Mission and Organization Division.

(U) The major workload in the CITA Program during the fiscal year was the development of a 5-year program to conduct cost-based reviews of commercial and industrial-type functions throughout DARCOM.

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[29] Ltr, DRCPA, subj: Resource Allocation and the Department of Defense Master Urgency List (DODMUL), 21 Aug 79.

The first year's effort (begun in FY 79) affected 27 installations and activities. These reviews, covering over 3000 military and civilian spaces, were to be completed by end FY 1980. DRCPA-R monitored the over 1200 milestones associated with the reviews. A second significant effort initiated in FY 1979 was the development and maintenance of an up-to-date inventory of all CITA's in DARCOM performed either in-house or by contract.

Status of Closing of Frankford Arsenal

(U) Decontamination Survey. On 21 September 1979, Rockwell International Corporation was awarded a contract in the amount of $6.3 million to decontaminate Frankford Arsenal (FFA). Completion of all decontamination work, including supporting paperwork, was scheduled for 31 January 1981. At that time, FFA was to be presented to the General Services Administration (GSA) for assumption of financial responsibility and disposal. However, GSA required between 12 and 15 months to finalize a decision to officially accept FFA. Accordingly, the official turnover date of FFA to GSA was estimated to be 30 April 1982.

(U) Buildings. Of a total of 211 buildings at FFA, 203 buildings were closed. The remaining eight were utilized by the Caretaker Activity.

(U) Personnel Staffing. Personnel staffing of the Caretaker Activity on 1 October 1979 was 79 civilians. On 6 January 1980, staffing was scheduled to be reduced to 53 civilians. In addition, should the Caretaker Activity workload be contracted out, a group of approximately 10 government civilians would remain on 6 January 1980.

(U) Equipment. All equipment was out of FFA with the exception of equipment required and utilized by the Caretaker Activity and some equipment being stored at FFA for the Philadelphia Industrial Development Corporation.

Depot System Command (DESCOM) Relationships With HQ DARCOM Functional Managers

(U) Activated on 1 Septemher 1976, the Depot System Command (DESCOM) was charged with command and control of all DARCOM depots. In establishing DESCOM, a unique approach was utilized with respect to staffing for, and accomplishment of the vast majority of overhead support functions which were normally performed at a major subordinate command. Rather than establishing a large support staff internal to DESCOM overhead support was being provided to DESCOM by HQ DARCOM and certain other elements. By obviating the requirement for a complete supporting staff at DESCOM, the new command became operational with a significantly reduced total personnel requirement.

(U) A letter dated 3 July 1979,[30] provided DARCOM Chief of Staff policy guidance, reemphasizing the proper staffing procedure between HQ DESCOM and HQ DARCOM staff elements, and the need for coordination between all DARCOM staff elements who also performed as DESCOM staff. The coordination policy guidance became effective immediately.

Lexington-Blue Grass Depot Activity

(U) Dating back to Project CONCISE, the Kentucky Congressional delegation challenged the Department of the Army's decision to convert Lexington-Blue Grass Army Depot into a depot activity. This challenge was reiterated during FY 1979. After numerous inquiries and meetings with the delegation on the status and future of Lexington-Blue Grass Depot Activity (LBDA), a commitment was made by HQDA to keep the Delegation abreast of all actions affecting resources and missions. HQ DARCOM was tasked with reporting these actions to ODCSLOG for subsequent release to the Kentucky delegation. The Directorate for Plans and Analysis was designated as the LBDA focal point for HQ DARCOM by the Chief of Staff. The Mission and Organization Division was tasked with providing guidance on proper preparation and coodination procedures to all HQ DARCOM functional elements.

Surface Launched Unit Fuel Air Explosive (SLUFAE)

(U) MERADCOM requested guidance from HQ DARCOM concerning transitioning of the SLUFAE Mine Neutralization System from development management to readiness management. MICOM's and ARRCOM's Commanding Generals had not been successful in resolving differences as to how the rocket, warhead, and container would be transitioned from MERADCOM to ARRCOM.

(U) The MICOM position on the transitioning of the SLUFAE system was that the total system management (fund control, configuration management, and systems integration) should subsequently be assigned by MICOM to ARRCOM for management by the Single Manager (SM) for Conventional Ammunition. As for ARRCOM's position, it held that the SLUFAE round and container should transition directly from MERADCOM to ARRCOM for management by the Single Manager.

(U) The DARCOM policy decision provided that the overall weapon system management responsibilities for the SLUFAE system transition from MERADCOM to MICOM. Management of the rocket, warhead and container were designated for transfer to ARRCOM.

(U) Configuration management and systems integration were to be included in the systems management responsibilities. The systems

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[30] Ltr, DRCPA-O, subj: Depot System Command (DESCOM) Relationship with HQ DARCOM, 3 Jul 79.

manager was responsible for the total system including all conventional ammunition components and was to retain final approval authority on changes, waivers, or deviations to the system through use of the Configuration Control Board. Membership on the board was to consist of DARCOM major subordinate commands and other agencies that were involved with SLUFAE.

Establishment of US Army Missile Command

(U) A new DARCOM major subordinate command, the US Army Missile Command (MICOM), was established 1 July 1979 at Redstone Arsenal, Alabama. It was formed by consolidating the assets of the US Army Missile Research and Development Command (MIRADCOM), and the US Army Missile Readiness Command (MIRCOM).

(U) The decision to reorganize and merge the two commands was based on a determination that it was not cost effective to retain separate commands. A merger plan was prepared with the reorganization to be accomplished in two phases as follows:

(U) Phase I - 1 July 1979 to 30 September 1979. All missions, functions, personnel spaces, and funds were transferred to MICOM on 1 July 1979. A Commander and two Deputy Commanders were assigned for the single command. One Deputy Commander was responsible for readiness and procurement, while the second Deputy Commander was assigned responsibility for research and development functions.

(U) Phase II - 1 October 1979 to 30 September 1980. During the second phase, staff offices and elements with similar functions were to be consolidated and realigned. Current manpower authorizations were to be retained until the end of FY 1980. Any manhour savings generated as a result of the merger were to be applied to MICOM's priority manpower requirements.

(U) In addition to the above actions, research and development laboratories were transferred to a new separate organization titled, "US Army Missile Laboratory." This activity was organized and became operational on 1 October 1979 under the authority of Permanent Order 75-1.

Test Measurement and Diagnostic Equipment (TMDE)

(U) DA tasked DARCOM to take the lead in developing reorganization plans for the approved DA Concept Study for improved Army-wide TMDE Calibration and Repair Operations. This included DARCOM's assumption of worldwide command and control of active Army support activities dedicated to the total support of general and selected special purpose TMDE. Implementation was to occur on a phased basis with the first

step taken during FY 1979. The reorganization plan for the US Army TMDE Support Activity, Europe, was approved on 17 September 1979. Headquarters DARCOM Permanent Orders 73-2, 25 September 1979, assigned the Support Activity, including the Calibration and Repair Centers at Augsburg, Schwanheim and Pirmasens to the US Army Metrology and Calibration Center under the command of MICOM, effective 1 October 1979.

Aviation Depot Maintenance Roundout

(U) The concept of Project Roundout was to reorganize Army National Guard Transportation Aircraft Repair Shops (TARS) into TDA Aviation Classification Repair Activity Depots (AVCRADS) and make them available to DARCOM for deployment - when needed - in support of mobilization plans. DARCOM's role was to provide OCONUS Warm Base Training Facilities, Aircraft Maintenance Instructors, and to plan for fast deployment of AVCRAD personnel in the event of a contingency.

(U) Training National Guard personnel during peacetime and utilizing them in the event of a contingency was not a new concept. Discussions on improving the training and utilization of National Guard Aviation Maintenance personnel culminated in 1977, when DA tasked DARCOM to work in conjunction with the National Guard Bureau to perform a concept study.

(U) The AVCRADS which were recently reorganized were to be equipped to test, classify and perform limited depot repair in both CONUS and OCONUS. AVCRAD OCONUS Mobilization mission would return items to the TMMC faster by virtue of the shortened pipeline on selected items. This combination of organization and physical facility would provide an aircraft depot maintenance capability that was semi-mobile and completely self-sufficient with the exception of resupply of mission and housekeeping needs and supplies. The concept, equipment, and operational doctrine were applicable world-wide.

(U) Upon mobilization, the mission of the AVCRADS was to initially provide depot support to deploying and deployed forces while enroute to their CONUS or OCONUS mobilization stations. This would principally take the form of joining up with the units at their embarkation stations, and if necessary, accompanying them to the OCONUS station.

(U) After the fighting units were deployed, the teams would return to the parent organization in OCONUS or CONUS, and assume their primary mission of depot level support of Army Aviation in the operational units, in the combat zone, or in the training base. This consisted of the repair, overhaul and return to the supply system of aircraft components, avionics, aircraft armament systems, and aircraft support equipment, or roundout of the CONUS aviation depot maintenance function.

(U) The four National Guard Aviation Repair Shops were located in Fresno, California; Springfield, Missouri; Groton, Illinois; and Gulfport, Mississippi. The management/control element was located at Edgewood Arsenal.

(U) Total AVCRAD personnel were 1150 (711 OCONUS and 439 CONUS) and 74 in the AVCRAD control element for total ARNG personnel of 1224. Of these, 706 were direct labor personnel in the AVCRAD units.

Installations and Services

Mission and Organization

(U) The mission of the Directorate for Installations and Services was to direct, staff supervise, develop authorization and funding program for, and/or coordinate the management and utilization of, the physical plant of the US Army Materiel Development and Readiness Command, and the logistical support services incident to the operation of its installations, to include: construction; utility operations; repair and maintenance of facilities; functional aspects of information system design, development, training, implementation, and operation; environmental protection, involving air, water, noise, and all other forms of pollution; conservation of energy and natural resources; land management; fire prevention and protection; real estate; family housing, housing referral service, guest houses, barracks, and bachelor quarters, intro-service and interservice support agreements (excluding wholesale supply support agreements); audio-visual activities; direct and general support maintenance, authorization, utilization, and redistribution of installation equipment, industrial plant equipment, and administration transport vehicles, utility railroad equipment, and marine floating equipment; retail supply activities, clothing sales stores, and self-service supply centers; commissaries, post exchanges, theatres, post restaurants, open messes, Direct Energy Coordination Center activities and Environmental Quality Programs.

(U) The Directorate served as resource manager and program director of the military construction, Army (MCA) Appropriation, and program director for the DARCOM Installations and Services Program. Also, it served as resource manager and program director for the DARCOM Family Housing Management Appropriation (Budget Programs 1800 and 1900); directed the operation of the DARCOM Installations and Services Activity (Rock Island Arsenal); and coordinated within Headquarters DARCOM all matters related to Instllation Restoration assigned to USA Toxic and Hazardous Materiels Agency (USATHAMA).

DARCOM Energy Program

(U) Introduction. The DARCOM supplement to AR 11-27 established the three major objectives of the DARCOM Energy Program: (1) to assure

adequate energy supplies; (2) to conserve energy resources while maintaining readiness; (3) to foster the conservation ethic.

(U) In April of 1979 world events caused a shortfall in oil production, resulting in energy becoming a major national concern for the first time since the oil embargo of 1973. With the reappearance of commercial gas lines and with some DARCOM installations experiencing difficulty in getting commercial contracts for unleaded gasoline, the energy program received strong command emphasis and the value of its program objectives became more apparent. Subsequently, the DARCOM Energy Program showed good progress in FY 1979.

(U) Program Results. DARCOM realized in FY 1979 a percent change in Mobility Energy, Heating Energy, Electricity, and total energy of -9, -5, +2, and -3 respectively, as compared to FY 1978 consumption.

(U) Increased emphasis on the Energy Conservation Investment Program (ECIP) resulted in 45 projects ($27.8 million, 1.426 million MBTU/year savings) submitted in the FY 1981 MCA program, as opposed to a total of 49 projects submitted in FY 1976 through FY 1980.

(U) In May 1979, DARCOM submitted to the Office, Chief of Engineers (OCE) a detailed energy conservation plan delineating DARCOM's approach to its FY 1985 conservation goals at all DARCOM installations as required by the Army Facilities Energy Plan. This plan will be updated in each subsequent year.

(U) DARCOM submitted its requirements to OCE for the Army Coal Conversion Program formulated to reduce the Army's dependency on fuel oil and natural gas. These requirements included the conversion of 23 plants occurring between FY 1980 and FY 1995 at an estimated cost of $562 million.

(U) In October 1979, the Defense Energy Information System (DEIS) consumption data reporting format was revised. This revision was incorporated into the DARCOM Energy Management Information System (EMIS) and a quality assurance computer program was developed. Subsequently, more accurate reports were being submitted, and errors were being corrected expeditiously.

(U) The Installation Energy Conservation Award program was continued in FY 1979. Because of personnel vacancies in the Energy Office and late receipt of completed plaques, 1st half FY 1978 awards were given as follows:

CATEGORY	WINNER
Ammunition Plants	Badger
Arsenals	Lima
Depots	Sierra
Laboratories, Proving Grounds & Others	Redstone
Individual	Mr. Miles McNiff (APG)

(U) The shortfall of petroleum production in April 1979 caused a revision of the DARCOM energy consumption reduction goal for FY 1979. Initially, DARCOM had a goal of 2 percent reduction as compared to FY 1978 consumption adjusted for FY 1979 conditions (weather & mission). Effective with the third quarter, the goal was revised to a 5 percent reduction compared to FY 1978 actual consumption. In an effort to meet this goal, the Energy Office initiated guidance in a series of numbered "Energy Flasher" messages, addresssing various areas where additional energy savings could be realized.

(U) Initial requirements were identified by DARCOM for the Energy Conservation and Management (ECAM) Program scheduled for implementation in FY 1982. ECAM was a procurement funded energy conservation program which applied to active GOCO plants only. FY 1982 DARCOM requirements were estimated at $8.55 million.

(U) A prioritized list of DARCOM installations was established for the Energy Engineering Analysis (EEA) Program and submitted to OCE. This program enabled surveys to be performed at installations to identify energy savings projects. Priority was given to the largest DARCOM energy consumers.

(U) The Army Energy Showcase program was a DOD/DOE joint initiative being carried out at the RRAD/LSAAP complex to demonstrate the latest energy technologies. In FY 1979, $5000 thousand was made available to OCE from DOE to initiate funding of this program through the conceptual phase. DARCOM also sent $500 thousand to OCE Fort Worth District, to fund an installation energy evaluation analysis at RRAD/LSAAP to establish the baseline of energy consumption and to identify and develop functional requirements for construction projects incorporating reduced energy concepts in the Showcase program.

(U) Program Problems/Solutions. The DARCOM Energy Program had significant progress in FY 1979. However, program shortfalls could be addressed in three areas.

(U) DARCOM has achieved an approximate 19 percent reduction in energy consumption since the program inception in FY 1975. DARCOM was

predominately a production related command and because the production profile for DARCOM was significantly different from those of FY 1975, it was uncertain how much of the energy savings had been obtained through the energy conservation program and how much was due to the change in the DARCOM production profile. Correlating consumption data with production data (i.e., programmed dollars and line items) will allow us to assess where we are in the program to date. The effort to establish these correlations was underway at headquarters.

(U) On 20 July 1977, the President issued Executive Order No. 12003 which had as its goal a 20 percent reduction in energy use per square foot in existing Federal buildings and a 45 percent reduction in energy consumption for new Federal buildings by 1985 as compared to the energy per square foot consumed in 1975. Subsequently, DA adopted a FY 1985 average BTU per square foot goal for each major command. (DARCOM's was 191.8 x 10^3). However, most facilities were working only with gross energy use. Square footage data of the 1975 period frequently could not be found and/or energy use per square foot data was suspect. Additionally, ambiguities existed between what was recorded as gross square footage and heated/cooled square footage. The problem solution involved the difficult effort of approaching the various sources of this information and resolving these conflicts. This was a time consuming effort requiring considerable manhours.

(U) Most energy program duties were delegated on a part time, collateral basis. Unfortunately, the major shortfalls of the energy program will not be resolved without the concerted effort of full time energy personnel. Commanders in DARCOM were being encouraged to identify these unfinanced energy personnel requirements in the appropriate budget exercise (i.e., PARR submissions). In the FY 82-86 PARR submission, the Energy program's unfinanced requirements were identified as the tenth priority in DARCOM's list of unfinanced requirements.

Environmental Quality

(U) Organizational Changes. The Environmental Quality Office was reassigned on 9 April 1979 from Directorate for Plans and Analysis to Directorate for Installation and Services,[31] and subsequently the organization was redesignated Environmental Quality Division. No physical relocation was involved. The Environmental Quality Office had an assigned strength of seven in 1977 and was increased to 13 (including 2 overhires) in 1978. In August 1979 an additional overhire GS-028-12 was authorized for the Installation Restoration program; thus a total of 14 persons were authorized for the Environmental Quality Division.

(U) The mission of the Environmental Quality Division was augmented during June 1979 with the addition of overall headquarters staff responsibility for the Installation Restoration Program. Management of this

[31] DF from Chief of Staff, DRCGS, subj: Realignment of Environmental Quality; et al, 9 Apr 79.

Army-wide program, to identify and contain/eliminate migration of toxic and hazardous pollutants from Army installations and to correct on-site contamination problems at installations involved in excessing actions, was by the US Army Toxic and Hazardous Materials Agency (USATHAMA). During the year major abatement projects under the Installation Restoration Program were initiated at Redstone Arsenal and Frankford Arsenal, a multi-year effort continued at Rocky Mountain Arsenal, and an additional project completed at Pine Bluff Arsenal. Thirty-three records search evaluations and nine on-site surveys were conducted or continued at Army installations. Hazardous environmental pollution situations discovered as a result of these problem definition-type efforts will define the magnitude of the out-year Installation Restoration Program. Actual and projected costs of the effort as of June 1979 are provided in Chart below.

(U) Compliance With Applicable Environmental Quality Standards. Although the Clean Air Act and Clean Water Act with their amendments of 1977 were the primary environmental enforcement laws during the 1970's, it was expected that the Toxic Substances Control Act of 1976 and Resource Conservation and Recovery Act of 1976 would be the costly, significant, and driving laws of the 1980's. There were over 100 federal laws, regulations, and guidelines in the environmental arena and with tightening emphasis by the Federal, State and local regulators, the DARCOM compliance status will remain complicated and challenging.

(U) At the start of the fiscal year, DARCOM had 35 noncomplying installations with 20 air sources out of compliance and 23 water sources out of compliance. At the close of FY 1979, due to high level command interest and initiatives taken by the Environmental Quality Division, this number had been reduced to 25 noncomplying installations with 11 air sources and 22 water sources out of compliance.

(U) During the first quarter of FY 1979 DARCOM had 18 installations with a total of 20 regulatory proceedings such as notices of violation, hearings, or compliance orders. By the close of 4th quarter FY 1979 this number had been reduced to eight installations with only 10 regulatory proceedings.

(U) Two litigations were settled during FY 1979 and two new ones added. The Anniston Army Depot air/boiler plant problem was settled by issuance of a consent decree and an operating permit. The Scranton Army Ammunition Plant water permit violation civil penalty of $1.67 million was paid in August 1979 by DARCOM to the State of Pennsylvania. The National Environmental Policy Act (NEPA) citizens suit and construction and operating permits petitions continued over the Callery Chemical Company's Carborane Facility.

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INSTALLATION RESTORATION PROGRAM RESOURCES

($ in Millions)

	PFY	CFY 79	BFY 80	TFY 81	TFY +4 FY 82-85
OMA	16.1	14.1	11.6	11.4	42.1
Records Search	1.5	1.5	.7	.7	2.8
Surveys	1.9	1.3	3.3	5.7	16.6
Operations	9.5	10.1	5.9	3.2	12.3
Program Management	3.2	1.2	1.7	1.8	7.6
RDTEA	9.2	3.0	3.1	3.9	14.8*
Analytical Systems	2.2	.4	.8	.7	3.9
Standard Development	3.8	.6	.6	.7	2.7
DECON Technology	2.9	1.8	1.5	2.3	7.2
Program Management	.3	.2	.2	.2	1.0
TOTAL	25.3	15.4	14.7	15.3	56.9
MCA SUPPORT					
Pilot/Operations	.5	-	6.5	5.4	

*RDTEA FY82-85 Core Level

SOURCE: FY 80/81 Program Budget Guidance (PBG)
FY 81-85 Program and Budget Estimate (PABE)

UNCLASSIFIED

(U) New litigation involved Rocky Mountain Arsenal where Utah sued over the adequacy of NEPA compliance (movement of Weteye RMA to Tooele), and at Redstone Arsenal where citizens and industry sued over alleged damages from DDT contamination and National Pollutant Discharge Elimination System (NPDES) violations.

(U) During FY 1979 the operating permits status (air, water, solid waste, and dredging) for DARCOM installations improved significantly. The permits increased from 27 percent on hand at the beginning to 52 percent on hand at the close of FY 1979.

(U) The DARCOM Pollution Abatement Operations Center (PAOC) formed at the direction of the CG in late FY 1978 became fully operational with a staff of four people dedicated to following major issues in the DARCOM Environmental Program during FY 1979. The purpose of the PAOC was to maintain an accurate, up-to-date picture of pollution problems at all DARCOM installations and to know the status of actions and corrective projects needed for compliance. In order to manage this PAOC program, data and statistics were maintained in 16 different categories.

(U) A major environmental policy initiative of the DARCOM Environmental Quality Division during this fiscal year was to reduce the vulnerability of installation commanders to criminal or civil sanctions when their installation was not in compliance with an environmental statue, despite good faith efforts to comply. Because of statutory deadlines of the Clean Water Act (1 April 1979) and Clean Air Act (1 July 1979), Headquarters DARCOM proposed to HQDA the seeking of Presidential Exemptions for these installations open to legal or regulatory enforcement actions. The Army's approach was to conclude a compliance agreement with the Environmental Protection Agency (EPA) for the 15 major installations identified as noncompliers. The basic tenant of the agreement (nick-named the Golden Football) was that the Army would agree to compliance schedules and that EPA would refrain from taking enforcement action. These 15 installations and subsequently identified air and water noncompliers were advised to negotiate similar compliance agreements with the Regional EPA offices and state authorities. Thus, DARCOM was trying to settle its environmental compliance problem for which no short term cure was available via negotiations at the national, regional, state and local levels in order to be able to continue to operate its facilities while minimizing the liklihood of regulatory enforcement action.

(U) Air Quality. As a result of the Clean Air Act Amendments of 1977, increased efforts were made toward compliance throughout DARCOM during FY 1979. Areas of special interest included air quality permits, Inspection and Maintenance (I&M) Plans for vehicles, open burning and open detonation. Significant progress was made toward obtaining all

required air source operating permits. With regard to I&M plans, DARCOM promulgated the plan on 16 November 1978 for its DA vehicles under the Clean Air Act. The DA I&M plan was prepared by TARCOM in FY 1978 and promulgated by a DA Adjutant General letter.

(U) During FY 1979, several major actions were undertaken regarding open burning. An evaluation was initiated and completed regarding the DARCOM contaminated waste incinerator program. Projects programed but not built at 15 installations were identified as not complying with applicable emission limitations. A new technology developed at the Tooele Ammunition Equipment Office was substituted for the environmentally unacceptable technology (i.e., air curtain incinerator).

(U) In August 1979 the DARCOM Chief of Staff directed that open burning projects be coordinated with state/local regulators in the hope that long term open burning could be arranged in light of fiscal and energy costs.[32] Forty-two projects programed at over $150 million dollars were identified as requiring contact with regulators. While most contacts will occur during FY 1980, three projects ($4.5 million) have already been deleted from the construction program.

(U) A program was initiated in June 1979 to obtain legal authority to continue to process demil stocks by open detonation. The Army Environmental Hygiene Agency is assisting with this program.

Engineering

(U) Military Construction. Thirty-eight military construction projects were authorized by the Congress in FY 1979 budget. MCA appropriated amount for FY 1979 was $111.8 million.

(U) Exigent minor construction projects and self-amortizing minor construction projects ($100,000-$500,000) funded for construction, for DARCOM installations or activities amounted to $5.3 million. Fifteen projects were funded during the fiscal year.

Master Planning

(U) DARCOM Master Plan Review Board. This Board was established under provisions of AMCR 11-4 for the purpose of providing assigned directorate members with visual detailed reviews of Future Development Plans, submitted annually by each (GOGO) installation.

(U) Installation master plans were the source documents for development of military construction programs; they provided for new and expanded facilities required for support of the approved missions and workloads, and for timely replacement of temporary deteriorated facilities.

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[32]Msg 131405Z Aug 79, from MG Robert L. Moore, subj: Open Burning Abatement Projects.

(U) Review comments and recommendations were forwarded to HQDA for inclusion in its technical review. All construction accomplished at installations must be consonant with the DA approved plans.

(U) Nonreimbursable Master Planning Assistance Funds. In order to provide up-to-date master plans, HQDA, through the Corps of Engineers, made funds available to the District Engineer offices that support DARCOM installations. These funds were for Phases II, III, and IV of Master Planning. The amounts allocated were as follows:

	PROGRAMED	OBLIGATED
FY 1976	$ 420,000	$ 420,000
FY 197T	608,700	608,700
FY 1977	534,000	460,000
FY 1978	2,056,000	2,188,000
FY 1979	778,500	778,500

(U) Production Base Support Activity, FY 1979. By the end of fiscal year 1979, $34.7 million in (ammunition and non-ammunition) Production Base Support Construction Projects was awarded. This figure was $5 million below that which had been programed for scheduled construction awards. This represented a significant downturn in overall program from the $116.1 million awarded in fiscal year 1978.

(U) During FY 1979, quarterly Production Base Support interface meetings were held at various installations to keep abreast of significant actions, although the shortage of travel funds limited the number of meetings. Representatives of the Office, Chief of Engineers; the Office, Deputy Chief of Staff for Research, Development, and Acquisition; US Army Materiel Development and Readiness Command; DARCOM's major subordinate command headquarters; and the Project Manager for Munitions Production Base Modernization and Expansion attended the meetings.

(U) Facility Working Group meetings, first held during FY 1973 but reaching full implementation during FY 1974, were beneficial in improving local-level coordination between the ammunition plants and the engineer districts. The shortage of travel funds restricted the frequency of these meetings.

(U) While money for many Mod/Expansion and Production Support and Equipment Replacement (PS&ER) projects became increasingly tight, funding was now assured for the controversial project at Mississippi Army Ammunition Plant. With a view toward increased congressional control and visibility, the House Appropriations Committee expressed a desire to have all final designs completed by the time the Army's appropriation request was submitted to Congress, effective with the FY 1977 program.

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MCA PROGRAM MAGNITUDE

($ MILLION)

FIELD SUBMISSION	DARCOM PROGRAM	DARCOM PORTION OF DA PROGRAM	DARCOM TOTAL APPROVED BY CONGRESS
FY 1976-160	102	66	58
FY 1977-191	118	90	70
FY 1978-274	187	55	107
FY 1979-225	137	154	112

(U) Energy. The Army Facilities Energy Plan, 1 October 1978, established a requirement for developing detailed plans for energy conservation within all facilities at each installation, with MACOM's consolidating subordinate installation plans into a MACOM summary. Initial installation plans were formulated and forwarded through major subordinate commands by mid February 1979. DARCOM summary was completed and forwarded to Department of the Army in May 1979.

(U) Increased emphasis on the Energy Conservation Investment Program (ECIP) resulted in a significant increase in the number of projects submitted for this program. Nine projects were approved for FY 1979; as of the close of the fiscal year, 45 ECIP projects ($27.8 million CWE, 1,426,000 MBTU/yr savings) were included in the FY 1981 program, as opposed to a total of 49 projects ($35.9 million CWE, 2,127,000 MBTU/yr savings) in all previous years (FY 1976 thru FY 1980). Emphasis was continuing, with the goal of having sufficient projects in FY 1982 and 1983 programs to raise potential energy savings to 6,850,800 MBTU/yr (FY 1985 DA Goal).

(U) In the interest of reducing consumption of critical fuels (fuel oil, natural gas), Installations and Services Activity was directed to develop a DARCOM Coal Conversion program on 16 April 1979. On 28 August 1979, as this program was being finalized, Department of the Army (DAEN-MPO-U) messaged the MACOM's soliciting cost estimate inputs for budgeting a long term, fenced MCA coal conversion program. DARCOM program was fielded 12 October 1979, with initial inputs from the field to be submitted to DA for budget planning purposes.

Pollution Abatement

DARCOM (MCA)
Pollution Abatement Program

FY	COST ($ Million)	NO. PROJECTS
1968-78	184	151
1979	52	17
1980	65	35
1981	47	20
1982	84	21

(U) Real Estate. During the reporting period, the Military Installations and Facilities Sub-Committee of Congress approved the following major real estate actions:

(U) Congress approved the disposal of the Frankford Arsenal, Philadelphia, Pennsylvania[33] which was established 27 May 1816 and

[33]Department of Army Real Estate Disposal Report No. 607, 30 Jun 77.

consists of approximately 110 acres and various buildings and structures. The entire arsenal was listed in the National Register of Historic Places; therefore, disposal procedures must be in accordance with applicable laws and regulations. The missions were transferred to other installations. The city of Philadelphia expressed an interest in acquiring the property.

(U) Congress approved the Department of the Army's request to offer for lease three buildings located in the warehouse area of the Pueblo Depot Activity, Pueblo, Colorado.[34] The buildings were advertised for lease to private industry. By leasing the buildings, the Government will reduce maintenance and utility costs and conversion from semi-active to active status in the event that mobilization can be readily accomplished.

(U) Congress approved the Department of the Army's request to offer for lease the Nitrocellulose Production Line "E", acid unloading and mixing facilities and portions of the Badger AAP, Baraboo, Wisconsin[35] to the Olin Corporation for commercial purposes. By leasing the property, the Government will reduce its maintenance and utility costs for the facility.

(U) As a result of the Secretary of Defense's directive designating the Secretary of the Army as single manager for procurement, production, supply and maintenance/renovation of conventional ammunition within the Department of Defense, with the approval of Congress, United States Naval Ammunition Depot,Hawthorne, Nevada and United States Naval Ammunition Depot, McAlester, Oklahoma[36] were transferred to the Department of the Army, effective 1 October 1977. In order to accomplish this mission, the Department of the Army will also have the use of United States Naval Weapons Support Center, Crane, Ohio; however, jurisdiction of this installation will remain with the Department of the Navy.

(U) As a result of a land survey made under Executive Order 11953, "Providing for the Identification of Unneeded Federal Property," approximately 163 acres of land at the Lima Army Modification Center, Lima, Ohio[37] were declared excess and conveyed to the Johnny Appleseed Metropolitan Park District of Allen County for use as a park. On 6 August 1976, the Secretary of the Army announced the selection of LAMC as the production site for the XM1 Main Battle Tank. The reactivation plans for the Center precipitated a need for approximately 86 acres

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[34]Department of Army Real Estate Disposal Report No. 601, 31 May 77.

[35]Department of Army Real Estate Disposal Report No. 606, 31 May 77.

[36]Department of Army Real Estate Acquisition Reports No. 318 and 319, 31 Aug 77.

[37]1st Ind, DRCIS-ER, 6 May 77, subj: Revestment of Title to Lima Army Modification Center Land in Support of XM1 Tank Production, with basic letter, STAMC-CO, 18 Apr 77.

of the property previously conveyed to the Park District. The acreage which was required for the tank testing track was being reacquired through revestment authority contained in the original deed conveying the property.

(U) A condemnation leasehold was filed in the US District Court covering the use of 1,440 acres of land known as Blossom Point Test Site, Maryland[38] by Department of the Army (Harry Diamond Laboratories). Annual rental will be $133,000. It was necessary to lease the land until such time as funds became available for the purchase of the land.

(U) The Department of the Army transferred approximately 285 acres of land located at the former Charleston Army Depot, South Carolina, to the Department of the Navy, effective 31 July 1977.

(U) Historical/Archeological Data. Many actions relating to Executive Order 11593, "Protection and Enhancement of the Cultural Environment," were processed during this time period. The Executive Order pertained to the preservation, restoration and maintenance of historical and cultural sites, buildings, structures, objects, and districts.

(U) This past year a great deal of emphasis was placed on the archeological aspects of the Executive Order. This Command had approximately 4½ million acres of land under its jurisdiction. The goal, as manpower and money became available, was to have all of these lands surveyed for possible archeological sites which may be eligible for nomination to the National Register of Historic Places. In the meantime, any areas where land disturbance was planned, such as construction and tank maneuvers, had to be surveyed for archeological sites in accordance with existing regulations.

(U) Watervliet Arsenal. Watervliet Arsenal was listed in the National Register of Historic Places as a historic district. Additionally, in 1967, it was designated a historic landmark.

(U) A $27,000,000 modernization project was underway at the arsenal. It entailed the demolition of 19 buildings on the installation, three of which were considered to be of special historic significance. In order to comply with Federal law and Army regulations, it was necessary to negotiate a Memorandum of Agreement covering mitigation of any adverse affect resulting from demolition. This Memorandum of Agreement had to be signed by representatives of the State Historic Preservation Office, the National Advisory Council, and the installation concerned.

(U) The Memorandum of Agreement pertaining to the modernization project at the arsenal stated that the historic buildings to be

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[38] Msg, DRCIS-ER, 131805Z Apr 77, to District Engineer, Baltimore, subj: Leasehold Condemnation, Blossom Point.

demolished were to be photographed inside and out and that measured drawings of the buildings were to be completed in accordance with American Engineering Records standards. In addition, approval had to be obtained concerning new construction plans to insure that its theme was compatible with existing structures.

(U) The Agreement concerning the modernization program was finalized on 1 December 1978. This was a precedent setting accomplishment within the Department of the Army.

(U) CERCOM Office Building. The headquarters of the US Army Communications and Electronics Materiel Readiness Command occupied a privately owned building leased by the General Services Administration for over five years. Since original occupancy, there have been many serious building problems including severe water penetration, parking lot control, electrical problems, humidity control, long delays in GSA accomplishment of work order requests, etc.

(U) In order to alleviate these problems studies have been accomplished to determine: cost of remedying structural defects in the building; determination of costs involved in moving elements located in the basement area (where working conditions are extremely detrimental) to on-post facilities at Fort Monmouth; and determination of costs involved in moving completely out of the leased facilities to buildings on-post.

(U) In addition to the studies mentioned above, the Office, Chief of Engineers had been instrumental in assisting this command in attempting to resolve these problems by contacting officials in the General Services Administration.

(U) The GSA, after attending many high level meetings with OCE, acknowledged serious problems in connection with the leased building and was in the process of taking positive steps to alleviate the long standing problems concerning the office building.

(U) Mississippi Army Ammunition Plant. The Mississippi Army Ammunition Plant, Bay St. Louis, Michigan, was established and assigned the US Army Materiel Development and Readiness Command by Department of the Army General Order 14, 25 August 1978.

(U) The plant area consisted of 7,148 acres of land permitted to the Department of the Army by the National Aeronautics and Space Administration for a term of 50 years and renewable for an additional 50 years.

CHAPTER III

MATERIEL DEVELOPMENT

Overview

(U) Materiel Development was one of the three key structural areas of command management. As such, it had the services of one of DARCOM's three Deputy Commanding Generals, LTG Robert J. Baer. General Baer was known as the DCG for Materiel Development.

(U) General Baer was responsible for all materiel development actions. To execute this responsibility, he presided over seven headquarters elements whose chiefs reported directly to him. These consisted of the Directorates for Development and Engineering and for Battlefield Systems Integration and five offices: Project Management, International Research and Development, Product Improvement, Manufacturing Technology, and Laboratory Development Command Management. Discussions of all but Project Management, the subject of chapters four and five, will follow in the order given above.

Development and Engineering

Introduction

(U) The Development and Engineering (D&E) Directorate asked for a $1,969,200,000 FY 1979 RDT&E apportionment in September 1978. By the year's end, it had secured $2,155,800,000 in released funds. Only $104,000,000 of the FY 1979 release total was unobligated as of that time. The planned outlays for FY 1980 to FY 1985 called for gradual yearly increases starting at $2,416,430,000 and reaching $3,814,896,000.

(U) Money is the first item mentioned, for cost control was the key to development. The Army consequently took a number of steps to insure that it had such control. These included early planning and a comprehensive system approach to materiel acquisition, the constant improvement of life cycle costing techniques, the use of design-to-cost and RSI, and the abandonment of the old rote milestone management system in favor of such acquisition processes as the merger of phases when warranted by technological factors. The impact of these steps made watchwords of such terms as affordability assessments, cost-consciousness, and streamlining.[1]

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[1] LTG Donald R. Keith, DCSRDA, DA, "Materiel Development Process," Army Research, Development and Acquisition Review (Mar-Apr 1979), pp 5-7.

(U) At the local level, D&E mirrored Army policy in its close monitorship of outlays. D&E utilized several management tools to do this. These tools included an automated Modernized Army Research and Development Information System (MARDIS). The new MARDIS replaced manually prepared forms for budget formulation, phase scheduling, and apportionment processes.[2] Another tool was the Scorecard Report which, beginning in October 1978, listed on a monthly basis, both the FY 1978 carry-over program balances and the FY 1979 unobligated balances at the project level of the subordinate commands and independent activities. A third device was the annual review which, with DCSRDA, DCSOPS, TRADOC, and DARCOM MSC participation, focused upon budget execution planning for the current year and budget formulation for the coming year.[3]

Systems Evaluation and Testing

General

(U) The systems evaluation and testing function involved the development of broad policy and guidance for testing and evaluation within DARCOM. In FY 1979, DARCOM added two more responsibilities. First, it made the office the directorate focal point for Rationalization, Standardization, and Interoperability (RSI). Second, it incorporated the Office of Specifications, Standards, and Engineering. This addition was responsible for management of the Army portion of the Defense Standardization Program, the Scientific and Technical Information Program, the Army Technical Data Management Program, and Patent Security.

STINFO

(U) The Scientific and Technical Information (STINFO) Program used $2,803,000 in six areas in FY 1979: Automated Engineering Data Preparation System; Technical Information Functions; Information Technology; Youth Science Activities, Symposia and Conferences; Technical Information Analysis Centers and Signal Intelligence and Electronic Warfare Technical Information. There were two noteworthy projects in these areas. One, yet underway, was a coordinated effort to store and present X-rays, graphics and photographs for medical use. The other, already operational, was an Automated Engineering Data Preparation System for the Missile Command.

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2 Ltr, LTG Robert J. Baer, DCGMD, HQ DARCOM, to Dirs. et al, 8 Dec 78, Subj: Modernized Army Research and Development System (MARDIS).

3 Ltr, MG Robert J. Lunn, Dir of D&E, HQ DARCOM, to MG A. B. Akers, Dir, Materiel Plans and Programs Ofc, DCSRDA, DA, 14 Dec 78, Subj: DARCOM RDTE Program Annual Reviews.

Defense Standardization Program (DSP)

(U) DARCOM received $13,620,000 in FY 1979 DSP funds, about 82 percent of what it requested. It spent about $1,500,000 of this on contracts. DSP got about $1,000,000 increase over FY 1978.

(U) The DSP Standardization Document Program Plans appeared in FY 1979. In order of appearance, these were the Screw-Threads Program Plan, the Technical Manuals Specifications and Standards Program Plan, and the Quality Control/Assurance and Inspection Standardization Document Program Plan.

Technical Data Program/Acquisition Management Systems and Data Requirements Control Program

(U) This office completed two publications in FY 1979. One was a revision of the automatic distribution list for the Acquisition Management System and Data Requirements Control List (AMSDL) and Data Item Descriptions (DID). The other was a complete set of Data Item Descriptions to address the nuclear survivability of Army Materiel.

GIDEP

(U) DARCOM remained an active participant in GIDEP, the Government/Industry Data Exchange Program. The Army contributed $415,000 to GIDEP in FY 1979, of which $188,000 went to RDTE and $227,000 to OMA. The Army also provided 70 GIDEP participants.

ACT

(U) DARCOM made several changes in its Advanced Concept Team (ACT) management , established in July 1979 to effect the rapid transfer of technological advances from industry to the Army. For several years, DARCOM had tried to fund ACT at a $5,000,000 per year rate. Operating procedures, however, circumvented HQ perogatives despite this funding. DARCOM's MSC's for example, received and evaluated ACT proposals without HQ involvement. To monitor ACT funding better and to control the program, the directorate proposed that the Office of Laboratory Development Command Management (DRCLDC) serve as DARCOM's ACT focal point with technical overview responsibility. Moreover, DRCLDC and the directorate would each furnish one member for the DA ACT Committee, and D&E would manage all ACT budgeting activities.

OSD/DA Special Interest Items

(U) DARCOM became increasingly concerned with OSD/DA Special Interest Items on the RDTE budget. Though the total number of such

items remained low, total dollar value since FY 1978 increased 350 percent and the Special Interest Item percentage of the total budget went from six to 20 percent. When considered against such matters as fund floors and deferrals, DARCOM discovered that only 15 percent of the total flexible fund was truly flexible for reprogramming or for unforeseen emergencies. DARCOM decided that the present process for determining Special Interest Items was undisciplined, and it therefore sought DA help in providing such discipline.

Individual Soldier, Training Devices, Support Systems Team

Documents

(U) The team prepared three important documents in FY 1979. These consisted of the Requirements Operational Capability (ROC) documents for a General Purpose piece of automatic electronic test equipment called the AN/USM-410 and the Automatic Test Equipment Missile Systems (ATEMS), as well as the first draft of the Mission Element Needs Statement (MENS) for the Automatic Test Support System (ATSS). The ATEMS ROC awaited funding, while the AN/USM-410 was at DA pending Basis of Issue Plan (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI) approval. The ATSS MENS was at TRADOC for review.

Equipment

(U) A panoply of equipment was in various stages of testing or release. Examples were:

The new green shirt, long and short sleeve, went in production and became available for wear during October 1979. A new black windbreaker was also to be available for purchase after 1 January 1980.

The XM915 Series Truck completed initial production evaluation. Type classification was to follow in October 1979.

The Lighter, Air Cushion Vehicle, 30-Ton (LACV-30) underwent type classification. On 30 September 1979, the Army signed a production contract for vehicles for FY 1980, with options for four each in the next two years.

The Multiple Integrated Laser Engagement System (MILES) was passing USAREUR Operational Test III (OT III) on schedule, with type classification set for November 1979. MILES was a family of direct fire simulators, consisting of both laser transmitters (weapons) and receivers (targets).

The Firefinder Training Device, in prototype form, arrived at Fort Sill, Oklahoma, on 17 September 1979 for government acceptance. This device trained the operator and organizational

maintenance personnel for the AN/TPQ-36 Mortar Locating Radar System and the AN/TPQ-37 Artillery Locating Radar System. Each operator training device consisted of a digital computer device, an instructor station, and six operator stations. The maintenance trainer added six maintenance assemblies. New equipment training (NET) was due to start in late October 1979.

(U) A new DOD Family of Rigid Wall Shelters, designed to meet International Standards Organization (ISO) requirements for intermodal cargo containers, was in development. Work on the first model, a one-side expandable ISO Shelter, continued, as did development of a self-load/unload mobilizer. The new family was to replace the current huge shelter family and to be more durable and maintainable.

(U) The Automated Field Bakery System (ABS) was in developmental/operational testing. Housed in six ISO containers, the ABS was to be able to furnish a half-pound of slice and polyethylele-bagged bread per man per day for 32,000 troops. Each ABS was to replace three of the current M-45 model bakeries.

Aviation

Program Status

(U) Several key program milestone successes occurred. These included a series of DARCOM/DA reviews in May-July 1979, which restructured the AAH development program to resolve technical problems and combine split OT-II's; successful firing of the HELLFIRE Modular Missile System from the AH-64A Helicopter; the first full conversion flight of the XV-15A Tilt Rotor Aircraft; and the 31 August 1979 award of a contract for the Remotely Piloted Vehicle (RPV) Full-Scale Engineering Development (FSED) Program to the Lockheed Missile and Space Company.

CH-47 Helicopter

(U) The CH-47D Program continued to be successful. Its first prototype flew four months ahead of schedule. The program was under cost and met all performance objectives.

RSI

(U) In the name of RSI, DARCOM continued to pursue the JP-4 to JP-8 fuel conversion in Europe. The JP-8 offered serious cold weather problems, and DA had to undertake an extensive analysis to determine whether the cost differences between JP-4 and JP-8 fuels was enough to warrant a switch to the cheaper, but less effective, JP-8.

Field Artillery

(U) Two major systems, both of which had been long in development, finally received standard type classifications in FY 1980. One was the Field Artillery Tactical Fire Direction (TACFIRE) System. The other was the Battery Computer System (BCS), which integrated key field artillery echelons for rapid battlefield command and control.

(U) Another success was the Copperhead, which completed development and operational testing. ASARC, pleased by the results, decided that the Copperhead should proceed into production. Known as the XM712, the Copperhead was a precision-guided 155mm indirect fire projectile that gave artillery a new capability to destroy small, hard-point targets several miles away.

Special Munitions

(U) Seven new development programs were underway in FY 1979. These consisted of a Digital Radiac Unit, an X-ray probe, a Detector Kit for Chemical Agents in Water, A Chemical Attack Warning Transmission System, A Polyurethane Paint Pilot Test Program, a Portable Mine Neutralization System, and a Man Portable Large Area Screening System. There was also a Command Project Office established at TARADCOM for the Nuclear, Biological and Chemical (NBC) Protection of Combat Vehicles.

(U) Among on-going programs, there was one that ended in a standard type classification. This was the Vehicular Radar Set, AN/VDR-1. Five other programs slipped due to technical problems. These were Blasting Agent, Projectile 8" Binary VX-2 (XM736), Surface Launched Unit Fuel Air Explosive (SLUFAE), Ground Emplaced Mine Scattering System (GEMSS), and New Protective Mask (XM29/XM30).[4]

Laboratory and Development Command Management

Meetings

(U) DRCLDC held two major meetings during FY 1979: the first, on 5-6 December 1978, at Huntsville, Alabama, was the annual Laboratory Directors' Conference. This conference not only addressed such topics as funds, manpower forecasts, and management, but it also held two workshops, which lead to such conclusions as the need to present a more useful information format from the field to headquarters and to the use of steering groups to insure the proper management of high visibility multi-command technologies.

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4 Dir. for D&E, Annual Historical Summary, FY 1979.

(U) The second meeting was the FY 1979/1980 6.1 program review, held at the Army Research Office (ARO), Research Triangle Park, North Carolina, 1-2 March 1979. The review was by research discipline electronics, materials, chemistry, biology, engineering, physics, geosciences, and mathematics. The review was for the Assistant Deputy for Science and Technology (DRCDMD-ST). The results were a long list of recommended actions for all laboratory directors and remarks by an OSD representative about such concerns as the strength of US technology and obsolete equipment.

Youth and Women

(U) DRCLDC made extensive efforts during the year to recruit blacks and females into the science and engineering fields. One program, for example, was an Uninitiated Introduction to Engineering (UNITE) which aimed its recruitment at predominantly minority high schools and by providing both visits and contacts with Army laboratories and summer jobs that would lead to full time employment. Another program was a month-long attempt in October 1979 to interest women in science and engineering. DRCLDC used the Federal Women's Program observance as the key, with the theme being styled Careers Unlimited.

(U) DRCLDC other activities were varied. They included four presentations on Technology Base and Laboratory Management to the PM Orientation Course and ALMC R&D Course; intercedence with DA and GSA to allow ARO to remain in Research Triangle Park rather than in relocating to downtown Durham; and service as DARCOM representatives on the DA Army Science Conference Advisory Group that was planning a 1980 conference at West Point.[5]

International Research and Development

Background

(U) Established 1 July 1975, the Office of International Research and Development (IRD) was a combination of the International Development Branch of RD&E and of selected elements of the International Division of the Office of Deputy Chief of Staff of Research, Development and Acquisition (DCSRDA). IRD answered directly to the Assistant Deputy for International R&D, DCG for Materiel Development.

(U) In its key role, IRD managed Army participation in ten international research, development and standardization programs. The most significant were the Mutual Weapons Development Data Exchange Program,

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5 DRCLDC Annual Historical Summary, FY 1979.

the Defense Development Exchange Program and the Cooperative Research and Development Program. In addition, IRD not only managed DARCOM participation in several NATO panels and groups and in the US-Germany staff talks, but it also expended much effort in the recently emphasized NATO RSI Program.

Accomplishments

Data Exchange Agreements

(U) The office effected six new Defense Development Exchange Agreements during the period involving Australia, France, Germany and Korea. In addition, twelve agreements were pending including Australia, France, Germany, Japan, Korea, and Norway. At the end of the FY DARCOM had monitorship of 213 DEA's involving sixteen countries requiring the participation of 32 Army activities. Also DARCOM was participating in 30 DEA's sponsored by the US Navy and 17 DEA's sponsored by the US Air Force.

Cooperative R&D

(U) Two general Memoranda of Understanding (MOU) were concluded. The first with Germany on 17 October 1978 and the second with Israel on 19 March 1979. In addition, five specific MOU's were concluded during the period, 2 US and UK, 1 US/GE, 1 US/CA, and 1 US/GE/UK/FR.

Professional Exchange Program

(U) The Army received 22 scientists/engineers during the FY; 14 from Germany and from Korea. Since 1964 the cumulative total was 341, of which 285 were from Germany. In March 1979 a program was established with Israel and programs are pending with eight other countries.

US/CA Defense Development Sharing Program

(U) During FY 1979 the United States-Canadian Defense Development Sharing Program received high level attention with the Department of the Army and DARCOM. Although the DDSP had been in effect since 1963 the program had not been achieving its desired goals in recent years. In February 1979. LTG Baer sent a letter to all DARCOM major subordinate commands urging their renewed participation and restating DARCOM's commitment to the program. The field organizations responded promptly and provided a significant number of potential development sharing projects.

(U) DRCIRD also conducted a series of workshops at HQ DARCOM and four subordinate command locations in conjunction with Canadian government representatives. DARCOM's Office of International Research and Development was tasked to update AR 1-25, the implementing document for the Army participation in the DDSP. Updating was begun and the regulation will be reissued as AR 70-66 to bring it into the Research and Development series of regulations.

(U) In addition to AR 70-66, DRCIRD will prepare a reference handbook providing detailed descriptions and procedures pertaining to the DDSP implementation process. This document will be issued as a DARCOM Handbook in early 1980 and distributed to DARCOM subordinate commands and laboratories. As a result of these initiatives and a continuing emphasis by US and Canadian officials, the DDSP is gaining new momentum which will lead to accompanying benefits to both countries.

Battlefield Systems Integration

Reorientation

(U) FY 1979 was a year of re-direction for the Battlefield Systems Integration (BSI) Directorate. The root cause was economic, a cause which forced the BSI to depart from the initial concept of MG Ira A. Hunt, its first director. General Hunt had envisioned BSI as the source of a "battlefield systems architecture" or master plan of the interrelationship of systems for forces of the future. The design was bold, but reduced finances would not support those analyses and tests needed to define a total battlefield architecture.

(U) BSI, consequently, shifted its effort to do what could be done. This entailed three tasks: first, the completion of the key efforts begun in prior years. In particular, analyses in the areas of communications and fire support and the demonstration of automated Intelligence Preparation of the Battlefield. Second, BSI had to continue to participate in major Army initiatives regarding systems and force structures of the future. Third, BSI began to develop an information basis for future integration analyses which could be performed in-house as opposed to repetitive contracted efforts in response to a dynamic environment.

Mission and Personnel

(U) Two functions dominated BSI's mission. First, it represented the Army in creative inter-disciplinary design work. Second, it identified and documented gaps in current and future battlefield systems. Both functions covered all aspects of all of those systems and reviews in which the Army participated as materiel developed. BSI was to cover this broadness with a director, ten assistant directors, and four technical personnel. Consequently, BSI had to concentrate on those areas considered most critical from a materiel requirement and integration standpoint.

(U) Another key aspect of the BSI mission was cooperation with TRADOC. Toward this end, BSI fostered regular interchanges between DARCOM laboratories and TRADOC centers and schools, emphasizing evolving technology. BSI also participated in reviews of on-going development programs, and it closely participated with TRADOC on Commands "Army 86" force structure study, which was oriented toward the development of force structures compatible with, and maximizing the use of new weapons and systems scheduled for 1986 fielding.

Activities

(U) BSI's activities focused around those critical battlefield tasks identified in the TRADOC Battlefield Development Plans. Those critical tasks, ten in number, fell into two areas. The first, central battle, consisted of target servicing, suppression/counterfire, air defense, command, control and communications (C^3), and battle support. The second, force generation, comprised interdiction, reconstitution, force mobility, surveillance/fusion, and C^3/Electronic Warfare (EW).

(U) As in the past, BSI kept track of long range R&D and acquisition goals by means of a SPIDER CHART Data Base. The SPIDER CHART core was a computer for data storage. BSI kept track of the computer inflow and published a yearly resume'. The FY 1979 edition appeared in October 1979.

(U) BSI also received another planning task in FY 1979, when DA directed it and TRADOC to produce Mission Area Analyses (MAA), together with supporting Science and Technology (S&T) Plans, in accordance with an OMB circular. The Fire Support Mission Area was the prototype, with a Phase I MAA due 31 January 1980. Working with ARRADCOM, BSI was to try to identify which current DARCOM programs would eliminate MAA-demonstrated deficiencies. TRADOC was to eventually initiate a MAA for each of the ten mission areas, with the BSI, D&E and DRCLDC, coordinating DARCOM support.

Suppression/Counterfire

(U) BSI continued to examine the Field Artillery (FA) Mission area in order to improve both fire power effectiveness and the integration of artillery systems with each other and with external systems. Of particular interest were counterfire and the functional specialization of FA units.

(U) The latter study, distributed in late FY 1979, determined the degree to which FA should be specialized in order to mold the weapons, communications, target acquisition systems, and command and control systems into a usable unit for Europe in 1986. Evaluated by a computer simulation model, the results showed that the specialization of FA along functional lines would improve its overall performance in battle. Specialization's ancillary benefits included an easier positioning of assets, improved communications, simpler ammunition resupply, and enhanced commander emphasis on critical functional tasks.

(U) The counterfire analysis, the former task, compared red and blue counterfire models. The comparison occurred by answering such questions as productivity with varied system allocations and tactics,

survivability, main weakness, the value of non-FA organic assets such as EW and Tactical Air (TACAIR) Support, and adequacy of current force structure. The answers were to take the form of a parametric analysis of counterfire systems and procedures, enabling BSI to determine the proper mix of battlefield organizations, equipment and doctrine.

Air Defense

(U) As FA, much of the Air Defense (AD) effort aimed at a better relationship among other systems in the battle area. Two topics were of special note: the establishment of a Short Range Air Defense Command and Control Structure (SHORAD C^2) and the assessment of options to counter an enemy standoff jammer threat.

(U) SHORAD C^2 aimed at no less than coordinating local air defense among the three Army gun systems, the Forward Area Alerting Radar (FAAR), and several communications systems. In cooperation with the Army Materiel Systems Analysis Agency (AMSAA), for a preliminary cost and effectiveness analysis, and with the Air Defense School, for defining a need and structuring a preliminary system definition, the BSI developed the background necessary to host a conference at HQ, DARCOM for preparing an Outline Acquisition Plan (OAP). The Commander, DARCOM, approved the concept; its development went to the PM, Air Defense Command and Control Systems, which was a part of the US Army Communications, Research and Development Command (CORADCOM). The anti-standoff jammer effort was likewise a wide-spread cooperative action. TRADOC and MICOM provided threat, electronics and AD experts. By the year's end, an expedited program for near-term countersystems was underway.

(U) Via a Martin-Marietta contract, BSI developed a functional description and a system design for a Corps Automated Message System. Its purpose was to provide an early, interim capability in Europe to meet an identified urgent need. As FY 1980 began, a draft Letter Requirement (LR) for the system was in staffing. The LR included a demonstration of automated systems using cuing technique in order to prepare rapidly Joint Interoperability of Tactical Command and Control System (JINTACCS) format messages. DA hoped that the techniques would speed record traffic to joint addressees.

(U) MITRE Corporation performed several C^3 tasks for BSI. Some of these studies, and their results, included: an appraisal of US Army Tactical Satellite Communications, which caused DA to reassess its planned use of tactical satellites; an analysis of Army tactical communication interoperability of NATO nations, which became a reference for identifying NATO interoperability problems and the NATO communication system technical and operational configuration; and an appraisal of the role of facsimile in future tactical communications, which led the Army to make an objective evaluation and acceptance of the tactical digital facsimile under development.

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Battle Support/Reconstitution

(U) BSI's main intent in this area was to develop a comprehensive program to identify those logistical shortcomings which would impact significantly on those weapons emerging in the 1980-1985 period. BSI also studied associated logistical support doctrine to ascertain capabilities to support increased tactical supply consumption, as well as the support of organizational concepts such as Division 86 and Restructured General Support. The focus was on substantiating or refuting adapted untested policy, for example, arm, fuel fix and feed forward.

(U) Other than a MITRE focus study, BSI made no specific studies on analyses in this field. BSI, however, did participate in several forums of future combat logistics systems. These included joint working groups (JWG) on the Armored Combat Logistics Support Vehicle (ACSLV), the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), Aviation Refueling, the Ammunition Handling Crane, and 1990's Field Feeding.

Force Mobility

(U) As in Battle Support and Reconstitution, BSI's main concern was to identify gaps that would degrade the Army's battlefield mobility. Three areas were paramount--NBC, Engineer (Mine/Countermine), and Realistic Battlefield.

(U) The main achievement in Force Development this year was the Chemical Systems Architecture Study. In November 1978, BSI tasked AMSAA to study and develop a Chemical Systems Architecture as part of an overall integrated Battlefield Systems Architecture development program. The resulting study described the Army Chemical Warfare and Biological Defense programs, showed interrelated capabilities, and identified weaknesses vis-a-vis the Warsaw Pact in the 1979-1985 period. Formal findings showed three fundamental and general deficiencies, recommended 68 specific first priority actions, 38 secondary priority actions and nine medical actions. It also identified 16 additional R&D investigation areas.

(U) Besides the study, BSI, at VCSA direction, became the Army focal point for an investigation of the effects of the "dirty battlefield" on sensors and weapons. BSI completed the first part of this study in FY 1979. Taking form in a report entitled "Qualitative Descriptions of Obscuration Factors," it received wide distribution in the operational and technical community.

(U) Finally, BSI participated in three group efforts. The main one was the NBC Survivability Symposium, the intent of which was to discuss increasing Congressional and DOD concern about the survivability of Army materiel systems. The other two efforts were the Conference on NBC Protection for Combat Vehicles and a German/US Expert Group Meeting on NBC Defense Equipment.

Surveillance/Fusion

(U) Surveillance/Fusion effort centered upon Division 86. The purpose was to offer the tactical commander a clearer view of the battlefield, an earlier warning of attack, and an accurate assessment of enemy intentions. To do these three things, BSI tried to blend intelligence, surveillance, target acquisition, electronic warfare, and reconnaissance objectives into one cohesive program. By so doing, BSI was able to create a Data Test Bed for Surveillance/Fusion. Also, BSI hoped the cohesive approach would facilitate the integration of surveillance/fusion with the other major battlefield tasks. Moreover, BSI believed that it would enable ERADCOM to tackle its biggest systems development plagues--frequent and erratic changes to systems specifications.

Automated IPB

(U) Recognizing the need to capitalize on new technological advances, BSI, in the summer of 1978, developed and demonstrated an automated Intelligence Preparation of the Battlefield (IPB). Previously a manual operation, IPB had widespread Army acceptance. Its automation cut costs and time.

(U) The automation was two-phased. Phase I completed in October 1978, appeared as a report called IPB - An Automated Approach to Terrain and Mobility Corridor Analysis. An IPR in May 1979 resulted in a decision to proceed with Phase II, which itself was divided into Workshops I and II. Workshop I began in July 1979, and demonstrated the development of IPB products by the tactical intelligence analyst. Workshop II, set to begin in November 1980, was to demonstrate G-2 developed IPB products and their use by G-3 and the Commander.

C^3/EW

(U) C^3/EW focused on those programs which influenced the battle in depth and enemy means to reinforce, move, and press their advantage with a variety of electronic equipment. BSI took three steps along this path. First, it tried to educate Army officers in what C^3/EW resources were available and how to use them. Second, it addressed the non-interoperability of C^3/EW systems with those of the Allies. Third, it pursued a new conceptual approach to EW in the field to make better employment of scarce resources.

(U) MITRE Corporation also had an EW task. Under BSI sponsorship it developed an electronic warfare concept. This concept had changes in the tactical organizations and systems architecture designed to improve electronic warfare support to the commander. As the year closed, TRADOC and the US Army Intelligence School (USAIS) was busy implementing these changes.

System Integration Data Base

(U) Early in FY 1979, BSI decided that, if the Army was serious about the efficient integration of tactical combat and support systems, it had to gather complete, accurate, and readily usable data on the systems. Second, it had to ensure that the interim development community had an institutionalized concern about the systems integration data collection.

(U) BSI concentrated on step one, data availability. Instead of using contractors who would gather data, then portray the information in one or two ways, BSI took an experimental approach called the System Characteristics and Operational Relationship Data Base Project. Focusing on the mission areas of Fire Support and Intelligence, Surveillance and Target Acquisition (ISTA), BSI's project gathered data on currently fielded systems. Consisting of technical system characteristics and intersystem operational relationships, BSI's data lay within an automated data base management system (DBMS) for easy retrieval. If the prototype proved successful, BSI intended to extend the data base to cover all functional areas and to include systems under development.

(U) DBMS consisted of two main data bases. First was the Systems Characteristics (SYSCHAR) data base, which had over 500 systems essential to the FA and ISTA missions and from 10 to 100 technical characteristics relevant to systems integration issues for each system. Second was the Operational Relationship (OPREL) data base, which by means of such items as system name and mission area, told one how and why all FA and ISTA systems were connected to other systems.

Recap and Future

(U) FY 1979 was a troubled year for BSI. In the leadership area, it had four directors during the year. More importantly, though, its $7 million request underwent successive reductions to $3 million. The Senate Armed Services Committee was the final cutter; that body could see little of worth to the BSI program. The $3 million authorization was a "last chance" to show some measurable results.

(U) BSI found it difficult to operate under these circumstances. Under its founding concept, a small group of select colonels and high-caliber technical civilians were to contract out projects for supporting analysis and experimentation and guide these projects to completion. With the funds cut in half, such an operation was difficult to continue.

(U) By the end of FY 1979, the question became whether to operate at all. At that time, BSI received word that the House and Senate Armed Services Committees had, in joint conference, eliminated BSI's funds for FY 1980. BSI felt certain that it would undergo changes in program goals, objectives, and method of operation.[7]

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[7] BSI Annual History Summary, FY 1979.

Manufacturing Technology

(U) The Office of Manufacturing Technology (OMT) was responsible for the centralized management of the Army's Manufacturing Technology Program. This encompassed Producibility Engineering and Planning; Manufacturing Methods and Technology; Production Engineering (a new task); Numerically Controlled, Computer-Aided Design and Manufacturing; Design-to-Cost; Military Adoption of Commercial Items; and Value Engineering. The program thus provided new and improved manufacturing processes, techniques and equipment for the production, modification and overhaul of Army materiel. It also provided general engineering support for current materiel production, adapted commercial items to meet military requirements, provided expert advice on the latest production processes and equipment, assessed the producibility of new designs, and evaluated the readiness of major weapon systems.

(U) For all of these tasks, the office had only 15 persons. Six were high grades, the other support staff. This staff managed almost $300 million worth of high technology projects during the year. Approximately $250 million went to Manufacturing Methods and Technology, $20 million to the Military Adaption of Commercial Items, and the rest for overhead-funded production engineering.

Management

(U) The chief management emphasis fell on all aspects of the execution of funded projects. The office obligated 85 percent of all FY 1979 appropriated funds, a 15 percent improvement over FY 1978. It also saved $202 million in the Value Engineering Program, a $26 million increase over FY 1978. Contractors submitted 568 Value Engineering Change Proposals (VECP's), and Government engineers submitted 1,684 proposals. Both totals were significant increases.

(U) The office instituted several managerial improvements in FY 1979. One of the most important was an automated management information system, which was to control the life cycle of manufacturing technology projects and provide the data base for tracking completed projects. The system offered a ready means of retrieval for technical, financial, and schedule information for any completed DARCOM project, and it capsulized all related technological accomplishments in any given area.

(U) The office also chaired a new group called the Tri-Service Group for Design to Unit Cost (DTC). The Group was charged to review the data item descriptions used in DTC contracts, intending to reduce the number of such descriptions to one or two standard descriptions to be used by all Services. By 30 September 1979, two descriptions had undergone preparation, had received reviews from the Services, and were going through industry review via the American Defense Preparedness Association.

(U) Finally, as aforementioned, the office also took on new responsibilities. At the Headquarters level, it incorporated the Army Production Engineering Services Office. In the field, this meant that the Industrial Base Engineering Activity at Rock Island, Illinois, was to contribute five to six man years each year in support of the Army Production Engineering Services Office mission.

Actions

(U) From 1970 to 1978, the office had completed 393 tasks valued at $274 million in FY 1979 dollars. Eighty-four percent of the tasks were technically successful and 69 went into the production process. The office estimated a $530 million peacetime savings for the peacetime tasks. Three examples of some of the saving tasks were an advanced process technology for ammunition base production lines. The new technology cut the numbers needed to man the lines by 8,800 men, or 42 percent.

(U) A process to reduce the amount of trinitrotoluene (TNT) production. Formerly each TNT line used 3,300,000 gallons of purified water a day; the new process recycled almost all of the water, resulting in a 96 percent reduction in water purification. The $632,000 project saved $11 million in the construction of pollution abatement facilities at the Radford Army Ammunition Plant and saved Radford $2.5 million per year on its two TNT lines. Seventeen more TNT lines in the Army system awaited the new process.[8]

(U) A process to manufacture helicopter engine parts cheaply, funded jointly by the Army and Air Force, was to save $3.7 million in the production of the T-700 Turbine Engine. The process involved the use of hot isostatic processing to manufacture a complex turbine component; it produced parts near their finished shape, thereby cutting machining scrap costs over 50 percent. The old process had produced two pounds of scrap for each pound of finished product, the isostatic process less than one. The office expected the process to be applied to other aircraft and ground support vehicle components.[9]

Product Improvement Program (PIP)

(U) The Office of Product Improvement (DRCPI) acted as the DARCOM agent for the DARCOM Product Improvement Program. This, in practice, meant the Army PIP for the Surgeon General (TSG) and the other DA PIP sponsoring agencies, the Army Communications Command and the Chief of Engineers, accounted for less than 10 percent of the Army's PIP. DRCPI had to work closely with DCSRDA, DCSOPS, DCSLOG, and TRADOC on the DARCOM PIP's.

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8 (Ed.) "Handling Effluent the Army Way," Business Week, No. 2390 21 Jul 75, p. 84.

9 Ofc of Manufg Tech, Annual Historical Summary, FY 1979.

Joint Review

(U) Working closely took the form of semi-annual reviews. Held at HQ, DARCOM, the reviews were under the auspices of the Chief, DRCPI, who acted as Chairman and Executive Secretary. The review accomplished two purposes: first, it discussed finances. The 4-8 December 1978 Joint Review approved 351 PIP's for the Program Objective Memorandum (POM) at a value of slightly over $1 billion. The 4-8 June 1979 Joint Review led to approval for budget inclusions in FY 1981 of 842 PIP's valued at $1.389 billion in FY 1981 dollars. Second, the joint review set priorities. In FY 1979, TRADOC added a touch. Not only did the PIP's get DA priorities from DCSLOG, but TRADOC added its own list. The TRADOC list shortly proved most useful in resolving reprogramming actions.

PI Management

(U) DRCPI participated in several management actions during FY 1979. These included a 26-27 September 1979 HQ, DARCOM review for the Command's MSC Product Improvement (PI) coordinators, and the first PI Workshop, held in St. Louis 9-11 January 1979 and attended by representatives from DA, TRADOC, and DARCOM. DRCPI also got responsibility for, and revised, the AR on PI, AR70-15. Finally, it acted as co-author on a new product improvement chapter of the DARCOM/TRADOC Materiel Acquisition Handbook. This chapter described the relationship and responsibilities of DARCOM and TRADOC as the respective PI materiel and combat developers.

Evolutionary Development

(U) The growing importance of PI found expression in DARCOM's FY 1979 list of Future Development Goods. The increased use of PI appeared on this list as an alternative to new development. The concept was not new; indeed it had found acceptance at higher levels.[10]

(U) The revised PI regulation, AR70-15, referred to earlier, also addressed the desirability of evolutionary development. DRCPI also reviewed all documents which it staffed to insure that the evolutionary development received consideration. Both of these measures enabled PI to be deleted from the DARCOM list.

(U) PI came under DCSRDA scrutiny, as well. In December 1978, the DCSRDA directed TRADOC and DARCOM to shorten the modernization cycle by PI planning for evolutionary development. Several meetings with DARCOM ensued, the product of which was the identification of selected developmental weapons for future PI's.

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10 (Ed.), "Interview with Former ASA(R&D) Norman Augustine," Army Research, Development and Acquisition Magazine (Jan-Feb 1980), pp. 8-15.

(U) Three weapons systems commanded special attention. These were the XM1 Main Battle Tank, the XM29 Protective Mask, and the Infantry Fighting Vehicle/Command Fighting Vehicle (IFV/CFV). Of these, the Research, Development and Acquisition Council (RDAC) approved only one PI candidate, the XM1.

PI Instruction

(U) The rapid growth of PI just demonstrated proved too much for all DARCOM participants to comprehend. To rectify this program, the US Army Management Engineering Training Activity (AMETA) developed a three-day course on PI to be conducted at each of the MSC's. Starting at Rock Island on 16 October 1978, the course eventually appeared at all ten MSC's. Total presentations were 16 with 426 participants.

(U) From the onset DRCPI realized that the AMETA course would never meet the demand, which in FY 1979 called for 1,041 participants. Consequently, DRCPI drafted a 12-hour bare-bones course which addressed responsibilities and procedures. Beginning in April 1979, the office delivered eight presentations to 192 action officers by 30 September 1979. Ameta subsequently reduced its course to two days.

Actions

(U) A long-standing G-11A Parachute kit funding problem surfaced in FY 1979. The users had been unwilling to pay for modification work order (MWO) application programs for the parachutes. The Comptroller of the Army, in coordination with HQ, DARCOM, established a policy to purchase, free issue, and apply kits or materiel for expense items using DARCOM-controlled OMA funds. The new policy was to effect all product improvement actions starting in FY 1981.

(U) Funding also proved to be a problem for all first-phase PI funding. The second and third phases, procurement and application, respectively, were under well-established funding procedures. The first phase, however, was not so precise. Consisting of engineering, prototyping and testing, it was subject to constantly changing guidance and interpretation.

(U) In March 1979, the interpretation changed again. At that time, DCSRDA stated that procurement monies should fund engineering services and related efforts by the contractor or manufacturer when these firms were trying to extend the life of a production item within its current performance envelope. Also, OMA funds should be used for engineering services and related efforts by a manufacturer or operating installation when these parties were trying to extend the life of a no-longer produced inventory item within its current performance envelope. DCSRDA, despite appeals, provided no further guidance.[11]

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[11] DRCPI Annual Historical Summary, FY 1979.

CHAPTER IV

PROJECT MANAGEMENT: WEAPONS AND WEAPONS SYSTEMS

Office of Project Management

(U) The Office of Project Management was proponent within Headquarters DARCOM for the Project Manager (PM) community which includes Program/Project and Product Manager Office (PMO). During the course of the year, the office arranged for the conduct of approximately 50 Review and Command Assessment of Projects (RECAP), 25 Logistics Command and Assessment of Projects (LOGCAP) and five Department of the Army Program Review(s) (DAPR) to keep the DARCOM and Army staffs apprised of progress and problems associated with the development and readiness programs under PM management. In addition, Quarterly Selected Acquisition Reports (SAR) were developed on more than 15 PM-managed development programs which Congress and DOD chose to keep under special surveillance.

(U) Fiscal Year 1979 was a period for implementation of the recommendations of the 1978 PM Organizational Study Group. The intent was to control the upward growth in DARCOM resources dedicated to project management through consolidation of related PM offices and elimination of others whose programs did not conform to the PM profile.

(U) Entering FY 1979 there were 66 chartered PM's. This was a historical high for recent years and reflected the renaissance in the PM concept of management which began in FY 1975. Over the course of FY 1979 this number was reduced through consolidation of similar projects and other deprojectization actions in which the missions and functions of the PMO's were transferred to functional elements of existing organizations and in some instances to newly created ones. In all 11, PM offices were eliminated or consolidated, and the following four new programs were established: Remotely Piloted Vehicles (RPV), Advanced Scout Helicopter (ASH), Test Measurement and Diagnostic Systems (TMDS), and Tank Main Armament Systems (TMAS). This left the year-end count of program/project/product managers at 59.

(U) During FY 1979 DARCOM project managers guided the expenditure of approximately five billion dollars in R&D and Procurement funds. This represented a little over half of the total DARCOM budget in these categories for FY 1979. The work force assigned to PM's averaged about 3700 people or about 3½ percent of the total DARCOM work force.

(U) Many significant ASARC/DSARC decisions and other milestones were reached during the year. Highlights included BLACK HAWK Helicopter and M198 Cannon achieving IOC; Type classification of the M60A3

Tank with release to full scale production; COPPERHEAD and ROLAND completing Engineering Development and being authorized to proceed with Initial Production. Also, the PERSHING II missile progressed into its Full Scale Engineering Development phase and SOTAS negotiated Engineering Development contracts for the airborne and data-link subsystems of their program.

(U) Improving and sustaining excellent lines of communication and rapport between command headquarters and the PM's, and between the PM's themselves, always ranked high on the list of Office of Project Management priorities. Toward this end, the ninth annual PM Conference was held in Orlando, Florida early in the Fiscal Year. Presentations included an address by Assistant Secretary of the Army (RD&A), Dr. Pierre; Commander DARCOM, GEN Guthrie; Vice Chief of Staff Army, GEN Krosen; and other high ranking officials within DA, industry and the Congressional staff. During the conference, the third annual Secretary of the Army Award was presented to the following two outstanding Project Managers: BG Browne, PM AAH, and COL Kenyon, PM BLACK HAWK.

(U) Improved communications was manifest also in the addition of six new PM's to the Executive Level Interactive Terminal Environment (ELITE) network during the year. This was the computer centered data system which among other services provided the PM's and Headquarters DARCOM a readily accessible means of tracking financial and other managerial information on the subscribers programs. On numerous occasions over the year, it also served as the direct communications link for the rapid and accurate promulgation of information to the PM's and as the medium for transmittal of Flash Reports and other urgent correspondence from the field.

(U) Rapport with and within the PM community was enhanced through several one week project management orientation courses organized by the Office of Project Management for presentation at the Defense Systems Management College (DSMC). These courses were in addition to three courses on the subject of PM operations (six-weeks duration) presented by the Army Logistics Management College (ALMC).

(U) For the benefit of newly appointed PM's, their deputies and other persons at the managerial level, DSMC again offered its quarterly and semi-quarterly courses in Contractor Measurement Performance, Industry Financial Management and Executive Management Review. These courses ranging from one to three weeks were taught at the DSMC. Attendance was mandatory for PM's who had not attended the five-month Project Manager Course earlier in their careers.

(U) The Project Manager Development Program (PMDP) was organized seven years ago to provide a body of officers educated and experienced in project management for assignment to PMO's. Membership at year's

end stood at 1118 officers, ranging in rank from Captain to Colonel. Statistics relative to promotions and selections to Senior Service College and Command Staff College for members of the PMDP were closely monitored by the program's administrators and by this office. This year, as in previous years, members of the PMDP were more than competitive with their Army peers in these areas of competition.

(U) During the year, the office of Project Management initiated and reviewed for comment numerous documents dealing with the materiel acquisition process. Of note among these was publication of Change 1 to DARCOM Regulation 11-16, the cornerstone of Project Management; review and staffing of the largely revised DARCOM Materiel Acquisition Management Guide; and the rewrite/staffing and preparation for publication of DARCOM Regulation 614-13 concerning the appointment and use of Development Readiness Project Officers.

(U) At the invitation of the British Army, COL Eek, Chief of Office of Project Management, made a fifth annual visit to the UK to lecture, exchange information on the Project Management system and to discuss progress in weapon systems under development by US Army PM's and their British counterparts. The visit was felt to be as successful, if not more so, than those of previous years and resulted in man-follow-up actions by individual PM's.

XM1 Tank System

Organization

(U) The Office of the Program Manager, XM1 Tank System, continued as a Class II activity of Headquarters, US Army Materiel Development and Readiness Command, and was located at the Michigan Army Missile Plant, Warren, Michigan 48090. Field Offices were located in Washington, DC; Bonn, Germany; Aberdeen Proving Ground, Maryland; and Fort Knox, Kentucky. The Project Manager for Tank Main Armament Systems functioned at Picatinny Arsenal, Dover, New Jersey.

(U) Mission. The Program Manager was responsible for the development, procurement, production, testing, distribution, and logistical support of the XM1 Tank System and related ancillary equipment. Also, he was responsible for national and international 105mm and 120mm tank main armament systems, and for the US portion of the German-American Tank Harmonization Program.

(U) Personnel. To accomplish the assigned mission during this period, the Program Manager's authorized strength was increased from 152 to 186 plus an overhire authority of 81 civilians for a total of 267 spaces. The authorized strength included 58 military and 128

civilian positions plus 81 civilian overhire authorized positions. Included in the total authorized strength were these totals for our remote operating locations: Lima Army Tank Plant, Lima, Ohio - 4 military, 37 civilian, and 14 civilian overhire; Project Manager for Tank Main Armament Systems, Picatinny Arsenal, Dover, New Jersey - 5 military, 5 civilian, and 25 civilian overhire.

Significant Events

(U) ASARC/DSARC III. Planning for the decision process to obtain Army and Defense Systems Acquisition Review Council (ASARC/DSARC) approvals to enter Low Rate Initial Production was already in progress at the beginning of this reporting period. The initial service draft of the Decision Coordinating Paper (DCP) to record the DSARC decisions on the XM1 Tank Program was submitted to DA on 29 December 1978. The "For Coordination" draft DCP 117B was approved by DA at the 22-23 March 1979 ASARC III and was forwarded to Office Under Secretary of Defense for review at the 17 April 1979 DSARC III. At the conclusion of this fiscal year, the DCP had not been released by the Office of the Secretary of Defense. A memorandum for the Secretary of the Army (Confidential), Subject: XM1 Tank Production, 8 May 1979, from the Office of the Secretary of Defense was issued to record the DSARC III decision. This third DSARC, since program inception, approved entry into the Low Rate Initial Production phase with a first year production of 110 vehicles. Periodic management reviews with the first scheduled for January 1980 were planned for our program prior to the DSARC decision for full production.

(U) Congressional Hearings. Major General Babers appeared before the Senate Armed Services Committee on 28 March 1979 with Senator J. James Exon, Chairman. Also present were the Honorable Percy Pierre, Assistant Secretary of the Army for Research, Development and Acquisition; Lieutenant General Donald R. Keith, Deputy Chief of Staff of the Army for Research, Development and Acquisition; Brigadier General William H. Fitch, Deputy Chief of Staff of the Marine Corps for Research, Development and Systems; subcommittee members, Senator Carl M. Levin, Senator Barry M. Goldwater, Senator John W. Warner; and Professional Staffers, Robert S. Dotson, Ronald L. Lehman, and E. George Riedel.

(U) The issues discussed in depth were DT/OT Testing and the Armor Program. On 10 April 1979, Major General Donald M. Babers again appeared before the Senate Armed Services Committee with Senator Harry F. Byrd, Jr. presiding, and participated in an in depth discussion of the "Bow Wave" problem. Other participitants included subcommittee members, Senator Strom Thurman; Percy A. Pierre, Assistant Secretary of the Army, Research, Development and Acquisition; Lieutenant General Donald R. Keith, Deputy Chief of Staff of the Army for Research, Development and Acquisition; Mr. Thomas E. Harvey, Deputy Assistant, Secretary of the Army for Research, Development and Acquisition;

Brigadier General Louis C. Wagner, Jr., Director of Combat Support Systems, Office of the Deputy Chief of Staff for Research, Development and Acquisition; Brigadier General Phillip L. Bolte, Project Manager, Infantry Fighting Vehicle System, US Army Materiel Development and Readiness Command; and Professional Staffers Robert S. Dotson, Edward B. Kenny, Ronald L. Lehman, James R. Locker, and Don L. Lynch.

(U) Major General Babers, supported by Colonel Peter Kenyon, appeared before the House Armed Services Committee hearing on 5 April 1979 along with Honorable Melvin Price, presiding; Brigadier General John M. Shea, Director of Weapon Systems, Office of the Deputy Chief of Staff for Research, Development and Acquisition. Subcommittee members included Bob Wilson, Dan Daniel, Bob Stump, Elwood A. (Bud) Hillis, Robert E. Badham, and Justus White, professional staff member. The hearing covered the 120mm gun program and an in depth discussion on the decision of the adoption and production of the 120mm gun for the XM1. On 26 April 1979, Major General Babers appeared in three sessions before the HASC with Honorable Samuel S. Stratton, Chairman. The Honorable Percy A. Pierre, Assistant Secretary of the Army for Research, Development and Acquisition; Undersecretary Moore; Lieutenant General Donald R. Keith, Deputy Chief of Staff for Research, Development and Acquisition; Major General Lynch, CDR USAARMC; Mr. D. Day, GAO; Mr. H. Thomson, GAO; Colonel Richard H. Sawyer, Project Manager, M60 Tank, appeared before subcommittee members, Rubin L. Beard, Robert E. Badham, Robert H. Mollohan, and John F. Lally, Counsel. The issues covered were the Army tank program, tank production, foreign military sales and the General Accounting letter of 16 April 1979 to the Secretary of Defense expressing concern with several areas in the Army's XM1 tank. Also discussed in depth were reliability, durability, and the problems with the engine, transmission, fuel system and track.

(U) On 1 May 1979, Major General Babers appeared before the House Appropriations subcommittee on the FY 1980 budget with Chairman Joseph P. Addabbo. The Army's XM1 tank program was presented by Dr. Percy A. Pierre, Assistant Secretary of the Army for Research, Development and Acquisition; Lieutenant General Donald R. Keith, Deputy Chief of Staff for Research, Development and Acquisition; Brigadier General John M. Shea, Director of Weapon Systems, Office of the Deputy Chief for Research, Development and Acquisition; and their supporting witnesses. Covered in the program were such areas a program objectives, program phases, full scale engineering development activities, engine maturity program, DT/OT II testing, FSED test summary, integrated logistic support, RDTE funding, FY 1980 production capacities, Phase I and II production plan, Lima construction contracts, facilitization costs, FY 1980 procurement program, XM1/Leo 2 standardization and 120mm gun program.

US Army Audit Agency (AAA) Inquiries

(U) During this period, the US Army Audit Agency (AAA) initiated two inquiries that concerned the XM1 Tank System, "Army Industrial Preparedness Program" and "Army-wide Audit, Recoupment of R&D and Non-recurring Production Costs on Foreign Military Sales" (DARCOM No. 1A57932) (AA Notice A-207). Both inquiries were in the process of compiling additional data.

Management Procedures

(U) Program/Project Manager. Effective 9 April 1979, the Office of the Program Manager, XM1 Tank System and the Office of the Project Manager, Tank Main Armament Systems were formally established.

(U) These had previously been provisionally established on 11 August 1978. Prior to the granting of these office titles the previous designations were Project Manager, XM1 Tank System and Assistant Project Manager for Tank Main Armament Development.

(U) Management Information Systems. Significant progress has been made during FY 1979 toward a state-of-the-art management information system using automatic data processing equipment (ADPE) to build and maintain a spectrum of management data bases that enabled XM1 personnel to devote more time to data analysis.

(U) FY 1979 ADPE acquisitions included: two low speed portable teletype terminals, an intelligent graphics terminal with hard copy and pen plotter output devices, a batch terminal for high speed data input/output, a multicolor pen plotter for high speed plotting of large drawings or charts, and a minicomputer to drive all of the above devices and provide a full range of time-sharing services to as many as 64 simultaneous users.

(U) Key ADP applications milestones during FY 1979 included: analysis of XM1 parts/DOD supply system in May 1979; completion of software analysis techniques for Line of Balance (production) data in July 1979; completion of a program for budget analysis in September 1979; and completion of a user's guide for general purpose graphing by non-computer oriented persons in September 1979.

Reliability, Availability, Maintainability Status (RAM)

(U) During the past year, DT/OT II RAM test results were presented to the ASARC/DSARC III at which combined result of 145 mean miles between failure was given as the demonstrated reliability of the XM1. This number was further broken down into non-mobility (fire control, cannon, rangefinder, etc.) and mobility (drivetrain, suspension, track, etc.) subsystems. The non-mobility number was over

700 mean miles between failure and in accordance with the projected growth rates of this subsystem. However, the mobility number of 184 mean miles between failure was significantly below the projections.

(U) As a result of the failure to meet the mobility RAM growth projection, the Office of the Secretary of Defense directed that a validation test be conducted on three modified XM1's at Fort Knox, Kentucky. Each tank accumulated 4000 test miles with the emphasis on RAM mobility type testing. Several hundred modifications were applied to each tank for test validation. The result of the validation test was to be combined with the results of DT/OT II testing to establish a demonstrated XM1 RAM number.

(U) A total of nine RAM scoring conferences were held during the past year. Three of these conferences scored OT II data, four scored DT II data, and two scored verification test data. The scoring was done in accordance with Revision "D" to the XM1 coordinated Reliability Failure Criteria. These criteria were established agreement with Chrysler Corporation and Department of the Army and spelled out in Data Item DI-R-1731 (Mod) of 3 March 1978 to Contract DAAK30-77-C-0006. An aggregation conference was conducted at the completion of OT II. The demonstrated reliability number of 145 was a result of this aggregation conference.

(U) All three of the RAM tests conducted over the past year used automated data collection systems. OT II and validation tests used an OTEA system which was tried and proven on many other programs. The DT II test used a relatively new data collection system called the Tank-Automotive Integrated Data Base. While this new system had been used by other programs, none used it to the extent exercised by the XM1. A total of about 5000 incident reports were contained within the various data bases. The main advantage of using an automated system was the speed with which data may be sorted and analyzed. This advantage proved to be critical in preparing for program review points.

(U) The two most significant problems which appeared to have been solved by the test-fix-test approach to problem solving were track retention and air induction. Although preliminary test results from the Fort Knox validation test were encouraging, problems with the hydraulic system and engine fuel nozzle coking continued to reduce the reliability of the XM1. Despite the problems, preliminary validation test results indicated that the RAM of the XM1 was on track with the PMO projections.

Technical and Testing Activities

(U) Testing Summary. FY 1979 saw the completion of DT/OT II testing of the XM1 Tank System and the beginning of full scale engineering development (FSED) testing at Fort Knox, Kentucky. In all,

eleven pilot vehicles and three contractor facility vehicles were used in full scale engineering development testing.

(U) Two of the contractor facility vehicles were sent to Fort Bliss, Texas, for the purpose of accumulating miles to prove the durability of the turbine power package. However, as a result of difficulties in supporting OT II, the emphasis on OT II, and the need to perform engineering tests to improve the air induction system and track retention, only 7500 of the planned 18,000 miles were accumulated. Following termination of the Fort Bliss testing in March 1979, one of the facility vehicles was shipped to White Sands Missile Range (WSMR) to conduct desert testing of the production air induction system and a track retention test at Fort Bliss. The other was returned to Chrysler's Chelsea Proving Ground, Michigan, for the purpose of validating engineering changes, engineering studies, and testing of alternate source components. The third facility vehicle, FV-4, was used at Aberdeen Proving Ground (APG) and Woodbridge, Virginia, to conduct electromagnetic impulse and pulse testing respectively, then used at APG for a second iteration of cold room tests. Following these tests, FV-4 was shipped to Fort Knox to conduct a 6000 mile durability test. Approximately 4900 miles of the planned test were accumulated before testing was terminated to use the vehicle for DT/OT III training.

(U) Operational Test (OT) II was conducted by the 3d ACR at Fort Bliss, Texas, from 15 May 1978 through 2 February 1979. Five XM1 prototypes, along with five M60A1 Rise tanks, participated in the test. Throughout the test, the XM1's logged 19,097 miles and fired some 4,689 main gun rounds. The M60's logged 15,641 miles, firing 3,928 rounds. Testing was conducted in three phases: training, individual maneuver and fire, and platoon maneuver and fire. The results and independent evaluation of this testing were published by USAOTEA in separate reports (FTR-OT-949 and IER-OT-049, respectively). Upon completion of OT, the five SM1 prototypes were shipped to APG for additional RAM-D testing in PQT-G.

(U) Development Test (DT) II (PQT-G) of the XM1 consisted of three phases: automotive, weapons, and vulnerability. It was conducted at APG throughout FY 1979 with completion date of 15 September 1979. Nine XM1 prototypes logged over 26,000 miles and 6,500 test rounds. Also, one additional prototype underwent destructive vulnerability testing of armor, compartmentalization, and structural and component integrity.

(U) An additional pilot, PV-1, upon completion of desert testing, underwent electromagnetic and radiation effects testing at WSMR. It was being used to conduct nuclear radiation effects testing, scheduled for completion 31 October 1979.

(U) DT II Arctic testing, scheduled for October 1978 through January 1979, was postponed until the low rate initial production phase of the program, due to test delays, performance problems, and funding

considerations. In place of the cancelled Arctic test, a third cold room test was being conducted at Eglin AFB, Florida, and was to be completed by mid-October 1979. Arctic testing at the Cold Regions Test Center was rescheduled to the Low Rate Production phase (October 1980 - May 1981).

(U) Following the XM1 ASARC III, 22 March 1979, the OPM XM1 proposed an extended full scale engineering development (FSED) durability test to be conducted at Fort Knox, Kentucky, for the purpose of demonstrating adequate reliability growth in the tank. This plan was submitted and approved by OSD in the Test and Evaluation Master Plan, XM1 Tank System. The plan called for three tanks to be removed from DT II, refurbished with zero time engines and transmissions, and 4000 miles to be accumulated on each of the three assets, followed by a modification period and 2000 miles of testing each on two of the three vehicles. These tanks were removed from DT II in March 1979 and sent to Chrysler Corporation for refurbishment. The three prototypes accumulated 11,000 miles in the testing that took place at Fort Knox from June 1979 to 30 September 1979.

(U) The only FSED testing to continue into FY 1980 will be the completion of contractor track retention at Fort Bliss in October 1979 and the completion of Fort Knox reliability testing.

(U) Configuration Management. A Configuration Management Office was established within the Systems Engineering Division in July 1979. This office was responsible for controlling changes to the XM1 System Specification, monitoring contractor activities (including the preparation and maintenance of the technical data package), and conducting the required configuration audits. After the first two years of production, the office will control all changes to the technical data package.

(U) A Functional Configuration Audit (FCA), which compared test results to system specification requirements, was conducted in February 1979. All requirements were categorized as "met," "not met," "not tested," or "testing incomplete." Due to the fact that DT II testing was continuing, a final wrap-up of the FCA would not be available until early FY 1980.

(U) Cost Effectiveness Analysis (COEA). TRADOC completed the XM1 cost and operational effectiveness analysis (COEA) update in April 1979 for input to the XM1 DSARC III. TRADOC found the 1976 XM1 COEA conclusions valid and that the XM1 remained the most cost-effective main battle tank alernative.

(U) Product Improvement Program (PIP). In the October/November 1978 time frame, TARADCOM and TRADOC prepared a joint briefing on the Tank Base Science and Technology (TBS&T) program to be given to

376-617 O - 82 - 11

the Undersecretary of the Army. At the request of CG, TRADOC, the concept that the TBS&T would "handoff" technologies for use in an XM1 PIP was developed. Additionally, the telescoped PIP concept where PIP's could be planned even before fielding a vehicle was surfaced. The TBS&T briefing was presented to the Undersecretary of the Army in January 1979 by TARADCOM and the USAARMC. Based on the successful outcome of this briefing, an XM1 PIP under the telescoped PIP concept was initiated by HQDA in the February/March 1979 time frame. PIP candidates for the XM1 were identified by TRADOC and the Research Development Advisory Committee (RDAC) established a budget wedge in March 1979. In June 1979, TARADCOM and the USAARMC briefed an XM1 PIP to Lieutenant General Keith, DCSRDA, outlining a conceptual management structure, candidate PIP's, schedules, and preliminary funding profiles. This briefing and subsequent August 1979 RDAC partial funding of the PIP constituted the only PIP "formal" approval to date. In June, following the briefing, the XM1 PMO assumed control of the program and established the XM1 PIP Steering Committee. The XM1 PMO chaired this committee consisting of the User (XM1 TSM) and TARADCOM. The committee tied together in one group the TBS&T technology handoff (TARADCOM), PIP requirements (XM1 TSM, USAARMC), and XM1 PIP management (XM1 PMO).

(U) Quality Assurance. The major milestone for FY 1979 was the transition from full scale engineering development (FSED) to low rate initial production (LRIP) activities. Prior to this year, the quality assurance effort was largely R&D oriented; however, this year saw that effort changed to be largely production oriented.

(U) Quality assurance provided assistance during the FSED modification programs by being the on-site representative at APG, Fort Bliss, Eglin AFB, Fort Knox, WSMR, and Yuma, in addition to the Chrysler Centerline facility. TARADCOM product assurance provided the actual support by witnessing the application of approved modifications, refurbishment of specific vehicles, technical inspections, and vehicle acceptance tests.

(U) Technical data package quality assurance documentation (drawings, specifications, and quality assurance requirements) was reviewed for format, content, and inspectability.

(U) Production related activities included negotiation of the QA provisions to the LRIP contract, QA clauses for systems technical support, vehicles, and spares; issuance of delegation letters for procurement quality assurance; commencing government source system; and the beginning of initial production testing.

(U) Automatic Test Equipment. The period starting 1 October 1978 was marked by dynamic policy decisions in the area of XM1 automatic test equipment. In that month, the Systems Engineering Division established a new office and assumed responsibility within PMO XM1

for test set development. At this time, the XM1 tank system was supported by seven different items of test equipment. They were at the organizational level, the engine organization test set (EOTS), organizational fire control test set (OFCTS), the fire extinguisher system test set (FESTS), and the vehicle electrical system test set (VESTS). At the direct support (DS) level the DS fire control test set (DSFCTS) and the thermal imaging system hot mock up test set (TISTS) were employed.

(U) Management decisions based upon the results of DT/OT II testing reduced the number of test sets being developed to support the XM1 during DT/OT III to three. The resulting test sets also featured greater compatibility with test equipment supporting current and future vehicle systems. PMO XM1 and PMO FVS were closely coordinating their common test set programs. The sets to be employed were the STE-XM1 for use at the organizational level, and the new direct support electrical system test set (DSESTS), and the upgraded TISTS at the DS level. A waiver was required from DCSLOG in order to continue the use of a hot mock up type test set during LRIP. PMO XM1 was tasked to study the modification of the TS-3681/VS6-2 for support of both the M60A3 and XM1. This course of action was pursued and a Chrysler/Hughes contract was awarded.

(U) The original FSED test sets were subsystem oriented and were assigned as the responsibility of an individual commodity command. For example, the DSFCTS and TISTS were assigned to ARRCOM. It should be noted that the STE-XM1 and the DSESTS supported both turret and hull components, and therefore impacted more than one readiness command. The projected assignments of responsibility for the respective test sets were: STE-XM1 to TARCOM, DSESTS to ARRCOM, and TISTS to ARRCOM.

(U) As the XM1 was fielded, the respective readiness command would become involved in assuming responsibility for provisioning and software configuration management.

(U) Actual action taken to formalize life cycle system responsibility for the STE-XM1 and DSESTS were under development and in the coordination stage. The TISTS was the responsibility of ARRCOM and the hot mock up TISTS used in DT/OT III and follow-on automatic test set will continue to be managed by them.

(U) In all phases of XM1 test set development, close coordination was established through briefing with the respective readiness command, and the TRADOC user community. During the reporting period TARADCOM was funded by PMO XM1 to manage a portion of the organizational test set contract effort. Night Vision Laboratories, Fort Belvoir, Virginia, had also been funded to provide technical and logistical support in the development of test equipment for the XM1 thermal imaging system.

(U) Automotive. The turbine extended durability program which was initiated after the start of the FSED program made good progress during the year. Two 400 hour durability tests were completed on one engine and a third test on that engine had been started. Two 6000 mile mission profile tests were run on updated power packages. A third mission profile was started using the first production transmission and the same engine that ran the second test. Laboratory engineering tests during the year included submergence, cold room, combustor, fuel nozzle and duplication of field incidents.

(U) An OSD power train review panel was formed in February 1979 to evaluate the reliability and durability of the engine and transmission. The findings of the committee concluded that the selection of the turbine pack was a good choice but that additional verification testing was required. To accomplish the verification, OSD directed 1000-hour tests on each of two updated engines, two early LRIP engines and two second year production engines. The 1000 hour test consisted of a 400 hour durability test to the NATO cycle, and a 600 hour mission profile test. In addition to the lab tests, the results of the three 4000 mile verification tests at Fort Knox were to be used in the evaluation of the engine and transmission. TARADCOM was to provide an independent assessment of the adequacy, accuracy, and results of the verification tests.

(U) Ballistic Protection. The contractor, Chrysler Corporation, demonstrated very satisfactory performance in ballistic protection as evidenced during the DT II vulnerability tests conducted on a fully equipped pilot vehicle. The results indicated that the contractor did an excellent job of shock mounting major components to eliminate or minimize degradation of vehicle performance and fightability upon ballistic impact. Also, the tests confirmed that the armor designs met or exceeded the large caliber threat requirements. In addition, a substantial improvement in mine protection was achieved when it was demonstrated that the crew would survive the specified mine threat with no, or very minor, injuries. Ammunition compartment testing demonstrated that both the hull and bustle ammunition compartments provided full crew protection upon penetrations of the ammunition compartments. The tests also showed that there was minimal impact on vehicle mobility and fightability. Satisfactory performance of the automatic fire suppression system was demonstrated during intentional large caliber penetrations into the forward and engine compartment fuel cells. In both tests, the subsequent fires were extinguished within 50-75 milliseconds. Small arms testing on the FSED ballistic hull and turret showed that the new rear grille door design was a vast improvement over the previous design. Chrysler Corporation also incorporated other ballistic improvements into the overall design. The most notable included modification to the Commander's weapon station, the strengthening or redesign of critical hull and turret welds, relocation of the left air inlet grille, implementation of an

improved armor fabrication process, and the reinforcing of the bustle armor. Also incorporated into the production vehicles were design modifications to the turret roof and hull top deck which will significantly enhance XM1 survivability against the overhead threats.

(U) System Survivability/Fire Control. Developed for the XM1 Tank, the Termal Imaging System (TIS) was integrated with the Gunner's Primary Sight. The program to enhance producibility and reduce the DTUC for production yielded two proof of design (POD) prototype systems during FY 1979. Night Vision and Electro Optics Laboratory tested the POD and found the POD configuration to generally satisfy contractual requirements for laboratory performance. The initial production TIS was to be installed in ED pilot vehicle and operationally evaluated during November-December 1979 at WSMR. Initial production deliveries of the TIS to the Lima Army Tank Plant were scheduled for mid-November 1979.

(U) Muzzle Reference Sensor (MRS) System. Development of the redesigned MRS which utilized a key way and flats machined on the gun tube muzzle for positive retention continued during this reporting period. Laboratory tests conducted in May 1979 showed that the muzzle mounted reticle assembly was thermally unstable. The muzzle mounted assembly was modified in an attempt to correct the thermal instability and subjected to a firing test conducted at APG in July 1979. Results of the firing test showed that the MRS exceeded the $\pm$ 0.10 mil alignment requirement by 0.07 mil in the elevation axis. Nevertheless, this was a significant improvement over the previous MRS muzzle tracking performance. Work was to continue during the next reporting year toward modifications that will further reduce thermal instability and improve tracking performance.

(U) Other improvements achieved by the MRS redesign as noted during the July 1979 APG test included the reduction in installation time of from 30-40 minutes to 2-3 minutes and the elimination of the susceptibility to incorrect installation due to misalignment of the retaining rings (numerous incidents of MRS misalignment occurred during DT/OT II).

International Programs

(U) International Responsibilities. The International Operations Office, which has principal staff responsibility for all international matters affecting the XM1 as a total system, continued to pursue XM1/Leopard 2 standardization/interoperability efforts based on the US/GE Harmonization MOU of 1974, as amended. It also continued detailed discussions and data exchange with the Governments of the Netherlands, the United Kingdom, Switzerland, and others, relating to their pending national selection of tank systems and componentry.

(U) Standardization Efforts. The Maschinebau Corporation, Kiel (MaK) test report of the XM1 validation turbine engine was received in August 1979; the report was in German and not releasable to US industry. Germany intended to brief the PMO XM1 on the test results on 30 October 1979. Also, Germany was expected to announce a decision by the end of CY 1979 concerning the use of the AGT-1500 turbine in the Leopard 2. Germany, however, will withhold a decision pending completion of the US conducted brake test. Statements by high level German officials indicated that the US turbine was not a real contender for the Leopard 2 because the turbine was not "state-of-the-art." PMO XM1 was attempting to clarify German intention before committing a pilot vehicle and funds to the brake test. The German observer stationed in Warren, Michigan was afforded complete access to the turbine and XM1 automotive test information and was scheduled to return to Germany in December 1979.

(U) With the award of a contract by TARADCOM to Chrysler for the development and test of an enlarged end connector, the US continued a unilateral track standardization program. The results of this effort were expected by mid-1980. As a result of the Harmonization Executive Group meeting in September 1979, the issue of possible exchange of sprockets had been reopened.

(U) The US-GE industry agreement to develop an interoperable track for combat vehicles expired in June 1979. Diehl, the German firm, was interested in continuing the agreement but Chrysler decided to not continue the agreement, reasoning that it did not appear to be a profit-making venture. Chrysler foresaw a problem with the US Government owning a majority of the technical rights to the track development and, therefore, being unwilling to pay a royalty for the codeveloped track. Germany objected to US restrictions on the sale of the codeveloped track to non-NATO countries. Department of State was working on the third country sales problem.

(U) The United Kingdom decided to opt for the Rolls Royce diesel engine for MBT 80. Fuel economy and the requirement for extensive modification to the turbine were cited as reasons for the diesel selection. The UK suggested that harmonization efforts continue on other components of the XM1/MBT 80.

(U) Based primarily on economic reasons, in March 1979, the Netherlands decided to buy 445 Leopard 2 tanks. The Leopard 2 sales effort was backed by German Government and a 100 percent offset agreement was reached. Other reasons for the Leopard 2 selection were: the 120mm gun was available from the start; in general it offered more possibilities for standardization within the northern armed forces of NATO; and would afford immediate work for Netherland industry.

(U) Switzerland requested price and budgetary information for XM1 in February 1979. Swiss interest continued with a request for a

briefing by PMO XM1 on problems of tank design, XM1 description, and PMO opinion on the tank requirements for Switzerland. An exception to the National Disclosure Policy was applied for and granted. On 21 and 22 August 1979, a joint PMO/contractor team presented a briefing to the Swiss Parliamentarians describing the procedures of program management from the government and contractor point of view. Also, the cost aspect of tank development was discussed. The US team briefed members of the Swiss Armaments Division (GRD) on XM1 program, development and testing, and XM1 vulnerability at the secret level. On 31 August 1979, the Swiss Armament Group requested in writing to know when it would be possible for a Swiss team to conduct practical training on an XM1 and what would be the earliest time two XM1 (105mm) and two XM1 (120mm) tanks could be leased for a year's testing in Switzerland.

Tank Main Armament System Development and Production

(U) 120mm Tank Main Armament. Licensing negotiations for the 120mm German system were the major activity at the start of FY 1979 and remained so until the license was signed on 22 February 1979.[1] On 8 March 1979, formal DA approval was provided to initiate the ASARC approved (17 April 1978) 120mm gun system development and integration program.[2]

(U) A Special Army Systems Acquisition Review Council (ASARC) was held in March 1979 to determine the impact of delays which had occurred in licensing and, consequently, delayed availability of technical data. It was concluded that ammunition from domestic facilities would not be available to support XM1 deployment until 1985. In June 1979, it was confirmed "that OSD fully expects the Army to program the 120mm gun system for the XM1 Tank to be ready for production not later than August 1984."[3]

(U) To support XM1 deployment in August 1984, a letter requesting price and availability of German ammunition was forwarded to Germany in September 1979. Receipt of German technical data started after signing of the license in February 1979. In March, Watervliet Arsenal initiated concurrent translation of the German design and fabrication of an improved (multi-lug) breech designed for greater fatigue life.

(U) A preliminary review was held in September 1979 of the Watervliet Arsenal results relative to their improved multi-lug breech and an In-Process Review (IPR) for the breech design decision was scheduled for October 1979.

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[1] Licensing Agreement between Rheinmetall GmbH and US Gov't concerning the 120mm tank gun and ammunition system selected for application in future tanks, dated 22 Feb 79.

[2] DAMA-WSW Msg, 080124Z Mar 79, Subj: 120mm Tank Gun System Program Initiation.

[3] DAMA-WSW Msg, 080521Z Jun 79, Subj: Schedule of 120mm Tank Gun Program.

(U) In March 1979, bids were solicited for technology transfer, fabricating and test (TTF&T) of the three German rounds ready for production (DM12 HEAT-MP, DM13 APFSDS-T and DM18 HEAT-TP).[4] Bids were received on 1 June 1979 from three sources and a contract awarded to Honeywell on 24 August 1979.[5]

(U) On 1 June 1979 the government entered into a contract with Chrysler Corporation to initiate the XM1 (120mm) tank system integration program. As a part of this initial contract effort, a user review of the XM1E1 tank[6] system mockup was conducted on 24 August 1979 as one of the initial formal steps in definitizing the integrated XM1 (120mm) tank system concept.

(U) Actions to procure quantities of German hardware required for support of the 120mm technology transfer effort and XM1 system integration were initiated in April 1979 and initial deliveries were in progress as of September 1979.

(U) Design of the 120mm XM829 APFSDS-T cartridge intended to apply the latest kinetic energy penetrator technology and replace the XM827 (the translation of the German DM13) was initiated on a cooperative basis with Germany in December 1978. Propulsion charges were supplied by Germany and projectiles were designed and tested by ARRADOM, BRL. In August 1979, a feasibility demonstration firing test was conducted in Germany. Results were evaluated in September 1979 and actions were in progress to formalize further cooperative development.

(U) 105mm Tank Main Armament. During the first quarter of FY 1979, maximum efforts were implemented to phase an improved obturating band into production and verify reliable performance from worn tubes. Concurrently, efforts were initiated to check the performance from worn tubes of previously produced lots. Production of tungsten cores was maintained by the two mobilization base producers (Kennametal and Teledyne Firth Sterling), but assembly of projectiles was delayed by the obturating band changes. Projectile production resumed at Flinchbaugh in April 1979 and the M735 was fielded in Europe in May 1979. Projectile assembly resumed at Chamberlain in August 1979. The plan for transition to ARRCOM was approved in June 1979 and on 31 August 1979, ARRCOM accepted management responsibility for the M735.

(U) In September 1978, the M735A1 Cartridge (with staballoy core) was type classified standard. Concurrently, the Secretary of Defense authorized the Army to produce M735A1 and XM774 tank cartridges

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[4]Solicitation No. DAAK10-79-R-0031

[5]Contract No. DAAK10-79-C-0288

[6]ARRADCOM type designator/nomenclature action approval (DRDAR-TST-S), Subj: Request for Modifier and Experimental "E" Suffix Designator Assignment for TANK, COMBAT, FULL TRACKED: 105mm GUN, XM1, 9 Aug 79.

using staballoy penetrators.[7] Actions were initiated in September 1979[8] to procure staballoy penetrators for 29,000 M735A1 cartridges. However, acceleration of the XM774 and indications that the XM774 would be type classified earlier than April 1979 resulted in a hold being placed on first article production of staballoy cores scheduled for December 1979.

(U) In April 1979, conversion of the production quantity of 29,000 M735A1 cartridges to M735 cartridges was approved.

(U) In the ammunition development of the XM774 APFSDS-T Cartridge, DT II was initiated in October 1978 and proceeded successfully until 12 December 1978 when an in-bore failure occurred during firing tests at -35° F. The projectile penetrator broke in tension at the rearmost buttress groove. An intensive investigation was implemented and a "Get Well" Program established to obtain and test penetrators of verified quality from three potential industrial sources.

(U) A special In-Process Review for the XM774 was held on 27 March 1979 and in April 1979 the XM774 was type classified for limited production of 49,000 cartridges.[9]

(U) During August 1979, penetrators from two sources (Nuclear Metals, Inc. and National Lead, Ohio) satisfactorily passed the first phase of the "Get Well" program tests and these two producers were actively engaged in fabricating additional verification quantities. The third supplier (National LEAD Industries, Albany) encountered recurring difficulties in meeting quality requirements and was unable to deliver penetrators for testing as of 30 September 1979.

(U) Program authorization for the development of the XM833 was increased substantially ($2.0M) in November 1978. Actions were intensified to establish performance requirements for entry into validation and they were resolved in July 1979.

(U) Concurrently, various component designs were evaluated during FY 1979 by testing of small quantities and in September 1979, the configuration for entry into Advanced Development was selected.

(U) Tests of XM797 Cartridges, with projectiles having a variety of nose cap designs, started at Yuma Proving Ground in December 1978 and continued at intervals through FY 1979. Substantial data were obtained upon subprojectile maximum range and dispersion characteristics. The XM797 Acquisition Plan was issued in August 1979.

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[7]Memo for the Secretary of the Army from the Secretary of Defense, 21 Sep 78, Subj: Production of Staballoy Penetrators for 105mm Tank Cartridges.

[8]Contract No. DAAK10-78-C-0435

[9]DRCDE-DW ltr, 6 Apr 79, Subj: In-Process Review Results (Ctg 105mm APFSDS-T XM774).

(U) A correspondence In-Process review and staffing of the required operational capability (ROC) needed to support entry into FSED were in progress as of 30 September 1979.

(U) Regarding the XM815 HEAT-MP Cartridge, the draft revised Letter of Agreement (LOA) from TRADOC[10] which incorporated advanced fuzing technology was non-concurred in by DARCOM[11] in September 1978 and the major effort at the start of FY 1979 was to resolve the LOA status. A meeting was held at the Armor Center on 19 December 1978 to address LOA issues which related mainly to clarification of targets, performance trade-offs and the need for remote set fuzing. The USAARMC position was summarized as follows:[12] (1) accuracy of 3,000 meters was a must; (2) armor penetration was tradeable for increased fragmentation; (3) priority targets included lightly armored vehicles (plus some capability against T-62), bunkers, and personnel; (4) a remote set fuze was not wanted; (5) a simpler, hand settable delay was desirable but of lower priority than impact and graze functioning; (6) maximum effects behind light armor were wanted; (7) helicopters were to be handled by other systems.

(U) In April 1979, an updated draft revised LOA was distributed for comment. In June 1979, AMSAA completed an evaluation of XM815 concepts and subsequently determined that development was not required.[13]

(U) A feasibility IPR to assess all options had been scheduled for September 1979 but in view of the AMSAA assessment, it was decided to continue ongoing exploratory development programs rather than initiate the validation phase of the XM815 in October 1979 and review the status in the summer of 1980.[14]

Integrated Logistics Development Activities

(U) Training. Training for support of DT III players and OT III cadre was started in September 1979. This training which is conducted by the contractor will continue through May of 1980. The development contract for the XM1 family of maintenance training devices was awarded 30 October 1978.

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[10] ATZK-CD-MS letter, 16 Aug 78, Subj: Draft Revised Letter of Agreement (LOA) for the XM815, 105mm HEAT, Multipurpose Round.

[11] DRCDE-DW 1st Ind, 11 Sep 78, to draft revised Letter of Agreement (LOA) for the XM815, 105mm HEAT Multipurpose Round.

[12] DRCPM-TMA-105 MFR, 21 Dec 78, Subj: Mtg with MG Lynch - XM815.

[13] DRXSY-GA Msg, 161940Z Aug 79, Subj: XM815 Development Program.

[14] DRCPM-TMA-105 Msg, 201900Z Aug 79, Subj: Proposed DARCOM Position Statement - XM815 Letter of Agreement, 3 Jul 79, and associated development program.

(U) Military Occupational Specialty (MOS) Decision. The final MOS decision for new MOS's to be designated for the XM1 tank was rescheduled from February 1980 to July 1979 at the request of the CG, MILPERCEN. On 29 August 1979, the revisions to CMF 19 and 63 providing for introduction of MOS's 19K, 19L, 45E and 63E were disseminated. These revisions which introduced new identifiers to operate and maintain the XM1 were planned for inclusion in change 13, 1 March 1980.

(U) Army Force Modernization. The office of the PMO, XM1 Tank System made a second submission of the Army Force Modernization Program Data. This data was originally submitted in July 1978 as a "one time" submission, and gave an excellent overview of the XM1 logistic's planning.

(U) Skill Performance Aids. Quarterly updates to the draft equipment publications were scheduled through July 1979. Due to the contractor's inability to react to a vast amount of comments requiring changes to the manuals, the final quarterly update was rescheduled to September 1979. Start of work on the LRIP technical manuals was initiated on 22 May 1979 with direction that the manuals must be formatted in a more usable manner. Since the manuals had become voluminous, more detailed table of contents, index and page markings were required. In process reviews of material prepared for LRIP manuals were conducted at the contractor and subcontractors site in order to meet the compressed time schedule.

(U) Depot Subjects. The Depot Planning Task Force, organized in November 1977 for the purpose of accelerating XM1 depot planning, completed a major task when CONUS/OCONUS depots submitted their requirements for depot maintenance plant equipment (DMPE) to DESCOM. Follow-on funding and procurement actions were continuing.

(U) The AR 235-5 New Start, authorizing government depot overhaul as opposed to contractor overhaul, was approved (less AGT 1500 engine) by ASA (I, L and FM) on 14 March 1979.

(U) The Interservice New Start submission was initiated IAW DARCOM Reg 700-97 and studies by the Maintenance Interservice Support Group (Central) are in-process.

(U) Maintenance Allocation Chart Revision. The first phase of the XM1 Maintenance Allocation Chart (MAC) Revision Plan initiated by a joint Army committee in October 1977 and redefined in November 1978, was contracted for in September 1979. This effort involved moving maintenance tasks from higher maintenance levels to the lowest possible level, commensurate with existing skills and missions.

(U) Provisioning. On 4 September 1979, the contractor completed the delivery of all baseline provisioning data. This data consisted

of 17,500 Logistics Support Analysis data sheets which were reviewed by the Materiel Readiness Commands (MRC) and then filed in the Commodity Command Standard System (CCSS).

(U) The MRC's obligated $76,138,262 for the parts and assemblies required to provision the XM1 which were being procured from the prime contractor. In February 1981, the Federal Supply System will support the XM1.

(U) Special Tools. Special tools in support of DT/OT III were placed under letter contract August 1979 in a modification to the LRIP contract. The redesign of nine tools and the addition of a tenth was incorporated by MOD P00006 of the STS contract.

(U) Gun Mount and Rotor Removal. Gun mount and rotor removal issue raised by ARRCOM was resolved due to a successful demonstration of removal by Government civilian personnel and military students. This was accomplished at APG, 24-28 September 1979, using the latest procedures and modified tools.

Procurement & Production/Facilitization

(U) Lima Army Tank Plant (LATP), Ohio. The Lima Tank Plant Office was officially activated on 1 October 1978, with LTC George J. Telenko being designated as Chief. Initial staffing of the office consisted of nine personnel which had responsibility for monitoring all efforts of Chrysler Corporation and the Corps of Engineers at LATP. Chrysler strength at the time of activation totaled 333 personnel.

(U) Since the office activation, all ongoing Corps of Engineer renovation/expansion projects reached 100 percent completion with a 1.4 mile Test Track being placed into operation in late August 1979. Additional projects were being planned for coming years to increase the facility capabilities.

(U) The LATP expansion/modification program was completed on time with the supervisory assistance of the Corps of Engineers (COE), Baltimore District. Beneficial Occupancy of the Lima Plant and facilities was transferred to Chrysler in April 1979.

(U) During the fall of 1978, the fabrication of qualification hulls and turrets began and ultimately resulted in the fabrication of five hulls and four turrets for machine qualification tryout.

(U) Between the period 21-30 March 1979, primary production equipment began arriving on-site. Turret Machine #1, the Hull Machining Center and Plate Flame Cut Machine, arrived on-site during this period. Initial production activity at LATP commenced 1 May 1979.

From April 1979 until the end of June 1979, the primary effort involved qualifying the machinery to include set up, alignment and production part tryout.

(U) All of the tooling machinery and industrial plant equipment (IPE) for low rate initial production (LRIP) had been received at LATP by 30 September 1979. Also, 91 percent of required tooling and 97 percent of required IPE had been received by 30 September 1979 for 30 per month production.

(U) On 29 June 1979, production hull #1 entered fabrication, and since that date there have been seven hulls placed in the fabrication mode. The first hull entered the machining process on 24 August 1979.

(U) The first production turret began its fabrication cycle on 13 July 1979. Since that date, 12 turrets entered into the fabrication process. The first turret began the machining process on 28 August 1979.

(U) Since 1 October 1978, the facility moved from a purely facilitization effort into fabrication of qualification parts and finally, into an initial production phase. The Test Track was 100 percent checked out and prepared to receive tanks for test purposes. During this period, the personnel picture changed considerably. Chrysler's work force grew from 333 to 796, while the Lima Tank Plant Office staff went from nine to 31.

(U) Chrysler continued to proceed with installation and tryout of IPE/tooling schedule and should meet the tank production requirements.

(U) Detroit Arsenal Tank Plant (DATP), Michigan. Modernization/rehabilitation projects for the DATP operated by Chrysler Corporation, were ongoing with the M60-PMO responsible through FY 1979. Starting with FY 1980, the XM1 PMO assumed responsibility for funding and developing production support and equipment replacement projects for the DATP. Close coordination with Chrysler, DARCOM I&S, Industrial Base Equipment Agency, Omaha District COE, TARCOM HISA Facility Engineer, and Industrial Readiness resulted in the timely development and submission of acceptable projects in Project Development Brochure (PDB) form to DARCOM and preliminary/final P-15's for funding of these projects.

(U) A liaison officer was assigned by the XM1 PMO to coordinate XM1 activities at the DATP to initially support XM1 tank production at LATP and then XM1 tank production at the DATP in 1982.

(U) The XM1 PMO was funded and held responsible for the following DATP projects.

(U) FY 1980 - Total $5.8 million
Catwalks, Steam Condensate Lines, Waste Treatment, Test Track (Modified), Standby Propane, Replace Aisleways, Replace Coldwater Lines, and Rehabilitation of Lighting in Bldg #5, S-58 & 59.

FY 1981 - Total $14 million
Heating and Ventilating in Bldg #4, Energy Monitoring Control System, and Equipment Repair/ Replacement.

FY 1982 - Total $2.9 million
Repair Roof Drain Conductors and Painting Interior of Bldg 14.

(U) An on-site review at the DATP was conducted in November 1978 to review FY 1980 projects for possible changes; firm up and definitize FY 1981 projects; and establish a preliminary list of FY 1982 projects with estimated costs and to identify those projects which would require waivers from the COE.

(U) Production Schedule. Award of Low Rate Initial Production (LRIP) contracts for 110 XM1 tanks was made on 8 May 1979. XM1 tank delivery schedule from the Lima Army Tank Plant (LATP) for the LRIP contract follows:

Month	Scheduled Delivery	Month	Scheduled Delivery
Feb 80	2	Aug 80	10
Mar 80	4	Sep 80	10
Apr 80	7	Oct 80	10
May 80	10	Nov 80	10
Jun 80	10	Dec 80	11
Jul 80	10	Jan 81	16
		Total	110

(U) Buildup to the delivery rate of 30 XM1 tanks per month at the LATP was scheduled for March 1981 during the second year buy.

(U) Production activities leading to tank deliveries starting in February 1980 continued at a rapid pace at all locations. The prime contractor continued to closely monitor and manage the program in order to insure meeting the schedule for timely delivery.

(U) During the period of November through December 1978, the initial Production Readiness Review (PRR) was conducted. The PRR team determined that the prime contractor and subcontractors were ready for production.

(U) DX Rating. The XM1 Tank System was nominated to the DOD Master Urgency List (MUL) in accordance with AR 700-90 to provide the highest procurement priority necessary to successfully execute this program. Upon approval, the request will be forwarded to the National Security Council in coordination with the Department of Commerce and then to the President for his approval and signature.

(U) Procurement. The Full Scale Engineering Development/Producibility Engineering and Planning (FSED/PEP) contract was in the last month and a half of a planned 36 month effort, and basically, performance of the overall contract was on schedule. Development and Operational Testing (DT/OT) II of the prototype vehicles continued. The funds obligated for Research, Development, Test and Evaluation totaled $256.8 million through September 1979, and cost overrun of approximately $10.3 million was projected.

(U) The first year production option in the FSED/PEP for 110 low rate initial production (LRIP) tank systems was executed on 7 May 1979 for a target price of $143.3 million under a fixed price incentive arrangement. Delivery of the first LRIP vehicle was scheduled for February 1980. The target price was determined unilaterally by the contracting officer after extensive negotiations failed to provide a mutually acceptable agreement. Other key issues that remained unsettled include contractor claims for changes in production conditions after award of the FSED/PEP contract, formula to be used for application of adjustment of ceiling prices for escalation, administration of correction of deficiencies provisions, and agreement on terms and conditions. Efforts to settle the disputed issues continued at the local level; however, the escalation question had been appealed and final contracting officer decision had been issued. A docket number for the escalation method was assigned by the Armed Services Board of Contract Appeals.

(U) To support the LRIP Tank Systems during DT/OT II, $23.6 million for spares and repair parts, and $10.4 million for training components were obligated.

(U) Unilaterally determined target/ceiling prices for the second year production option of 352 vehicles in the FSED/PEP were included in the contract modifications whereby the LRIP production option was exercised. The open issues between Chrysler and the Government applied equally to the 352 buy. To produce the 352 tank systems, the Government obligated $54.9 million for long lead hardware. Two alternative second year production quantities were added to the XM1 Tank System Program in consonance with the DSARC III Decision Memorandum of 8 May 1979. These two alternative production quantities of 192 and 120 vehicles, as possible candidates for a second year production quantity in lieu of the 352 quantity, were being negotiated by TARCOM with completion targeted for January 1980. Provisioning of second year spares and repair parts acquisition was performed by TARCOM and ARRCOM.

(U) During February 1979, a letter contract for System Technical Support (STS) services to support the LRIP related activities (such as DT/OT III) was executed with Chrysler Corporation. Obligations under this contract totaled $26.0 million through September 1979. This included funding for identified efforts projected through December 1979.

(U) The Manufacturing Engineering, Tooling, Special Test Equipment and Facilities Procurement Program (METSFPP) contract was in the 28th month of a 53 month effort. METSFPP effort was directed toward facilitizing the Lima Army Tank Plant and Detroit Arsenal Tank Plant and other supporting facilities to produce the XM1 Tank System at a rate of not more than 60 vehicles per month, on a 1-8-5 shift basis, with a surge capacity of 150 vehicles per month, on a 3-8-5 basis. The funds obligated under this contract totaled $268.3 million through September 1979.

(U) The facilities contract, a companion contract to the METSFPP contract, was funded in the amount of $209.5 million through 30 September 1979 for authorized acquisition of Industrial Plant Equipment. Chrysler and the major subcontractors received Government authorization for the expenditure of $186.6 million through FY 1979.

(U) After Congressional approval of the program, a contract was awarded to Chrysler Corporation for a design and installation concept for integration of a 120mm gun into the XM1 Tank System. This contract, initially contemplated as a four month effort with funding in the amount of $1.8 million obligated through 30 September 1979, was being extended through February 1980. The total cost for 120mm gun integration was estimated at $132 million.

(U) During FY 1979, a major second generation test set redesign/production program to support DT/OT III requirements was initiated. Chrysler was awarded a contract, with RCA as the major subcontractor, for organizational level simplified test equipment (STE-XM1) using the existing STE-ICE technology as a base to build upon. Chrysler was awarded a separate contract for the redesign of the FSED/PEP Direct Support Fire Control Test Set (DSESTS) for both hull and turret application. The prime effort under this contract was to be performed by the Chrysler Huntsville Electronics Division in Alabama. Also, a contract was awarded to Chrysler, with Hughes Aircraft Company as the key subcontractor, for conversion of the original Hot Mock-up version of the Thermal Imaging System Test Sets (TISTS) for compatibility of same to the TIS LRIP configuration as an interim measure for early DT/OT III support. A further program was being initiated for the design/development and production of a Combined Thermal Imaging System Test Set (CTISTS) which will accommodate both the XM1 and the M60A3 Tanks. Total funding obligated during FY 1979 for these test set efforts was $10.8 million with the balance of both the development and production funding projected in FY 1980.

(U) An armor improvement program was conducted during FY 1979 with a concept phase contract totaling $1.3 million in obligations. The further development of ballistic improvements program was projected through FY 1981. Contractual action for this continued armor effort was expected to be consumated in early FY 1980.

(U) Solicitation efforts for a Contractor Depot Support (CDS) contract to obtain logistical depot support functions from Chrysler Corporation in support of DT/OT III commenced late in FY 1979. Major emphasis was directed toward inventory control, spare and repair parts replenishment and depot maintenance with funding projected at $60.1 million.

Financial and Cost

(U) Research, Development, Test and Evaluation Appropriation (RDT&E). At the end of FY 1979, the 105mm XM1 full scale engineering development (FSED) contract value was $258.5 million and cumulative funding for the contract totaled $254.3 million of which $41.2 million was FY 1979 funding. FY 1979 program authority for 105mm XM1 tank development was $78.4 million as planned. During the 2d and 3d quarters of FY 1979, actions were taken to increase FY 1980 through FY 1982 programs to finance additional testing and other extended R&D effort required to accomplish the OSD directed RAM-D growth program (OSD memorandum dated 8 May 1979). Total increases were estimated at $85 million including an $18 million increase in FY 1980.

(U) In March 1979, at the conclusion of licensing agreements with the German government, approval to initiate action on the 120mm Tank Gun Integration Project was received. FY 1978 program authority of $6.2 million was received and obligated in July 1979 as an increment to a contract for the procurement of German hardware. Also, the FY 1979 program authority of $14.4 million was received of which $9.6 million was obligated. Full obligation was not possible due to the delay in project start. As a result of the delay in project start, a 120mm Tank Gun Integration Program re-estimate was conducted and the current estimate stood at $106.2 million of which $12.7 million was TRACE (Technical Risk Assessment Cost Estimate).

(U) In FY 1979, PM for Tank Main Armament Systems, Dover, New Jersey, received $4.7 of $10.8 million reprogramming action requested in FY 1979. These funds were utilized for the signing of the licensing agreement between US government and Rheinmetall, Germany which was accomplished on 22 February 1979. Also, $21 million of FY 1979 funds were received in November 1978; however, the initiation of 120mm program was delayed until March 1979 because of the signing of US-Rheinmetall licensing agreement.

376-617 O - 82 - 12

(U) Army Procurement Appropriation (Weapons and Tracked Combat Vehicles). The FY 1979 program authority totaled $443.1 million. This amount consisted of $171.6 million for vehicles and provisioning; $133.8 million for Initial Production Facilities (IPF); $67.4 million for Advance Procurement of hardware items in support of FY 1980 vehicle requirements; $62.1 million for Production Base Support (PBS); and $8.2 million for Training Components. During FY 1979, the low rate initial production contract for 110 vehicles was awarded to Chrysler Corporation with $133.3 million being added to amounts previously funded as advanced procurement. The on-going IPF and PBS contracts were increased by $126.5 million and $51.5 million respectively. $2.1 million of PBS funds were provided to the Omaha District, COE for initiation of DATP design projects in anticipation of out-year construction/modification efforts.

(U) Operation and Maintenance Army(OMA) Appropriation. In FY 1979, the initial OMA Approved Operating Program (AOP) was provided for XM1 staffing of the Lima Tank Plant Office. The maximum AOP during FY 1979 was $588 thousand to provide 22 man years against the 37 civilian spaces authorized for FY 1979. As of 30 September 1979, the Lima facility had 22 of the 37 spaces filled and utilized 13 of the 22 man years approved. Due to this hiring lag, the XM1 AOP was reduced to $330 thousand.

(U) Cost and Schedule Control System Criteria (C/SCSC). The XM1 prime contractor and numerous subcontractors employed C/SCSC to manage the FSED, as well as Pre-Production Manufacturing, Engineering, Tooling, Special Test Equipment and Facilities Procurement Program (METSFPP) efforts of the XM1 Tank System program.

(U) Early visibility concerning unknown FSED testing problems were made possible by the C/SCSC. As a result, this office was able to monitor all activities with the intent of minimizing cost overruns. The Cost Performance Report (CPR) data on FSED projected a $10.3 million overrun. Although the FSED phase was projected to overrun, there remained sufficient money within the R&D budget to cover these costs. FSED was to be completed November 1979.

(U) The current CPR report on the METSFPP contract reflected a schedule slip with a corresponding cost underrun. At the end of this period, no cost overrun was projected.

(U) Evaluation of Contractor's Design-To-Cost Report. Chrysler submitted the final detailed report as of May 1979. A team conducted a government review and validated procedures and estimates for the prime contractor and major subcontractors.

(U) The government evaluation revealed that Chrysler did not fully meet the contractual Design-To-Cost goal; however, a final award fee determination was postponed by the PM until additional data could be provided.

(U) Cost Teams Negotiation and Should Cost. During the 2d and 3d quarter of FY 1979, formal negotiation and should cost teams were established to review the Chrysler proposal for the 1st year XM1 (110 unit) production and overhead and burden sharing for the joint XM1/M60 production scheme at DATP.

(U) Significant cost issues were identified. Specific problem areas centered around the escalation of costs to time-of-delivery, estimated costs of correction of deficiencies and Chrysler claims against the incorporation of C/SCSC reports and Government inspection.

(U) The Government and Chrysler were unable to arrive at an agreeable price for the 1st 110 unit procurement. Accordingly, the Government unilaterally exercised the 110 option under the FSED contract in May 1979. DOD withheld approval of the 352 2d year production pending further testing of three reconfigured FSED XM1 tanks. In addition, they required that Chrysler propose two additional programs, 120 and 192 tanks, to provide an alternative to the scheduled 352 tank second year option. These proposals were received by TARCOM on 15 September 1979 on a cost plus fixed fee basis with the intent that they be negotiated and available for consideration at the planned DOD Management Review 1 scheduled during January 1980.

(U) Baseline Cost Estimate (BCE). During the spring of 1979, the formal baseline cost estimate was prepared for ASARC/DSARC III and DCP 117B, the supporting document. This document was validated by TARADCOM, DARCOM, and DA personnel. Minor changes were made against the manufacturing and training device operating and support costs. A complete discussion of the 120mm investment impact with assumed 120mm tank production roll-off in August 1985 was contained in the BCE. The formal Army Systems Acquisition Review Council (ASARC) recommended launching production on both the 110/352 production buy with 120mm introduction starting August 1985. DSARC approved the 110 procurement, however, may reduce the second year procurement from 30 units/month to 10 units/month or 16 units/month. Furthermore, in June 1979, DOD directed the Army to introduce the 120mm XM1 tanks in August 1984.

Fighting Vehicle Systems

Establishment

(U) The Office of the Project Manager, Mechanized Infantry Combat Vehicle, was established by AMC in January 1968. It was reorganized and redesignated in July 1975[15] as the Office of the Project Manager, Mechanized Infantry Combat Vehicle Systems, and at the close of FY 1978 was located at Michigan Army Missile Plant, Sterling Heights,

[15] DARCOM General Order No. 56, 19 Apr 76.

Michigan. Brigadier General Stan R. Sheridan was designated the Department of the Army Project Manager for the Mechanized Infantry Combat Vehicle Systems (MICVS) effective 14 July 1975. In May 1977, DA approved the change in above titles to Program Manager, Fighting Vehicle Systems (PM-FVS). Also, the MICV TBAT II for infantry and scout was redesignated Project Manager, Fighting Vehicle Armament Systems (PM-FVA). The Program Manager reported to the Commanding General, US Army Materiel Development and Readiness Command (DARCOM).

(U) General Sheridan's Charter was approved by the Secretary of the Army on 13 March 1978. On 10 January 1979, Brigadier General Philip L. Bolte was designated by the Department of the Army Program Manager Fighting Vehicle Systems and General Bolte's Charter was approved by the Secretary of the Army on 5 April 1979. The Program Manager was delegated full line authority of the Commanding General, DARCOM, for centralized management of the FVS Program. Necessary facilities and support continued to be provided by US Army Tank-Automotive Materiel Readiness Command (TARCOM), other organizations with DARCOM, and other participating organizations.

Mission

(U) In accordance with Department of Defense (DOD) Directives 5000.1 and 4100.35; AR 1000-1, 700-127, and 70-17; DARCOM-R 715-270-1 and 11-16; and other pertinent regulations, the Program Manager was responsible for program management of the FVS, including the Infantry Fighting Vehicle (IFV), the Cavalry Fighting Vehicle (CFV), and other derivative vehicles. He managed the overall FVS program which was to provide the Army with lightly armored full tracked fighting vehicles with two variants - an infantry version and a cavalry version. These vehicles will have improved cross-country mobility, mounted firepower, a swim capability and be air transportable, with communication and protection for the infantry and cavalry squad in mounted combat. He was directly responsible for life cycle management of the FVS and centrally coordinated, integrated, and supported the materiel development and acquisition activities of the subordinate PM for Fighting Vehicle Armament (FVA) Systems, who was responsible for the XM714 Fuze Series for all applications, the FVS firing port weapon, and the Vehicle Rapid Fire Weapon System.

Personnel/Organization

(U) At the end of FY 1978, the authorized strength for the FVS Office was 26 Military and 108 Civilians. Current authorization for FVS now stands at 26 Military and 120 Civilians (1 position authorized overhire). This increase was a direct result of the significant increase in mission and scope of the FVS Office.

(U) Shown below are FVS strength figures for the period of October 1976 to September 1979.

Fighting Vehicle Systems

Strength Figures

As of October 1976

	Authorized	Assigned
Military Officers	23	15
Warrant Officer	1	1
Enlisted	2	1
Civilian	108	80
TOTAL	134	97

As of September 1977

Military Officers	23	17
Warrant Officer	1	1
Enlisted	2	2
Civilian	108	98
TOTAL	134	118

As of September 1978

Military Officers	23	17
Warrant Officer	1	1
Enlisted	2	1
Civilian	108*	97
TOTAL	134	116

As of September 1979

Military Officers	23	27
Warrant Officer	1	1
Enlisted	2	1
Civilian	120*	102
TOTAL	146	131

*Includes 1 Auth O/H

IFV/CFV Production

(U) The automotive test rig which was completed in July 1978 accumulated 4,850 miles of operation at the Nevada Automotive Test Center during the first quarter of FY 1979 in evaluation of the redesigned power package installation and improved suspension system. Results of the testing were very favorable.

(U) OTEA conducted limited operational evaluations of the two competitive 25mm gun systems over a four week period during November/December 1978 using prototype turrets to assess the operating characteristics of each weapon in a turret environment. The data developed was

used as added input to the 25mm gun Source Selection Evaluation Board leading to the selection in January 1979 of the Hughes Helicopter Corporation externally powered gun as the primary armament for the IFV/CFV.

(U) Eight prototype IFV/CFV vehicles were produced and delivered during the period December 1978 and February 1979. Formal contractor testing began in December on the first two units and a third in January 1979. These vehicles operated a total of 13,000 miles and fired 21,000 25mm rounds and 38 TOW missiles. Formal government testing of three vehicles started in June 1979. These vehicles operated for a total of 3,920 miles and fired 6,058 25mm rounds and four TOW missiles during the remainder of this fiscal year.

(U) Technical manuals were validated during an intensive five month Skill Performance Aids (SPA) validation review starting in early December 1978 and training of cadre in preparation for user testing began in January 1979. Troop training started in May 1979 preceding the IFV Operational Testing (OT II) which began in September 1979.

(U) A letter contract for FMC Long Lead Items (LLI) was executed in February 1979 which was followed by a definitization proposal from FMC in May. This proposal was revised in July 1979 because of the late identification of additional test equipment and revised information received from major subcontractors causing a delay in the definitization schedule. Requests for Proposals for System Technical Support (STS) and Initial Production (IP) were also released.

(U) On 27 July 1979, the IFV was successfully loaded aboard a C141 aircraft at Travis AFB. Two basic vehicle configurations were evaluated: the vehicle with snubbed road arms and side armor, turret hatches, ISU ballistic cover and antennas removed and; the vehicle with only the turret and side armor removed. In conjunction with the test loading, the time required for vehicle preparation was also evaluated at FMC. Removal and reinstallation of the equipment each required approximately one hour.

(U) The Military Traffic Management Command granted partial Transportability Approval in August 1979 covering transport by rail, water and air (C5A only). This approval did not include air transport by C141 aircraft pending review of the evaluations conducted at Travis AFB in July.

(U) A Production Readiness Review (PRR) for the FVS was conducted during the period March-September 1979 in implementation of the FVS PRR Plan which was approved in January 1979. The objective of the review was to determine whether the vehicle design was ready for production, if the production engineering problems had been resolved, and if there had been adequate planning for the production phase.

Because the review was thorough, it uncovered several areas which required further action and management attention. These actions were to be tracked as part of the standard program management with status updated provided as appropriate.

(U) In May 1979, the House and Senate Armed Services Committees directed the Army and Office of the Secretary of Defense to conduct a comprehensive review of all promising manufacturing options (to include competitive procurement); rates of production; manufacturing techniques; and alternatives to the current program structure that would result in unit cost reductions without corresponding losses in vehicle capability. The committee specifically stated they were "not interested in still another study of alternative vehicle designs; only in the question of how to produce the present vehicle configuration more efficiently." In order to comply with the desires of the Congress, the FVS Program Manager's Office with the development contractor initiated a cost reduction program which included studies of the hardware and software and analyses of acquisition strategy, early component breakout and competition.

(U) In August 1979, the TOW program was reviewed to determine the extent that the TOW systems was to be product improved. An IPR was held on 29 August at the Pentagon to specifically identify those improvements and to assess the impact that the action would have on those systems employing TOW, including the IFV/CFV. Their results of the IPR were briefed to the PM-FVS by the APM for TOW PIP on 6 September.

Multiple Launch Rocket System (MLRS)

(U) The Multiple Launch Rocket System was being developed to provide a low cost, multiple launch, unguided rocket system. It was to be a quick reaction, non-nuclear system, intended to supplement existing field artillery. As such, it was to operate within the division areas and provide the capability to engage mid-range targets, deliver large volumes of fire, and defeat lightly armored targets. To improve the survivability of the MLRS, it combined the use of armor protection, quick reaction and "shoot-and-scoot" tactics.

(U) MLRS was being developed under the direction of the Project Manager, MLRS, located at Redstone Arsenal, Alabama. A TRADOC Systems Manager has been established and was located at Fort Sill, Oklahoma.

(U) Project Manager, MLRS, and Program Manager, FVS, combined their efforts to develop the MLRS, carrier, a derivative of the Infantry Fighting Vehicle. The vehicle was a "cab-over-transmission" configuration providing space for the three-man crew with necessary fire control equipment. Sufficient armor was provided to permit the completion of a fire mission without dismounting from the vehicle. It should be noted that the launcher, rockets and associated fire control equipment were being developed separately from the vehicle.

Armament Engineering

(U) 25mm Gun/Ammunition System. The 25mm gun program continued with the two candidate weapons completing Government hardstand testing and entering the source selection process. Developed by Hughes Helicopters, Culver City, California, the XM242 Externally-Powered Gun was selected as the primary armament for the XM2/XM3 Infantry Fighting Vehicle/Cavalry Fighting Vehicle (IFV/CFV). Further effort on the XM241 Self-Powered contender (Ford Aerospace and Communications Corporation (FACC), was stopped.

(U) Limited Operational Testing (OT IA) was conducted on both contender guns prior to the source selection (one each gun, 5000 rounds each). After the selection of the XM242 gun, OT II testing was started at Fort Carson with five guns provided to support four IFV's. Approximately 9,300 rounds were fired by the end of FY 1979, and the test continued into FY 1980.

(U) Engineering Design Tests (EDT-C) by the vehicle contractor, FMC Corporation, continued. This reached a cumulative total by the end of FY 1979 of approximately 97,000 rounds of 25mm ammunition fired (both contenders) for turret integration. Vehicle PQT-C testing fired 14,500 rounds of 25mm ammunition during this period, demonstrating readiness for Government system testing (PQT-G).

(U) Government System Testing (PQT-G) started at Aberdeen Proving Ground (three IFV vehicles, four 25mm XM242 guns). During this fiscal year, approximately 7,700 25mm rounds were fired and the test continued into FY 1980.

(U) The development portion of the 25mm Ammunition Program was completed with FACC developing the M790 family of ammunition - the Americanized, production engineering and improved version of the Oerlikon ammunition for their KBA-B02. Over 400,000 rounds of ammunition (primarily the M793 TP-T cartridge) were manufactured and fired to support not only the development of the ammunition, but also the XM241 and M242 guns, the M758 (formerly the XM714E5) fuze, and the M2 and M3 vehicles.

(U) PQT-G was completed on the ammunition in May 1979 and all of the major requirements were met. Type Classification of this ammunition was planned for November 1979. A three-year production contract for 3.1 million rounds was planned for award to FACC in January 1980 and the completed TDP was to be validated during this contract.

(U) Two ammunition items still under development were the XM794 Dummy Cartridge and the XM621 Shipping and Storage Container. The XM794 was scheduled for PQT-G at APG in August 1980. The XM621 was scheduled for PQT-G in November 1980.

(U) A NATO STANAG for 25mm ammunition had been initiated with one formal meeting having been held in Brussels, Belgium. The NATO working party for the STANAG was being chaired by the Netherlands with the participation of the US, UK, Belgium, Germany and France (not an official member). STANAG was scheduled for completion in the summer of 1981.

(U) XM231 5.56mm Submachinegun/Firing Port Weapon. The XM231 Submachinegun (SMG) prototypes were fabricated and tested. Data and evaluations indicated that the SMG's met all performance data. All design problems were detected and corrected during the early phases of the SMG PQT-G test, and subsequent tests validated the corrective actions. The SMG was approximately one-half pounds heavier than the original desired weight due to the incorporation of the heavy barrel collar that interfaced with the vehicle. This new barrel collar corrected a previously identified safety problem with the earlier design SMG/vehicle interface fitting. All data indicated that the XM231 SMG was qualified to be Type Classified Standard.

(U) M240C 7.62mm Coaxial Machinegun (MG). The M240C MG had undergone extensive testing on the IFV/CFV vehicles at FMC (contractor), OT II (Ft. Carson), and DT II at APG. Overall the MG's operated satisfactorily. Certain system integration problems (feed chutes, firing solenoids) were being redesigned by the vehicle design agency. Some MG's seemed to operate at a higher than normal rate, which may have been the cause of a slightly higher than normal rate of parts breakage, buffer nut loosening, and gas valve erosion. ARRCOM, the Commodity Manager of the M240 MG, was assessing failure data, and analyzing worn MG's during a MG refurbishment at ARRCOM. Future PM-FVS and ARRCOM tests/analysis should identify future actions.

(U) XM714 Fuze Program. M758 (formerly XM714E5) - Fuzes for PQT-G testing were assembled on the automated assembly line developed concurrently with the fuze. PQT-G testing of the fuze was conducted at APG and YPG and all of the agreed to requirements were met. The fuze was planned for Type Classification along with the 25mm ammunition in November 1979. A three-year production contract for 1.4 million fuzes was planned for award to Honeywell, the fuze developer, and the completed TDP will be validated during this contract.

(U) XM759 (formerly XM714E6) - Development of the XM714E6 fuze for the 30mm HEI and HEDP rounds for the Advanced Attack Helicopter (AAH) continued with Honeywell. The automated assembly line (bifurcated with the M758 line) was near completion. This fuze will be Type Classified LP for the Marine Corps HEI cartridge. The PQT-G for the HEDP cartridge was scheduled for October 1980.

(U) XM760/35mm and XM761/40mm - Development of these fuzes were initiated with Honeywell in support of the DIVADS Program, and

Government demonstration firings were planned for July 1980 at YPG. Winning system contractor will continue fuze development if he chooses 714 design.

(U) XM757/20mm - Development of this fuze had been completed, and Type Classification action was pending. The COBRA Program was evaluating this fuze for its application to their weapon system in conjunction with M50 series ammunition and the M197 Gun.

Logistics Management

(U) A joint validation plan for the Infantry Fighting Vehicle/ Cavalry Fighting Vehicle was prepared and implemented in conjunction with FMC Corporation (prime contractor) and the TRADOC Systems Managers Office. This joint validation plan covered the conduct of the physical teardown/maintenance evaluation, skill performance aids validation, conventional technical manuals validation and LSA/LSAR validation. The joint validation process, which extended from December 1978 to May 1979, was held at FMC Corporation, San Jose, California.

Supply Management

(U) The original planning called for Contractor Logistic Support (CLS) for the first three years of vehicle production. This was to include complete support of peculiar spares and repair parts, plus maintenance support at the depot level. The contractor was to perform the following major functions: acquire provisioning stocks; receive and process non-reimbursable MILSTRIP requisitions using units; perform inventory management functions; stock, store, and issue spares and repair parts; and perform depot overhaul of components and vehicles.

(U) CLS was considered essential due to late receipt of provisioning data which would preclude leadtime adequate for Government provisioning. Further, the contractor was to retain configuration control of the vehicle until February 1983 due to acceptance of vehicle performance responsibilities. Under these conditions, FMC would have been better able to minimize the impact of data shortage and design changes on provisioning hardware.

(U) During a series of DARCOM briefings and meetings, May through August 1979, it was decided not to use CLS for supply support. Therefore, Readiness Commands initiated planning to provide full supply support for the entire deployment schedule. Limited contractor maintenance was expected to be required on an item-by-item basis for selected items during initial deployment until Test Measurement and Diagnostic Equipment (TMDE) were available, and a government maintenance capability was established.

(U) The major reasons for eliminating CLS and accepting the risk of government support were: purchase of repair parts with OMA funds and free issue to using units, thus not reimbursing the OMA funds; and contractor duplication of AUTODIN, NICP and supply depot capabilities already in place.

Product Assurance Test and Evaluation

(U) Testing - Engineering Design Test - Contractor (EDT-C). The EDT-C performed by FMC was comprised of turret integration and Automotive Test Rig (ATR) evaluations. The purpose for the turret integration portion of the test focused upon the functional exercising of the two-man turret incorporating, in alternate fashion, the competing self-powered (SP) and the externally-powered (EP) main armament guns and the TOW missile launcher. Turret testing continued through December 1978 with a total of 97,000-25mm rounds fired from the competing guns. The testing of automotive fixes required from the IFV/CFV system predecessor, the MICV, began in July 1978 and continued through April 1979. Critical issues of this testing involved the evaluation of the new suspension system and the modified transmission. Results were exceptionally favorable in regard to the suspensions. The introduction of a vibration damper into the fan drive coupling eliminated problems associated with the transmission. A total of 4,800 miles were accumulated on the ATR between July 1978 and April 1979.

(U) Testing - Operational Test 1A (OT 1A). The OT 1A test was an OTEA directed separate operational test of the two competing 25mm guns installed in FVS turrets to provide preliminary data on the relative operational capability of the gun systems. OT 1A was conducted at Camp Roberts, California, from 8 November 1978 through 13 December 1978 under prevailing weather conditions. This test was preceded by a ten week training period starting in August 1978 and concluding in October 1978. This test provided the operational tester, an insight into issues relating to reliability, human factors, training, personnel selection, system capability, and operational effectiveness of the 25mm gun candidates. The vehicles were operated for approximately 500 miles each and approximately 5,000 rounds each were fired from the 25mm guns.

(U) Testing - Prototype Qualifcation Test - Government (PQT-G) for 25mm Guns. The PQT-G was completed in November 1978. This test verified the test worthiness of both systems and coupled with the results of the turret integration portion of EDT-C and OT 1A provided input to the Source Selection Evaluation Board (SSEB). Numerous contractor modifications were made during the course of this 84,000 rounds shoot-off. Salient among these was a safety interlock device designed by Hughes Helicopter to eliminate the hang-fire potentially associated with externally driven weapons. This fix, subsequently modified from an electrical to all mechanical configuration, was verified in an 11,000 round demonstration at APG during the period of March through May 1979. Based upon results of the three aforementioned tests, the SSEB selected the EP gun on 19 January 1979.

(U) Testing - Prototype Qualification Test - Contractor (PQT-C) for the Vehicle. A PQT-C was conducted between January through June 1979 under prevailing weather conditions over existing terrain at the

contractor's facility, Camp Roberts, California, the Nevada Automotive Test Center (NATC), Carson City, Nevada, and Fort Carson, Colorado. Originally, two prototype vehicles were to engage in this test, however, based on the agreements reached during the February 1979 Special Test Meeting, a third vehicle was added to increase the contractor data base, and to provide experience at the OT II (Fort Carson) test site. The three vehicles, each with the EP gun, achieved a total of 13,674 miles of operation (11,500 miles were planned), 20,883 rounds of 25mm ammunition, and four TOW missiles to demonstrate the capability of the system to meet specification requirements, and to determine if the system was ready to proceed into PQT-G testing.

(U) Testing - Prototype Qualification Test - Government (PQT-G) for the Vehicle. The PQT-G testing, which began at APG 18 June 1979, continued with two IFV's and one CFV configured vehicles undergoing an extensive (18,000 miles, 81 TOW, and 43,000-25mm rounds) RAM and performance testing. Primary objectives of this test were to demonstrate that the IFV/CFV was ready for Type Classification, to proof the weapon station/automotive subsystems integration, and to confirm the TOW interface. To date, a total of 4,100 miles, four TOW, and 7,725-25mm rounds were run and fired respectively to date.

(U) Testing - Operational Test II (OT II). The OT II was conducted from September through 15 December 1979 to determine the operational readiness of the FVS in the infantry role at Fort Carson, Colorado. A total of four IFV's were planned to run a total of 6,000 miles and fire 41,500 25mm rounds and 42 TOW missiles. Agreement was reached among the test community to collect RAM-D results not only during the actual test, but during the training phase of the operational test as well. To date, a total of 2,700 accumulated miles were run, and 45 TOW missiles and 9,330-25mm rounds were fired.

(U) Testing - 25mm Ammunition. During the 25mm PQT-G competitive gun test, a parallel ammunition test was conducted to test and evaluate the XM790-25mm family of ammunition. This family was comprised of the Armor Piercing Discarding Sabot - Tracer (APDS-T), the High Explosive Incendiary-Tracer (HEI-T), and the Target Practice - Tracer (TP-T) ammunition types. The competitive PQT-G gun test of the 25mm weapons witnessed the expenditure of some 84,000 rounds of the XM&90 family of ammunition (March through November 1978). A Follow-On-Evaluation (FOE) testing (March through May 1979) of the APDS-T to include trajectory, penetration, and metal parts security were required as a result of late deliveries of qualifiable ammunition lots. Type classification was planned for October 1979.

(U) Testing - Prototype Qualification Test - Government (PQT-G) for the Firing Port Weapon (FPW). The FPW PQT-G was conducted at APG from June 1978 through October 1979 to validate corrections to the following deficiencies: the lack of a safe and suitable weapon mounting arrangement; the inability of the item to function reliably

at low temperatures; a roll pin on the side of the collapsing stock which caused small handcuts; the breakage of the mounting tab and metal frame of the brass-catcher bag; and the breakage of the drive spring retaining pin during interoperability testing.

(U) Data during this reporting period indicated satisfactory weapon performance to include reduction/elimination of the aforementioned shortcomings; achievement of acceptable endurance levels; and achievement of acceptable weapon efficiency at environmental extremes. By the end of this fiscal year in excess of 106,000 rounds were expended.

(U) RAM - IFV/CFV RAM Requirements. Prototype Qualification Test - Contractor (PQT-C) was completed during FY 1979. The final PQT-C IFV/CFV System Reliability was 225 Mean Miles Between Failure (MMBF) based on 13,674 miles and 20,883-25mm rounds. It was well above the Prototype Qualification Test-Government/Operational Test II (PQT-G/OT II) requirement of 195 MMBF which was scheduled to be demonstrated at the end of PQT-G/OT II during FY 1980. The PQT-C combined reliability for each subsystem also exceeded PQT-G/OT II goals as set forth in the developmental contracts.

(U) Quality Assurance IFV/CFV. FMC had been preparing for implementation of a full MIL-Q-9858A quality assurance program in their production facility. Under the PEP and Long Lead Item contracts, necessary gage design and production inspection and test equipment was designed and fabricated. Inspection and acceptance of the Engineering Development vehicles was performed to assure representative vehicles entered each test program.

Procurement and Production

(U) Fuze Development. A letter contract was awarded to Honeywell, Inc., on 13 April 1979, for the development of an XM760 (35mm) and XM761 (40mm) fuze in support of the DIVAD's program. This contract required Honeywell to develop a separate fuze for use in each of the DIVAD rounds while, at the same time, protecting the competitive sensitive nature of the work being accomplished by each of the competitive DIVAD contractors. On 30 August 1979, this letter contract was definitized to the amount of $3,199,821.

(U) 25mm Automatic Gun. A source selection decision was made and a contract awarded to Hughes Helicopters Company on 19 January 1979 for Producibility Engineering and Planning (PEP)/Engineering Support (ES) and production of the 25mm gun. The PEP/ES phase was to be concluded in January 1980, at which time the first of three production options was to be exercised. If all three options were exercised, a total of 1,510 guns were to be procured.

(U) Multiple Launch Rocket System. A contract was awarded on 29 September 1979 for conduct of the PEP phase for the MLRS Carrier program. This contract was awarded to FMC Corporation in an amount of $4,120,000. PEP encompassed modification of the ED configuration to effect improved producibility without degradation of the performance requirements; examination of producibility of materials, components, and the overall vehicle to facilitate quantity and economical production fabrication and assembly techniques; and conversion of development data into specification standards, test and inspection procedures, and other documents needed for production.

(U) IFV/CFV PEP. The PEP phase letter contract for IFV/CFV, awarded to FMC Corporation on 27 July 1978, was definitized on 23 February 1979 in an amount of $15,030,000. Action was undertaken in August 1979 to modify this contract to allow for changes in the provisioning data being provided to more properly align it with the LSAR outputs; a revision to the IFV/CFV maintenance concept; and submittal of an interim provisioning list for the NICP's to use in procuring spare and repair parts to support fielding of the IFV/CFV.

(U) IFV/CFV Production. Contracts were awarded to General Electric (21 November 1978), FMC Corporation (8 February 1979), and Hughes Aircraft Company (25 April 1979) for the necessary special tooling/special test and inspection requirements in support of the IFV/CFV production program. The GE contract, in an amount of $10,800,000, and the HAC contract, in an amount of $10,589,770, were fully negotiated at time of award. The FMC procurement was a letter contract with an estimated dollar value of $15,000,000.

(U) Action continued on preparation of the Request for Proposals (RFP) for procurement of the FY 1980 initial production quantity of 208 vehicles from FMC Corporation. The RFP was released on 20 June 1979 with a response date of 1 October 1979. This RFP provided for 208 IFV's only, pending completion of the CFV OT II and associated ASARC/DSARC decisions to proceed into production with the CFV program. Certain of the IFV's were then to be replaced with CFV's for delivery during the production phase. Award of the initial production contract could not proceed until favorable ASARC/DSARC favorable decision.

(U) Production Readiness Reviews (PRR). This office completed a formal PRR on the IFV/CFV and the armament systems in September 1979. The purpose of the review was to evaluate the readiness of the IFV/CFV for production and to provide inputs to the ASARC/DSARC for decision purposes. In both the vehicle and armament systems, there were moderate risk areas in production readiness. However, there was no concern that the problem areas could not be resolved prior to production start up. Overall, the production readiness review provided the warm feeling that adequate planning in preparing for production was being performed by all contractors.

(U) UK Study of the Infantry Fighting Vehicle (IFV). In addition to continuing development on its own national MCV80 vehicle, the UK had undertaken a study of the US IFV as a possible vehicle to satisfy its General Staff Requirement. In October 1978, a US/UK Statement of Accord (SOA) was entered into which set forth the arrangements under which the UK study of the IFV was to be conducted. Phase I of the study, which was completed, consisted of a comparison of the IFV and its derivatives against the UK General Staff Requirement. Findings of the Phase II Study indicate the US IFV was sufficiently close to the UK requirement to justify a Phase II study. Phase II was for a more detailed analysis of the IFV and possible UK acquisition alternatives and costs. As a part of the Phase II effort, the UK forwarded a tender (Request for Proposal) to FMC Corporation for engineering services to provide a UK IFV variant vehicle design study to include the fabrication of mock-ups based upon the US designed IFV. FMC responded to the tender by providing its firm proposal on 17 August 1979. The proposal was currently in the negotiation phase. As an adjunct to the Phase II study, as outlined in the SOA, both governments recognized the need to develop a formal Memorandum of Understanding (MOU). A request for authority to negotiate any MOU which might be required to implement possible UK acquisition alternatives was prepared and forwarded for DOD approval. To date, preliminary discussions with the UK covered concept, time frame, and general subject matter of a possible MOU.

Program Management

(U) The combined FY 1979 programs managed by this office totaled $93.6 million of which $88.7 million or 94.8 percent were obligated at fiscal year end. These resources covered three appropriations: PAA, O&MA, and RDT&E.

(U) Program and Fiscal Resources. Status of allotment reports as of 30 September 1979 for fiscal year 1976 through 1979 were reviewed, their accuracy verified and reports certified. The results of this review for FY 1979 are summarized below:

Program	Program Authority ($000)	Obligations	Percent of Obligation
R&D			
Infantry Fighting Vehicle (IFV)	$30,874	$30,672	99.3%
Cavalry Fighting Vehicle (CFV)	3,383	3,372	99.7%
Fighting Vehicle Armament Sys (FVAS)	9,179	9,091	99.0%
Multiple Launch Rocket Sys (MLRS)	8,147	7,400	90.8%
Divisional Air Defense Sys (DIVAD)	2,425	2,290	94.4%
Other Reimbursables	278	194	69.8%
Subtotal	$54,286	$53,019	97.7%

PAA			
Infantry Fighting Vehicle (IFV)	$39,000	$35,380	90.7%
O&MA			
Project Manager's Office	289	289	100%
TOTAL	$93,575	$88,688	94.8%

(U) Cost Information and Analysis. Cost estimates were prepared on various IFV/CFV production alternatives in support of DARCOM/DA/OSD briefing.

(U) During January 1979, the initial bottoms up production estimate for the IFV/CFV was received from the prime contract (FMC). The estimate was reviewed and evaluated by a government team, and the results of the estimate were briefed as part of the FY 1980 budget to Congress. This resulted in a plus-up to the FY 1980 procurement budget for the IFV/CFV. In June 1979, an update to the bottoms up estimate was received from the prime contractor. The consequence caused minor adjustments to the procurement program for the IFV/CFV, and was used as the basis for the FY 1981 through 86 financial plan.

(U) During the period of September 1979 through January 1979, cost analysis personnel were involved in the selection of the 25mm gun contractor. This involved evaluation of R&D and production costs.

(U) In March 1979, the initial contractor derived production cost estimates for the MLRS Carrier was received. This resulted in adjustments to the MLRS Carrier procurement planning. The estimate was reviewed by the FVS Office and adjusted, as necessary.

(U) In FY 1979 preparations and work began on the Life Cycle Baseline Cost Estimate for FVS Systems. The baseline was prepared in connection with the ASARC/DSARC III scheduled to take place in the December 1979-January 1980 time frame. Also, this cost information was used in the updating of the cost effectiveness analysis conducted by TRADOC for the ASARC/DSARC III decision.

(U) Plans and Analysis. Secretary of the Army approved the charter designating Brigadier General Philip L. Bolte as the Program Manager, Fighting Vehicle Systems and the charter for LTC(P) William R. Sowers, Jr. as Project Manager for the Fighting Vehicle Armament Systems.

(U) SAR. Quarterly SAR reports were submitted to DARCOM for processing to the Congress. During this reporting period, the SAR was expanded to reflect, for the first time, the entire FVS system.

Initially reporting only the IFV, the SAR reflected, in addition to the IFV/CFV, the Firing Port Weapon and the 25mm Gun System. A DAPR was held on 21 June 1979.

(U) ASARC/DSARC. A number of key documents required for the ASARC/DSARC were prepared. These documents were Materiel Systems Requirements Specifications (MSRS), the Decision Coordinating Paper (DCP) and the Integrated Program Summary (IPS). To begin the required planning for ASARC (held on 20 December 1979) and DSARC (held on 22 January 1980), the first Ad Hoc Working Group (AHWG) met on 9 January 1979. DA issued a tasking letter on 24 January 1979. The final draft of the MSRS was provided for the PMO review on 9 March 1979 and the new DCP and IPS in July 1979. The DCP, consisting of a 10 page summary and the IPS, which contained all of the details previously found in the DCP, was the first program to reflect the revised DCP/IPS format.

(U) External Reviews. The Army Audit Agency (AAA) started its audit on 24 May 1979 with the objective of determining whether the information to be provided for the ASARC/DSARC was adequate to procure the IFV/CFV. GAO began an audit in August 1979 to review the FVS Program. During the reporting period, this office was informed that the DAIG would be conducting their inspection in November 1979. Thus there would have been three different inspections underway in this program at the same time. However, AAA terminated the study in September 1979 without issuing a report.

(U) Management Information. The Management Information Control System (MICOS) continued to help manage the many aspects of the Fighting Vehicle Systems. The monthly MICOS meetings closely monitored the completion of prototype build. Because of the slip in prototype build, the FVS Master Schedule required numerous adjustments to allow for required testing and training. Where possible, periods for testing were reduced by working extra shifts and/or overtime.

(U) In view of our constant concern for escalating costs, cost management continued to receive major emphasis and attention. Contractor cost performance data, from FMC for the IFV/CFV and from Hughes Helicopters for the 25mm gun system in accordance with CS^2, were monitored on a monthly basis through the receipt of the Cost Performance Report (CPR) and the Cost Schedule Status Report (CSSR). The analyses of these reports reflecting the evaluation of contractor performance were briefed to the PM, APM's, and Division Chiefs. Planning for the production phase CS^2 validation for the prime contractor FMC and the subcontractors-GE and HAC was underway. Validation of the production phase CS^2 system was to occur late in FY 1980 or early FY 1981.

376-617 O - 82 - 13

Project Manager for Nuclear Munitions

Organization and Personnel

(FOUO) On 4 May 1979, Colonel William P. Farmer succeeded Colonel James Sloan as Project Manager. The PM reported directly to the Commander, US Army Materiel Development and Readiness Command, on all matters pertaining to life cycle management of nuclear munitions. In the assigned area of responsibility, the PM functioned as the DARCOM spokesman in dealings with the Office of the Secretary of Defense, the Assistant to the Secretary of Defense for Atomic Energy, and other higher authority or lateral agencies as required. The office organized and chaired joint nuclear weapons program groups for which the Army was the designated materiel developer to include Joint Department of Energy/Department of Defense (DOE/DOD) Phase 2 Feasibility Study Groups, Design Review and Acceptance Groups (DRAAG), and DOE/DOD Project Officer Groups. The Office of the PM-NUC also provided the Chairmen for the Joint Test Working Groups (JTWG) and the Comprehensive Test Plan Group (CTPG) as well as the principal Army member for the Configuration Control Groups (CCG) (nuclear warheads) and Joint Task Groups (JTG). Also, the office provided liaison services to DARCOM, ARRCOM, MICOM and other commands/activities, as appropriate.

(FOUO) At the beginning of FY 1979, there were 42 personnel (34 civilian, 8 military) on board. At the end of the fiscal year, losses and gains had evened out and our on-board strength had not changed. The authorized strength in October 1979 was at 48 (38 civilian/10 military), but the latest Program Budget Guidance (PBG) granted two more civilian spaces. These additional slots will be assigned to the Program Management Division (GS-12 Program Analyst) and to the Product Assurance and Materiel Readiness Division (GS-12 General Engineer). Manpower utilization in FY 1979 was approximately 33 civilian manyears and 7.5 military at a cost of $1.4 million.

(FOUO) The Assistant Project Manager, Albuquerque Field Office, was assigned the responsibility of representing the Army at all Design Review and Acceptance Group meetings for non-Army designed nuclear weapons. During the year he was a member of four DRAAG meetings for both Air Force and Navy nuclear systems. The Albuquerque Field Office also provided the Army member of the Air Force B-61 POG and was an official observer on the W76, W78, W80, W83, and W84 POG's. During the year, the office represented the Army at approximately 30 POG meetings for these systems. Additionally, the Albuquerque Field Office participated in three trips to Europe. One was chaired by the Assistant Project Manager and introduced the LANCE MOD 4 and XM753 projectile to the Operational and Logistics Directorates of USAREUR, V Corps, VII Corps, and SETAF. The second and third were combination briefing/information gathering trips for weapon improvements now in engineering development.

(FOUO) During the year, LTC Gustav Stiehl replaced LTC Stanley Olsen as the Assistant Project Manager, ARRCOM Field Office. LTC Stiehl was assigned the responsibility of representing the Project Manager in the ARRCOM community.

(FOUO) Also, the ARRCOM Field Office hosted the second DA sponsored Nuclear Weapons Logistics Management Conference held at ARRCOM Headquarters during 31 October-2 November 1978. The conference included representation from 26 separate commands/agencies and DA staff members. This conference was designed to facilitate meeting the changes of improving communication with the logistical community; expanding logistical considerations in research and development programs and in operational requirements; improving logistical techniques and procedures; conducting cost effective materiel readiness programs; and effectively managing nuclear weapons logistics.

(FOUO) Attendees unanimously agreed that the conference objectives were achieved. The presentations, discussions and actions which resulted from the conference were instrumental in improved logistics management towards optimizing nuclear weapons support.

XM785 Nuclear Projectile

(FOUO) Funding for FY 1979 was received in the amount required to begin DOD Engineering Development, and by 30 September 1979 all funds had been obligated. The FY 1980-81 programs were submitted at the Spring RDTE Review. Guidance received indicated the full FY 1980 requirement was approved. A new life cycle cost estimate was initiated based on the latest DA guidance. On December 1978, the XM785 Projectile Required Operational Capability (ROC) was approved as a basis for continued planning by DCSOPS.

(FOUO) A Letter In-Process Review (IPR) was transmitted through DARCOM to DA in March 1979. This review was planned to address the initial Acquisition Plan (AP), review program status, and provide required information prior to the Spring Research, Development and Acquisition Committee (RDAC) meeting for the FY 1981 budget cycle.

(FOUO) The FY 1979 major gun firings consisted of successful structural and muzzle velocity tests of the titanium rocket motors and ballistic modules at the Tonopah Test Range, Phase I low zone performance tests at Yuma Proving Ground, and Phase I "User" ballistic similitude firings at Ft. Sill.

(FOUO) Major baseline design decisions were made during FY 1979 in the areas of the high energy rocket motor erosion liner, interchangeable spline joint, rotating band, miniaturization and structural design of the fuze, warhead electrical system, and nuclear physics package, external use denial lock (UDL), and monitoring requirements. The program was on track with the preliminary baseline design and interfaces established.

(FOUO) Efforts to upgrade the XM785 Test Priority at Yuma was initiated in the later part of this period. It was intended to move the XM785 program into the Number 1 position as the Test Schedule increases in intensity during the 1980 time frame.

(FOUO) Draft Training Device Letter of Requirements (TDLR) for XM820 Type X and XM841 Type W Training Warhead Sections, Type 3D Cutaway Warhead trainer and Prescribed Nuclear Load (PNL) Simulation Container were presented to TRADOC schools and approved by the XM785/W82 Logistical Working Group. TRADOC does not plan to process these documents to HQDA since they state that the ROC for the XM785 Projectile establishes the requirement for these devices.

(FOUO) Due to the HQDA October 18 requirement to submit basis of issue plan (BOIP) and qualitative and quantitative personnel requirements information (QQPRI) at the same time, the previously submitted provisional qualitative and quantitative personnel requirements information (PQQPRI) (August 1978) was updated and submitted. However, administrative problems in processing CNWDI classified information significantly delayed delivery to TRADOC. This was finally completed in July 1979.

(FOUO) A contract was awarded in August 1979 at a cost of $1.9 million for continued development of the XM785 projectile.

XM753 Nuclear Projectile

(FOUO) In October 1978 the DOE was authorized to resume production activities, which had been suspended as a result of the 13 July 1977 Byrd-Baker Amendment to the DOE appropriation for FY 1978 production, related to the W79 weapon program.

(FOUO) Based on a PM-NUC/DOE Enhanced Radiation (ER) change out study, the Project Officers Group recommended a limited life component (LLC) van option to support this requirement.

(FOUO) The XM753 Projectile program began to transition from the development to the production phase. Development efforts continued on the XM38 Fuze Setter, XM613E1 Container, the LLC Assembly Van and the LLC Assembly stand. DT II/OT II continued with satisfactory results. M735 Fuze, Rocket Motor, Type 3A Trainer, MC3395 Disable Module, MC3138 Controller and T1554 Decoder production activities were initiated.

(FOUO) User submitted a requirement for a Prescribed Nuclear Load (PNL) Container to support him in his assigned mission. An equipment requirements list was finalized which established the quantities of all XM753 support equipment to be deployed.

(FOUO) An Interim Design Review and Acceptance Group (DRAAG) meeting was held in September 1979 to review the DOE W79 Warhead Interim Development Report. The DRAAG recommended that the DOE continue with the design as presented.

(FOUO) During the past year, efforts of our office in coordination with ARRADCOM LCWSL and SEO resulted in establishing the XM753 Test Program at Yuma as the Number 1 ARRADCOM Test program. This positively enabled us to maintain the XM753 program on schedule.

(FOUO) An additional $2.5 million in FY 1978 funds and $2.9 million in FY 1979 funds were provided by DA to cover increased procurement costs of the M735 Fuze and Rocket Motors. A letter contract was awarded by Harry Diamond Laboratory in September 1979 for production of the M735 Fuze. ARRADCOM awarded Phase II of the Rocket Motor Contract in September 1979 also.

LANCE

(FOUO) Production of the M238E1 Adaption Kit was completed and delivery made to the Army depot in July 1979. In the meantime, ARRADCOM successfully completed, in July, New Material Laboratory Testing of six M238E1 adaption kits.

(FOUO) To reduce the FY 1980 operating budget, the DOE initiated action to delay the W70-3/4 production schedule for two years. Upon DA objection, the DOE revised production scheduling to reflect a one year slip. DA was presently considering the acceptability of this delay.

(FOUO) Development of the XM144 Hard Link Arm/Safe Device (HLASD) continued and development flight tests were held in November 1978 and March 1979. During the March flight, the HLASD had a single channel failure whose root cause was attributed to interference of one of the locking levers of the "g" weight. It was estimated that this problem would cause a one year delay in the development program. In June 1979, the Nuclear Weapon Systems Safety Committee (NWSSC) concluded that the HLASD would not eliminate the need for Safety Rule 6. In addition, the user did not support the need for this device, however they did request that the mating connection to the warhead be made more reliable. Based upon the delay in development as well as the NWSSC and user concerns, DA cancelled all development activity on this PIP and suggested an alternate method be developed.

(FOUO) A Product Improvement (PIP) to develop a method to simplify the mating of the Adaption Kit cable to the warhead and accordingly to increase the reliability of the mating operation was initiated. This PIP was initiated upon the cancellation of the HLASD development program to establish an alternate means to satisfy the requirement for ensuring a safe and reliable AK/WH cable connection concurrent with operational requirements.

(FOUO) Action was initiated to procure from the DOE the MC3504 Command Disable System (CDS) Locking Device Trainers. Also, activity was initiated to generate the Engineering Change Proposal (ECP) package required to provide these trainers to the FMS customers for use with their M240 Trainers.

(FOUO) Efforts to provide M240 and M241 Training Warhead Sections for support of a new FMS case and associated US General Support Unit were successful. Two M240 Type X Trainers were delivered during May 1979 to the new FMS customer and one M241 was delivered to the supporting US GS unit during September 1979.

PERSHING II

(FOUO) In December 1978, the PERSHING II system received approval to enter Engineering Development. The Air Burst/Surface Burst option was given unrestricted approval while the Earth Penetrator (EP) option was directed to continue development to protect 10C but not commit large funds pending study which would independently assess the usefullness of the EP.

(FOUO) In May 1979, the Phase III request by the DOD was accepted by the DOE. Los Alamos Scientific Laboratory was the DOE developing laboratory and designated the warheads as the W85 (Air Burst/Surface Burst) and the W86 (Earth Penetrator).

(FOUO) Martin Marietta has baselined the design of the PERSHING II as of the end of FY 1979. Though there are some unresolved interfaces among the warhead, AK and missile, the PERSHING II system on a 1st order basis has been finalized.

(FOUO) The 10C date for the Air Burst/Surface Burst was officially accelerated by 16 months without any added funding. This basically resulted in a production decision being forced earlier in the DT II/OT II program. Correspondingly a release for long lead time procurement had to be scheduled earlier.

(FOUO) In an effort to reduce costs PERSHING Program Manager's Office (PPMO) undertook a safing, arming and fuzing system consolidation study to identify cost savings associated with consolidating all safing, arming and fuzing (SAF) work for PERSHING at Sandia Laboratories. Upon review by OPM Nuclear Munitions, it was agreed upon by PPMO and this office that PM NUC would redo the study. As a result of the revised consolidation study which indicated a possible $15 million acquisition cost differential, it was decided that the Army should continue to develop the SAF for the AB/SB option of the PERSHING II.

The M454/M197/M198 Compatibility Program

(FOUO) The pretest phase of the program to establish compatibility of the M454 projectile with the M197 propelling charge in the new M198 155mm towed howitzer was initiated in May 1979. This phase was to determine if the M454/M197 combination would exceed DOE Major Assembly Release (MAR) limits for the M454. Seven special M454 test projectiles (designated T5119) were manufactured to support this phase.

(FOUO) Results of firing the first T5119 and several conventional reference projectiles, up weighted to that of the M454, showed high differential pressures and propellant pressure time traces that were not "smooth." Analysis indicated the probable cause was the jamming of the M197 charge against the tapered chamber wall of the M198 howitzer. During firing, the jamming allowed an initial pressure build up behind the jam which dips and then rises normally as the jam was burned through.

(FOUO) When the M197 was developed the effects of differential pressure and its measurement were not state-of-the-art. Tests were conducted that determined the M197/M454 did not exhibit differential pressure problems in the M109A1 SP howitzer. The M197 was developed to fire the M454 in the M109A1.

(FOUO) As the fiscal year ended several additional T5119/M197's had been fired to expand the data base. All the test data were being summarized for transmittal to DOE for their determination of whether the M454 could survive the forces imposed on it by the M197 in the M1981 This was to determine whether a new charge would have to be developed prior to conducting the full compatibility firing program.

PERSHING Ia

(FOUO) During 1979, PM NUC continued the management of follow-on procurements of PERSHING Ia M15 Warhead Section subassemblies placed in 1978. Becuase of fiscal constraints in FY 1978, additional procurement actions were necessary in FY 1979. The total FY 1979 procurement costs were in excess of $8 million.

(FOUO) Based on analysis of planned requirement for PII and subsequent coordination with HQDA, requirements for production of PIa warhead sections were reduced and a significant cost avoidance realized.

Power Supplies for Permissive Action Link (PAL) Equipment

(FOUO) Plans to field the ERADCOM (HDL) hand crank generator (G76) for use by artillery personnel as a backup power source for PAL equipment were made during this year. Primary power source will be via slave receptacles on NATO and US vehicles.

(FOUO) PM NUC together with ARRADCOM initiated a Phase I feasibility test program toward replacing the current NICAD MC1605B PAL equipment battery with a lithium sulfur-dioxide battery. A small number of Mallory cell assemblies were tested. These proved far superior to the battery currently in use. The lithium batteries were smaller, cheaper and provided more energy over a wider temperature range with less operational impact than the NICADS currently being used. Technical Report ARLCD-TR-79020, "A Lithium Replacement for the Nickel Cadmiun MC1605B PAL Equipment Battery," describing the evaluation program was distributed in August 1979.

NIKE HERCULES/HONEST JOHN W31 Weapon Systems

(FOUO) DA tasked the Deputy Project Manager for Nuclear Munitions to chair a NIKE HERCULES/HONEST JOHN W31 Weapon System Improvement Group to analyse the various proposals submitted by both the DOE and Army to improve the safety of these systems. The various proposals were considered with respect to safety provided, logistical and operational impact, and compatibility. On 21 September 1979, the group agreed upon a DOE option as the recommended approach and submitted conclusions and a recommendation to DA.

(FOUO) The HONEST JOHN demil program was delayed until September 1979 pending decisions relative to PAL. Favorable presidential authorization had been received and OCONUS demil could be accomplished as soon as source documents were published.

Armor Blanket

(FOUO) In accordance with direction from DCSOPS, PM NUC and USANCA were tasked to evaluate a proposal by Sandia Laboratories to use armor blankets to protect nuclear weapons from small arms fire. A report was prepared which addressed subject proposal from both a technical and operational point of view. Report recommended that proposal not be pursued any further by Army mainly because of operational impact and limited protection afforded. DA concurred in recommendation.

Chemical Decontamination

(FOUO) PM NUC coordinated with Chemical Systems Laboratory at APG on implementation of a program to handle design requirements involving decontamination. Also, he was instrumental in having basic requirements documents modified by USANCA to reflect a more realistic approach toward chemical decontamination. Information was coordinated with ARRADCOM.

(FOUO) This office prepared revisions to regulation AR 70-24, "Research & Development Special Procedures Pertaining to Nuclear Weapon Systems Development and Acquisition," for submission to DA for update of basic regulation. The purpose was to make regulation consistent with other updated regulations and with present procedures for nuclear materiel acquisition

Stockpile Reliability Test Program

(FOUO) The Joint Army/DOE Stockpile Reliability Test Program was conducted as planned for FY 1979 with exception of the M422 Flight Test Program due to problems in qualification of the on board "memory pack" non-radiating telemetry. Where test results indicated that safety/reliability of stockpiled munitions were adversely affected, follow-on action was taken to establish root cause of the problem and corrective action to the stockpile was taken to assure that requirements for safety and reliability continued to be satisfied.

(FOUO) A joint DOE/Army Methodology Ad Hoc working group was established for purpose of selecting a methodology to express reliability in terms of Lower confidence bounds in joint Army-DOE Reports. At end of Fiscal Year, agreement had been reached on the methodology to be used for the FY 1980 reports.

(FOUO) The FY 1979 approved program was funded at $7.567 million. Included in the program were funds amounting to $450,000 for the Special Stockpile Engineering Investigative Program (SSEIP).

Value Engineering (VE)

(FOUO) The VE Goals established for the office for FY 1979 were achieved and exceeded. The following table shows the results:

	Goal	Actual	% of Goal
VEP's Initiated	6	11	183
Savings Validated	$500,000	$1,684,170	337

Five of the VEP's, for $1,684,170, came directly from this office. The balance was accomplished by ARRADCOM and was planned for validation in FY 1980.

Publications and Maintenance of Nuclear Launch Equipment by Friendly Nations

(FOUO) During the preceding Fiscal Year a study was completed and recommendations were made to DA to assure compatibility between US and friendly foreign nations materiel and publications should US nuclear munitions be authorized for employment. This year, as a result of the study, HQDA has decided to send to friendly foreign nations an early photo copy of all manuals/changes and revisions. This should help eliminate the time gap in receipt of publications between US forces and other nation forces. The recommendation concerning US translation cross check for accuracy was not favorably considered.

Product Improvement Proposals

(FOUO) During this Fiscal Year, the PIP's approved and unfinanced for PERSHING last Fiscal Year, were cancelled. Basis for cancellation was the time planned for system life for benefits to be realized.

NUWAX - 79

(FOUO) During FY 1979 the office participated in planning for a nuclear weapon accident exercise (NUWAX). The exercise was conducted at the Nevada Test Site in April 1979. This first of its kind joint exercise was conducted to allow evaluation of the command, control, communications, and other functions involved in interdepartmental coordination and related activities at the scene of a major nuclear weapon accident. NUWAX - 79 involved weapons of all three services

and required support by all DOE design laboratories. This office provided coordination for materiel support of the Army LANCE Warhead Sections used for NUWAX - 79 as well as DARCOM representation associated with the exercise. Also, this office provided NUWAX - 79 briefings to other DARCOM elements responsible for nuclear accident/incident control.

MK74 Shaped Charge

(FOUO) The MK74 Shaped Charge was Type Classified as Standard for Army use. Because of difficulty experienced by the contractor in satisfying First Article Test requirements the delivery schedule was changed. At the close of the Fiscal Year, the contractor was preparing a third first article sample in coordination with Crane Naval Depot (Navy was the design proponent for this item).

ILS, General

(FOUO) Considering the unique requirements of Nuclear Munitions, an agreement was reached with Materiel Readiness Support Activities to tailor the milestone reporting requirements of DARCOM-R 700-13, to be more responsive to the needs of the nuclear munitions program.

(FOUO) A visit was made to the organizational directorate at HQ TRADOC to discuss means of improving the processing of QQPRI and BOIP feeder data into the QQPRI and BOIP in light of classification requirements and access for critical nuclear weapon design information. At close of Fiscal Year a proposal for processing our QQPRI/BOIP thru this office to the Nuclear Biological Chemical Directorate in TRADOC was drafted and provided to DARCOM headquarters for consideration and approval.

Command Control and Security

(FOUO) This office funded AMSAA to perform a detailed command, control and security study. The purpose of the study was to provide a basis for the Army to determine if it had a need for certain types of security hardware; e.g., Category E and F Permissive Action Link System. During the Fiscal Year this office hosted six working reviews relative to study inputs and progress. It was anticipated that this study would be completed during FY 1980. The completion date was based on the premise that input from Department of Energy and Army activities would be completed by 2d quarter FY 1980.

(FOUO) Nuclear munitions appropriations for the next five fiscal years follow:

Nuclear Munitions Programs Appropriations
($ Thousands)

APPROPRIATION	FY80	FY81	FY82	FY83	FY84
Procurement	29,367	32,975	26,161	32,641	25,200
RDTE	32,941	44,280	46,491	34,252	32,878
OMA	25,576	26,933	27,017	27,017	27,017
TOTAL	92,073	104,188	99,669	93,910	85,095

Charter Revision Proposal

(FOUO) Last year former Project Manager, Colonel James H. Sloan, Jr. requested that DARCOM Headquarters provide the funding guidance for programs for which this office had management responsibility directly to PM NUC and not the system PM's. This was denied.[16] Consequently, management responsibility continued for those assigned systems without commensurate authority to control nuclear program funds.

(FOUO) PM NUC was in the process of renegotiating support agreements with system PM's which would alleviate this problem to maximum extent practical. It had also been recommended that separate program elements be established for all nuclear/nuclear support items and that these elements be controlled by the system PM's. This approach would identify for planning purposes the Army funding for the nuclear warhead section.

Black Hawk

Organization and Staffing

(U) Colonel Richard D. Kenyon was the Project Manager for the BLACK HAWK until he was promoted on 1 July 1979 to Brigadier General and reassigned on 23 July 1979 to another Command. He was succeeded by Colonel(P) Charles F. Drenz.

(U) At the beginning of Fiscal Year 1979, the personnel authorization was 87 (69 civilians and 18 military). There were also four civilian overhires authorized. One additional military officer space, Lieutenant Colonel 05, was authorized in December 1978. At the end of Fiscal Year 1979, the authorization was 88 (69 civilians and 19 military). Four overhires were also authorized.

(U) The onboard strength at the beginning of Fiscal Year 1979 was 85 (67 civilians and 18 military). At the end of the Fiscal Year, the strength was 87 (68 civilians and 19 military).

[16] Ltr, DRCPM, Subj: End of Tour Report, 13 Jun 79.

Fiscal Year 1979 Funding

(U) As of 30 September 1979, the BLACK HAWK RDT&E Program was $9,472,000.

Funds	Project Number	Total Funding
RDT&E	BLACK HAWK Airframe 6.42.06.A 1X464206D378	$9,472,000.00

(U) At the end of 4th Quarter FY 1979, the FY 1979 Airframe Program released by DA was $9,472 million of which $9,100,797.34 (96%) was obligated and $9,201,565.80 (97%) was committed.

(U) FY 1979 Aircraft Procurement, Army (APA) funds totaled $399,246,000. The BLACK HAWK Project Manager's Office, however, had full control of only $369,194,000 (92.5%) of the allocated funds. Of the controllable funds $327,942,601 (88.8%) were obligated as of the end of the 4th quarter FY 1979. The program was stratified as follows:

Funds	Budget Line Items	
APA	Number 6-1100.68.9.01006 (CA9) BLACK HAWK Airframe	$239,762,000.00
	(CB9) BLACK HAWK Engine	$87,500,000.00
	(CC9) BLACK HAWK Avionics	$15,258,000.00
	(CF9) BLACK HAWK Other GFE-Engine	$150,000.00
	(CH9) BLACK HAWK Other GFE-Airframe	$930,000.00
APA	Number 7-1100.68.9.01007 (CD9) BLACK HAWK Engine Advance Procurement	$ 15,300,000.00
APA	Number 23-1310.93.9.01023 (TZ9) Initial Spares & Repair Parts Aircraft	$30,052,000.00
APA	Number 24-1430.69.9.01024 (CJ9) T700 Engine CIP	$10,294,000.00
APA	TOTAL	$399,246,000.00

Milestones

Date	Milestone
17 October 1978	Mod P00094 to Contract DAAJ01-77-C-0001 was awarded to Sikorsky Aircraft Division for the third production year (FY 79) buy of 129 BLACK HAWK Aircraft. Amount $223,018,666.
27 October 1978	The GE-T700-700 Engine third year production contract, DAAK50-79-C-0003, was awarded to General Electric on a firm fixed price basis. Amount of contract was $114,002,704 with an additional $6,978,400 for spare parts at ceiling price.
30 November 1978	General Electric was awarded Contract DAAK50-79-C-0008 for the T700 Engine Component Improvement Program (CIP) for FY 79. Contract Type was Cost-Plus-Fixed-Fee in the amount of $9,092,500.
30 November 1978	Mod P00011 to Contract DAAJ01-77-C-0034 was awarded to General Electric for the FY 79 Industrial Plant Facilities procurement of four BLISK machines for the manufacture of Compressor BLISK and Impeller for the T700 Engine. Contract amount $4,124,093.
27 July 1979	Awarded Contract DAAK50-79-C-0034 in the amount of $159,775 to Small Business for modification of T-53 engine containers for use to package and ship T700 engines applicable to the UH-60A aircraft.
26 September 1979	The SOTAS Contract DAAK50-79-C-0024 was awarded to Sikorsky Aircraft Division at a total estimated cost of $36,620,000 comprised of Target Cost of $33,800,000 and Target Fee of $2,820,000.
26 September 1979	Mod P00195 to Contract DAAJ01-77-C-0001 was signed. This mod reflected the eight UH-60A aircraft that were to be designated YEH-60B (SOTAS) amount $6,997 (decrease).

Production Verification Testing

(U) Production verification tests (PVT-C) by the contract commenced in November 1978 after acceptance of the first production aircraft S/N 77-22714 on 31 October 1978. The aircraft first flew on

17 October 1978, exactly four years after the first flight of the prototype aircraft. One month later, on 18 December 1978, the aircraft instrumentation was updated and the anti-ice/de-ice kit was installed in preparation for the Preliminary Airworthiness Evaluation (PAE) III/ icing test. The first phase of the test was completed on 23 February 1979 and the aircraft was ferried on 10 March 1979 to Minneapolis, Minnesota for the icing test. On 19 April 1979, the aircraft returned to Stratford, Connecticut after termination of the icing tests due to weather. The IR suppressor was installed, checked out and PAE IIIa flight testing commenced on 21 June 1979.

(U) On 22 June 1979 all BLACK HAWK aircraft were grounded as a precautionary measure due to a material failure of the piston in the flight controls primary servo. This failure and subsequent investigation resulted in a change in the heat treatment of the primary servo piston by the subcontractor, Bertea. Reworked components were released and the aircraft returned to flight status. This resulted in approximately an eight week slippage of testing.

(U) Testing resumed on A/C 77-22714 with the PAE IIIb completed in August 1979. PVT-C continued with completion by mid-November 1979.

Maturity Phase Ground Testing

(U) The contractor maturity phase testing continued through Fiscal Year 1979 with component qualification and fatigue testing. Vendor component qualification testing was approximately 97 percent complete and contractor fatigue testing approximately 98 percent complete. The major effort remaining in this area was the submittal review and approval of test reports and supporting data.

(U) On 12 December 1978 the 200-hour endurance test of the production tail rotor was successfully completed, and the lube starvation tests of the tail and intermediate transmission were successfully completed on 29 November 1978. The transmission ran for one hour in the test stand after complete loss of oil; this demonstrated the required 30 minute capability requirement.

(U) The 300-hour endurance test on the Ground Test Vehicle (GTV) was completed on 27 February 1979. This test was conducted with the IR suppressors installed, and the only problem surfaced were cracks in the inter heat shield which were a result of the severe test environment of the GTV.

(U) All of the Static Test Article (STA) tests conducted during Fiscal Year 1979 were successful with the exception of the troop seat floor support structure and required a redesign of the fitting.

Maturity Flight Testing

(U) The maturity phase flight testing conducted at Sikorsky's West Palm Beach, Florida flight test facility from 1 October 1978 to 26 January 1979 included the stabilator degraded mode testing, a hydraulic and pneumatic demonstration, handling qualities, mechanical instability and flight load survey. These tests were conducted on prototype aircraft 651. The aircraft returned to Stratford and was then ferried to Burlington, Vermont on 6 February 1979 for investigation of effects of cold temperature on the Mach No. limits of the aircraft. On 27 February 1979 aircraft 651 was ferried to Hartford, Connecticut where the hard landings test, autorotational landing test and height-velocity tests were completed. The aircraft was ferried back to Stratford, Connecticut on 13 March 1979 where the mechanical instability degraded landing gear tests, tail rotor loss test and the remaining handling qualities tests were completed. On 21 May 1979 prototype aircraft 651 was ferried to Ft. Rucker, Alabama where it is being utilized as a maintenance trainer.

(U) The Government conducted a Preliminary Airworthiness Evaluation (PAE) IIb on prototype aircraft 652 from 30 October 1978 to 1 November 1978. This test was conducted to obtain a qualitative assessment of the electronic AFCS and the production avionic installation. Also, the aircraft was utilized for pilot training and extended range kit qualification and verification. On 26 December 1978, the extended range kit verification was conducted. The aircraft flew 6.9 hours over a chart distance of 880 nautical miles (NM), exceeding the goal of 860 NM. Prototype aircraft 652 was ferried to Fort Eustis, Virginia on 29 December 1978 where it was being utilized as a maintenance trainer.

Product Assurance

(U) The second production aircraft S/N 77-22715 was ferried to Fort Rucker on 25 April 1979 for RAM-D testing. This aircraft was used in the certification by the Airborne Board at Fort Bragg, North Carolina for aerial delivery of troops by parachute and rappelling. The optimization of the XM-130 for use on the BLACK HAWK was also accomplished in June 1979 at White Sands Missile Range, and desert training at Yuma Proving Ground, Arizona was completed in September 1979.

(U) The failure definition and scoring criteria part of the memorandum of agreement on BLACK HAWK RAM requirements was approved on 4 June 1979 by the BLACK HAWK Project Manager and TRADOC Systems Manager.

Reliability, Availability and Maintainability

(U) In June 1979 the first BLACK HAWK Government Scoring Conference on the RAM-D test using aircraft 715 was held at Fort Rucker. The conference covered the first 136 flight hours of the test. After the conference, there were 34 chargeable failures in the RAM/LOG data base; however, there were 29 deferred maintenance actions. The assessment of the data revealed 42 failures in 136 flight hours, or a mean time between failure of 3.2 flight hours.

(U) On 16 January 1979 the third production aircraft S/N 77-22716 was airlifted to AEFA at Edwards Air Force Base, California for the installation of the Data Acquisition Package (DAP) in preparation of the Performance Guarantee Test. This test started on 3 May 1979 at El Centro, California and was completed during September 1979.

(U) The fourth production aircraft S/N 77-22717 accepted by the Army on 12 February 1979 was utilized for pilot training and to perform engine and EMC testing. EMC testing of mission flexibility kits was completed in October 1979.

(U) The next three production aircraft, S/N's 77-22718, 77-22719 and 77-22720 were sent to Aviation Center, Fort Rucker, Alabama for pilot training of the 101st Airborne Division personnel in preparation for the Force Development Test and Experimentation.

(U) Recipient of the next seven production aircraft was the 158 Delta Company of the 101st Airborne Division, Fort Campbell, Kentucky. The first aircraft delivered to Fort Campbell was piloted from Sikorsky aircraft by MG Brandenburg, Commanding Officer, 101st Airborne Division, and Major Walker, BLACK HAWK Materiel Fielding Team Chief. The second aircraft to be assigned was piloted from Fort Rucker by BG Louisell, Assistant Division Commander, 101st Airborne Division and Major Krantz, ADTA. IOC-FDTE testing started as scheduled on 4 June 1979. Due to the grounding action the test was interrupted but was restarted on 20 August 1979 and was to be completed by 15 October 1979.

(U) A review of the implementation of Sikorsky's critical Parts Program was conducted on 12 September 1979 to determine the adequacy of the Sikorsky effort. Critical characteristics were randomly selected and tracked from the drawing requirements through the complete manufacturing process and finally to the quality records of components shipped. No discrepancies were noted.

Maintenance Publications

(U) Performed in two phases, the Army verification of UH-60A maintenance manuals was completed. Phase one was completed in January

1979 at the contractors plant against prototype aircraft. It was to verify those maintenance tasks against the equipment whose configuration was the same as the production aircraft. Phase two was completed during the period of April - July 1979 at Fort Rucker and Fort Campbell against delivered production aircraft to verify those critical maintenance tasks which could not be performed against the prototype aircraft.

(U) UH-60A maintenance manuals printed by TAG were reviewed and distributed. Airframe manuals, TM 55 series, were dated December 1978 and avionic manuals, TM 11 series, were dated April/May 1979. These manuals were being updated to reflect required changes as determined from completed maintenance manual verifications or problems reported by units which had received the production aircraft.

Training

(U) Instructor Key Personnel Training (IKPT) courses were conducted at the contractors facility for the 35K MOS, avionics repairer, during the period of March - June 1979 and for the pilot course during the period of February - April 1979. This completed the IKPT.

(U) Army residence school training for UH-60A aircraft maintenance and operator personnel was established as follows: Aircraft repairer - October 1978; aircraft electrician - October 1978; aircraft power plant repairer - November 1978; power train repairer - November 1978; aircraft structural repairer - December 1978; and pilot training - May 1979.

(U) Six training devices were delivered to Army Maintenance Residence Schools as follows: power plant/power drive trainer to Fort Eustis in October 1978; composite trainer to Fort Eustis in December 1978; fuel system panel trainer to Fort Rucker in March 1979; electrical system panel trainer at Fort Eustis in April 1979; power train programmable trainer to Fort Eustis in April 1979; and electrical system programmable trainer to Fort Eustis in April 1979.

ILS Accomplishments

(U) The Milestone 5, LOGCAP briefing was presented to and accepted by DARCOM on 26 January 1979. This was the last LOGCAP briefing scheduled for the UH-60A BLACK HAWK aircraft.

(U) In February 1979 the FORSCOM Materiel Fielding Plan was developed and distributed in February 1979. This was followed by the establishment of the Materiel Fielding Plan at Fort Campbell in April 1979.

376-617 O - 82 - 14

(U) Installed the T700-GE-700 Engine on the METS to verify the T700 Engine METS adapter and the testability of the engine at Fort Campbell in July 1979. The test verified that the adapter was acceptable and that the performance of a complete engine could be determined.

(U) Data pertaining to UH-60A BLACK HAWK Aircraft System was developed and submitted for the Army Force Modernization Program.

(U) Verification of procedures for loading the BLACK HAWK aircraft on to the C-141 and C-5A aircraft for air transportability of the UH-60A was completed in September 1979.

(U) Prescribed Load Lists (PLL)/Authorized Stockage Lists (ASL) were filled to the following levels at time of first production aircraft delivery to the sites: Fort Rucker 94 percent, Fort Campbell 91 percent, and Fort Eustis 96 percent.

Advanced Attack Helicopter (AAH)

Introduction

(U) The YAH-64 AAH is a two place twin-engine rotary wing aircraft and specifically designed to deliver anti-armor and area suppression fires for the day, night, and limited weather anti-armor mission with emphasis on the ability to fight, survive, and live with troops in the "Front-Line" battlefield environment. This helicopter, the YAH-64 AAH represents an optimization of technology for the modern tank-heavy battlefield environment. It will contribute greatly to the Army's ability to fight outnumbered and win.

Background

(U) Advanced Attack Helciopter. An AAH task force was established in January 1972 to assess the requirement for an attack helicopter in the 1975-1985 timeframe by revalidation of the Advanced Aerial Fire Support System Qualitative Materiel Requirement (QMR) or identification of new operational characteristics.

(U) Included in the study were flight evaluations of Lockheed's Cheyenne, Sikorsky's Blackhawk, and Bell's King Cobra. The task force study concluded that the future attack helicopter must have a relatively small vulnerable area and a high degree of maneuverability to survive in a mid-intensity conflict. Requirements developed by the task force described a less complex, highly agile aircraft optimized for nap-of-the-earth flight, and survivability in a high threat environment.

(U) In August 1972, it was determined that none of the three prototypes met the new AAH requirements; therefore, the decision was made to terminate the AH-56 (Cheyenne) development and to begin the AAH program. The materiel need document was approved by DA on 28 September 1972. The "Cheyenne" Project Management Office (PMO) was redesignated the AAH-PMO and in September 1972 was designated a DARCOM PM.[17] Simultaneously, the Secretary of the Army approved the initiation of the development of an Advanced Helicopter System which would provide greater agility, hover performance and heavier aerial fire support capability than currently possessed by existing Army aerial weapons systems. DEPSECDEF authorized release of the AAH RFP to industry for a phased engineering development program, on 10 November 1972, specifying a $1.4 million to $1.6 million (FY 1972 constant dollars) constraint on recurring fly-away design-to-unit production cost. Subsequent changes in DOD Budget Guidance Manual redefined design-to-cost to include non-recurring costs, thereby increasing the AAH design-to-cost goal by $0.104 million to $1.704 million (FY 1972 constant dollars). On 22 June 1973, competitive Phase 1 Engineering Development contracts were awarded to Bell Helicopters and Hughes Helicopters.

(U) Government testing (flyoff) was completed 30 September 1976 and the AAH DSARC held on 7 December 1976 resulted in approval of the AAH to enter full scale Engineering Development (Phase 2) of the AAH System.[18] The Secretary of the Army selected Hughes Helicopters (YAH-64) as the prime aircraft system contractor for Phase 2 and on 10 December 1976, a public announcement of the $317.4 million contract award was made. Phase 2 consisted of modification of the two Phase 1 aircraft, fabrication of three additional air vehicles, subsystems development, and testing and integration of mission equipment subsystems into these aircraft.

(U) Target Acquisition Designation System (TADS)/Pilot Night Vision System (PNVS). A major mission equipment subsystem for the AAH was the target acquisition and designation system. Due to the sophistication of this subsystem and a decision to develop this equipment competitively by the government, a separate project office was established in March 1977 within the AAH Project Office (now Program Office). Contracts for the competitive development of the TADS/PNVS subsystems were awarded 10 March 1977 to Martin Marietta and Northrop Corporation.

(U) A charter designating Colonel C. A. Patnode, Jr., Department of the Army Project Manager for the TADS/PNVS was signed on 24 August 1978. Although funding for the TADS/PNVS Project was included within the AAH line item, the separate TADS/PNVS Project Office intensively managed the competitive TADS/PNVS development effort.

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[17] AAH SAR, 30 Sep 78, p. 2.

[18] AAH Staffing Plan, Jul 78, p. 2.

(U) 30mm Ammunition (XM788/789/799). On 12 October 1976, the AAH Project Manager briefed the DCGMD, DARCOM, on a recommended course of action to develop XM788/789 30mm Ammunition for the AAH 30mm gun (XM230 Hughes Helicopters Chain Gun) by establishing a Product Manager Team satellited at ARRADCOM, Dover, New Jersey.

(U) LTC David Logan assumed project responsibility on 7 November 1979, from Colonel D. J. Delany the initial 30mm Ammunition Project Manager. The Product Manager reported to the AAH Program Manager[19] and was included in the AAH Program Management Office.[20]

FY 1979 Program Development

(U) AAH. The AAH was being developed in accordance with proposed Decision Coordinating Paper (DCP) 123a, dated 15 November 1978, forwarded by DA to OSD on 1 January 1978.

(U) During the 1st quarter FY 1979, both Martin and Northrop delivered initial prototype hardware to Hughes for use in integration and check-out. Bench testing to date resulted in successful electronic integration of the TADS with the AAH multiplex system. Functional qualification tests were started on PNVS and some major TADS components.

(U) Prototypes No. 2 and No. 3 entered an Army modification program in May 1978 that included slight lengthening of the rotor mast, expansion of the forward electronic bays, modification of the cockpit canopy and minor redesign of the tail. Swept tips on the main rotor blades also were incorporated to improve aerodynamic performance. All hardware and wiring required to test the AAH mission equipment, such as fire control systems for all weapons and the TADS/PNVS also were installed.[21]

(U) First flights of the modified aircraft took place on 28 November 1978 at the Hughes Flight Test Center on Palomar Airport near San Diego following refinements to the airframe and control system. Since 28 November 1978, the aircraft logged approximately 11 hours of development test flight.[22] No. 1 ship, which had been used for static ground testing, was being modified to flying configuration.

(U) The first new prototype airframe (AV04) was delivered to the Hughes Assembly building for final assembly and was scheduled for first flight in June 1979. Two additional prototype units were under construction.

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[19] Prod Mgr Charter for 30mm Ammo, 21 Jun 78.

[20] AAH Staffing Plan, FY 78, p. 3.

[21] Cmt 2, DRCPM-AAH-TM, 22 Feb 79.

[22] Cmt 2, DRCPM-AAH-TM, 22 Feb 79.

(U) The Phase 1 prototypes were being incrementally modified and flight tested to arrive at the final Phase 2 configuration. Flight testing was proceeding somewhat behind schedule but satisfactorily. A total of approximately 750 flight test hours were accomplished on these two prototypes, 275 hours of which were in Phase 2.

(U) In March 1979, the YAH-64 conducted its first firings of the HELLFIRE Missile the first week. The missiles were fired on the ground, both with the rotor stopped and with the rotor turning which were followed by an airborne launch from hover.[23]

(U) Air Vehicles 02 and 03 flew more than 130 hours during this past quarter accomplishing contract air development testing, and Army Engineering Design Test 2 flights were started.[24] On 22 February 1979, Hughes Helicopters informed the PMO that a current evaluation of the program schedule position resulted in a delay in anticipated Air Vehicles 04 and 05 first flight to 1 September 1979 and 1 November 1979, respectively. Air Vehicle 06 was to be accomplished on schedule.[25]

(U) Systems Integration Modifications were being pursued by Hughes Helicopters, and the Engineering Design Test (EDT2) had been completed. Both of the TADS/PNVS contractors began aircraft ground integration testing in preparation for July 1979 first flight of the AH-64 with the TADS/PNVS integrated.[26]

(U) There was an increase of $3.8 million in the Development program increasing it from $1010.3 million to $1014.1 million. This increase consisted of additional FY 1978 funding of $1.6 million received from DA for Skill Performance Aids and a $2.2 million increase in FY 1981 to correct a previous error in application of the July 1978 indices.[27]

(U) The Army was conducting an in-depth review of the Advanced Attack Helicopter Program. This review was motivated by the combined effects of the technical and production lead time, and operational testing factors.

(U) Several technical concerns were identified with the prototype aircraft. These concerns were all considered to be typical helicopter development type problems and none of them were expected to be

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[23]AAH Phase 2 Prog Status Sum, 9 Mar 79.

[24]AAH SAR, 31 Mar 79, p. 2.

[25]AAH Phase 2 Prog Status Summary, 23 Feb 79, p. 3.

[26]AAH SAR, 30 Jun 78, p. 2.

[27]AAH SAR, 30 Jun 79, p. 2.

insurmountable. The Army's prime contractor for the AAH, Hughes Helicopters, was addressing solutions to these concerns.

(U) Production lead-time information had been received which was affecting the program planning. The problem was associated with industry capacity for processing castings and forgings and with the availability of critical materials. Initial evaluations indicated that the production lead-times could increase by as much as 9 months from the previously estimated 25 months.

(U) The advisability of and opportunities for restructuring the AAH program to obtain more operational testing data than currently planned prior to making the production decision, had been taken under review.[28]

(U) Systems integration efforts, both on the ground and flight test, continued at Yuma Proving Ground (YPG), Arizona. The Armament and Fire Control Survey was initiated with both Martin and Northrop TADS/PNVS installed on AAH Aircraft. On 18 September 1979 the first of a series of guided HELLFIRE missile shots was accomplished with successful target accuracy.

(U) Concurrently, the final assembly of the first Phase Aircraft (AV04) was nearing completion with a first flight scheduled within approximately 30-60 days. This aircraft incorporated the redesigned empennage including a stabilator. The next Phase 2 aircraft (AV05) was also in the assembly stage with first flight scheduled for 31 October 1979.

(U) Training of participants for the TADS/PNVS competitive fly-off was conducted in the surrogate PNVS and ATAFCS aircraft by the Development Test Training Detachment (DTTD) at YPG.

(U) The review of the Advanced Attack Helicopter Program, motivated by technical concerns, extension of production leadtimes, the desirability of a complete single rather than split Operational Testing and favorable schedule position was completed and associated preliminary cost increases and schedule changes were being confirmed with the new Baseline and Independent Parametric Cost Estimates.

(U) On 13 September 1979, the Requests for Proposal for the TADS/PNVS Maturity Phase Development and Initial Production Contracts were issued. Evaluation of proposals together with results of the December 1979 - February 1980 flyoff were to lead to selection of a Single TADS/PNVS Contractor by 10 April 1980.[29]

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[28] AAH, SAR, 30 Jun 79, p. 2.

[29] AAH, SAR, 30 Sep 79, p. 2.

TADS/PNVS

(U) In FY 1979, both Martin and Northrop continued the development of their respective TADS/PNVS. Early in the year prototype hardware from both contractors was successfully integrated and tested in the Mission Equipment Development Laboratory at Hughes Helicopters. Each contractor completed fabrication, assembly, functional qualification tests, and delivered three prototype systems to Hughes Helicopters for systems integration and intiaial flight tests in the AAH Armament and Fire Control Survey.

(U) During FY 1979, the PNVS surrogate trainers (one each Martin and Northrop PNVS on modified AH-1S') and the TADS surrogate trainers (two ATAFCS systems on AH-1S') were delivered to the Army for pilot training at Yuma, Arizona. The pilots were trained on these surrogate systems to prepare them to fly the AAH in the Armament and Fire Control Survey and TADS/PNVS flyoff.

(U) Martin and Northrop provided TADS systems for a Smoke and Obscuration Test Prograt at MIRADCOM. Initial testing was to commence in early FY 1980.

(U) RFP's were released to Martin and Northrop requesting proposals for Maturity Phase Development, and two production buys of 16 and 82 units, respectively. Proposals were to be evaluated and a winner selected in FY 1980.

(U) 30mm Ammunition. Development of 30mm Ammunition continued through FY 1979. Cartridge, 30mm, TP, XM788 was type classified for limited production and a contract was let for 389,000 cartridges for the US Navy. Qualification test for Cartridge, 30mm, HEI, XM799 was completed. The schedule for the Cartridge, 30mm, HEDP, XM789 slipped because of an in-bore incident which occurred on 28 June 1979. Development continued after the root cause of the failure was identified. The slippage did not affect the YAH 64 development as the qualification testing of the XM789 was to be completed before OT II test for the AAH and ammunition made available for testing.

AAH Program Management Structure

(U) The AAH was one of the Army's top priority programs, and was structured under the new DARCOM multi-level project concept.

(U) On 10 December 1976 Brigadier General Edward M. Browne was designated Department of the Army (DA) Program Manager for the Advanced Attack Helicopter (AAH) System. Previously, General Browne had assumed program responsibility as Project Manager (PM), AAH, 1 June 1976. The Program Manager reported to the Commanding General, US Army Materiel Development and Readiness Command (DARCOM). The Project Manager for the TADS/PNVS, and the Product Manager for the 30mm development reported to him and used certain elements of the AAH staff to assist them in their program efforts.

Program Manager's Role

(U) The Program Manager was responsible for overall program management of the AAH System including the aircraft and its related mission equipment and subsystems. He directed and controlled all phases of research, development, procurement, production, distribution and logistic support involved for the AAH and its subprojects. Also, he was directly responsible for the life cycle management of the AAH and centrally directed, coordinated, integrated, and supported the material development and acquisition activities of the subordinate Project Manager of TADS/PNVS and the Product Manager, XM 788/789/799 30mm Ammunition.[30]

Program Cost Estimate

(U) The total AAH program cost estimate as of 30 September 1979 was $1086.3M for Development and $3858.6 for procurement for a total of $4944.9 million based upon July 1978 DA/OSD Indices.

PM Smoke/Obscurants

RDT&E Programs

(U) The Army RDT&E projects and tasks assigned to the Smoke/ Obscurants Project Management Office follow:

Element Code	DA Project or Task	Title
6.36.27 (AD)	1W463627DE82	Smoke Munitions & Materiel
6.46.01 (ED)	1X464601D144	Smoke Mortar Rounds
6.46.09 (ED)	1W464609D191	Smoke Munitions & Materiel
6.57.02 (Test)	1X665702D204	Smoke Test Criteria
6.46.14 (ED)	1X464614D373-14*	155mm Howitzer Ammunition

*Customer reimbursable order provided by PM-CAWS.

Advanced Development: Smoke Munitions and Materiel

(U) 81mm Improved Screening Smoke Projectile. Advanced development continued in FY 1979. Ballistic match and non-ballistic match concepts were tested and it was concluded that only a non-ballistic match round had sufficient payload capacity for effective screening. This position was furnished to the TRADOC community by letter on 22 June 1979 and was to be briefed to the Infantry School on 8 November 1979.

(U) 4.2 Inch Improved Screening Smoke Projectile. During FY 1979, DARCOM/ TRADOC processed a draft Letter of Agreement (DLOA). This DLOA was approved by DARCOM/TRADOC in August 1979.

[30]AAH PM Charter, 18 Aug 78, p. 1.

(U) The Large Area Smoke Screening advanced development was initiated in response to the Letter of Agreement (LOA) for a Man-portable Smoke/Obscurant Generator System. The LOA addressed a system that was capable of transport by not more than two people and capable of being installed on and operated from an armored vehicle while it was moving. Additionally, the system would be capable of disseminating smoke materials which could attenuate from the visible through the far IR spectral region, and would be operable with known/planned smoke materials used in similar systems by the US and its allies.

(U) The combination of overall characteristics, such as screen geometry, and screening time, would produce a substantial operational improvement over the M3A3 generator under the same meteorogical conditions.

Engineering Development: Smoke Munitions and Materiel

(U) M239 Launcher/L8A1 Grenade Fielding Program. Application of the M239 Launcher and Tank interface hardware to the 1000th USAREUR M60A1 Tank was successfully completed in Mainz Army Depot (MZAD) on 16 December 1978. Application of the remaining 291 tank interface kits to USAREUR M60A1 Tanks was accomplished by MZAD in April 1979, thus completing the initial M239 Launcher fielding program ahead of schedule and within program costs.

(U) M901 ITV/M243 Smoke Grenade Launcher (SGL). IPT/FOE testing of the M901 Improved TOW Vehicle incorporating the M243 SGL was conducted at Yuma PG, Arizona, and Fort Polk, Louisiana. Based on these tests, OTEA granted the M243/ITV compatibility statement required by TRADOC to type classify the M243 SGL. The M243 SGL was type classified on schedule in September 1979.

(U) LVT-7/XM257 SGL. In June 1979, a support agreement was signed between the Project Manager, Combatant Craft, Service Craft, and Amphibian Acquisition Project (PMS 300) and Project Manager, Smoke/Obscurants. Initial funding had been received and special corrosion testing was scheduled to start October 1979.

(U) XM1 Tank/M250 SGL. Compatibility testing of the M250 SGL on the XM1 tank was completed in February 1979. A correspondence DEVA-IPR was completed and the M250 was type classified on 24 May 1979.

(U) Surface Launcher Unit, Fuel Air Explosive (SLUFAE) Mine Neutralization System/XM257 SGL. A program to adopt the XM257 SGL to the SLUFAE system was initiated in October 1978. The effort included the design, manufacture and test of mounting and firing hardware for the XM257 SGL on the M548 carrier vehicle. Compatibility testing of the SGL was conducted concurrent with DT/OT II of the SLUFAE system from January thru September 1979. Additional testing requirements for the SLUFAE system extended type classification of that system to 1st Qtr

FY 1981. Type classification of SGL will be conducted under separate action on the XM2 IFV. Compatibility testing of the SGL on the SLUFAE was to continue as part of the SLUFAE program.

(U) VEESS/M60 Series Vehicles. Engineering Change Proposals (ECP) for production engines and chassis were approved in September and October 1979, respectively. The first production M60A1 or A3 tank equipped with VEESS was scheduled to roll off the line in October 1979. A procurement contract for field modification kits for M60 series vehicles was awarded in December 1978. First delivery of 100 kits to depot was accomplished August 1979. Field installation in USAREUR was pending coordination between PM-M60 and the European commands.

(U) VEESS/M88A1 Medium Recovery Vehicle (MRV). A preliminary coordination meeting with PO-M88 and TRADOC (Ft Knox) was held November 1978 at Warren, Michigan, to discuss the potential adoption of the VEESS to the M88A1 MRV. The DA message approving the VEESS requirement was received December 1978 and a fielding schedule was prepared by PO-M88 in March 1979. The ECP's incorporating the VEESS on the M88A1 were approved August 1979.

(U) 155mm Improved Screening Smoke Projectile (XM825). Advanced development (AD) was successfully completed in December 1978. The AD effort involved competition between Large Caliber Weapons Systems (LCWSL), which developed red phosphorus (RP) prototypes, and the Chemical Systems Laboratory (CSL), which developed the white phosphorus (WP) prototypes. A shoot-off was conducted at Dugway Proving Ground from July to October 1978. As a result of these tests and other considerations such as unit production cost, availability of raw materials, production facilities, and pollution abatement facilities, the XM825 WP felt wedge concept was selected for entering the ED phase as a result of the VAL-IPR. The XM825 will employ the metal parts assembly of the M483A1 projectile as the carrier. It utilized a submunition concept to randomly disperse by aerial base ejection 92 felt wedges, one inch thick, saturated with WP so as to quickly produce an obscuring screen of five minutes duration or longer.

Countermeasure Test Program

(U) Smoke Week II. Smoke Week II was conducted at Eglin Air Force Base, Florida, from 6-16 November 1978. The objective of Smoke Week II was to provide a variety of smoke/obscurant clouds against which developers of Electro-optical (EO) devices could evaluate their hardware. Characteristics of each of 31 different smoke/obscurant clouds were determined with the latest instrumentation. EO hardware developers could then utilize this data in their effort to determine system effectiveness of their devices in a realistic battlefield environment. Characterized clouds of smoke/obscurants were provided by ignition of inventory, developmental and foreign munitions (smoke and high explosive).

(U) Results from Smoke Week II were distributed in March 1979. This confidential report (limited distribution) was titled "Smoke Week II, Electro-Optical (EO) Systems in Characterized Obscured Environments at Eglin AFB, Florida, November 1978." The Defense Documentation Number was ADC015328.

(U) High Humidity Hygroscopic Smoke Test (H^3S). The H^3S Test was conducted at the Edgewood Area of Aberdeen Proving Ground from 18-22 July 1979. The objectives of H^3S were to validate effects of humidity on attenuation characteristics of hygroscopic smoke in the visual, near IR, mid IR, and far IR spectral areas of the electromagnetic spectrum; determine the effect of humidity on particle size distribution of hygroscopic smokes; and gain comparative information on Climet, Knollenberg and University of Tennessee Space Institute particle size analyzers. There were a total of 27 trials conducted with humidities ranging from 60 percent to 97 percent.

Procurement and Production

(U) Cartridge, 105mm, Smoke HC BE, M84A1. Renovation of depot assets at Lexington Bluegrass Army Depot and Anniston Army Depot was completed August 1979. The machinery necessary to renovate USARPAC assets in Japan and Korea was refurbished and shipped to the Pacific, September 1979.

(U) Smoke Grenade Launcher Materiel for Armored Vehicle Protection. Delivery of L8A1 Grenades from the United Kingdom (UK) continued with a shipment of 100,941 grenades to Miesau Army Depot in September 1979. Just over 12,000 grenades remained to be delivered to complete FY 1976 procurements. Production of grenades to meet FY 1977 procurements had begun.

(U) The UK completed delivery of FY 1976 M239 SGL procurement quantities and the second program year requirements of the follow-on multi-year contract (FY 78-80) were ordered December 1978. The UK Ministry of Defense started delivering M239 SGL to meet FY 1978 procurement quantities in May 1979.

(U) Ground Smoke Disseminating Materials. International Materiel Evaluation and Testing (IMET) for M5 Smoke Pot requirements advanced from Phase I to Phase II. There were two candidates being investigated, one each from the UK and Japan.

(U) M3A3 Mechanical Smoke Generator Product Improvement Proposal (PIP) was funded to start engineering effort in 4th quarter FY 1979.

(U) An engineering study was initiated to identify potential replacement for the current red dye used in M-18 Smoke Grenades. Also, engineering measures were started for replacing non-toxic yellow dye in the yellow and green smoke mixes of the M-18 Smoke Grenade.

Committees and Interfaces

(U) Interface with TRADOC. The Assistant Project Manager for Tactics and Doctrine participated in the staffing, coordination and approval process for LOA's for a smoke cartridge for the 4.2" Mortar and a Man-portable Smoke Generator for Large Area Smoke (LASS), and the ROC for the XM825 Smoke Projectile. This office participated with TRADOC and other DA organizations in actions relative to preparation and coordination of threat documents, training publications, studies, modeling and preparation of expenditure tables. Also, the office contributed to Army and other service conferences on smoke, armor technology, Military Operations in Built-up Areas (MOBA), and Airbase defense.

(U) DARCOM Smoke and Aerosol Steering Group (SASG). SASG was made up of representatives of OPM Smoke, ARRADCOM, ERADCOM, MERADCOM, MICOM, TECOM, AMSAA, and HEL. The PM Smoke was chairman of the steering group of SASG which met in FY 1979 on 27-28 February 1979 at Aberdeen Proving Ground. The meetings were to plan and coordinate the overall DARCOM program directed to advancing the technology and supporting the development of obscuring ammunition and generators and of weapons systems which most effectively operated in an environment of natural or artifically produced obscuration. The product of the meetings was the Smoke and Aerosol Steering Group Technology Base and Testing Plans of May 1979.

(U) Quadripartite. Under the ABCA Program, PM Smoke's involvement was with the Technical Cooperation Program (TTCP). PM Smoke was a member of Joint Action Group (JAG)-10 which was concerned with limited visibility battlefield conditions as it affected EO Sensor performance. The organizational meeting was attended in the UK in May 1979 and presentations were given on US smoke/obscurant testing and modeling efforts. The Australian National Leader of Subgroup W (Electronic Warfare) visited APG on 28 September 1979 and was briefed on the Army Smoke Program. Topics covered smoke/obscurants technology, materiel development, and smoke countermeasure test methodology.

(U) NATO. Actions included a September 1979 update to Panel III, Sub-Panel-3 (anti-armor) on US smoke/obscurants testing and a September 1979 progress report to Project Group 16 (Anti-IR Smoke) on smoke/obscurants research. Panel IV (IR and Optics) initiated formation of an exploratory group for the characterization of optical battlefield environments. PM Smoke was to attend the initial meeting scheduled in Copenhagen in November 1979.

(U) Bilateral. PM Smoke was officially connected with eight Data Exchange Agreements (DEA) involving six countries. A ninth DEA with a western nation was expected to become official soon. The most active exchanges in areas of smoke materiel developments and technology were with Germany, Sweden, and Norway. Norway submitted a

pyrotechnic smoke composition for US evaluation. Optical characterization demonstrated that the composition produced an aerosol of hygroscopic materials such as HC. The results were briefed to MG Jorgensen, Norwegian Army Material Command in June 1979, with an official report being provided through DEA channels. Invitations to attend Smoke Week II and Smoke Symposium III were extended to a large number of foreign nations. Countries represented were Australia, Canada, France, Germany, Israel, the Netherlands, and the UK.

Smoke Symposium III

(U) Smoke Symposium III was sponsored by OPM Smoke on 24-25 April 1979 at Harry Diamond Laboratories. The objective was to being the proper people together to discuss problems, policies, and other factors relating to performance of electro-optical (EO) systems in characterized smoke environments. Papers were presented by representatives of development, user, and industrial communities as well as Allied nations. From these papers and the discussion period dialogue, significant conclusions related to future efforts were derived. Papers presented covered areas of interest such as modeling, testing, instrumentation and methodology; smoke/obscurant technology and hardware development; doctrine and training; and concepts and systems evaluation and analysis.

(U) Proceedings of Smoke Symposium III were published in June 1979 in three volumes. Volumes 1 and 2 were available for general distribution by the Defense Documentation Center (DDC) and use DDC numbers ADC018421 and ADC018422. Volume 3 (DDC Number ADC0186536) has limited distribution to US Government agencies only and US DOD contractors with a written "need to know" from their government sponsor.

Toxicology

(U) The October 1977 Memorandum of Understanding (MOU) negotiated among PM Smoke/Obscurants, Chemical Systems Laboratory, and USA Medical Research and Development Command was updated and revised in June 1979 to more accurately define areas of assignment. This MOU delineates operational and support relationships in the performance of studies required to evaluate human health and environmental effects of smoke and obscurants. This agreement provides for the toxicological studies related to the development and utilization of smoke munitions and other smoke generating systems. Studies are presently being performed on Red Phosphorus/Butyl Rubber, White Phosphorus/Felt Wedge, diesel fuel and hexachloroethane.

(U) A series of meetings with production (Pine Bluff Arsenal), development (Chemical Systems Laboratory), and toxicology (Medical Research and Development Command) were held to discuss the toxicoligical problems with certain dyes and chemicals used in current smoke formulations. Plans are in process to eliminate the toxic hazard of inventory smoke munitions.

(U) The established requirements for the smoke development program as of 30 September 1979 is shown on Chart .

PATRIOT Air Defense System

(U) For the PATRIOT Air Defense System development, FY 1979 witnessed the completion of prototype fire units, the intensification of contractor testing, the beginning of facilitization in readiness for production, support planning, increased RSI activity, and detailed preparations toward a successful Defense Systems Acquisition Review Council (DSARC) full production decision in 1980.

Engineering Development

(U) The PATRIOT flight test program continued to be extremely active during the first quarter with a total of six flight tests having been conducted. On 4 October 1978 a multiple simultaneous engagement was accomplished utilizing the Regular Airborne Guidance Section (RAGS) missiles. Three missiles were successfully launched and simultaneously guided in the track-via-missile phase. One missile scored a direct hit while the other two missiles passed well within the lethal radius of the warhead.

(U) A PATRIOT Development Concept Paper milestone was achieved on 28 September 1978 with the first Modular Digital Airborne Guidance Section (MDAGS) missile firing at White Sands Missile Range. A second MDAGS flight, with a live warhead was successfully launched on 12 October 1978 and terminated with the destruction of the target. because of the success of the RAGS program and the advent of a more reliable MDAGS missile, the PM directed on 26 October 1978 the cancellation of the remaining four RAGS missions. The objectives which had not yet been tested were assigned to the future MDAGS flight tests.

(U) The develoomen of prototype fire units continued successfully and on schedule. Fire Unit No. 3 was march-ordered on 25 November 1978 after satisfying all shipment requirements. It was driven to White Sands Missile Range during the week of 27 November 1978 arriving in El Paso on 2 December 1978. A rough-road-course test enroute to WSMR was designed to provide about 100 miles of field Army road march conditions.

(U) Limited climatic tests with Fire Unit No. 4 were completed at the Andover production facility, and the fire unit was moved to Bedford for the physical teardown and evaluation review (PT&ER) which began on 16 October 1978. During PT&ER, Army user and developer personnel performed operator/maintenance tasks in accordance with the preliminary draft equipment publications for equipment/publication validation, adequacy of tools and test equipment and human factors evaluation.

ESTABLISHED REQUIREMENTS
SMOKE DEVELOPMENT PROGRAM

PROGRAM	PROJECT TASK	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86
Smoke Test Criteria	D204	961K	800K	711K	769K	967K	965K	963K	963K
81mm Improved Smoke Projectile	DE82-09 D144-02	AD: 5730K							
		2175K	2160K	ED: 3613K					
				1583K	1030K	1000K			
4.2 inch Improved Smoke Projectile	DE82-26 D144-03		AD: 2477K						
			1077K	1400K	ED: 5752K				
					1032K	2644K	2026K		
155mm Improved Smoke Projectile	DE82-12 D573-14 (PM-CAWS)	ED: 6506K							
		2141K	2856K	1108K	400K				
Armored Vehicle Rapid Smoke System	D191-01	ED: 6100K							
		610K	917K	500K	500K				
Vehicle Engine Exhaust System	D191-11	ED: 4233K							
		590K	580K	889K	700K				
Man-portable Large Area Screening System	DE82-07 D191-10	AD: 2301K							
		664K	937K	700K	ED: 3287K				
					1452K	1035K	800K		

(U)Fire Unit No. 5 was transported on 27 February 1979 by air in a C-5A from Hanscom Field, Massachusetts to Holloman AFB, New Mexico to supplement that tactical equipment already emplaced at WSMR. This equipment was emplaced on 3 March 1979 with baseline testing being completed on 16 March 1979. Fire Unit No. 5 will eventually be used in demonstrating and evaluating operational capabilities of a PATRIOT battalion.

(U) The arrival of Fire Unit No. 4 and the Command and Coordination Set (CCS) at WSMR in April 1979 completed the PATRIOT Battalion configuration for Operational Testing (OT) II. Equipment currently at WSMR consists of Fire Units 2, 3, 4, and 5, the CCS and a Communications Relay Set (CRS). Several emplacement exercises with Fire Unit No. 4 were conducted to validate procedures and gather critical task timing data for the physical segment of the emplacement exercise.

(U) June and July 1979 were devoted to preparing for initiation of Army testing, which required an intensive software integration effort and individual operator/maintenance training on the various major items. March 1979 order and emplacement exercises, and a maintenance enhancement program (MEP) demonstration on 18 July 1979 were conducted. Ninety-one fire control operator/maintainers and launcher crewmen were graduated from the contractor-conducted OT II training program on 28 July 1979. These personnel were to form the PATRIOT cadre of the 4th Battalion, 62d Air Defense Artillery.

Support Planning

(U) The PATRIOT baseline Logistics Support Analysis Record (LSAR) was established in October 1978 as the TRADOC/DARCOM review team completed its review of all task packages. Upon incorporation of all comments in January 1979 the base LSAR was to be completely corrected.

(U) The Maintenance Enhancement Program (MEP) proposal was received on 20 November 1978. A seven month effort was authorized on 2 October 1978 with the full program scheduled for contract coverage in April 1979. The MEP will eliminate the necessity for high skilled personnel by enabling the operator/mechanic to perform essentially all of the maintenance required in a fire unit.

(U) The maintenance enhancement program made significant progress. Firing Units 3, 4, and 5 were used at various times to validate the MEP procedures. A successful MEP demonstration was conducted in July 1979.

Readiness for Production

(U) In preparation for initial production, contract negotiation activities were substantially increased over the second quarters. Most significant was the completion of formal negotiations on the

PATRIOT Initial Production Facilities (Buy 1) contract in February 1979. This contract was recommended for award by the Contracts Requirements Review Board on 7 March 1979 and awarded on the following 15 March. The contract amount was $57.8 million, and overed February 1979 through December 1981 effort to establish the PATRIOT production line.

(U) In February 1979 the first in a series of three PATRIOT Weapon System Production Readiness Reviews (PRR) was completed. The review team found no indications that should cause the PATRIOT System to delay the scheduled start of production. PRR's were conducted to provide an assessment of production readiness for Army systems to the appropriate decision makers, the principal contractors and supporting government agencies.

(U) A significant milestone in PATRIOT activities in preparation for production was reached on 28 February 1979 when the Secretarial Class Determination and Findings for authority to negotiate the PATRIOT Production Program was approved.

(U) Contractual activities continued to increase in preparation for production. In addition to the many additions and changes to the Engineering Development (ED) contract, procurements ancillary to ED were also being processed. Proposals for Engineering Services, PATRIOT Initial Production Facilities (Buy 2) and Longlead Critical Material were received and evaluated.

(U) A PATRIOT Ad Hoc Working Group was established by HQDA (ODCSRDA) in support of preparations for a PATRIOT DSARC III. The purpose of the working group was to effect necessary coordination of DA staff and command activities to insure a valid and unified Army position for the DSARC. The first quarterly meeting of the group was held at HQDA on 25 October 1978.

PATRIOT RSI Activity

(U) The United States entered into a Memorandum of Understanding (MOU) with six NATO nations to examine various acquisition options and to develop the most suitable option for introducing PATRIOT into the NATO defense structure. Besides the US, Belgium, Denmark, France, Germany, Greece, and the Netherlands were participants of the multinational program officially approved by the NATO Conference of National Armaments Directors (CNAD) and the NATO Governments represented therein. The period of performance of the multinational group was begun in October 1978, and was expected to be completed by October 1980.

(U) The PATRIOT Project Manager continued to stress RSI and established an Assistant Project Manager (APM) for International Operations (I/O) under whom eleven personnel were working in a matrix relationship with the balance of Project Personnel. Costs for the

376-617 O - 82 - 15

FY 1979 RSI activities were funded by $900 thousand RSI dollars and at the direction of DA by funds from main Project R&D line.

(U) PATRIOT potentially represented one of the largest RSI programs in the history of DARCOM. Quantities of systems being considered and rough estimates of unit cost under various production options would place the value of the NATO PATRIOT Program in the $2-4 billion category, for acquisition alone.

CHAPTER V

PROJECT MANAGEMENT, EQUIPMENT AND MANAGEMENT SYSTEMS

U. S. Army Communications Systems Agency

Background

(U) Project Manager Outlook. Effective and responsive communications are essential to the readiness of this nation and to the maintenance of peace throughout the world. As the Department of the Army centralized project manager for Defense Communications Systems, the US Army Communications Systems Agency/Project Manager DCS (Army) must satisfy Defense Communications Agency and Army requirements so that we continue to be responsive to the challenges presented by a rapidly changing world.

(U) This past fiscal year was one of progress and accomplishment. At the year's end we had 280 projects on hand, 106 of which were classified as major. During FY 1979 we completed approximately 75 projects and were assigned new projects of about the same number. Increased emphasis was placed on the Worldwide Military Command and Control Systems, Automatic Secure Voice Communications (AUTOSEVOCOM), Defense Satellite Communications Systems, Air Traffic Control, life cycle support management and the rate of obligation funding.

(U) Fiscal Year 1979 was an impressive year for obligation funding rates. The rate of funding for Operations and Maintenance, Army (OMA) exceeded 66.5 percent. The actual rate was not as high as our goal of 70 percent, but more than 5½ percent higher than last year's rate, and much higher than the 55 percent of previous years. The rate of Other Procurement, Army (OPA) funding obligation exceeded 99.86 percent on the Army Communications Command (ACC) side of the house and 99.99 percent on the DARCOM side.

(U) Foreign currency fluctuations and inflation contributed to resource problems during the year and will no doubt continue for the next year as well. At the same time, we will be challenged to provide an increased level and quality of service. To meet this challenge, we must stress efficiency and economy in our management actions, planning for the efficient use of advanced systems, and the effective use of our most important resource--our dedicated and highly qualified people.

(U) We will continue to stress the importance, to both individuals and the agency, of education and training for all employees. It is our goal to have all employees attend appropriate training courses offered by government educational facilities. Also, we will continue to encourage employee self-development through non-government schooling and training. During FY 1979, 49 percent of our employees attended training sessions which ranged from two-day on-post office administration courses to 20-week project management courses and night school college courses.

(U) We use an organizational structure unique for its efficiencies and management initiated economies. We are fluid to the extent that we are able to channel our manpower resources into the most productive areas or into those areas requiring the most intensive management. For example, the Deputy Project Manager for Territorial Command Network-Spain was relocated from Madrid, Spain to Fort Huachuca, Arizona. Subordinate to him is a field office located in Spain which accomplishes project management functions. The Equipment Management Office was eliminated and consolidated into elements of other functional and deputy project manager offices. And a new Deputy Project Manager for European Telephone Systems was formed in Worms, Germany. Staffing for that Deputy Project Manager's office was to begin in FY 1979.

(U) During August 1979, a transition meeting was held to discuss problems and perceptions, and to clarify goals and design strategies. This candid, all-day meeting produced immediate solutions to some problems and identified several items requiring mid-range and long-range solutions and actions. Accordingly, the following list of goals and objectives was developed:

To put usable, maintainable equipment in the hands of the O&M Commander.

To increase cooperation and interaction among the US Army Communications Command, the US Army Communications Systems Agency/Project Manager DCS (Army), and the US Army Communications-Electronics Engineering Installation Agency.

To pursue a positive image program, both internally and throughout the Army and to all US Army Communications Systems Agency/Project Manager DCS (Army) customers.

To provide agency guidance on development and acquisition of software.

To continue the emphasis placed on proper resource planning and execution.

To improve the preparation and processing of acquisition requirements packages.

To enhance working conditions, training, career opportunities and recognition for all personnel with emphasis placed on enlisted personnel, minority personnel, and women.

To reduce the flow of paperwork, administrative burden, and formal reviews, while at the same time increasing intra- and inter-organization communication and cooperation.

Mission

(U) The mission of USACSA/PM DCS (Army), (Brigadier General Donald R. Lasher is its Commander/Project Manager) is stated in its charter dated 14 November 1976, signed by the Secretary of the Army. It is briefly paraphrased as follows: The centralized management of (1) specified communications systems development and/or acquisition tasks assigned by DARCOM and (2) tasks assigned by USACC which include Defense Communications Systems (DCS) projects assigned to the Army, projects that related to purely Army requirements, to requirements for other US military departments and non-military US Government agencies for allied armies and governments.

The Product

(U) The agency's product is nontactical telecommunications projects assigned to the Army for acquisition which are of two types:

(U) Research and Development. R&D projects are assigned to the agency by DARCOM which also provides the appropriate Research, Development, Test and Evaluation funds; these usually consist of feasibility studies and are assigned to this agency's Deputy Project Manager for Research and Development Systems.

(U) Systems/Equipment Acquisition. These projects, representing about 95 percent of the agency's workload, are nearly all assigned to deputy project managers for centralized management, and range from the acquisition of a single piece of equipment to the acquisition and installation of an inter- or intra-country, or even global telecommunications systems.

(U) Practically all systems or equipment acquisition tasks were assigned to the agency by USACC, which also provides the appropriate funds (Other Procurement, Army funds). It is normal USACSA practice to acquire, deliver and install these systems or equipment through contracts with US industry using the existing DARCOM procurement office organizations, as well as other DOD procurement offices. The acquisitions are fulfilled by "off-the-shelf equipment" (existing equipment in industries' or the Government's inventories), or by modifying existing equipment for a specific telecommunications system or purpose.

(U) USACSA does not own any telecommunications systems or equipment assets but acts as an agent in acquiring and installing systems and equipments. When accepted, the system or equipment is turned over to the local O&M commander, then becomes part of his inventory.

(U) Sensitive to its life cycle responsibilities for the equipment it acquires and fields, the agency manages all matters pertaining to integrated logistics support. In addition, USACSA operates an Inventory Control Point for OPA and APA principal items peculiar to USACSA centrally managed systems, projects and tasks.

(U) During FY 1979, 75 new tasks were received. At the end of the fiscal year, 280 active tasks were on hand, of which 106 were classified as major, requiring intensive management.

(U) In the course of implementing these many tasks, all disciplines in the communications-electronics field were used because USACSA was involved in virtually every area for which USACC was responsible, except the operation and maintenance of facilities. Practically all means of transmission were employed, such as microwave line-of-sight, tropospheric scatter, satellites, land and sea cables, and high frequency radio. These means were used to furnish all modes of communications (for example voice, data, etc.). Computer processor controlled automatic switches and terminals were also employeed in many subsystems, and the agency was deeply involved in the improvement of Army Air Traffic Control facilities at airfields in the Pacific, Europe, and CONUS.

The Project Manager/Commander

(U) Command of the US Army Communications Systems Agency/Project Manager DCS (Army) passed to Brigadier General Donald R. Lasher on 18 June 1979. Formerly the Program Manager for Army Tactical Data Systems (ARTADS) and Deputy Commander of the US Army Communications Research and Development Command (CORADCOM), Gen. Lasher succeeded Brigadier General Emmett Paige, Jr., who was selected for promotion to Major General and assigned Commanding General, CORADCOM.

(U) With a background in Data Processing and Communications, Gen. Lasher was Automatic Data Processing Plans and Operations Officer and Chief of Operations Division, US Army Management System Support Agency from July 1967 through February 1970; Senior Automatic Data Processing Analyst and Technician, Management Information Systems Directorate, Office of the Assistant Vice Chief of Staff, US Army, from February 1970 through July 1972; and Commanding Officer and Director, Communications/Automation Data Processing Laboratory, US Army Electronics Command from June 1974 through April 1976.

(U) He also served as the Project Manager for Position Location Reporting System (PLRS) and Project Manager, Multi-Service Communication System (MSCS), was a graduate of the US Military Academy, and completed a master's degree in Industrial Engineering from Stanford University.

Organizational Structure

(U) During FY 1979, although the agency's organizational structure changed to accommodate workload and manning requirements and constraints, there was no significant change in the total number of personnel.

(U) The Equipment Management Office was disestablished, its tasks and functions distributed to the Office of the Deputy Project Manager for Command and Control Systems and to the Logistics Directorate.

(U) The Deputy Project Manager for Territorial Command Network-Spain was relocated to Fort Huachuca, Arizona. Subordinate to him was the USACSA field office in Madrid, Spain, which in addition to performing project management functions, supported the US Embassy and JUSMG-MAAG in Spain.

(U) A Deputy Project Manager for European Telephone Systems (ETS) was established. The Deputy Project Manager for European Telephone Systems was to be located in Germany. Staffing was to begin in FY 1980.

PERSONNEL STRENGTH

	DARCOM				USACC				TOTAL			
	O	E	C	T	O	E	C	T	O	E	C	T
Authorized	14	7	120	141	28	57	148	233	42	64	268	374
Actual	12	6	117	135	25	46	140	211	37	52	257	346

O - Officer E - Enlisted C - Civilian T - Total

Authorized spaces were to be changed October 1, 1979 to read:

USACC	Officer	Enlisted	Civilian	Total
	28	57	144	229

Functional Elements

(U) Obligation of the USACSA Funding Program. During FY 1979, the USACSA Comptroller Director of Programs controlled resources totaling in excess of $169 million, including funding in four separate appropriations: Other Procurement, Army (OPA), Army Procurement Appropriations (APA), Research, Development, Test & Evaluation (RDT&E) and Operation Maintenance, Army (OMA). The OPA Program remained the major resource of USACSA, with a total Army and Customer Program of $113 million. The APA appropriation for Army Airfield amounted to an additional $5 million, while direct cite of customer funds added $25 million for a total procurement program of $143 million.

(U) The USACSA RDTE program exceeded $9 million in FY 1979. A significant increase over previous years, it reflects the initiation of the Secure Voice Improvement Program (SVIP), in addition to other ongoing RDTE efforts. Eighty-two percent of this program was awarded during FY 1979, with the remainder to be executed in FY 1980.

(U) Management of Operations and Maintenance Army (OMA) contractual requirements accounted for $17 million.

(U) Seventy percent of the overall total acquisition program of $169 million was forecast for award during FY 1979, as compared with the sixty-one percent obligation rate of FY 1978 and fifty-five percent obligation rates of prior years.

(U) The OPA Program incurred turbulence in major areas such as the Digital European Backbone (DEB), Selective Release Improvement Program (SELRIP), Base Communications, and the Satellite Interconnect Facility which affected the agency's execution rate. Late definition and program realignment in the Panama and Korea efforts further restricted the agency's ability to obligate a higher percentage of the acquisition program.

(U) The OPA Program for the next five fiscal years indicated a continuation of major items such as AUTODIN, AUTOSEVOCOM, Transmission Media, Tech Controls and Pentagon Communications. New efforts, Worldwide Military Command and Control Systems (WWMCCS) and the European Telephone Systems (ETS), which were forecast to be two of the largest endeavors ever assigned to the agency, were by then underway.

(U) Management Information and Control Systems. USACSA's Project Management Control System (CSA Program Evaluation Review Technique (PERT)) fully operational and widely used within the Agency, was a management tool for the planning and controlling of major projects. At the time, 30 projects were on the automated system and were being expanded to include IBM's PMS IV Project Management System.

(U) Included in the management applications of CSA PERT were the following capabilities: Cal Comp plotter with EZPERT Project Graphics System (located in CERCOM), which provided the capability of producing a variety of plots and Gantt charts from CSA PERT systems and IBM 3800 (located at CERCOM), which provided a rapid reproduction capability of CSA PERT, outputs and other reports, reduced to 8 x 11 sheets.

(U) The Project Management System used by USACSA at Fort Huachuca (PERT-66) provided a specialized historical capability which was successfully used by USACSA action officers. Concurrently with this expansion, USACOMISA developed a method using AUTODIN to send network plotting data to the Cal Comp plotter at Fort Monmouth, New Jersey. Consequently, graphics were available for projects using PERT-66.

(U) The USACSA Project Assets Status Report Bill of Materials (BOM) prepared by the Sacramento Army Depot was transmitted by Automated Digital Network (AUTODIN) to Fort Monmouth where it was reformatted on tapes and microfiche that could be printed or read at the recipient's data processing sites. Presently, these tapes and fiche were shipped registered mail to the following organizations: 1st Signal Brigade, 5th Signal Command, 7th Signal Command, Headquarters USACC, USACC Japan, and USACSA Field Office - Pacific.

(U) Several business applications were incorporated and updated to provide a bureau type of operation. Daily input of data to the OPA data base was available through interactive use of the CDC 751 terminal for direct access to the 360/65 IBM computer at North East Computer Center (NECC).

(U) The OPA Report had been expanded to cover project control. Report 16 was developed to enable the project officers to combine all time items under a given project via a unique control number, each project being totaled by fiscal year with an overall total for specific project.

(U) Test, Measurement, and Diagnostic Equipment (TMDE) Management Control System was operational, and was being updated to provide more detailed information. The system provided an audit trail for procurement and inventory costs. The updated system would include DODAC addresses for shipment, action officers, outstanding contracts, and identification of aging and delinquent projects.

Cost Analysis

(U) During FY 1979, the main thrust of cost analysis was in the area of Cost/Schedule Status Reporting. USACSA had a considerable number of ongoing cost contracts each of which required Cost/Schedule/Performance Monitoring. The Cost Analysis Office assisted the Deputy Project Manager's action officers by preparing the DD 1423 Data Item Description included in the Acquisition Requirements Package; attending the Post Award Conference and developing an approved work breakdown structure for reporting; reviewing and evaluating reports, advising the Deputy Project Managers of significant cost/schedule variances in their programs.

(U) Cost contracts for which Cost Schedule Status Reports were received included the Chievres-Flobecq Microwave, the AN/MSC-67 (COMFAC) Program, the AUTODIN Memory/Memory Control Program, the AUTODIN Upgrade Program for FY 1978-1979, and the AN/FTC-31 Enhancement Program.

(U) The receipt of timely, accurate reporting proved to be a valuable asset in the planning and control of project schedules and funds. A larger scale report, called the Cost Performance Report (DI-F-6000A) was used for many years within DOD for high dollar value contracts. Although USACSA had not had contractual efforts of this magnitude, its personnel had been trained in the fundamentals of Cost/Schedule Control Systems Criteria (C/SCSC)--the foundation for Cost Performance Reporting. As a result, one member of the office was sent to a contractor's plant to participate in a readiness and demonstration review (under C/SCSC), an action leading to full scale acceptance/validation of the contractor's accounting system. The Cost Analysis Office performed other services during FY 1979 which included the following:

(U) RECAP Financial Charts. Twice during the year, the Commander, USACSA was required to present a Review and Command Assessment of Projects (RECAP) to HQ, DARCOM. In addition, in-house RECAPs were held almost weekly with the various Deputy Project Managers rotating in turn. For each RECAP presented, a series of financial charts was prepared showing the original program dollars, the present program dollars, changes as they occurred, and estimates at completion. The Cost Analysis Office was responsible for preparing these charts for the action officers on a continuing basis.

(U) System/Equipment Cost Estimates were provided to the Panama Communications Systems Upgrade, Rehabilitation of the INDOCOM High Frequency System, HF Radio for Fort Ritchie, Emergency Action Console, MD-918 (MDTS Modem), Call Director System, and EWCS-78.

(U) Economic Analysis was provided for AN/FCC-98 Data timing Module, Xerox Color Copier, and Maintenance of the Monitor Alarm Receiver for Non-Directional Beacon.

(U) Cost Proposals were provided for Overrun Proposal for the AN/FTC-31 Enhancement Program, Call Director System, Rehabilitation of AN/TSC-25 Communications Central, AUTODIN Enhancement FY 1978-1979, COMFAC Proposal to Complete, Indonesian Communication System Rehabilitation, Granger Proposal for INDOCOM Equipment, and Fiesta Microwave.

(U) Management Data Branch. The Management Data Branch planned and implemented the following: a combined Task Inventory with a transactional task bulletin, (in future planning, it is anticipated that the task inventory will receive update information from interrelated PERT inputs). An Automatic Data Processing (ADP) procedure was established which would derive information from the Deputy Project Manager, system projects, project types, project stages, action officers, and telephone numbers. In addition, a plan to use analytical methods and studies which could be examined more completely by virtue of ADP procedures was planned.

(U) The Management Data Branch conducted several internal training sessions for USACSA action officers and Upward Mobility personnel on how to prepare, read, and use management reports. Moreover, a preliminary USACSA Master Milestone activities list was published to compile activities that action officers could refer to when preparing PERT Networks and Implementation and Installation Plans (IIPs). Also a USACSA Regulation providing policy and procedures with regard to the preparation, response, and receipt of a Red Flag, Flash Report was published and distributed.

(U) Management information requirements were carefully reviewed during FY 1979 due to increased emphasis placed on reducing reporting costs. A revised USACSA Reg 335-15 established agency policy for implementing periodic review of internal and external management information requirements. Also, a USACSA ADP policies and procedures directive was planned for first quarter FY 1980.

Logistics Directorate

(U) Type Classification/Reclassification Program. This program, initiated in September 1969, continued to achieve the objectives of AR 70-61 "Type Classification of Army Materiel;" and during Fiscal Year 1979 formal type classification/reclassification In-Process Reviews (IPR), necessitating preparation of IPR agenda packages, continued to be scheduled. Written concurrences from IPR participants (US Army Communications Command, US Army Logistics Evaluation Agency, and the US Army Training and Doctrine Command) were received for all scheduled proposals and achieved six type classification and 24 reclassification actions.

(U) Since the implementation of the formal type of classification/reclassification IPR procedures in FY 1974, written concurrences have been received from the IPR members for all USACSA proposals. Consequently, it has not yet been necessary to convene a formal IPR.

(U) In FY 1979, USACSA type classification actions for 744 systems and equipments, and reclassification of 115 equipments, have been recorded and broadcast by the US Army Materiel Development and Readiness Command, Materiel Status Office. The schedule for type classification reflectd 76 systems and equipments which would require scheduling of formal IPRs during FY 1980. Equipments required for such major programs or systems as Worldwide Technical Control Improvement Program, additional configurations of the DCS Microwave Radios, European Telephone System (ETS), Digital Radio and Multiplex acquisition (DRAMA), and Digital European Backbone (DEB) are included in the current schedule.

(U) To date, USACSA has prepared 111 nomenclature requests, which include 17 new nomenclatures, 16 revisions and 78 deletions.

(U) The Value Systems Engineering Company continued to provide contractual effort to perform the research and obtain the technical data required to prepare the IPR agenda packages and prepare nomenclatures.

(U) Item Management Transfers. During FY 1979, the program for realignment of items, from principal to secondary management, was rescheduled by DA/DARCOM due to the expected impact on OMA P-2 programs and the accelerated schedule for the FY 1981-1985 Program Objective Memorandum (POM), which precludes inclusion of this impact. Final realignment was forecast for 1 October 1981 (FY 1982).

(U) Also, during FY 1979, 496 items were reviewed and studied for potential transition to CERCOM as principal items. Of this total, 46 were transferred, 20 were deleted, 13 were pending transfer and the balance was still under review at the end of the fiscal year.

(U) Bill of Material for Telecommunications Development Projects. Telecommunications Development projects were those authorized under the provisions of AR 105-22 for resource acquisition or expenditures for the installation, modification, rehabilitation, or removal of telecommunications services, equipment, facilities, networks, or systems. USACSA was charged with the responsibility for acquiring materials required for most of these telecommunications development projects.

(U) The Logistics Directorate was then monitoring acquisition for 415 bills of material comprised of approximately 17,899 line items representing worldwide project support. During FY 1979, 182 project bills of material were shipped, representing a total of 11,794 line items.

(U) Test, Measurement and Diagnostic Equipment (TMDE). Centralized acquisition of total USACC/USACSA TMDE requirements provided an effective method of satisfying requirements and conforming to Army doctrine concerning TMDE acquisition.

(U) TMDE requirements are derived from the four following basic USACC mission responsibilities: they support new or upgraded communications-electronics systems; support new or additional DA/DCA maintenance assignments; reconcile authorized TDA shortages; and provide for Military Assistance Program (MAP)/Grant Aid/Foreign Military Sales.

(U) Total acquisition cost for active taskings in FY 1979 is $7.8 million which will provide 860 TMDE types of various quantities for a total of over 6000 individual items.

(U) The FY 1979 centralization of TMDE acquisition in the Logistics Directorate affords the visibility and control necessary to ensure that essential requirements were satisfied by expeditious means and that the wholesale military inventory is utilized to the fullest extent which results in cost savings to the Project Manager.

(U) In recognition of the USACSA TMDE program, the US Army Central TMDE Activity has officially commended the USACSA TMDE coordinator for establishing a highly successful TMDE centralized acquisition management program.

(U) Product Improvement Program (PIP). This program, established by AR 70-15, provides the procedures for obtaining approval and funding for configuration changes involving substantial engineering or modification of existing fielded Army and Tri-Service equipment, type classified standard, or limited production.

(U) Product Improvement Programs implemented in accordance with AR 70-15 are:

(U) Digital Subscriber Terminal Equipment (DSTE). Under the DSTE Upgrade Program, General Dynamics Corporation was awarded a contract

in March 1975 to provide three DSTE product improvements under the DARCOM Product Improvement Program. The three DSTE PI programs were approved by DARCOM to provide improved tape supply slide for low/high speed paper tape punches, scheduled for field application during FY 1980, and to provide cooling fans for the low speed paper tape punches also scheduled for field application during FY 1980 time frame.

(U) AN/GSQ-166 and AN/MSQ-73 Transportable Tech Control Facilities (TCF). This PI program combines the two TCFs into a single unit providing a more efficient facility by expanding mission operation, circuit operation, and circuit monitoring capabilities. The Sacramento Army Depot, California, improved ten systems using an engineering implementation plan developed by the USACEEIA. Development of the prototype was initiated during first quarter FY 1979 with completion of remaining nine systems by 4th Quarter FY 1981.

(U) The AN/GTC-29(V)2: Transportable Automatic Voice Switching Facility (AVSF). This product improvement provides for the installation of line conditioning equipment for 20 circuits in the AVSF and will improve reliability and quality of transmission with tech controls and other communications facilities. Application is being provided by Tobyhanna Army Depot and is scheduled for completion in FY 1980.

(U) The AN/TSC-38B. The communications central system, housed in a transportable S-414 shelter, consists of four functional subsystems: the radio subsystem, telephone subsystem, voice frequency telegraph subsystem, and teletype subsystem. This Product improvement will provide the AN/TSC-38B with a low-level signalling capability to the teletype substsem to prevent emanating signal transmission; and recabling and equipment standardization to improve reliability and maintainability. Application is provided by Sacramento Army Depot (SAAD), the Raytheon Service Company, and the Baytron Systems Corporation. Ten systems have been completed and fielded, with the eight remaining systems to be completed during FY 1980.

(U) The AN/TSC-25. This communications central system is housed in a transportable S-141 shelter and functions as a high frequency radio set which provides the transmission media for teletypewriter and voice communications. This product improvement provides low-level signalling capabilities to existing teletype, replaces or rehabilitates antenna mast AB746 in order to improve received signal levels at antenna and to insure mission operation and capability. SAAD completed four systems during FY 1979 with the remaining 16 systems scheduled for completion by SAAD and outside contracts during FY 1980-1981.

(U) The Oversea AUTODIN ASCs (AN/FYQ-42V). These configurations fielded from September 1967 to April 1969 have been continually improved to meet changing and projected Defense Communications Systems (DCS) subscriber requirements. Proposed Product Improvement will replace the

existing Memory/Memory subsystems at all ASCs to expand core storage capability, increase speed of the message processor by decreasing memory cycle, eliminating software program restrictions caused by current addressing scheme, and reduce dependence on components that are reaching design and supply and support obsolescence. The M/MCRP has already been implemented and is slated for completion during FY 1980.

(U) The AN/FTC-31(V). This system is a Dial Central Office switch designed and fabricated by Philco Ford in mid-1960. There were (12) twelve AN/FTC-31 switches installed worldwide. Proposed Product Improvement will enhance the operational reliability and maintainability of the AN/FTC-31(V) well into 1985 by replacement of inter-bay wiring harnesses, electrolitic capacitors, DC-DC converters, float rectifiers and batteries, repackage regenerative repeater circuitry or functional circuit cards, and also provide built-in test equipment (BITE) for fault isolation down to discrete component or circuit card. The AN/FTC-31 enhancement has been implemented by Ford Aerospace and Communications Corporation and is scheduled for completion in the FY 1980 time frame.

Procurement and Product Control Directorate

(U) Procurement Services Division (PSD). A primary function of this division is to continually seek improved and more expeditious methods of acquisition. To achieve this goal, it is often necessary to develop tailored procurement strategies and update existing policies. To this end, ten USACSA policy sheets have been updated and nine CSA regulations were rewritten and republished.

(U) PSD also performs as the principal point of contact and advisor o special subjects related to procurement. In this capacity during FY 1979, PSD sponsored a Contracting Officer's Representatives Course for USACSA personnel, which was specially adapted for CSA action officers and presented by a procurement team from USACC. New employee briefings were given to approximately seven military and civilian persons joining USACSA.

(U) Another function, pre-award acquisition guidance, dealt with the development of an Acquisition Requirements Package (ARP) or the review and guidance on Sole Source (S/S) Statements. PSD coordinated in the development of 37 ARPs having a total dollar value of $118.2 million and review of 119 S/S statements amounting to $112.1 million.

(U) Data Management Office (DMO). This office taught classes on the tailoring of specifications and standards that are applied to materiel acquisitions to ensure that only the minimum needs of the Government are described in acquisition documents. The basis for the instructional program was AR 700-70, Application of Specification and Standards.

(U) Classes were also taught on the Army Data Management Program (DPM), AR 700-51. The purpose of this instruction was to familiarize DPM personnel with the proper methods of acquiring data and how to complete the contracts Data Requirements List, DD Form 1423. Also covered was the use of the Data Item Description, DD Form 1664, and the DOD policies regarding the tailoring of this form for specific application to CSA contracts.

(U) The CSA Data Management Office continued to be represented at the Electronic Industries Association, Data Management Workshop, participating in the evaluation of the new DOD Manual 5000.32-M, Data Requirements Control Program.

(U) In the area of routine operations, the Data Manager reviewed and commented on the data inputs for 37 acquisition requirement packages requiring formal Data Review and furnished input to approximately 40 other less formal acquisition requirement packages.

(U) Configuration Management (CM). This Division supports the Project Manager by restricting engineering changes to those that are necessary or beneficial to the Government. The CM Division provides policy, direction, and guidance in the implementation of the USACSA/USACEEIA CM Program, and the USACSA Value Engineering Program.

(U) By judicious application and unique tailoring of CM to each specific procurement and project, Engineering Change Proposals (ECPs), were held to a minimum. Fourteen ECPs were received and approved at no cost, but with significant benefits to the Government.

(U) Five technical suggestions and one equipment improvement recommendation were reviewed and approved.

(U) The following configuration control boards, chaired by division personnel, were active in the review and evaluation of miscellaneous engineering change proposals, equipment improvement recommendations requests for deviations and waivers and suggestions: USACSA DARCOM Confirugation Control Board (CCB), Digital Radio and Multiplexer Acquisition, Automatic Secure Voice Communications System, Automatic Digital Network, Standard Remote Terminal, DCS Microwave Radio, USACC Transportables, and Electromagnetic Radiation Hazards.

(U) Specific Configuration Management plans were updated consistent with the development of new data. The revision of CM plans is a continuing action which is accomplished as required.

(U) Physical and functional configuration audits were completed for the following projects: AN/TSQ-117 Aircraft Control Tower, AN/FTC-31 AUTOSEVOCOM Switch (Enhancement), Washington Area Wideband System, and Wideband Trunk Applique Unit.

(U) A joint US Army Communications Systems Agency and US Army Communications Engineering and Installations Agency (USACSA/USACEEIA) status accounting system and data base was continually maintained to provide an accurate means of documentation of approved changes to technical documentation and designated configuration items.

(U) A CM annual orientation was given to local personnel in October 1979, which encompassed CM methodology, impact on government/industry relationships, emerging requirements, and trends.

(U) The following CM plans (drafts) were prepared and were being staffed with interested organizations: US European Command Static War Headquarters Command and Control Project, Joint Crisis Management Capability Project, Automatic Digital Network (AUTODIN) Interface Devices (Microprocessors), Automated Multi-Media Exchange-Level Automated Telecommunications Center, and European Telephone System.

(U) The CM plans for the Giebelstadt Army Airfield (NATO) Project and Electromagnetic Radiation Hazards were completed and published.

(U) Value Engineering (VE). Administers the Configuration Management Division. The Value Engineering Program is an organization to analyze the functions of systems, operations, maintenance, equipment, and integrated logistics support, to achieve the required functions at the lowest overall life cycle cost consistent with the requirements for performance, reliability, maintainability and schedule.

(U) During FY 1979, individuals and groups initiated 15 value engineering proposals which culminated in $10.292 million in savings to the Department of the Army. This represented a significant increase over reported VE savings of $2.036 million in FY 1977 and $6.485 million in FY 1978. No contractor value engineering change proposals were received in FY 1979. Ninety-seven agency personnel received formal training in the basic concepts and techniques of value engineering during FY 1979. Further personnel training was scheduled for FY 1980.

(U) Product Assurance Division (PAD). This division provided support to the Deputy Project Managers and Directorates in the areas of quality assurance, test and evaluation, reliability, maintainability and human factors. The PAD is also responsible for system safety, production engineering and environmental quality consideration.

(U) Primary PAD involvement begins with the review of the project tasking Communications-Electronics Mission Orders and continues through the material acquisition cycle to government acceptance of the contractor's supplies and services.

(U) The major activities involve technical specification, statement of work and purchase description reviews, procurement requirement package preparation and contractor technical proposal evaluations, each emphasizing the quality assurance provisions, Reliability and Maintainability (RAM)

and testing requirements. Continuous coordination is maintained including pre-proposal and post-award conference particpation.

(U) During the contract administration phase, contractor submitted inspection (test) procedures and RAM predictions are evaluated, first article inspection results analyzed and appropriate plant and site contacts, including visits, made to survey the contractor's QA efforts, as a joint effort with the delegated Contractor Administration Quality Assurance representative.

(U) All but a few USACSA assigned projects involve the Product Assurance Division. The following projects required and received extraordinary emphasis: DRAMA, European Telephone System, Air Traffic Control (ATCCCS, TVOR, NDB), AN/FTC-31 Enhancement, Wideband Trunk Applique, AUTODIN Memory/Memory Control Replacement and FY 1978-1979 Upgrade, LSTDM, EMR Hazards, EWCS-78, MD-918 Modem, FIESTA and Mindanao microwave systems and the Secure Voice Improvement Program.

Field & Liaison Offices

USACSA Field Office - CONUS

(U) The Chief of the Field Office - CONUS represents the Commanding General, US Army Communications Systems Agency (USACSA) Project Manager Defense Communications System (DCS) (Army), in the continental United States and functions as an extension to the authority of the Deputy Project Managers and functional directorates.

(U) The office serves as liaison between USACSA/Project Manager DCS (Army) and 7th Signal Command, USACEEIA-CONUS and other USACC activities throughout CONUS by monitoring and coordinating the implementation and installation of major systems and equipments. A portion of the Field Office's efforts is directed toward logistical coordination and technical assistance required to support the USACSA-LOG unitization of Bills of Material at Sacramento Army Depot for 7th Signal Command managed projects. The major function provided by the Field Office, however, is "visibility" through the on-site representation of the Project Manager. This visibility provides the two major commands of USACSA and 7th Signal Command the opportunity to better understand the roles, relationships, and responsibilities of the respective organizations, thereby enabling a unified effort to be directed toward the successful implementation of highly complex communications systems in support of the DCS. The success of this visibility is best exemplified through the realization that all major projects in CONUS are now being successfully completed without adverse reports.

(U) Also, the Field Office provides a substantial amount of requested assistance to the 7th Signal Command on development and review of Acquisition Requirements Packages since they are adopting the USACSA format for preparation.

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USACSA Field Office - Europe (EFO)

(U) The USACSA Field Office - Europe (EFO) represents the Commander USACSA/PM DCS (Army) in matters pertaining to management of assigned projects with elements of Headquarters, European Command; Headquarters, US Army Europe; Headquarters, 5th Signal Command; Headquarters, US Army Communications Engineering and Installation Agency (USACEEIA-EUR);and Headquarters, DCA-Europe.

(U) As executive agent for deputy project managers and functional directorates, the Chief, USACSA Field Office - Europe interfaces between activities and personnel within the wholesale community such as TOAD, SAAD, Readiness Command, National Management Point (NMP), National Inventory Control Points (NICP) and the various activities and personnel of the 5th Signal Command.

(U) On January 17, 1979, the USACSA Field Office - Europe became a "dual hatted" organization. The additional organizational function of US Army Materiel Development and Readiness Command (DARCOM) Logistic Assistance Office with the 5th Signal Command was assigned by agreement of the USACSA Commander, and the Director of Readiness, DARCOM.

(U) The Logistic Assistance Office represented the DARCOM Commander in all logistic matters involving concepts, doctrine, training and materiel acquisition, and for the exchange of logistic information between the 5th Signal Command and DARCOM and its subordinate elements. The office also performed liaison activities in fostering good customer relations, improving service to the customer, and providing assistance in resolving major non-routine problems within the DARCOM area of responsibility. The Liaison Assistance Office is also responsible for assessing and evaluating the effectiveness of the DARCOM Liaison Assistance program from both customer and DARCOM points of view.

(U) Summaries of Field Office - Europe projects appear within texts of cognizant Deputy Project Manager Offices.

USACSA Field Office - Korea (KFO)

(U) The Chief, USACSA Field Office - Korea represented the Commander, USACSA/Project Manager DCS (Army) in Korea. Field Office personnel represent the Project Manager in all facets of project implementation and life cycle support, providing the primary interface to United Nations Command, US Forces Korea, Eighth US Army, 1st Signal Brigade (USACC).

(U) Modular Automated Multimedia Exchange (AMME) Remote Terminals (MART). The MART is a real-time communications terminal designed to support the most advanced communications centers employed in the Defense Communications System (DCS). Phase I of the AMME/MART project in Korea provided for the installation and cutover of the AMME facility with an over-the-counter MART. Phase II provided for the installation of 12 additional MART sites throughout Korea.

(U) During fiscal year 1979, six additional MART sites were activated, one each at Military Personnel Center, Korea (MILPERCENK), United Nations Command (UNC), US Forces, Korea (USFK) J1-J5, UNC/USFK J3, TANGO, Camp Carroll and Camp Henry. With the exception of the Camp Red Cloud MART site, the remaining MART sites were to be activated during the first quarter of FY 1980.

(U) During the past year, this field office has coordinated all in-country efforts including site preparation efforts, delivery of Government Furnished Material (GFM) and contractor material, training of operator personnel, system testing, and the chairing of problem solving meetings.

(U) The procedural steps toward cutover of an actual site are as follows: District Engineer site preparations, Communications Engineering and Installation Agency (CEEIA) site preparations, 1st Signal Brigade delivery of MART Equipment, contractor installation of MART Equipment, MART hardware test by CEEIA and contractor, MART Operator Training by New Equipment Training (NET) Teams, system Test/Acceptance by CEEIA user and contractor, and cutover of site by CEEIA, AMME facility, and user.

(U) Combined Forces Command (CFC) - Korea. The operational concept and organizational structure of the Combined Forces Command (CFC) resulted in a significant impact upon existing USFK Communications Systems.

(U) Due to extraordinary efforts by USACC, USACSA, and USACEEIA, the following immediate (Phase I) communications requirements for the newly constructed CFC Headquarters building were completed in less than two months (October-December 1978) which included a 600-line XY Exchange, key telephone system, internal wire - line distribution system, and external cable system.

(U) Phase II projects, being planned in FY 1979, were to fulfill command and control requirements. These included Upgrade of Yongsan--TANGO cable systems, installation of bulk-encrypted closed-loop secure voice system between TANGO, Yongsan and other locations related to Worldwide Military Command and Control Systems (WWMCCS), installation of another Wideband Secure Voice (WBSV) trunk between Yongsan and TANGO, and installation of a secure facsimile system between Yongsan and TANGO.

(U) Northern Area Upgrade - Korea. Successful cutover of the Northern Area Communications Upgrade was accomplished in May 1979. Significant improvement in command and control communications was provided by this multiplex expansion from Seoul to Camp Casey and installation of a new microwave system from there to Camp Dodge. In addition, Dial Central Office (DCO) trunking was expanded and tone pulse equipment in northern area DCOs was replaced with E&M repeaters.

(U) The Korea Field Office was deeply involved from the initial planning through project completion. Re-use of de-installed assets from other systems presented unusual problems in reconfiguration and maintenance. Complex coordination and scheduling were required for an isolated relay site where the hilltop was expanded within a high retaining wall at a location not under US control.

(U) Activities coordinated by the Korea Field Office included site preparation and construction, shipment and delivery of material, replacement of defective material, installation, test and acceptance, and cutover.

(U) Technical Control Improvement Program (TCIP). In support of the Northern Area Upgrade - Korea, Technical Control Facilities (TCFs) were installed or expanded at Camp Red Cloud, Camp Casey, Camp Dodge, Camp Howze and Site Papyongsan.

(U) At the same time, tone pulse equipment in the Dial Central Offices (DCOs) at Yongsan, Camp Red Cloud, Camp Casey, Camp Dodge, and Camp Howze has been replaced with E&M repeaters.

(U) Other TCIP efforts in Korea included projects to provide low level VFCTs at Yongsan and Taegu; E&M repeaters in DCOs at OSAN, Chinhae, Camp Humphreys, Camp Carroll, Camp Walker, and Camp Market; maintenance patch and test facilities at Camp Carroll, Camp Humphreys, and Camp Market; and line conditioning equipment in existing TCFs at Osan, Yongsan, Taegu, and Pusan.

(U) The Korea Field Office provided site survey assistance, material tracking, and coordination with engineers, installers, test personnel and the user command. When significant quantities of line conditioning equipment modules failed during initial operations, the Korea Field Office worked with the Deputy Project Manager, Telecommunications Automation and Control Systems, in establishing and implementing a program to return such modules to Sacramento Army Depot for repair or replacement under warranty provisions.

(U) Defense Satellite Communications System (DSCS). The upgrade of the satellite Earth Terminal Complex (ETC) at Song So was planned in three phases. Phase I included an interim power upgrade and the Digital Communications Sub-System (DCSS); Phase II included 500 kilowatt generators and other power improvements; and Phase III was to involve replacing the existing AN/MSC-46 with an AN/GSC-39 and was to provide an uninterruptible power supply.

Phase I was largely completed. The interim power upgrade included grounding improvements, new transformers and control devices, and power distribution to the DCSS. Site preparation was accomplished and the DCSS delivered. The DCSS was incomplete, awaiting installation of AN/FCC-98 multiplex equipment, Spectrum Efficient Network Units, and crypto equipment.

(U) Phase II is well underway. The 500 kilowatt generators are installed. Work on the fuel tank and generator shed was progressing. Switch gear and a line voltage regulator were being procured in the continental US (CONUS).

(U) In Phase III, pads were to be prepared, intercorridor housing was to be constructed, power was to be redistributed, and the DCSS was to be moved to a new location. At this time, the AN/GSC-39 and the uninterrupted power sources (UPS) were to be delivered and installed.

(U) In addition to the upgrade of the Earth Terminal Complex, the Korea Field Office was active in the expansion of the existing Interconnect Facility (ICF) between Song So and Camp Walker and in the planning of new digital ICFs from Song So to Camp Walker.

DARFAX

(U) This Field Office provided necessary guidance to the 1st Signal Brigade US Army Communications Command US Army Communications Command (USACC) and USACC Japan, in order to provide for on-going maintenance and funding related to secure facsimile equipment at the Seoul and Camp Zama, Japan Telecommunications Centers. It also coordinated and monitored actions related to the installation of secure facsimile equipment at the Seoul Special Security Office.

(U) Army Airfield Modernization - Korea. Installation of AN/GRC-171 transceivers at nine locations within Korea have been completed. The site preparation for the Terminal VHF (very high frequency) Range (TVOR) was 10% complete in FY 1979. Installation was scheduled to begin in early FY 1980. Retrofit of Camp Stanton AN/TSQ-117 control tower was held in abeyance.

(U) Throughout the modernization of the Army Airfields in Korea, Field Office - Korea personnel were extensively involved in the coordination with engineers, installers, test personnel, and the user command.

(U) Automatic Digital Network (AUTODIN) and Digital Subscriber Terminal Equipment (DSTE) Depot Level Support Teams. The Field Office - Korea assisted in insuring the optimum operation of the Automatic Digital Network, through USACSA--directed Tobyhanna Depot teams which performed Depot-Level Maintenance (DLM) on a scheduled and emergency basis. DLM support was given to the fixed and transportable DSTE subscribers throughout Korea, and to the AUTODIN Switch at Taegu.

(U) The AUTODIN Switching Center received DLM support for power systems, the message switch, and technical control equipment. In coordination with other USACSA activities, several DLM teams with expertise in different areas regularly came to Korea.

(U) The Field Office - Korea coordinates in-country scheduling of the DLM teams, arranges site access and in/out briefings, and provides logistic support during each visit. The Korean communications community greatly benefited from the DLM efforts by insuring that the equipment operated at peak performance.

(U) Automatic Digital Network (AUTODIN). During FY 1979 the AUTODIN ASC at Taegu was upgraded by the installation of EMR 125, 126, 163, 170. The Field Office supported TOAD personnel in installation of these EMRs. Installation, test and acceptance were accomplished without any major difficulties.

(U) USACSA Field Office - Pacific (PFO). The Chief of PFO represented the Commander, USACSA/Project Manager, Defense Communications System (DCS) (Army) in the Pacific, providing primary interface with the Commander-in-Chief, Pacific (CINCPAC), Defense Communications Agency, Pacific (DCA-PAC), Pacific Air Forces (PACAF), US Pacific Fleet (PACFLT), US Army Western Command (WESTCOM), US Army Communications Command (USACC) Westcom, US Army, Japan (USARJ), and USACC Japan. In this capacity, the Chief, PFO, was responsible for monitoring and coordinating the implementation of major systems and projects. The following is a brief summary of PFO actions for FY 1979.

(U) AUTODIN Digital Subscriber Terminal Equipment (DSTE) Depot Level Maintenance (DLM) Teams. During FY 1979, PFO personnel assisted in the call-out, movement, and control of seven DSTE DLM teams from Tobyhanna Army Depot to perform scheduled and unscheduled maintenance in the Pacific area. Each DLM team visited at least three sites per trip, including US Navy DSTE at Yokohama and Barber's Point. US Navy site visits were made on a reimbursable basis.

(U) In addition, PFO personnel performed temporary duty (TDY) visits to many of the Pacific area DSTE Sites to identify future special DLM requirements and to provide other assistance on logistical life-cycle support problems as required.

(U) AUTODIN Switching Center (ASC) Depot Level Maintenance (DLM) Teams. Pacific Field Office (PFO) personnel provided assistance in the coordinated call-out, movement, and control of nine ASC DLM team visits in the Pacific area during FY 1979. These teams performed scheduled and emergency modification requirements EMRs. A total of seven EMRs were installed at the four Pacific ASCs. The EMRs not only improved the sites' equipment reliability but also reduced serious safety hazards.

(U) PFO personnel visited the Tri-Service ASCs to help identify future DLM support requirements and to provide life-cycle support assistance.

(U) FY 1979 Pacific AUTODIN Switching Center O and M Conference. Pacific Field Office (PFO) personnel represented USACSA at the FY 1979 Pacific Tri-Service AUTODIN ASC O and M Conference, Camp John Hay, Philippines, as the life-cycle support manager for AUTODIN Systems. Problems concerning the logistical and maintenance support of these sites were identified and passed to the proper elements within US Army Communications Systems Agency, US Army Communications and Electronics Materiel Readiness Command, and US Army Communications Command.

(U) The number of problems surfaced this year was significantly less than those of previous years. This decline was attributed in part to the EMRs having replaced major subassemblies which were significant problem areas in the past.

(U) AUTODIN Digital Subscriber Terminal Equipment (DSTE) Cross Reference (ADP) Listing. PFO continued to receive requests during the past fiscal year for additional copies of its DSTE Cross Reference ADP Listing, which were all honored.

PFO personnel also continued to update the DSTE Cross Reference ADP Listing Data Base by incorporating the latest DSTE Technical Manual (TM) changes and various Catalogue Data Reference files changes. PFO expects to have a revised DSTE Cross Reference ADP Listing published in FY 1980.

(U) USACSA TOAD Survey and Logistic Evaluation of Selected DSTEs and PAC AUTODIN Switching Centers. In October 1978, a representative of the PFO participated in a joint USACSA/TOAD survey and logistics evaluation of selected AUTODIN activities in the Pacific. A detailed report was developed with PFO assistance including taskings for USACC, USACSA, and TOAD elements. PFO actively monitored follow-up actions resulting from these visits.

(U) Ft. Buckner AUTODIN ASC Deactivation. During FY 1979, PFO personnel assisted USACSA, USACC, DCA-PAC, USACC Japan, USACC Signal Activity South, and USACC AMSF, Okinawa with the orderly conversion of the US Army operated Ft. Buckner ASC from an active switch to its present deactivated caretaker status.

(U) Clark AUTODIN ASC Deactivation. PFO personnel participated in the planning sessions for converting the Air Force operated AUTODIN ASC at Clark AFB from active to caretaker status. PFO participation has been at the invitation of DCA-PAC and the Pacific communications area.

(U) Joint US Military Advisory Group (JUSMAG), Philippines Project Status Review (PSR). PFO personnel attended the JUSMAG Philippines PSR which covered the present on-going Armed Forces, Philippines (AFP) communications-electronics equipment projects and programs and the future proposed complete Philippine Islands Digital Backbone System. PFO continued to support the JUSMAG Philippines logistically through monitoring all communications-electronics equipment shipments and provided JUSMAG and AFP personnel hands-on logistical support training through TDY visits during FY 1979.

(U) Army Airfield Upgrade - Pacific Area. The Pacific Field Office (PFO) effected Packfic-wide coordination and assisted in the delivery of IML for the Modular Air Traffic Control (ATC) Tower, TVORs, and the AN/TPX-46 during this fiscal year. This coordination resulted in the orderly flow of material from CONUS to the final overseas destinations.

(U) Automatic Secure Voice Communications (AUTOSEVOCOM). PFO personnel participated in meetings and provided coordination on various actions for the AUTOSEVOCOM program with DCA-PAC, CINCPAC, Air Force, and Navy elements in the Pacific area as well as USACC Hawaii and HQ, USACSA. Involvement by PFO covered the SECORD Equipment Rehabilitation Program, the SECORD Trunk Applique Unit, the HY-11 Expansion Project, and the AN/FTC-31 Enhancement Program. Involvement also included the monitoring and expediting of shipments and providing the Tri-Service Pacific Headquarters with a direct link to the project manager.

(U) DACOM Secure Facsimile, Pacific Area. Through coordination with the activities concerned, the PFO assisted in the completion of two secure facsimile terminal sites during FY 1979. This coordination resulted in the orderly flow of project material from CONUS to the final overseas destinations.

(U) With the assistance of the Korea Field Office, the DARCOM 412G Secure Facsimile at Camp Zama, Japan (SSO) Special Security Office, were completed in a timely manner.

(U) Project/Bills of Material (BOM) Shipments. The PFO was responsible for monitoring and assisting in the movement of project materials to the Western Pacific area, with approximately 327 separate shipments monitored during the period. The PFO was successful in coordinating the redirection of misdirected shipments, and to avoid the delay of project implementation, it improved the priority of delayed shipments.

(U) Test, Measurement, Diagnostic and Equipment (TMDE) Support. The PFO monitored, coordinated, and assisted in resolving TMDE problems for the Pacific area, assisted in locating lost or misrouted shipments of TMDE, reviewed USACC Westcom, 1st Signal Brigade, and USACC Japan TMDE excess reports, and coordinated with USACC Westcom for application of excess TMDE to project or unit requirements. It also monitored, assisted, and coordinated with USACC Westcom on TMDE items for projects such as AUTOSEVOCOM, Technical Control Improvement Program, Army Airfield Upgrade, AN/GRC-171, TVOR, WBSV, SRTs, Operational Readiness Float, DCSS and all other USACSA managed taskings.

(U) Standard Remote Terminal (SRT), Schofield. The PFO was the primary point of contact for coordinating the planning for site preparation and engineering of the Modular AUTODIN Terminal Equipment (MATE) for Schofield Barracks, Hawaii. This coordination interfaced with USACC HAWAII, USASCH Facilities Engineers, the Pacific Ocean Engineer Division, US Army Communications-Electronics Engineering and Installations Agency - Pacific (USACEEIA-PAC), and Deputy Project Manager (DPM), Ft. Huachuca. On 20 December 1978 the SRT was made operational. Test and acceptance of the software enhance was scheduled for October 1979.

(U) SCT 21 Satellite Communications Terminal, Okinawa. One of USACSA's high interest, high priority projects in the latter part of this fiscal year was to ready a SCT-21 Satellite Terminal at Okinawa, and to ship the terminal to another site by the close of the calendar year. The task included unpacking, refurbishing, installing, testing, conducting training, removal, packing, and shipping. The PFO was tasked to represent the project manager in coordinating required actions with USACC Japan elements and the contractor, Kentron.

(U) As of the close of fiscal year 1979, installation of the terminal was completed, and the project was on schedule.

(U) Defense Satellite Communications System. Throughout FY 1979, the PFO continued as the center for extensive multi-Service coordination in the digital communications sub-system installations for Camp Zama, Kwajalein, Clark, Guam, Okinawa, Diego Garcia, Wahiawa, Elmendorf, and Woomera. Support actions provided by PFO included arrangements for transportation of CEEIA team personnel, shipping of bulk materials to CONUS, Guam, and Song So, and primarily functioning as the Tri-Service point of contact for implementation actions and logistic support. Logistic information assistance was provided to Air Force and Navy elements in close coordination and collaboration with USASATCOMA, USACSA DPMs, the National Inventory Control Points, and TOAD.

(U) Japan-Korea Digital Microwave System Implementation. During FY 1979, PFO personnel continued to participate in a series of monthly coordination meetings convened by DCA-PAC, attended by representatives from HQ DCA, USACC, Westcom, CEEIA-PAC, and the 1843d EES. PFOs interest in this DCA managed project, for which USAC was the lead MILDEP, was to insure that Army's responsibilities under the abbreviated MEP were duly accomplished and to identify any impact on TCIP (Technical Control Improvement Program).

(U) The primary Army responsibility was to insure availability of 96 VF channel appearances at Changsan TCF to extend the VF channels up through the Korean Wideband Network (KWN) upon deactivation of the tropo and VHF systems and cut-over of the digital system from Japan to Changsan, Korea. On 31 July 1979, Initial Operational Capability (IOC) was achieved.

(U) Defense Dissemination Program (DDP). USACSA's responsibility in support of this Air Force managed program was the acquisition and delivery of the microwave portion.

(U) During this fiscal year, the PFO functioned as the primary point of contact in the Pacific for logistics information and overall coordination between USACSA, USAF, and Navy on the microwave portion of the system. Installation of the Wahiawa-Hickam Wideband Link (WHWL) was completed in July and testing was conducted in August 1979. Excellent performance was observed on the microwave systems. However, significant burst errors on the satellite link attributed to Up/Down Converters, prevented acceptance of the DDP.

(U) Technical representatives from Satellite Communications Agency (SATCOMA) were providing assistance as of the close of the fiscal year. The system should be compliant with all technical and operating specifications after corrective actions are completed and the system is retested in early FY 1980.

USACSA Liaison Office, Washington, DC

(U) As liaison between Headquarters, United States Army Communications Systems Agency (USACSA) and other government and non-government agencies in the metropolitan Washington area, this office obtains information to keep USACSA informed of trends, proposed policies and directives, plans and programs, that may have an effect on agency operations; develops agency response for urgently needed information when time and distance are critical; represents the Commanding General and Headquarters, USACSA, by providing membership or participation on or at designated panels and meetings when representation by a member of the agency is not feasible; and provides information to appropriate staff sections.

Command and Control Systems

(U) The Deputy Project Manager for Command and Control Systems, who is located at Fort Monmouth, New Jersey, is responsible for managing projects which range from the acquisition of small items such as primary line voltage regulator, to the acquisition of major end items of equipment such as the DCS microwave radios and digital radio and multiplexer acquisition equipment.

(U) The projects managed by this deputy project manager involve various commands as well as other government agencies, and several programs require close coordination with NATO activities.

(U) This deputy project manager is also the centralized manager for minor Defense Communications System Projects to principal or capital end items of equipment that are individual projects, or acquisitions which support Bills of Materiel (BOM) or post, camp and station telecommunications requirements (TELR) communications projects.

(U) Defense Communications Systems (DCS) Microwave Radio. The requirement for the procurement of the DCS Microwave Analog Radio was established by the Defense Communications Agency in 1970. The radio is a line-of-sight, space or frequency diversity, FM radio with a capability of variable loading up to 600 voice frequency diversity, FM radio with a capability of variable loading up to 600 voice frequency channels. Since its inception, the scope of the DCS Microwave Radio contract was broadened to include modification of the analog radios to a three level partial response (quasi-digital) capability.

(U) The original delivery order, which included First Article testing, logistics support and the procurement of forty-six radios, cost $2.2 million. Subsequent orders increased the number of radios procured to 208, raising the total cost of the contract to $11.3 million.

(U) The original contract, awarded to Collins Radio Group, terminated in December 1977. However, at the request of the US Army Communications Command, the contract was extended to 29 December 1979.

(U) Digital Radio and Multiplexer Acquisition (DRAMA). The DRAMA program provides for the acquisition of common digital multiplexers and radios for use by the Army, Navy and Air Force in the Defense Communications System and non-DCS programs.

(U) Three equipment specifications were coordinated with industry.

(U) A multi-year requirements contract was awarded to TRW, Inc. in July 1976 for the first level multiplexer, TD-1192, now called the AN/FCC-98(V). This multiplexer accepts 3, 6, 12 or 24 channels of voice, or 12 channels of data and 12 channels of voice, and combines these into a single high-speed digital signal. Conditional approval was granted in June 1978 on First Article Tests conducted by the contractor. Delivery of the items will continue through October 1980.

(U) A three-year requirements contract for the second level multiplexer, TD-1193(P)/F, now called the AN/FCC-99(V) and the radio, AN/FRC-170 Series, was awarded to TRW, Inc. in April 1977. Two option periods for the extension of the contract in two-year increments were priced and contained in the contract. The AN/FCC-99(V) accepted up to eight AN/FCC-98 high-speed inputs and other high-speed data and combined these into a higher rate digital signal. Up to two AN/FCC-99(V) could be connected to the radio which can accommodate 384 voice quality circuits. The radio combines these inputs with a digital orderwire and then modulates a radio frequency signal which is filtered and transmitted through the user-supplied waveguide and antenna system.

(U) Delivery of production equipment, compatible with the requirements of all three Services and the National Security Agency, is scheduled to begin in March 1980.

(U) Giebelstadt Army Airfield (NATO) Project. This program encompasses constructing an entire high activity (density) airfield, including hangars, control tower, remote communications building, nondirectional beacon building, as well as a building to house the communications center, dial central office, and space for a future microwave terminal.

(U) Major installations at all locations is scheduled to start in October 1979, with an interim operational capability of June 1980, and a final operational capability of October 1981.

(U) When activated, the field will support a battalion of Army attack helicopters, and will be one of the most modern Army airfields in Europe.

(U) Approximately 100 items of major equipments will be installed, including the new family of radios, television system, radar, non-directional beacon, meteorological system, communication security equipment, electronic private automatic branch exchange, and a complete airfield lighting system.

(U) USACSA is coordinating with representatives of the German government, the US Air Force, and European engineers in addition to Army personnel required to assure timely activation of this Army Air Field.

(U) High Frequency Upgrade Site R. A contract was awarded to Collins Government Telecommunication Group of Rockwell International on 31 March 1979 to engineer, furnish and install modern state-of-the-art dual 10KW High Frequency (HF) radio transmitters and to provide an above ground Rotatable Log Periodic (RLP) antenna for government installation at Site R.

(U) This mission is to provide and operate a ground terminal facility for ground-to-air HF communications. The facility must provide HF radio coverage to aircraft at jet operational altitudes throughout 360° of azimuth at ranges varying from local to transcontinental.

(U) The currently installed Collins 205-J 45KW transmitters are about 20 years old and contain vacuum tubes and other service parts which are difficult and expensive to obtain. Equipment failures are consequently more frequent and maintenance of equipment is no longer cost effective.

(U) Collins has delivered the HF antenna and power amplifiers to Site R, and installation was scheduled to begin in October 1979, to be completed in December 1979. Initial operational capability was scheduled for 5 January 1980, after completion of training and government acceptance of the system.

(U) High Speed Digital Facsimile. The objective of the High Speed Digital Facsimile program is to standardize facsimile service throughout the Army by replacing present slow-speed, non-secure, analog facsimile terminals with high-speed, secure, digital facsimile terminals.

(U) Phase I directed the installation of DACOM Model 412F Securefax at 90 locations using the AUTOVON Network and other dedicated voice circuits. It was operational in August 1979.

(U) Low Speed Time Division Multiplexer (LSTDM). The Defense Communications Agency established the requirement for the acquisition of the LSTDM in 1977. The acquisition was to satisfy Tri-Service requirements for a multiplexer/demultiplexer capable of accepting incremental port rates from 35 bits per second (bps) up to 32 kilobits per second (kbps) and which provides incremental combined channel output rates from 1.2 kbps to 256 kbps as a single combined channel rate.

(U) Initial requirements were for 1200 units, and the testing and logistics support estimated cost is $16.8 million. Current available funds are $4,527,000, the bulk of which has been provided by the US Navy. The contract for this project is to be a three year requirements contract with two one-year options.

(U) The solicitation package was released to industry on 19 March 1979. Eight proposals were received. These were evaluated,and estimated date of contract award was to be November 1979.

(U) Minimum Essential Emergency Communications Network (MEECN) Army Phase II. The overall MEECN program includes designated Worldwide Military Command and Control Communications Systems assets used to communicate with US Forces. The MEECN Phase II program will be a highly survivable low frequency/very low frequency communication system. It will provide reliable and secure transmission to designated DOD users.

(U) Installation at the Alternate National Military Command Center of two teletype modulator interface units and installation of the low frequency buried antenna have been completed; and the transportable configuration prototype of radio receiver sets has also been completed and tested.

(U) The estimated date for implementation of the MEECN Message Processing System is scheduled from July 1979 through June 1981, with termination of centralized management upon installation of the MEECN Message Processing System.

(U) It was estimated that funds of $14 million would be necessary to complete the program.

(U) Multiplexer Set - AN/FCC-97. The AN/FCC-97 is a specific configuration of equipment manufactured by Vidar Corporation, Mountain View, California. The equipment consists of two TI-4000 Multiplexer/Demultiplexers and a protective switch which provides for redundant operation.

(U) An earlier version of this commercial off-the-shelf equipment was used on the Frankfurt-Koenigstuhl-Vaihingen Link upgrade program. The link was implemented by the US Army Communications Command and was the first operational digital microwave system. It served as a pilot program for the installation of the Digital European Backbone project.

(U) The current task calls for management of on-going actions and all future acquisitions of AN/FCC-97 Multiplexers. In addition to the original tasking to procure 33 modification kits, another requirement for 60 more modification kits was formalized in December 1977. Modification kit instructions and updates to commercial manuals would be packed with each kit. Termination of centralized management was not known at this time.

(U) Non-Directional Beacon Program (NDB). The objective of this program is to provide 81 modern non-directional beacon facilities to serve Army aviation requirements in Germany, Turkey, Japan, and CONUS. These consist of nondirectional beacon Federal Aviation Administration Model FA-9782, antenna system, monitor alarm receiver, and shelter.

(U) The NDB transmits a homing signal which is used in conjunction with an airborne direction finding set installed in rotary and fixed-wing aircraft, and provides an Amplitude Modulated (AM) Radio Frequency (RF) signal in the frequency range of 190-535 KHz. The RF output is modulated by a 1020 Hz identification signal which is internally generated to form morse code characters in two or three letter groups.

(U) The monitor alarm receiver is installed in the control tower to provide continuous status of the NDB. The unit provides an aural and visual alarm if the NDB fails to meet pre-set standards.

(U) A contract for the NDB beacon was awarded to Nautel, Inc. in June 1979; the receiver contract was awarded to Nautel, Inc. in September 1979. The NDB installations are scheduled to begin in June 1980 and be completed in December 1981, and current estimate of funds to complete the NDB project is $2.85 million.

(U) Selective Release Improvement Program (SELRIP). SELRIP is a joint NATO-US Project, through which the United States provides equipment and support to NATO at no cost for a system designed to improve the effectiveness of employment of nuclear weapons. The current program was initiated as a result of a NATO requirement document dated November 24, 1974.

(U) The Program's basic objective is to provide time for the decision maker to speed up the response to the selective release issues. To meet the IOC date as soon as possible, only communications equipments that were readily available or could be modified quickly were used.

(U) The concept of operations was being evaluated in a multi-year test program, in the ABLE ARCHER exercises. To date, two ABLE ARCHER exercises and the WINTEX exercise have been conducted with gratifying results. The last ABLE ARCHER exercise is scheduled for November 1979.

(U) Terminal VHF Omni-Range (TVOR) Project. This project, which will provide modern TVOR facilities at 27 sites (24 CONUS, 2 Europe, 1 Korea), consists of a transmitter, antenna, monitor, shelter and automatic terminal information service equipment.

(U) The TVOR system provides azimuth bearing information to aircraft; transmits assigned call letters for identification in the form of an audible three-letter international Morse Code; and broadcasts weather and advisory information without disrupting the navigational signal. The TVOR station is continuously monitored by a field detector unit.

(U) All TVORs and Automatic Terminal Information Service equipment have been delivered to the sites; and installation of the TVORs, which began in June 1979, was to continue as site preparation was completed. A contract for the TVOR was awarded to E-Systems in September 1977, and FY 1979 estimate of funds to complete the project was $2.8 million.

Deputy Project Manager for Consolidation of Telecommunications Centers

(U) The Deputy Project Manager for Consolidation of Telecommunications Centers is responsible for the development, engineering, acquisition, installation, test and cutover to operation of a consolidated telecommunications center system which will support the communications requirements of the Joint Chiefs of Staff, the Headquarters of the Departments of the Army, Navy, Air Force, Marine Corps, the Chief of Naval Personnel and other activities in or near the Pentagon and Fort Ritchie.

(U) The Deputy Project Manager for Consolidation of Telecommunications Centers is located in Washington, DC.

(U) Consolidation of Telecommunications Centers. This project provides for the development, engineering, acquisition, installation, test and cutover to operation of a consolidated telecommunications center system to support communications requirements of the Joint Chiefs of Staff and the Headquarters of the Departments of the Army, Navy and Air Force in the Pentagon, the Commandant of the Marine Corps and the Chief of Naval Personnel in the Arlington Annex, and other activities. The majority of the work will be performed in the Pentagon in Washington, and at Fort Ritchie, Maryland.

(U) The consolidated system will provide a single integrated and automated system for record communications support to the Joint Chiefs of Staff and the Military Services, and will consist of four major elements:

a central computer complex, an alternate central computer complex, four staff service centers, and remote terminals.

(U) The most recent significant achievements include: Automatic Message Recipient Determination capability provided to the Air Force on 9 August 1978; Automatic Message Recipient Determination capability provided to the Commandant of the Marine Corps in September 1978; cutover of the Chief of Naval Personnel traffic in the Arlington Annex on 15 December 1978; cutover of the first of two ITEL AS-5 system at the Central Computer on 16 December 1978; cutober of the second ITEL AS-5 at the Central Computer Complex on 6 January 1979; and installation of the two ITEL AS-5s at the Alternate Central Computer Complex on 28 March 1979.

(U) Transition to the Operation and Maintenance Command will take place after each phase has successfully passed test and acceptance which is scheduled for March 1980 and October 1981. Termination of centralized management should occur in March 1982. Total cost at completion is estimated at $52.0 million.

Research and Development Systems

(U) The Deputy Project Manager for Research and Development Systems, located at Fort Monmouth, New Jersey, is responsible for the development and improvement of non-tactical communications equipments and systems. This involves project improvements in speed of service, reliability and maintainability, security, and the introduction of modern service features.

(U) The projects cover the breadth of the communications field--from voice, message, data, facsimile and television terminal devices, through automatic branch exchanges and message centers, to transmission systems and switching centers.

(U) Access Area Digital Switching System (AADSS). The AADSS was tasked to develop a telecommunications system to provide for a more cost effective Defense Communications System (DCS) through the employment of a regional switching network. The regional or access area network would place the DCS concentration and switching functions closer to the subscriber, thereby providing significant savings in the costly access circuits between DOD installations and the DCS backbone networks.

(U) The access area would encompass several DOD installations, and the AADSS alternatives would address the feasibility and cost effectiveness of providing integrated, multimode (voice, data, facsimile, etc.) traffic from these installations to the evolving future DCS.

(U) AADSS alternatives would also consider satellite access to the backbone network and a totally decentralized network wherein the backbone disappears, or possibly degenerates to a survivable, thin-line, command and control sub-network.

(U) During FY 1979 a Statement of Work was prepared for the Concept Definition effort and contracts were awarded for the acquisition of equipment to demonstrate and evaluate distributed switching concepts for the AADSS.

(U) Adaptive Antenna Control System. The adaptive antenna system was designed to maximize the received RF signal and minimize the effects of deep signal fading in diffraction and troposcatter radio links.

(U) The program investigated the use of angle diversity to replace frequency diversity as a means of reducing frequency allocation problems.

(U) A competitively negotiated contract was placed in June 1976 with Signatron, Inc., Lexington, Massachusetts for the design and fabrication of such a system. An advanced development model had been built and was installed in an Air Force Tropo Test Link in December 1977. These tests were completed in September 1979.

(U) Preliminary test results indicate that angle diversity can replace frequency diversity with a reduction of frequency allocation by one-half and equal or improve overall performance.

(U) Digital Tropo Modem MD-918( )/GRC. This project comprises the development, fabrication, test and evaluation of eight Engineering Development (ED) models of a digital modem MD-918( )/GRC for transmission of digital signals over DCS troposcatter radio transmission links.

(U) Based upon DCA requirements, a contract was awarded in August 1979 to the developer, GTE Sylvania, Inc., Needham Heights, Massachusetts, to modify the ED models to interface with DRAMA equipment on two operational tropo links in Europe as part of the DEB transmission system.

(U) The modified models are scheduled for deployment in 1st Quarter 1981, with operational testing II to be performed at that time using the ED models in an operational environment operating over one of the tropo links.

(U) Efficient Reliable High Power Amplifier. This program is concerned with the development of a 10 kilowatt (Kw) tropo amplifier for use with existing and future digital troposcatter transmission systems. During FY 1976, a sole source negotiated contract was placed with Varian Associates, Palo Alto, California, for the paper design of 10Kw klystron tubes for L-Band and S-Band, fabrication of four 10Kw S-Band klystrons, and development of two cooling systems.

(U) The four 10Kw S-Band klystrons and two cooling systems and the L-Band design have been delivered.

376-617 O - 82 - 17

(U) Electromagnetic Radiation Hazards Monitoring System (EMRHMS). This program which deals with development, production, and deployment of EMRHMS at designated missile and storage sites, provides visual and audible indication whenever the ambient electromagnetic radiation energy exceeds specified levels. It included a brassboard EMRHMS which was built and tested at an operational site.

(U) A development contract was awarded for the fabrication of DT II/OT II prototypes in FY 1980.

(U) Future Defense Communications Systems (DCS) Line-of-Sight (LOS). This program is designed to develop a digital LOS radio family for the DCS in the 1990s. Future DCS will be agile in frequency, spectrum efficient, survivable, available and cost-effective to build, buy and own.

(U) Future DCS Multiplexer family. The Future DCS Multiplexer Family program will develop a digital multiplexer family for the DCS in the 1990s, which will effectively combine digital voice and data and will be spectrum efficient, survivable, available and cost effective to build, buy, and own.

Switched Systems

(U) The Deputy Project Manager for Switched Systems is responsible for major communications-electronics projects primarily in support of the Defense Communications Systems. The projects usually require engineering, acquisition, installation and logistics support.

(U) Additional projects involve the relocation of existing facilities, the acquisition of replacement equipment, the modernization of existing equipments or systems, the expansion of existing communications systems capability, or a combination of these.

(U) Most Defense Communications System projects assigned to this deputy manager are tri-Service projects for which the Department of the Army has been designated as the lead military department.

(U) This deputy project manager is located at Fort Monmouth, New Jersey.

(U) AUTODIN for NATO. In response to a Joint Chiefs of Staff (JCS) offer to interface the NATO communication network with the AUTODIN system, DCA procured a number of modular AUTODIN Interface Devices (MAID) from Inteq, Inc. The program called for nine NATO locations to be ready for the WINTEX 79 exercise held in March 1979.

(U) USACSA was tasked to procure the material to install two Army terminals, in an effort which was completed jointly by the Tobyhanna and Sacramento Depots.

(U) USACSA was also tasked to provide asynchronous, low-level modified CAUs for both NATO terminal-end and Automatic Switching Center (ASC) interface for nine NATO terminals; and to develop the life cycle-logistical-support for the DCA procured MAIDS. A logistic support plan was completed by May 1980, when contractor support responsibility ended.

(U) AUTODIN Memory/Memory Control Replacement Program. This program expanded existing core storage capacity, increased speed of message processor by decreasing memory cycle time, eliminate software program restrictions imposed by the current addressing scheme, and reduced dependence on components which were reaching design and support obsolescence since their initial design in 1966. The program, costing $4.957 million, was separated into two phases.

(U) Phase I, completed in January 1977, procured the engineering design and program plan. A contract for this Phase I was awarded to Ford Aerospace Communications Corporation in September 1976.

(U) Phase II covered in-plant engineering, unit and subsystem test efforts, and installation, test and acceptance of the Memory/Memory Control Replacement Program efforts at the Fort Detrick AUTOFAC, the Fort Gordon Signal School, and the eight overseas AUTODIN Automatic Switching Centers. The contract for Phase II was awarded in January 1977 to Ford Aerospace Communications Corporation.

(U) The memory enhancement was installed and tested at the Fort Detrick AUTOFAC, the Signal School at Fort Gordon and the eight European overseas AUTODIN switches. Acceptance of the last upgraded site was December 1978. Field Implementation of this program was completed on schedule and within scope. Remaining effort is the contractor engineering support which is scheduled for completion in December 1980 which includes the final ribbon cable get-well efforts.

(U) AUTODIN Pacific Reconfiguration. As the result of JCS approval of the DCS PAC Clark ASC closure plan, the Army was tasked with several implementation actions to meet the projected closure date. These included the release and transfer of Okinawa ASC assets to Guam and Taegu ASCs to upgrade operational capabilities of those switches; the upgrade of Guam and Taegu ASCs via Army managed (TOAD and CEEIA implemented) EMR efforts; and the provision of Army technical assistance to AFCS (on-site at Clark ASC) to effect the test condition coding and inventory of Clark ASC assets prior to Clark ASC closure date.

(U) Based on the above actions the Clark ASC is now the AN/FYQ-42(V) configuration designated for final deployment to Japan for line cutover when Camp Drake ASC is closed (vice Okinawa ASC) and the Okinawa ASC assets will be returned to mission depot stock locations for support of the remaining operational AN/FYQ-42(V) configurations.

(U) The Army has met all commitments contained in the Clark ASC closure plan and any further effort will be on a task-by-task basis to meet follow-on requirements.

(U) AUTODIN Upgrade Program - FY 1978-1979. Initially, the primary objective of the FY 1978-1979 AUTODIN Upgrade Program was to replace worn out, obsolete equipment with updated state-of-the-art items to make AUTODIN Automatic Switching Centers supportable through 1985.

(U) The original concept was modified, however, to include the concurrent development of the OPS 12 software program with an integrated hardware/software approach. This approach would enable the system to interface with AUTODIN II Packet Switching Nodes in the 1983 time frame and be supportable through the 1990s.

(U) The FY 1978/1979 AUTODIN Upgrade Program (FY 1978/1979 AUP) is separated into two phases due to multi-year funding of the program, with Phase I including the design and implementation plan.

(U) Task I of Phase II covers all one-time costs such as design engineering, software and hardware installation, design verification, test and acceptance and procurement of 4½ sets of hardware, and the installation of one set of hardware at the Ft. Detrick AUTOFAC. The cost is $10.06 million, with completion scheduled for 7 March 1980.

(U) Phase II will acquire the remaining four hardware sets required for the installation, test and acceptance of the Ft. Gordon ASC and the remaining six overseas AUTODIN ASCs at an estimated cost of $5.85 million. Site implementation is scheduled for completion on 27 October 1980.

(U) Automatic Message Accounting System. These systems will add telephone message accounting facilities to existing dial central offices, so that outgoing calls, the calling number, number called, date, time, duration, and type of trunk used will be automatically recorded.

(U) Competitive procurement and installation is planned for twenty-two systems throughout the continental United States, and contract award was made to TDX Systems, Inc. in September 1979.

(U) AUTOSEVOCOM I - AN/FTC-31(V) Enhancement. The AUTOSEVOCOM I System was designed to provide secure voice service to subscribers worldwide through 1977.

(U) During FY 1976, reports from the sites had shown an average down-time of 45 hours per site a year or a reliability rate of 99.49 percent. Because spares to support the eleven AN/FTC-31(V) sites were no longer available and the follow-on system, the Secure Voice Improvement Program (SVIP), was delayed and probably would not be fully implemented until after 1988, a survey was conducted in September 1976 to determine specific measures required to restore reliability and long-term support of the project.

(U) It was decided to enhance the AN/FTC-31 switch by using state-of-the-art design criteria and components. This change would achieve a mean-time-to-repair of 30 minutes and a switch failure rate of only one hour per year. Existing power, control logic, and regenerator-repeater subsystems would be replaced with state-of-the-art subsystems. Hardware logic, for example, would be replaced with redundant microprocessors.

(U) In December 1977, Ford Aerospace Communications Corporation was awarded a contract to make these changes. Initial switch installation was completed at Fort Gordon in August 1979, and initial operational capability (IOC) of final site was scheduled for January 1980.

(U) Total costs were expected to be $8.2 million.

(U) AUTOSEVOCOM I - Wideband Trunk Applique Units (MX10107/F). This project provides for the production engineering, fabrication, documentation, test, and acceptance of 50 Wideband Trunk Applique Units, initial repair parts, and publications. The new units, an improvement incorporated into the AUTOSEVOCOM I Program, were to be able to monitor wideband trunk signals at secure voice switchboards and provide status indicators and automatic supervision not presently available at SECORD locations.

(U) A contract for $343 thousand was awarded in September 1978 to West Electronics, Inc. Three applique units successfully completed First Article Testing on 18 June 1979 and a confidence test of the unit was subsequently conducted at Ft. Belvoir and Sunnyvale, AFS under actual operating conditions.

(U) Production of the remaining 47 units is underway with incremental shipment to the sites scheduled to begin in October 1979 and end in December 1979.

(U) Base Telecommunications System Upgrade. Designed to improve telephone service incorporating subscriber features and services required in the 1980s, this program will replace obsolete electro-mechanical equipment with state-of-the-art electronic digital switches and upgrade cable facilities with digital carrier equipment. Procurement and installation was planned to upgrade the telephone system at Fort Hood, Texas, with contract award forecast for September 1980. The upgraded system is scheduled to become operational in mid-1981.

(U) Call Director System CD-134. The Call Director System was developed to enable up to six subscribers to use a single wideband secure voice KY-3. The system is sufficiently flexible to permit conferencing all six subscribers, or provide exclusive use by any one of the subscribers, and has a ruthless pre-empt capability for the number one subscriber.

(U) This system lends itself well to the Secure Voice Improvement Program (SVIP) and has been in use since the late 1960s. When it first became available, several agencies acted independently to purchase one. As recently as 1975, USACSA acted as lead Military Agency to purchase systems.

(U) In response to additional equipment requirements identified by Navy, Air Force and other government agencies, USACSA developed an Acquisition Requirements Package, leading to a sole source contract for acquisition of 120 systems at a cost of approximately $1.55 million.

(U) Communications-Operations Center - AN/MSC-67. This Center was designed from a combination of non-developmental off-the-shelf militarized and commercial components to handle and transfer large amounts of intelligence data over responsive communications systems. Two transportable communications terminal facilities were to be procured and fielded for the intelligence and Security Command (INSCOM) to meet the communications needs of Combat-Electronic-Warfare-Intelligence (CEWI) Control and Processing Companies in Europe.

(U) Although the contract for the two systems was awarded to the ECI Division of E-Systems, Inc. in September 1977, this contractor had substantial difficulty in achieving technical milestones, particularly in regard to computer software programming. Faced with extensive schedule slippages and cost growth, the project manager took action to cancel the contract, with plans to complete the AN/MSC-67 using government in-house resources, primarily from USACEEIA and CORADCOM.

(U) Croughton Automated Switching Center 200 Line Expansion Project. The Croughton Automated Switching Center Expansion to 150 lines, which was completed in June 1977 to meet the increasing requirements of high band rate subscribers, was further expanded to 200 lines beginning in June 1978. Implementation was accomplished in a manner similar to that used for the 150 line expansion effort, and was completed August 1978 by the USACEEIA Engineering and Tobyhanna Army Depot installation capabilities at a cost of $183,000.

(U) Dual Frequency Signalling Unit - AUTOVON. This project, a multi-service procurement, will provide improved signalling equipment for use in the Defense Communications System overseas AUTOVON System and will replace the existing Single Frequency Signalling Units.

(U) The Air Force is responsible for procurement and life cycle support of the units. However, the Army and the Air Force share responsibility for the site engineering and installation of the units.

(U) Although a procurement contract was awarded by the Air Force to Car Ted Industries calling for start of delivery of the 5,859 units by June 1980, technical deficiencies found during testing will delay deliveries until March to June 1981.

(U) European Telephone System (ETS). This project is designed to consolidate and upgrade switching facilities to state-of-the-art electronic digital telephone switches to provide modern base telephone service for forces in Germany.

(U) The existing system deficiencies include poor service and substandard transmission quality; and due to the age of existing switching equipment, repair parts were becoming difficult to obtain and some components are no longer manufactured. Acquisition strategy based on competitive international solicitation was planned initially, and culminated in a presolicitation conference held in October 1976. However, in December 1976 the Secretary of Defense received correspondence from the German Minister of Defense expressing a desire that consideration be given to satisfying the ETS requirements through the Federal Minister of Posts and Telecommunications Deutches Bundes Past (DBP). Consequently, the competitive solicitation was held in abeyence pending resolution of the matter.

(U) Negotiation between governments at State Department levels, with the US Army representing DOD, culminated in a Memorandum of Understanding (MOU) that would satisfy the ETS requirements through the DBP. The MOU established a ceiling price of 186.2 million Deutsche Marks (DM) based on the original technical specification with digital switches and the Army's 112 switch locations.

(U) A contract proposal was expected from the DBP October 1979, and contract award was forecast for November 1979 with the system operational by July 1986.

(U) Korean Administrative Telephone System (KATS) Upgrade. This project provides for replacement of manual switchboards at 9 sites in Korea with unattended Digital EPABXs. The installation of the unattended EPABXs will provide for release of 63 maintenance and operation personnel, thus facilitating the draw down of US military and civilian personnel from Korea.

(U) The Acquisition Requirements Package for this project was completed in September 1979 and will include engineer, furnish, and install (EF&I) of the system, with contractor maintenance to be used for the life of the system.

(U) Project completion was scheduled for July 1980, and total funds allocated for the project in FY 1979 were $620,000.

(U) Programmable Digital Voice Conferencing System (DCU)-MX 5100. The Secure Voice Digital Conferencing sub-system was developed by DCA under an RDT&E contract to meet required operational capabilities for conference calls between wideband subscribers and multiple narrow-band subscribers via AUTOSEVOCOM.

(U) DCA developed and installed two systems in Pearl Harbor in November 1977, which were operated and extensively tested, and proved to be a viable concept for conferencing digital secure voice signals.

(U) Department of the Army was assigned as lead Service for the acquisition of the system in November 1978, and subsequently received an unsolicited proposal in January 1979 from General Atronics Corporation which developed and installed the system for DCA. A sole source Acquisition Requirements Package was forwarded to CERCOM on September 6, 1979 for contract award. A total of 14 systems were planned in FY 1979 to be installed worldwide. Funding available was $1.178 million.

(U) Secure Voice Improvement Program (SVIP). The SVIP was developed to improve and expand secure voice service in the Defense Communications System (DCS). When fully implemented, in the late 1980s, SVIP will serve up to 10,000 subscribers and provide interoperability between DCS subscribers and other communities, to include tactical, civil, Government and Nato systems. The AUTOSEVOCOM system in use would be phased out, as improved secure voice service (to include Automatic Key Distribution) is provided via Automatic Voice Network (AUTOVON).

(U) An operational concept has been written by the DCA in coordination with the Services for approval by DOD, and a draft Program Plan has also been coordinated with them but a final version has not been released.

(U) The system will consist of a modified version of the civil terminal (STU-II) which was developed by the National Security Agency (NSA). The civil terminal and the DOD terminal (SST) share the same Key Distribution Center (KDC).

(U) FY 1979 RDT&E funds of $1.947 million have been approved for SVIP. Of that amount, $1.2 million will be utilized for establishment of a SVIP test facility at Fort Huachuca; and the remainder will be used for technical assistance in the program.

Telecommunications Automation and Control Systems

(U) The Deputy Project Manager for Telecommunications Automation and Control Systems is responsible for the management of the Automated Multi-Media Exchange (AMME) and the Army portion of the Technical Control Improvement Program (TCIP).

(U) Collocating this deputy project manager with the Headquarters, US Army Communications Command and the US Army Communications-Electronics Engineering Installation Agency at Fort Huachuca, Arizona allows for optimal management capability. Close working relationships can be developed on tasking, funding, program review, ADP software/hardware and engineering support peculiar to the AMME and TCIP projects.

(U) This Deputy Project Manager is also dual-hatted as the Deputy Project Manager for Territorial Command Network-Spain.

(U) Automated Multi-Media Exchange (AMME). The Automated Multi-Media Exchange Level Automated Telecommunications Center (ATCC) is a record communications system designed to replace and enhance existing systems at selected locations.

(U) The system, which is designed to provide better writer-to-reader service, provides a store-and-forward message switching system between remote subscribers and AUTODIN; an automated supervision of communications; and the capability to electrically interface with AMME and its remote subscribers with local Data Processing Installations.

(U) The AMME-ATCC consists of four subsystems: AMME subsystem, Patch and Test Facility subsystem, Remote Terminal subsystem, and Data Processing Installation subsystem. They have replaced manually operated and semi-automated telecommunications systems at eight sites - Oakland Army Base, California, (activated October 1974); Redstone Arsenal, Alabama (activated August 1975); Software Support Center, Fort Huachuca, Arizona (activated 1975); Letterkenny Army Depot, Pennsylvania, (activated July 1976); Bailey's Crossroads, Virginia (activated December 1976); Yongsan, Korea (activated August 1978); Baltimore, Maryland (activated November 1978); and Heidelberg, Germany (activated April 1979).

(U) Sites in the installation and implementation phase include Stuttgart, Germany, (IOC scheduled for March 1980) and Atlanta, Georgia (IOC was scheduled for August 1980). Three additional sites are programmed for computerized communications: Panama, Canal Zone and Berlin, Germany. These were scheduled for UNIVAC-9400 systems to be installed in the 4th Quarter FY 1980. A third AMME is planned for Frankfurt, Germany, with an IOC in 1st Quarter FY 1981.

(U) The AMME contract allows for acquisition of 27 systems with an option to acquire eight additional systems. Total estimated cost of the Automated Multi-Media Exchange project was $116.8 million.

(U) Criminal Investigation Division Operation and Management Information Systems (CIDOMIS) Project. This project was assigned by CEMO B81-F00-194, dated 10 July 1979. Phase I will provide non-secure remote terminal communications capability through AUTODIN from 35 locations of the US Army Criminal Investigation Command (USACIDC). Operation and Management Information System directly to a central computer system located at the USACIDC Crime Records Center, Baltimore, Maryland. This phase will be completed by FY 1981.

(U) Phase II will reterminate CONUS locations from AUTODIN I to AUTODIN II. A total of 35 additional terminals outside continental United States (OCONUS) locations will be included in the Phase II effort to be completed by FY 1983.

(U) High Speed Digital Secure Facsimile (HSDSF). HSDSF, Phase I and II Project were assigned by CEMO B-78-FO-0223, 10 January 1977.

(U) Phase I was assigned to the Deputy Project Manager, Switched Systems, Fort Monmouth, New Jersey for completion. Phase I of the HSDSF Project identified 108 specific CONUS and OCONUS locations for the installation of Data Communications (DACOM) USDSF terminals.

(U) Phase II was assigned to the DPM, Telecommunications Automation and Control Systems for completion based upon DPM designated responsibilities, and consists of installing newly developed HSDSF equipment at 104 specific locations.

(U) The HSDSF equipment will be procured by competitive bid, use HSDSF system specifications developed by USACEEIA and be approved by USACC.

(U) Optical Character Recognition Equipment (OCRE) Project. This project for Realignment of Resources and Services Program (RORS) was tasked by HQ USACC message 142310Z February 1979 as a major task in accordance with the USACC CEMO B-70-FUS-009, dated 3 May 1974.

(U) Installation of OCREs at 51 selected locations in CONUS, Alaska, Hawaii, and Panama were scheduled in FY 1979, at four OCREs a month until completion in 1980.

(U) The project was implemented in June 1979 and was completed in June 1980.

(U) Technical Control Improvement Program. This program is an on-going effort in support of selected stations and systems upgrades throughout the world. Upgrades provide the technical control with the required overwire, wideband patch, subscriber low leveling, wideband secure voice, digital patch and test bays, and uninterruptible power supply. Future upgrades will automate manual functions under an Automated Technical Control Program.

(U) The Technical Control Improvement manual program, begun in 1971, by FY 1979 included on-going manual Technical Control Facilities and orderwire projects in various stages of completion. There are 92 projects tasked at 78 separate sites, and funded for $11.962 million.

(U) The DCS voice order wire system provided for an integrated worldwide voice orderwire capability for DCS stations. It involved 168 sites located throughout Europe, the Pacific, and CONUS at a funding level of $4.6 million. As of this date, seven sites have been completed. The engineers were starting on the site package and BOM for the 43 sites in Korea with installation start date projected for 15 March 1980.

(U) The Army portion of the Automated Technical Control Program consisted of 104 manual Technical Control Facilities which were to be changed to computer assisted operation in the areas of performance assessment, fault isolation, and reporting on circuits, equipment, network and links. The 104 Automated Technical Control Program facilities were to be funded for approximately $19 million.

Territorial Command Network - Spain

(U) The Deputy Project Manager for the Territorial Command Network - Spain is responsible for management of a major communications and electronics project in support of the Spanish Army and Navy. The project requires engineering, acquisition, and installation for sites located on the Spanish mainland and adjacent islands.

(U) Life cycle support procedures are being established to allow the Spanish Army to deal directly with the contractors who provide the equipments and systems.

(U) The Deputy Project Manager for the Territorial Command Network - Spain is located at Fort Huachuca, Arizona. Subordinate to him is the USACSA Field Office in Madrid, Spain, which in addition to performing project management functions, supports the US Embassy and, JUSMG-MAAG in Spain on actions relating to the Territorial Command Network - Spain project.

(U) Territorial Command Network - Spain. The project will provide the Spanish Army and Navy with a communications system to interconnect the Spanish High General Staff in Madrid with the Army and Navy General Headquarters and bases located throughout Spain. The communications system will provide telephone and teletypewriter service on both a dedicated and common-user basis, with transmission by radio in the form of tropospheric scatter and line-of-sight microwave links.

(U) The United States Government conditionally accepted Subsystem C in March 1978, and the TCN system is operating now with minor deficiencies which are being corrected. A Deputy Project Manager, originally with offices in Madrid, Spain since relocated to Fort Huachuca, Arizona, was established to manage this modernization project. However, due to unresolved financial problems, it is not known at this time when termination of centralized management will occur.

Transmission Systems

(U) The Deputy Project Manager for Transmission Systems is responsible for direct support to improve the overall Defense Communications system by providing the latest state-of-the-art wideband commercial and military communications equipment available to enhance long-haul transmission system performance.

(U) These projects involve both terrestrial and satellite transmissions systems, which with few exceptions, provide communications support to the entire Department of Defense community of users, the State Department, and the White House Communications Agency.

(U) Also, the Deputy Project Manager for Transmission Systems manages Foreign Military Sales and Military Assistance Programs.

(U) This deputy project manager is located at Fort Monmouth, New Jersey.

(U) Defense Satellite Communications System - Phase II, Stage 1C. Phase II, Stage 1C was expanded upon and digitized the Worldwide Defense Communications System, and consisted of four operational and two standby new families of satellites and approximately 50 earth terminal complexes deployed throughout the free world.

(U) Installation of and resultant Joint System Acceptance Tests (JSAT) were completed at Ft. Meade, Ft. Detrick, Landstuhl, Hawaii, Sunnyvale, Offutt, Croughton and Menwith Hill, and additional installations were scheduled throughout the remainder of 1979 and into 1980. Redeployment of existing satellite earth terminals have been accomplished at Iceland, Berlin, and are in process at Augsburg. Funds for this project total $29.4 million.

(U) European Wideband Communications Systems Link Improvement. The European Wideband Communications Systems Link Improvement Project is one of the several time-phased and concurrent programs for improvement of the US Defense Communications System in Europe. The link improvement involves microwave and tropospheric scatter sites located in the Federal Republic of Germany and Belgium.

(U) The primary objective is to eliminate selected marginal performance line-of-sight microwave and tropospheric scatter links and replace obsolete analog radio and multiplex equipment with newer state-of-the-art equipment.

(U) Installation has begun at many sites and will continue through March 1981. Total estimated program costs are $18.64 million.

(U) Fixed Instrumentation Electronic System Transmission Arrangements (FIESTA) Microwave Upgrade. The FIESTA Microwave System is an integral part of the communications-electronics and instrumentation support of the operational and training missions of the US Army Air Defense Center and Fort Bliss, US Army Air Defense School, US Army Air Defense Board, McGregor/Orogrande Range Complexes and the White Sands Missile Range. The project was designed to upgrade the existing FIESTA Microwave System (8 microwave links) by replacement of obsolete portions of the system with new solid state microwave and multiplex equipment.

(U) The project began in November 1978 and consisted of two phases. Funds for this project total $1.9 million, of which $934,000 have been allocated for Phase I.

(U) Northern Area Upgrade - Korea. The Northern Area Upgrade project provides a reliable, integrated, Defense Communications System from Seoul to Camp Casey, and reroutes and upgrades communications to Camp Dodge and Panmunjon. Installation began in January 1978, and the project system cutover was accomplished in April 1979.

(U) Northern Communications/Brigade 75 Project - Europe. Headquarters, USAREUR began restationing the 3rd Brigade, Second Armored Divison (Forward), previously Brigade 75, to Garlstedt, Germany, in October 1978 and completed Force Closure in February 1979.

(U) The Federal Republic of Germany has responsibility for base construction at Garlstedt, and the US Army has responsibility to establish base communications and to provide access to the Defense Communications System via a microwave link between Garlstedt and the existing Bremerhaven communications facility.

(U) To meet the requirements for the last quarter 1978, the establishment of a transportable interim communications system at Garlstedt, pending the completion of the construction facilities to house the permanent communications facilities, was accomplished on September 15, 1978. The interim system will remain in operation until the microwave links between Garlstedt and Bremerhaven are established in the 1979-1982 time frame.

(U) The existing interim microwave link between Bremerhaven and Garlstedt, however, is in danger of being obstructed by high rise construction in the Bremerhaven port facilities area. USACSA was tasked in January 1979 to reroute the existing link through Basdahl, where the Air Force plans to construct a microwave site to support their Creek Brahman project requirement. A mutual agreement was established with the Air Force in December 1978 to combine the Brigade 75 and Creek Brahman requirements into a joint Air Force and Army effort, with Air Force responsible for requirements at Basdahl and Army responsible for requirements at Bremerhaven and Garlstedt.

(U) The Army was permitted access to the communications building at Garlstedt in January 1979, and installation of the permanent communications facilities began at that time. The microwave Telecommunications Center and Technical Control facilities were installed and made operational, except for the microwave terminal which is to be homed on Basdahl in lieu of Bremerhaven.

(U) Washington Area Wideband System. The purpose of this system is to satisfy high priority, high speed digital data requirements between nine sites in the Washington, DC area. The project consists of two segments: the digital pipeline between sites, and the Transition and Integration Plan which connects the users at each site to the pipeline.

(U) The digital pipeline was completed by Western Union and accepted for service by the Government in June 1979. The Transition and Integration Plan segment installation continued through November 1979 with the phased cutover of circuits beginning in November and continuing to the end of the year.

(U) The total cost of the project over its estimated ten year operating life was $32.5 million.

Worldwide Military Command and Control Systems (WWMCCS)

(U) The Deputy Project Manager, Worldwide Military Command and Control Systems (WWMCCS), located at Fort Monmouth, New Jersey, provides capabilities for control and decision information to multiply force effectiveness for national security in peace and war.

(U) Each of the projects assigned to the WWMCCS are considered major projects, primarily as an evolution to the present Worldwide Military Command and Control System; and require engineering, installation, test and acceptance, training and logistics support. In addition, management of each project required close coordination with other US activities. The USEUCOM SWHQ Project also involved interface with NATO activities.

(U) The overall tasking of 1 April 1977 assigned responsibility for planning in preparation of the implementation of the WWMCCS Selected Architecture. An OMA contract was awarded 30 October 1978 to Computer Sciences Corporation (CSC), Falls Church, Virginia, for management support assistance for all projects as required.

(U) Jam Resistant Secure Communications (JRSC). The JRSC Program was to provide additional SATCOM terminals with an increased communications capability to dedicated users commands. Also, required facilities will be provided to interconnect point-to-point communications circuits.

(U) Increased capabilities are provided by Jam Resistant Secure Communications connectivity, rapid extension of the DCS, an alternate communications means for crisis and alert situation, and electromagnetic pulse (EMP) protection.

(U) The program required no developmental effort. Requirements are satisfied through the use of current inventory or production equipments. However, the full capability of the program will not be achieved without the addition of Secure Voice and Graphics Conferencing (SV/GC) equipment, which is under the direction of DCA.

(U) Joint Crisis Management Capability (JCMC). The JCMC provided a set of Command, Control, Communications and Intelligence (C^3I) capabilities for rapid deployment as an extension of the Worldwide Military Command and Control System (WWMCCS) to crisis areas where adequate C^3I facilities are not available.

(U) The JCMC consisted of a minimum communications capability which is transportable by many means, including commercial airlines, and designed to provide secure communications in crisis situations, such as hijacking; an airborne capability immediately responsibe to the Unified and Specified Commander, designed to collect information and provide a relay between the crisis scene and the appropriate areas and National Command Authorities (NCA) for the purpose of supporting rapid crisis assessment; an air and ground transportable capability designed to provide C^3I for a limited Joint Task Force (JTF) Headquarters or a crisis action staff, connected to the NCA while either airborne or on the ground at the crisis scene, (operational capability on the ground may need to be different than while airborne); and an air and ground transportable capability designed to augment the C^3I capability of a large crisis management force, such as a large JTF, thereby facilitating the JTF responsiveness to the NCA.

(U) US European Command Statis War Headquarters (USEUCOM SWHQ). Department of the Army tasked USACC as Project Implementor by a TAGO letter dated 2 February 1977. Secretary of Defense gave approval to proceed with Architecture and Engineering (A&E) design of the headquarters in March 1979 and provided $3.3 million.

(U) Although the project awaited receipt of formal host nation approval, it proceeded based on verbal approval given in June 1979.

(U) Specific objectives of the USEUCOM SWHQ Project were to optimize reaction time, enhance transition from peace to war, and to improve daily decision making.

(U) WWMCCS Nuclear Weapons Storage (NES) Communications Improvement Program. The immediate objective of the total NWS communications facilities support program upgrade was to provide near-term upgrade by replacing old equipment with new HF radio equipment.

(U) Mid-term and far-term upgrades will reconfigure the NWS support system to provide more versatility with respect to frequency usage, encryption, and secure voice. The far-term phase would provide new radio (HF/VHF) capability, better antennas, modems, and capability to use digital data, fully encrypted, and agile receivers.

(U) The authority for improvements of NWS site communications facilities is derived from a 2 May 1979 Assistant Secretary of Defense Memorandum to the Chairman of the Joint Chiefs of Staff, Director Defense Communications Agency, and Director NSA, which designated the effort as a top priority 1 project. USACC was designated to provide equipment lists and acquisition plans. The USAF would provide funds for their share.

Mobile Electric Power

(U) Personnel Staffing (PM-MEP). TDA XYWOWHAA, with an effective date of 1 October 1979, authorizes 28 civilian and three military spaces.

(U) Changes in the authorized civilian positions during FY 1979, resulted in two positions; one GS-1670-13 Equipment Specialist in Materiel Management Division as a result of a promotion into a GS-14 position; and one GS-301-12 position (Technical Liaison Office at TSARCOM as a result of a retirement in that position. These positions were disestablished as directed by HQ DA effective 30 September 1979. As a result of GS-855-13 promotion to GS-801-14, a vacancy exists in the Technical Management Division for a GS-855-13 Electronic Engineer.

(U) During FY 1979, the following changes were made in the three military spaces authorized by this Project: the vacant Project Officer (Captain) in the Configuration Management Division was filled effective May 1979; the incumbent (Marine Corps Lt.Col.) Assistant Project Manager for Logistics assigned to the Materiel Management Division was reassigned and a replacement Marine Corps Lt. Col reported in August 1979; the 04 position assigned to the Materiel Management Division was temporarily filled with an Army Chief Warrant Officer because of nonavailability of an 04 for that position.

(U) The DOD MEP Personnel Staffing Plan was updated by the Technical Management Division and forwarded to DARCOM Program Manager's Office in December 1979.

(U) Program Requirements. The DOD Mobile Electric Power Generating Sources Program requirements for FY 1979 were as follows:

Army	$16.6 million
Navy/Marine Corps	25.7 million
Air Force	7.7 million
TOTAL	$50.0 million

(U) Joint Operating Procedures (JOP). DOD Directive 4120.11, undergoing revision at the OSD level, precluded a disagreement between the Services and PM-MEP on the definition and scope of PM-MEP responsibilities.

(U) Standardization (Class 6115) Projects. Overall guidance, initiation, control, review, and approval of Class 6115 Projects had been accomplished for the following fully coordinated Projects.

(U) Military Standard 633D, Mobile Electric Power Engine Generator Standard Family Characteristics Data Sheets, and Military Standard 1650, DOD Standard Family of Aircraft Ground Support Power Units: the document which combined MIL-STD-633D and MIL-STD-1650 into a single document MIL-STD-633E, had been coordinated with the Services and was in final review and printing.

(U) Revision of MIL-STD-1332B by the Navy was terminated on 2 March 1979 and reestablished as a new project with the Army as preparing activity.

(U) Revision of MIL-STD-633D by the Navy was terminated on 2 March 1979 and reestablished as a new project with the Army as preparing activity.

(U) Revision of MIL-G-52884, Slash Sheet 8, for 60 kW, 50/60 Hz, DED generator set was underway with completion scheduled for 4QFY 1980.

(U) Specification MIL-G-52880(ME) for 500 kW 50/60 Hz, generator set under revision with completion scheduled for 1Q FY 1981.

(U) A revision of MIL-STD-705B, Method of Testing Generator Sets, is scheduled for 4Q FY 1980.

(U) A revision of MIL-HDBK-705B, Electrical Measurements of Instrumentation for Generator Sets, is scheduled for 4Q FY 1980.

(U) A revision of MIL-G-82058B(ME) for 750 kW, 50/60 Hz, DED generator set is scheduled for 4Q FY 1980.

(U) Revision of MIL-G-83380, 30/60 kW, 400 Hz, GTED sets, was published 21 February 1979 by the Air Force.

(U) Revision of MIL-G-52884, DED, 15-200 kW, 50/60 and 400 Hz, was published by the Army on 27 June 1979.

(U) Revision of MIL-G-52889, 5 & 10 kW, DED sets, Slash Sheet 1 (5 kW, 60 Hz) and Slash Sheet 2 (10 kW, 60 Hz) was published by the Army on 28 November 1978.

(U) Amendment 1 to MIL-G-38155, CTED, 60/400 set was completed 30 November 1978 by the Air Force.

(U) A revision of MIL-G-52732, 5-10 kW, GED, 60 Hz set was completed on 16 July 1979 by the Army.

(U) Revision of MIL-G-52884, DED sets Slash Sheets 1 (15/60 Precise), 2 (15/60 Utility), 3 (15/400 Precise), 4 (30/60 Precise), 5 (30/60 Utility), 6 (30/400 Precise), 13 (200/60 Precise), 14 (200/60 Utility) were completed 27 June 1979 by the Army.

(U) Standardization Projects. There were eight active standardization projects at the beginning of the year, seventeen new projects were initiated and fifteen were completed. Two projects were terminated. There were eight active projects at the close of the year.

376-617 O - 82 - 18

(U) Research, Development, Test & Evaluation (RDT&E). Engineering support for the Silent Lightweight Electrical Energy Plants (SLEEP) was continued. TRADOC prepared a Life Cycle Cost (LCC) Analysis on the SLEEP family using input from MERADCOM, TSARCOM, and PM-MEP. This LCC Analysis was presented to the Study Advisory Group (SAG) by TRADOC and factors such as the fuel cell data base, the cost of handling methanol, the quantity of sets in Europe were studied by SAG members. The members directed TRADOC to restructure the LCC Analysis in the format of a parametric analysis and resubmit the report. The 1.5 Kw member of the SLEEP fuel cell family was transitioned from advanced development to full scale engineering development. Members of this Project actively participated in the preparation of the Acquisition Plan, Procurement Plan and established a Proposal Evaluation Advisory Board (PEAB) to optimize the selection of a contractor. The Project Manager had been designated as the Source Selection Authority for the 1.5 kW program. The 3 and 5 kW members of the SLEEP fuel cell family were undergoing an advanced development effort.

(U) Generator set (MEP-412A), Gas Turbine Engine Driven, 60 Hz, Tactical, Utility. This unit had completed the DTII/OTII test and also a special 1600 hour retest to verify reliability of the generator with improved components incorporated. The DTII/OTII testing resulted in MTBF (mean-time between failure) of 179 and the retest of a 533 hour value. A special IPR convened on 31 October 1978 where a decision was made to conduct additional DTIIA and OTIIA testing on units with improvements incorporated to raise the confidence in the MTBF value. The 3000 hour DTIIA test resulted in MTBF value of 1000 hours with a decision to restore to 3000 hours when the cup motor electronic change was proven through bench test. The 1500 hour OTIIA resulted in an MTBF value to 65 hours. The contributing factor for the low MTBF testing was conducted with highly contaminated fuel. Special 600 hour fuel contamination test was then conducted on two generator sets equipped with an improved fuel filtration system with no failure during this test. Excluding OTIIA failures resulting from contaminated fuel, MTBF was calculated at 500 hours for the final test. DEVA IPR to TC the unit was scheduled for December 1979 with initial production contract to be awarded in June 1980.

(U) Generator set, D-423A, 10 kW, Gas Turbine Driven, 400 Hz, Tactical, Utility. This set was developed to support the FIREFINDER AN/TPQ-36 system, which required a lightweight generator. As part of the AN/TPQ-36 early fielding, which occurred in First Quarter, 1979, three refurbished DTII/OTII units were issued to using troops and on-site organizational, direct support, and general support training was performed. Through an assisting MERADCOM team, minor generator problems were corrected early in the fielding. Since March 1979 there were no deficiencies, and the user was pleased with the units operation. During the month of August 1979 a Follow-On Evaluation (FOE) was conducted on an AN/TQP-36 system at Fort Campbell with no reported generator problem. Two sole source contracts for production units were awarded in February

1979 with Solar Turbines International producing the rotating group, and Delco Electronics producing the power conditioner. First article units are scheduled to be delivered in June 1980.

(U) Generator set, 30 kW, Gas Turbine Engine Driven, 50/60 Hz and 400 Hz, Tactical, Utility. HQDA directed termination of the development program for this set during Fourth Quarter 1976, due to lack of a firm requirement, increasing fuel cost, and higher priority requirements for the 6.4 funds. However, since termination, two major Army systems (PATRIOT and PERSHING) have stated requirements to DA for the 60 and 400 Hz versions of this set. Stated requirement by these two systems are in excess of 1000 units. Contract termination hardware has been placed on an indefinite hold to prevent loss of hardware through normal Defense Contract Administration Services (DCAS) termination procedure. Project approval has been given to allow use of portions of the termination hardware for an Army turbine powered petroleum pump project and to support a no cost contractor in-house effort to recuperate the 30 kW turbine for improved fuel consumption. By DARCOM direction, reinstatement of the program is pending decision of a major Army system (PERSHING) to develop the unit as a component of the system. This decision is expected in Second Quarter FY 1980. Using existing 30 kW hardware the contractor successfully recuperated the turbine and achieved the improved fuel consumption goal.

(U) Generator set, MEP-351A, 10 kW, Diesel Engine Driven, DC, Tactical, Utility. The US Navy Air Engineering Center effort continued on a power source with integral wheels to support rotary and fixed wing aircraft. Two prototype units have been fabricated and were to begin testing in early FY 1980.

(U) Generator set, MEP-354A, 30 kW, Diesel Engine Driven, 400 Hz, Tactical, Precise. The US Navy Air Engineering Center development of a four wheel, drivable, power source to support Naval and Marine Corps aircraft continued. In FY 1979, tests indicated the DOD standard 30 kW, 400 Hz alternator met the requirements of MIL-STD-704, Aircraft Electric Power Characteristics. A micro-processor control circuitry had also been developed and was operating.

(U) Generator set, 150 kW, 400 Hz, Gas Turbine Engine Drive. Development efforts were continued in FY 1979 on the 150 kW GTED set to provide the required PATRIOT prime power reliability and availability with substantial improvement in fuel economy over the present Electrical Power Plant-I (EPP-I) configuration. A contract was awarded for four generators, development of integration logistics support, and for field engineering and maintenance support. The effort supported PATRIOT DTII/OTII which started in June 1979. Environmental performance and endurance tests were then conducted on the sets. EPP-II, consisting of two 150 kW generators mounted on a 5-ton truck, was fabricated and shipped to White Sands Missile Range (WSMR) for incorporation into PATRIOT DTII/OTII testing.

Contract award for production units is scheduled to be awarded in Second Quarter, FY 1980, and the generator was being developed and procured as a deviation to the standard family. Early in the program planning this Project emphasized that the development would be directed with the goal that requirements of the DOD standard family would be met. The unit was to be incorporated into the standard family when additional users were identified.

(U) Generator set, MEP-414A, 10 kW, 28 VDC, Gas Turbine Engine Driven Required Operational Capability (ROC) for an aviation ground support direct current (DC) generator was approved by the TRADOC Review Board on 15 January 1979 with the provision that the Cost and Operational Effectiveness Analysis (COEA) be revised. ROC was forwarded to HQDA in August 1979 with approval expected in December 1979. During the past year, with DARCOM approval, the required operational capability (ROC) was revised to reflect procurement as a Non-Development Item. This revision was considered necessary to allow early fielding of the 7.5 kW replacement set and to allow use of available funding. An urgent need existed for a replacement generator for the 7.5 kW ground support generator, which is no longer being manufactured and whose inventory is rapidly being depleted. To support initial actions such as preparing the development plan and procurement package, funding was transferred to MERADCOM from TSARCOM. Non-Development Item contract award for production units is scheduled to be awarded in 1st Qtr FY 1981. Additional funding had also been programmed for procurement in FY 1983 and FY 1985.

Other Programs

(U) Generator set, 60 kW (EMU-30EA), Gas Turbine Engine Driven, 400 Hz (Nuclear effects hardened version of the MEP-404A used by the Air Force). The Air Force, in response to a PATRIOT requirement, initiated a product improvement program to improve electronic reliability of this set. In-house Air Force effort was in progress to incorporate the electronic ECP (engineering change proposal) into the drawing package. Joint Air Force/Army/Project effort established the trade-offs that could be made on the standard MEP-404A set and PATRIOT set to arrive at standard MEP- 404B Model for the next procurement scheduled for 1Q FY 1980. The product improvement effort to increase the T62-32 engine MTBO from 1500 hours to 6000 hours and to reduce fuel consumption by 35 percent progressed satisfactorily in FY 1979. To improve the reliability of the MEP-404 governor, Woodward revised the quality control procedure of PC board soldering and changed the PC board conformal coating material. Ground Launched Cruise Missile Project was to become a major user of this set, with the unit to provide Launch Control Center and Transporter Erector Launcher power.

(U) Improvements for 15-200 kW sets were being evaluated by MERADCOM including different makes of precise governors and polyethylene tanks for fuel and governor hydraulic fluid.

(U) Replacements for .5 through 10 kW gasoline engine driven sets. The 3 and 6 HP Military Standard gasoline engines used on the 1½ and 3 kW sets are expected to be in short supply starting in 1984 unless a contract is awarded in FY 1980 for the engines. This Project has initiated an in-house study comparing life cycle costs and performance of the Military Standard engines with several gasoline, diesel and turbine engine alternatives.

(U) Technical problem areas on 15 through 200 kW DED generator sets. Technical problem areas resolved on 15-200 kW generator sets include such deficiencies as poor castings, improper component heat treatment, overheating problems, improper balancing techniques, fuel tank leaks and a variety of other small electrical and mechanical problems.

(U) Generator Sets, Aircraft Support: Commercial Commodity Acquisition Program (CCAP). The Hobart Brothers Company, Power Systems Division, delivered 136 sets to the Air Force on their contract. These wheel-mounted commercial sets rated at 72 Kw, 400 Hz were used at Military Airlift Command (MAC) bases within CONUS. The CCAP program will also examine the problems and possibility of standardization on a commercial set.

(U) MD-3 Replacement. Air Force requires replacement of their aging fleet of MD-3 aircraft ground support sets which are over 25 years old. The Air Force was granted a deviation to procure 430 Hobart 72 kW, 400 Hz, generator sets which were to be identical to the 136 CCAP units. A reprocurement package is to be made available by Hobart to allow for a follow-on small business procurement of future sets.

(U) Multiple Output Ground Power Unit. PM-AAH requires an aircraft ground support unit with electrical, pneumatic, and hydraulic outputs to service the AAH. A draft ROC has been prepared and reviewed. A Purchase Description based upon a contractor trade-off study has also been prepared.

(U) Ground Support of SEMA. Ground support of SEMA aircraft is presently provided by a C-26C generator set, an early version of the MD-3 generator set, which is a reliability and maintenance problem. The SEMA aircraft only use the 600 amp 28 VDC capability of the C-26C. A conditional deviation to acquire 50 Hobart Jet-ExII 15 kW, 28 VDC generator sets from the Navy (procured as an FMS item which was subsequently canceled) was granted on 28 September 1979. Conditions include testing for compatibility with SEMA aircraft, formulation of an acceptable logistics support plan, and type-classification (TC-B) at a special in-process review (IPR).

(U) XM1/M60, 10 kW, 28 VDC, Gas Turbine Engine Driven (GTED) Auxiliary Power Unit (APU). The PM-XM1 determined that a winterization kit was required for starting the main XM1 gas turbine engine at -70°F. The winterization kit consisted of a small 10 kW 28 VDC GTED set which could also provide power for the tanks during SILENT WATCH operation in addition to saving fuel during battery charging operations. A contract for five of

the developmental units was awarded to Solar Turbine International, with the engine being an adaptation of the MEP-412A and FIREFINDER D423 engines. The limited space that was allocated for APU installation in the XM1/M60 tank required an alternator of extremely small volume to kW ratio, and fabricating this alternator presented a cooling and fabricating design problem. Except for a three month program slippage due to mechanical failure of the alternator rotor, remainder of the APU program was proceeding satisfactorily. In FY 1979, the delivery dates for the five units were scheduled from December 1979 through February 1980.

(U) Extended Oil Change Program. The first phase of program was completed and a final MERADCOM Report #2234 was issued in March 1978 on the MIL-2104C Lubricating Oils. A second phase of the test program investigated the use of synthetic oils and their effect in the diesel engine used in generator sets. MERADCOM reported that teardown of the engines after extended testing on these DED engines while using the synthetic oils showed very little internal wear on the engines. The work was scheduled to be completed in 1Q 1980.

(U) Survivability. A generator requirements document for survivability, such as noise reduction, thermal signature suppression and electromagnetic pulse (EMP) protection, remains to be developed for the standard family. However, generator sets incorporated into weapon systems with survivability requirements must meet these system requirements. Therefore, the majority of effort in the survivability area was funded through systems managers. The PM PATRIOT funded the development of a thermal suppression kit for the EMU-30 (MEP-404) generator set which was successfully tested. A thermal suppression kit for a 3 kW GED generator set was also successfully developed and tested.

(U) Energy Conservation and Environmental Emission Standards. A Mobile Electric Power Research and Development Action Plan to conserve energy consumption and eventually use renewable energy sources whenever feasible was prepared in FY 1979. The Energy Action Plan was an essential part of the Development and Product Improvement Plan.

(U) Study Plans for Research and Technology Work. Study plans were initiated in three work areas of generator set technology: (1) Noise Reduction of Mobile Generator Sets; (2) Interoperability of Mobile Generator Sets; and (3) Vibration reduction of Mobile Generator Sets.

(U) Rationalization, Standardization & Interoperability (RSI). This Project Managers Office actively participated in American, British, Canadian, and Australian (ABCA) and NATO working groups as they pertained to Mobile Electric Power. There were several quadripartite standardization agreements (QSTAGS) and standardization agreements (STANAGS)on MEP being implemented as part of these working groups.

(U) 500 kW DED generator set. Technical support was provided on the production and fielding of sixty-two 500 kW DED generator sets.

(U) 750 kW, Gas Turbine Engine Driven (GTED) 50/60 Hz generator set. Ten 750 kW GTED commercial sets were fabricated, tested, and delivered to satisfy Navy and FESA requirements. The commercial version of the generator set had already demonstrated an acceptable rotating group, such as gas turbine, gear box, and alternator. This basic rotating group was installed in a mobile van to provide the military with a highly mobile generator set which was air transportable in C-130 and C-141 aircrafts without the use of special ground support equipment. A revised specification (principally covering the mobile van, special crew compartment and air transportability features of the system) may be required to cover future reprocurement.

(U) A project to revise MIL-G-82058 specification for procurement of 750 kW, 50/60 Hz DED, Prime Utility sets was initiated during the 2Q FY 1979. Procurement of 12 Army sets and a potential procurement of a slightly smaller number of Navy sets was scheduled in FY 1979 for 3Q FY 1980.

(U) Five-Year Procurement Plan. Two issues of the Five-Year Procurement Plan were published and distributed: one in November 1978 and one in July 1979.

(U) Long Range Procurement Estimates (LRPE). The latest LRPE notice was sent to the Commerce Business Daily in September 1979.

Logistics Management

(U) Five to ten kW Diesel Engine Driven (DED) generator set problem. Based on the mobilization requirement and the current requirements for generator sets, a critical shortage occurred in the 5 and 10 kW generator set category due to the failure of a contractor to produce because of financial problems. The contractor had been a capable producer and action was taken to resolve the problem.

(U) Configuration Control Boards. Staff officers of PM-MEP, through the delegated authority of the Project Manager, were chairing nine configuration control boards for design control of 41 models of generator sets. During FY 1979, 94 change proposals, deviations and waivers were evaluated.

Engineering Change Proposals (ECP) Processed:

Approved	Disapproved	*Cost Increase
73	6	$109,000

Value Engineering Change Proposals (VECP) & Cost Reduction Proposals:

Approved	Disapproved	*Cost Savings
1	5	$9,000

Waivers & Deviations:

Approved	Disapproved	*Cost Increase
4	5	$38,000

*estimated

(U) Drawing Packages. A physical configuration audit was completed for the 500 kW/60 Hz diesel set and the drawing package approval and sign-off occurred February 1979.

(U) Production Release. Production release was granted for the following sets:

72 kW/400 Hz diesel engine driven
60 kW/400 Hz gas turbine driven

(U) Release for Issue. Release for issue was granted for the following sets:

5 kW/60 Hz diesel engine driven (MEP-002A)
10 kW/60 Hz diesel engine driven (MEP-003A)
30 kW/60 Hz diesel engine driven (MEP-005A)
30 kW/400 Hz diesel engine driven (MEP-114A)
60 kW/60 Hz diesel engine driven (MEP-006A)
200 kW/60 Hz diesel engine driven (MEP-009A)

Munitions Production Base Modernization and Expansion (MPBME)*

Mission, Organization, and Manpower

(U) The mission of the PM as prescribed in the Project Manager Charter, approved as modified on 3 November 1975, did not change during FY 1979. In consonance with assuring the most effective management of the program, the PM continued the FY 1978 goals covering specific areas of responsibility which he felt required continued emphasis in order to insure improved program management and project execution through FY 1979. These are:

A dynamic and balanced M&E Program during periods of rapidly fluctuating funding levels.

Project designs that will meet a four month response time.

Improved utilization of technological information available within industry.

Improved management of MMT projects.

Improved TDP content to facilitate procurement.

The development and implementation of a fully integrated energy resource plan.

Improved coordination within the ammunition community for the facilitization/integration of new munitions.

Fully integrated and coordinated prove-out plans.

(U) Organization. DRCPM-PBM Regulation 10-1, Organization, Mission and Functions, dated 1 September 1978 was modified by DRCPM-PBM Regulation 10-1, Change 1, dated 30 April 1979.

(U) Three organizational changes occurred during the fiscal year, which included the establishment of the Project Manager Field Office, Mississippi; the reorganization of the Metal Parts Division from a five-branch to a four-branch substructure;[1] and the reassignment of the Small Caliber Ammunition Branch from the Metal Parts Division to the Load, Assemble and Pack Division and the Fuze Group from the Technical Support Division to the Metal Parts Division.[2]

*See DARCOM Annual Historical Review, FY 1977, pp. 357-59, for a review of MPBME background, program, and organization.

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[1] DRCPM-PBM Reg 10-1, Change 1, 30 Apr 79.

[2] DF DRCPM-PBM-DP, Subj: Realignment of Technical Engineering Branches, 10 Aug 79.

(U) The PM Field Office, Mississippi, was established to provide on-site management of the Mississippi Project during the execution and prove out phase and to coordinate necessary interfaces between State of Mississippi, NASA, Navy, the Systems Integration Contractor, ARRCOM, ARRADCOM, CE, and other organizations as necessary to insure execution of the Mississippi AAP program in an efficient manner. The office consists of a military chief and five civilian positions, four of which are general engineers. The size, dollar value, and technical and managerial complexity of this program mandate on-site management.

(U) The internal realignment of the Metal Parts Division was accomplished to provide utilization of senior level positions, improved supervisory/nonsupervisory employee ratios, and improved clerical/action officer ratios within the division.

(U) The Small Caliber Ammunition Branch was reassigned to the Load, Assemble and Pack Division as the program progressed to the point in program development where it was more closely aligned with LAP engineering techniques and processes than to metal parts engineering and fabrication. This realignment also provides a much improved balance in work load and associated staff between the Load, Assemble and Pack Division and the Metal Parts Division.

(U) The Fuze Group was reassigned as a branch within the Metal Parts Division because it was end-item/product oriented and closely associated with Metal Parts Division end-item responsibilities. Alignment of the fuze activity with the Metal Parts Division was considered more appropriate than with the Technical Support Division, whose mission was program (safety, product assurance, value engineering, control systems) and system engineering oriented.

(U) Manpower. The office was not subject to a manpower management survey during the fiscal year; however, it was subject to a productivity cut of three spaces, including a reduction of one in the National Capital Region (NCR).[3,4] This cut reduced the ceiling for civilian positions from 187 to 184, effective by the end of the fiscal year.

(U) The reduction of authorized senior level positions from 79 to 77 was the result of a DA imposed reduction of 60 GS-13 and 260 GS-14 and above positions within DARCOM.[5] The Table of Distribution has been revised to reflect the productivity cut including the NCR cut and the reduction of two senior level positions.

(U) Personnel. Personnel strength throughout FY 1979 is shown at Figure 1. Actual strength at the beginning of the fiscal year was 190 (16 military and 174 civilian). Military strength declined by

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[3] DRCPT msg 131451Z Mar 79, Subj: FY 79 Civilian Manpower Reduction.

[4] DRCPT-SA msg 201310Z Apr 79, Subj: Manpower Adjustments National Capital Region (NCR).

[5] DRCPT-CP msg 221820Z Sep 78, Subj: Reduction of Senior Leval Positions.

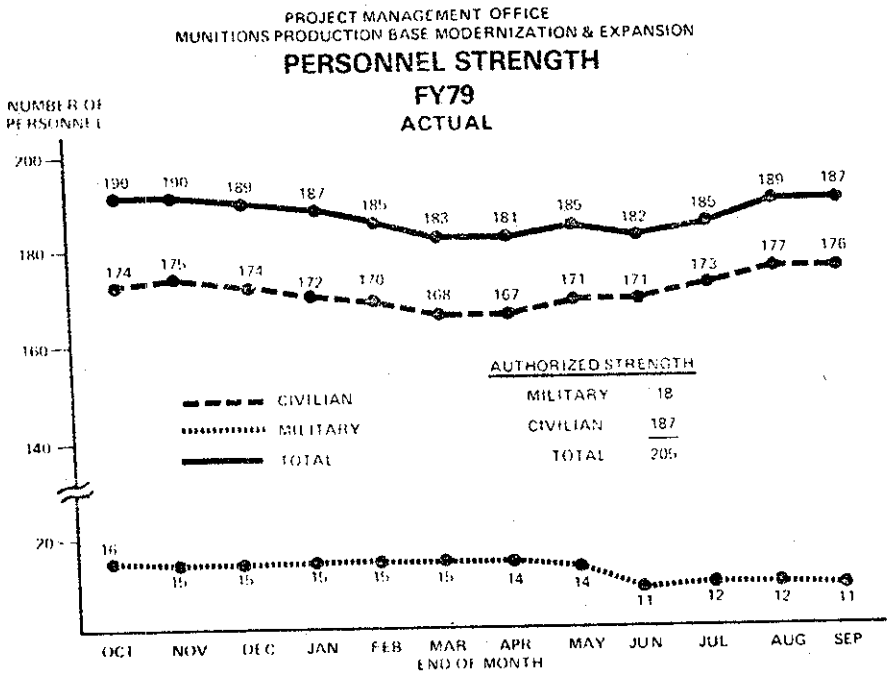

Figure 1

five to an end fiscal year strength of 11. Civilian strength fluctuated between a low of 167 and a year end high of 176. Combined military and civilian strength at the close of the fiscal year was 187. These figures included two DARCOM interns and excluded three consultants who work on an as-required basis.

Administrative Support Office

(U) Equal Employment Opportunity (EEO) Program. The following statistics extracted from FY 1979 EEO Quarterly Reports provide an overall picture of MPBME affirmative participation in the EEO Program:

MPBME Employment Distribution

	Total Civ	Women	Minorities
Sep 78	174	49 (28.2%)	12 (6.9%)
Dec 78	176	50 (28.4%)	12 (6.8%)
Mar 79	167	49 (29.3%)	12 (7.2%)
Jun 79	168	51 (30.3%)	13 (7.7%)
Sep 79	173	50 (28.9%)	13 (7.5%)

Minorities by Group

Oriental	- 5
Asian Indian	- 1
American Indian	- 1
Black	- 3
Hispanic	- 3
Total	- 13

Promotions
12 Women received promotions and/or temporary promotions.
2 Minority promotions.

Awards
24 Outstanding
13 Quality Increases - Women
2 Patent Awards - Minority

Summer Aides
Four summer hires, three at Dover, one at Rock Island Field Office, assisted this office during heavy vacation periods June through August. All received letter of appreciation, and one of three from Dover was recognized with a Certificate of Commendation signed by the local Commander.

Upward Mobility Program (UMP)
Supervisors have counseled and encouraged employees to enroll in UMP and relevant Government/non-Government training which will enhance their careers. Self-development counseling and recommended training to reach short-range and long-range goals have also been provided to all UMP enrollees by Upward Mobility Coordinators.

Equal Employment Opportunity Action Committee (EEOAC)
The PM for MPBME serves as a member of the newly-established EEOAC and also chairs the EEO Community Relations and Publicity Subcommittee.

Joint Services and Analysis Office (JSAO)

(U) Mission and Activities. In March 1978, the mission of the then Joint Mission Planning Office (JMPO) was expanded during a reorganization of the PMO, to include several new functions, namely a studies and analysis mission and an expanded role in assessing research and development/transitioning impacts on the PM charter. As a result of this mission expansion, the office was renamed the Joint Services and Analysis Office (JSAO). The JSAO continued in this new role to serve as the PMO's primary focal point for the implementation of the Single Manager for Conventional Ammunition (SMCA) concept within the Army and the other services and also for mobilization planning requirements.

(U) During the reporting period, the JSAO was directly involved in a myriad of activities which included single manager support, research and development, special studies, and mobilization planning.

Support to Single Management for Conventional Ammunition

(U) Redesignation Plan. At the request of the PM and DPM, the JSAO prepared, during February 1979, a deprojectization plan for the

Project Manager Office (PMO) which identified all active mission areas within the PMO and the logical disposition of those missions to the remaining elements of Office Secretary of Defense (OSD), DA, DARCOM, Corps of Engineers (CE), ARRCOM, ARRADCOM, and other commands including the Single Management (SM). This plan proved helpful in determining how the functions of the PM could best be performed and contributed to the final decision to redesignate the PM as an agency reporting directly to the SM, rather than to deprojectize.

(U) Government Accounting Office (GAO) Single Manager (SM) Review. The JSAO provided significant support to the coordination of the GAO review of the SM Phase I implementation which included necessary coordination with the PM and divisions to assemble information data packages, as well as answers to formal GAO questions addressed to the PM. This information contributed substantially to the GAO report entitled, "Centralized Ammunition Management - A Goal Not Yet Achieved," published in draft form during August 1979.

(U) SM Phase II. The JSAO has maintained cognizance of Office of the Secretary of Defense (OSD) activities aimed at defining Single Management Phase II and reviewed and provided detailed analysis of draft OSD directives prepared concerning SM Phase II.

(U) Joint Conventional Ammunition Program (JCAP). The JSAO continued its primary JCAP responsibility as focal point within this PMO for JCAP activities supporting JCAP-OG as well as the JCAP-CG. During the 14 February 1979 meeting of the JCAP-CG, MG Eicher abolished the JCAP-OG and transferred its functions to Command level focal points/ offices of primary responsibility (OPR) to facilitate continuing communication and dialogue at the Command level. In this new role as JCAP OPR for MPBME and related activities, the JSAO continued to: (1) coordinate inputs to the JOPP; i.e., Command Management; (2) receive and distribute to divisions/offices JCAP publications, such as PM Handbook, JCAP Requirements Handbook, Demil/Disposal Handbook; (3) provide ARRADCOM assistance and guidance in preparation for the hosting of their first JCAP-CG meeting at Dover, New Jersey, in June 1979.

(U) Armament Industrial Readiness Management System (AIRMS) System Steering Group (SSG). During June 1979, the PMO was asked by the Commander, ARRCOM, to participate in the establishment of a revolutionary new system for the management of the ammunition of the ammunition and weapons production base. Called the AIRMS, this sytem was intended for use in managing the base on a prioritized basis for all conditions of peacetime, surge, or mobilization planning. It is composed of over 10 separate data bases, some being newly defined and some needing modification. Though some elements of AIRMS were planned to be operational shortly, complete integration of the system was not scheduled until 1981.

(U) As the lead PMO office on AIRMS, the JSAO participated in the AIRMS SSG at ARRCOM during June 1979 and subsequent working meetings at ARRCOM and IBEA during August and September 1979. During these meetings, JSAO personnel met with their ARRCOM/IBEA counterparts to discuss elements of AIRMS, such as the Venture Evaluation and Review Technique (VERT) and Industrial Preparedness Measure subsystems, to determine AIRMS progress to date and outline future activities. A significant effort during this period was the coordinated PBM review of the various AIRMS Detailed and General System Functional Descriptions and provision of PMO comments to ARRCOM as a result of this review.

(U) At the close of the fiscal year, the entire PMO, under the direction of the JSAO, was embarking on a major expansion in resource commitment to the AIRMS program primarily in the area of data collection, review, and analysis of plant data for use in the Network Subsystem. Expansion of PBM involvement in other AIRMS areas is also expected as the various subsystems are developed and perfected.

Research and Development/Transition Planning Activities

(U) Air Force Coordination. In FY 1979, JSAO was particularly active in establishing points of contact and coordination with the AF Armament Development and Test Center (ADTC), Eglin AFB, with respect to AF R&D items with potential facilities and modernization and expansion requirements. In January 1979, JSAO arranged for Mr. Don Dudas of the Joint Service Affairs Office, ADTC, to brief the PM and division chiefs on the AF R&D programs emphasizing item descriptions, planned requirements, and involved contractors. As a result of this briefing, JSAO will receive monthly computer reports on AF program status. In addition, JSAO was successful in securing AF films depicting their various R&D items which were shown to all interested Product Base Modernization (PBM) personnel. Actions such as these enabled JSAO to assure that the responsible PBM operating divisions and ARRCOM were made aware of future facilities requirements for the AF Anti-Armor Cluster Munition (ACM), which is one of several items being developed under the AF Wide Area Anti-Armor Munition (WAAM) program. As a result, ACM projects are now shown in the M&E Plan, together with other projects in support of AF items, such as the GATOR and M117 and MK84 Bomb Body Conversion. Active JSAO was coordinating with the AF on a planned meeting between COL H. V. Dutchyshyn, PM-MPBME, and BG D. L. Lamberson, ADTC, which will further enhance future PBM/AF R&D coordination.

(U) Another area of JSAO/AF coordination is the AF Munition Cost Reduction Study. This involvement is described under Special Studies.

(U) Navy (NAVSEA) Coordination. The JSAO provided CPT W. Powell (NAVSEA, Crystal City) with a one-day series of orentations and briefings which spanned from the overall PBM mission and function through the related activities and interfaces with ARRCOM, ARRADCOM, DA, and DOD to a concluding briefing on the IHEP program and tour of the new ARRADCOM Explosive Laboratory facility. JSAO also provided orientation to NAPEC personnel, identified as primary focal points within NAVSEA and NAVAIR, to assure smooth conduct of business between the Navy and PMO

(U) FAE II. In an issue of general officer importance, JSAO was instrumental in bringing the FAE II MMT issue (die-cast tailcone and one-piece skin body) to the attention of the PM with resultant funding of projects for the Navy. In a related issue, staffing for review and comment of the FAE II transition plan was underway as of the end of the reporting period.

(U) Navy R&D Program Briefing. During January 1979, JSAO coordinated a briefing at the PMO by various Navy project officers to enable the PM and division chiefs to learn about the upcoming Navy programs and requirements and their potential impact on the Project Manager's Manufacturing Methods and Technology (MMT) and Modernization and Expansion (M&E) programs.

(U) Army Coordination. Army Ammunition Plan. During FY 1978, DCSRDA established the requirements for this plan to serve as the primary summary planning document used by HQDA to support the POM. JSAO was responsible for the semiannual PM input to the plan. This informed managers of current R&D at ARRADCOM, as well as the current logistics pursuits at ARRCOM. During FY 1979, JSAO provided two updates to this plan: second and fourth quarter 1979. The second quarter update involved considerable systems analysis and was a major revision to the PBM input. DCSRDA directed that time-phase charts be constructed for each R&D item showing facilitization requirements (Manufacturing Methods and Technology (MMT), Initial Production Facility (IPF), and prove out) integrated with the R& D and acquisition cycles. Intensive effort and coordination between JSAO, PBM divisions, and ARRADCOM resulted in a quality plan being published. Additionally, all updates to this plan require JSAO to restructure the latest M&E Plan in order to provide the data on the PBM projects in a format recommended by DCSRDA.

(U) ARRADCOM Technical Reviews. JSAO serves as the focal point between ARRADCOM and PBM keeping the PBM divisions aware of the schedule of Technical Reviews given by ARRADCOM.

Policy and Procedures for R&D Coordination.

(U) Production Base Modernization (PBM) Memorandum. In FY 1979 JSAO was in the midst of developing a PBM memorandum to identify

responsibilities and procedures of the various modernization project officers during the transition process of the services. A revised listing of Modernization Project Officers and their counterparts in the Services was also prepared in support of this memorandum.

(U) MMT and IPF Policy. During July 1979, the JSAO provided copies of proposed new SM MMT and IPF policies informally to ARRCOM for potential implementation by the SM. The aim of those policies was to enhance the 3M's ability to more effectively do his job by establishing him in funding control of all munitions MMT and IPF, a position later taken by the General Accounting Office (GAO) in its review of the SM implementation. As a result of the expansion of the mission of the JSAO to include principal focal point and coordination of special studies of Congressional and national interest, the JSAO was involved in the studies and analysis area. The following represent major areas of this involvement during FY 1979:

(U) Study Management. In FY 1979, the JSAO mission was expanded to include responsibility for advising the PM on all matters related to The Army Study System (TASS) and serving as the PBM focal point on all TASS matters. Accordingly, JSAO prepared PBM Memorandum No. 5-2, Management, The Army Study System, outlining the responsibilities and procedures for the initiation, preparation, and control of studies for TASS described in AR 5-5. Subsequently, assistance was provided to PBM divisions concerning the applicability of AR 5-5 to proposed study efforts.

(U)Stockpile Conversion Study Advisory Group (SAG). The PMO, through the JSAO, provided membership to the SAG at DA level on the Stockpile Conversion Study for the Introduction of New Rounds of Ammunition. Mr. W. Donnelly was the PBM member. Mr. Donnelly also served as a member of the technical evaluation team established to review and evaluate various contractor proposals prior to the selection of the one contractor for Phase I study efforts. JSAO analyzed the effects on the facilities community of the contractor's effort in the area of using costs (including facility costs) in his methodology to determine cost-effectiveness of munition mixes. JSAO effort on this SAG will continue through FY 1980.

(U) OSD Sustainability Study. During FY 1979 analysis was continued on the OSD Sustainability Study. JSAO continued to coordinate all PM efforts such as data input, study conduct support, study analysis, in conjunction with the study. This involved frequent contact with OSD, Institute for Defense Analyses (IDA), ARRCOM, DARCOM, and other DA/DOD personnel. Since the study in FY 1979 was being utilized to develop DOD investment policies and would likely influence conventional ammunition programs for years to come, it was necessary that organizations concerned with formulating munitions policies and programs be aware of the impacts of study on the ammunition production base.

(U) To this end, JSAO developed a briefing entitled "OSD Sustainability Study Analysis," which integrated the total impact of the OSD Sustainability Study on the ammunition production base in one document. It encompasses information presented in April 1979 to the DA Sustainability Working Group and the GOSC - Integrated Procurement and Production of Munitions. It also included impacts presented by DA to OSD in the May 1979 critique of the study. The briefing highlighted "Sustainability Profiles," - "Sustainability Study Analysis" pictorial representations of the extensive data contained in Sustainability Study volumes, and were developed using systems analysis techniques to delineate integrated readiness status for major items considering demand, inventory, and production base data.

(U) The briefing was distributed within the DA community and requested by MG Frank P. Ragano, Director of the CASPR Team during their 7 September 1979 visit to PBM. JSAO presentations at the Total Logistics Readiness/Sustainability Working Group Meeting at New Cumberland Army Depot in July 1979 on the sustainability issues and their relationship to the PBM program were instrumental in steering future working group efforts. In FY 1979 JSAO continued to monitor study status and is currently correlating study data with the Army Ammunition Plan, Program Decision Memorandum (PDM), and HAC Reports to assess its influence on guidance governing the production base program.

(U) DA Total Logistics Readiness, Sustainability Study. Mr. W. J. Donnelly of JSAO participated in this seminar held at New Cumberland, Pennsylvania, and presented a briefing on sustainabiliity with its impact on production base programs and plans.

(U) AF Cost Reduction Study. At the request of the Chairman of the Munitions Subcommittee on Manufacturing Technology, the JSAO initiated participation during July 1979 in the AF/Industry Manufacturing Cost Reduction Study. This study, sponsored by the ADIC, Eglin AFB, Florida, was intended, through the use of industry cooperation, to identify those manufacturing processes related to munitions production which were significant cost drivers and to obtain recommendations concerning potential manufacturing technology projects which, if applied, would lower the costs associated with those processes.

(U) Serving as an alternate steering committee member, Mr. W. J. Donnelly, of the JSAO, attended three separate committee meetings. His participation resulted in the expansion of PBM involvement in the working panels of the study, introduction of SM participation into the study process, and increased concern by AF/industry participants for the joint service aspects of the study. Although scheduled for completion in FY 1980, the study group has already made considerable progress, especially in obtaining industry participation. It should yield significant recommendations for manufacturing technology initiatives.

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(U) RDX Requirements Study. During FY 1979, JSAO initiated action to have the Navy and Air Force compile their future requirements for RDX/HMX for the purpose of long-range planning. Additionally, JSAO participated in a study which produced the known peacetime RDX requirements for use by the IHEP study group.

Mobilization Planning

(U) During FY 1978, CPT Howard Lane, Primary Emergency Action Officer, and Mr. Carl Casperson, Alternate Emergency Action Officer, represented the PM during the Mobilization Exercise (MOBEX 78). Action officers attended briefings, coordinated responses to messages related to the PM program, and briefed the PM and previously identified PBM Mobilization Officers on the status of the exercise.

(U) In keeping with guidance established in DARCOM regulations, a PBM Emergency Planning regulation was developed and published as a PBM memorandum. And as part of the JSAO long-range planning mission, provided the necessary documentation to establish the PBM alternate files as prescribed by regulation.

Additional Involvement During FY 1978

(U) Rationalization, Standardization, and Interoperability (RSI). During the reporting period, the JSAO, as the PMO RSI focal point, continued its participation in the Army's RSI program. Several key elements of this continuing participation were: (1) Assistance to HQDA in formulating an RSI Ammunition Initiatives proposal. Several of these initiatives involved the PBM directly in the areas of Technology Transfer, NATO Sustainability, and establishment of European production capacity for US rounds; (2) Participation with ARRCOM, ARRADCOM, and other PBM elements in the development of a discrete proposal for European manufacture of the 155mm improved conventional munitions (ICM); (3) Monitoring of PBM involvement in ongoing programs having RSI significance; (4) Review and comment on RSI documents from higher commands, such as the proposed DARCOM guide for preparation of separate RSI plans ; (5) Monitoring of RSI policy trends and their potential PBM impact. As an example, the JSAO provided an analysis of the House Special Subcommittee on Standardization, Interoperability and Readiness (SIR) to the PM. This document, somewhat critical of current RSI trends, could have a profound effect on the program in the future; (6) Initiation of collection of PBM data on actual time involved in support of the RSI planning function.

(U) Support to Army Materiel Systems Analysis Agency (AMSAA). The JSAO had considerable interchange with elements of AMSAA during the reporting period. Key activities were: (1) Provision of sustainability data on the production base for potential use by AMSAA in its own study of key item battlefield sustainability; (2) Provision of information concerning the production base for use in an AMSAA Railway Switching Locomotive study; (3) Provision to AMSAA of JSAO's briefing entitled "Sustainability Study Analysis."

(U) IHEP Study. The JSAO assisted the lead PMO IHEP study activity (P&E Div) with participation at the White Oak meeting of the IHEP study group, and assistance in formulating requirements based on projected joint service programs for use in determining the impact of LOVA and other IHEP material requirements on the RDX/HMX base.

(U) CASPR. JSAO was tasked to coordinate the visit of MG Ragano and his CASPR Team to the PMO. JSAO arranged the agenda and prepared presentations on certain topics of interest to MG Ragano.

(U) Army Ammunition Management System. JSAO provided extensive participation in preparing this document, which provided a system description for management of the ammunition program by DA. During FY 1979, this document was published as DA Pamphlet 700-16.

Program Management Division

(U) Mission. The major mission of the Program Management Division was to develop and maintain the master plans, programming, budgeting, reporting, policies and procedures, management activities, and information systems/computer activities for Production Base Modernization (PBM).

(U) Munitions Manufacturing Methods and Technology (MMT) 5-Year Program. This program involves the mechanization of practically all current munitions manufacturing operations involving a great many hand operations. Batch processes must be converted to continuous processes in order to take advantage of new materials handling techniques and to improve the safety of operations. Material handling, process tools, and inspection systems must be computerized to achieve the desired operating economy and to decrease expensive direct labor.

(U) Manufacturing technology is the keystone of modern ammunition production facilities, whether that technology is purchased from industry or developed through the MMT engineering projects. The first objective of the manufacturing technology program is to improve the manufacturing processes, techniques, and equipment. The second is to bridge the gap between development and full-scale production. The third is to solve specific technological problems identified in the program.

(U) The MMT effort in the load, assembly, and pack area is guided by four major program goals: improved economy of operation, improved safety conditions for operating personnel, establishment of a rapid response production capability, and improvements in the quality of the end product produced. All of these goals were accomplished within the standards and criteria established for pollution abatement and energy conservation.

(U) Recent changes in policy and guidance have required process technology projects to be cost-effective within the framework and economics dictated by the Five Year Defense Plan (FYDP). These changes present a unique management challenge in the design and fabrication of equipment and

systems required for the loading and assembly of munitions components and end items. They were met by developing systems with the flexibility to produce many items, to establish an optimum balance between system simplicity and process operational requirements, and providing equipment designs capable of high efficiency operation to achieve cost-effective system operations.

(U) Due to the inherent hazardous nature of the production process encountered in the day-to-day operations required to load and assemble munitions components and end items, an extensive program has been undertaken to upgrade the safety of explosive preparation equipment, loading equipment, and assembly systems. The FY 1981-85 MMT program relating to upgrading of operational safety of loading lines is a continuation of an ongoing effort. This segment of the safety program will define and investigate specific operational safety hazards, and develop equipment and systems to reduce operator exposures and risk to operational safety problems.

(U) The very nature of the potential threat to the United States required that, in the event of mobilization, production facilities could be activated within a three-months time frame and reach maximum production in four. This rapid response objective required that equipment design, layaway techniques, and control technology be oriented to achieve the desired quick reaction capability.

(U) Through advances achieved in automated inspection techniques, automated loading systems, and automated assembly systems, the uniformity and quality of the end product produced was improved. The FY 1981-85 MMT program provided for no less than 13 projects oriented to improving quality control and test technology and an additional 15 projects oriented to the development of explosive loading and assembly techniques and equipment.

(U) The Metal Parts MMT Program for FY 1981-85 POM has for its major thrust investigations into optimum manufacturing processes for new munitions items scheduled for SAWS (Squad Automatic Weapon System), RAAM, GEMSS and Gator, the 120mm Tank ammo, and VIPER. Improvement of existing processes involves such investigations as link manufacturing process for small caliber ammunition, machining of brass cartridge cases, 7.62mm bullet manufacturing by roll forming, and transfer presses for mortar ammunition production. In the category of improving maintainability and readiness posture were technical readiness through computer integrated manufacturing, computer-aided modeling of forming operations, and storage techniques for production machinery projects. Enhancing reliability and quality control includes analysis for predicting tool failure and improving projectile quality surface and hi-frag steel processing projects.

(U) Primary program emphasis in the energetic materials area is being placed on development of manufacturing technology for new munition items including: 120mm (XM-1 tank munition); binary round

(8 inch, 155mm and Navy Weteye); alternate ICM explosive fills; LOVA propellants; plastic bonded explosives; and insensitive high explosives and propellants. Recent enactment of the Clean Air Act Amendment and Toxic Substances Control Act requires continuous MMT effort to meet mandatory compliance dates. Conservation of production base utilities, energy, and resources, as well as identification/utilization of alternate energy sources, are broad areas of major concern. The development and design of safe, cost-effective production processes are major goals of the munitions MMT program. Weak points in overall base readiness capability and maintainability will be determined and upgraded where feasible. In the supportive technology areas, the primary thrust areas continue to be pollution abatement engineering, energy technology development, and safety barricading. The munitions program represents a sound, well-balanced effort to enhance our munitions readiness in support of our troops as well as to upgrade the productivity of our munitions production base within prudent cost parameters to meet defense goals.

(U) The FY 1979 MMT Program. This program consisted of $20-$30 million per year and represents about 10 percent of the total program of the project. MMT projects were funded projects involving the evaluation of manufacturing processes, techniques, and equipment by the Government or private industry to provide for timely, reliable, economical, and high quality mass production of DOD required material. Its objective, according to AR 700-90, was to bridge the gap between prototype and mass production by the application of practical new production processes or techniques.

(U) Because of the four to eight year length of time required to process an MMT project from inception to implementation and the large number of projects handled at any one time (over 400), various Government agencies, including DARCOM, expressed concern about the control and management of the program. The program reviewed by the General Accounting Office (GAO) and a private consultant was critized for internal and external management.

(U) On 20 June 1979, the PM issued a guidance letter directing the establishment of an MMT Review Group and called on them to develop specific recommendations. The letter directed that a task or review group be established to study the problem of MMT within and outside the PBM organization. The group was composed of a chairman and representatives of each of the major divisions within PBM and reviewed the organization for handling MMT, the cycle for processing them and the procedures, and organization both internal and external to the PM.

(U) The MMT program, in execution during FY 1978, consisted of 221 projects still active out of 496 since FY 1970 with $48.9 million unexpended based on a program of $282.2 million from FY 1970 to FY 1979.

THE MMT PROGRAM
($ Millions)

FY	PROG	OBL	NO PROJ	EXPENDED	ACTIVE PROJ
70	15.500	15.500	22	15.478	--
71	16.400	16.400	29	16.389	--
72	21.013	21.013	25	21.099	1
73	34.913	34.901	59	34.834	1
74	37.800	37.800	70	36.700	15
75	36.000	35.900	51	35.193	14
76 T	42.800	42.700	82	39.940	41
77	26.400	26.000	48	20.970	41
78	24.200	23.000	51	11.230	49
79	27.200	15.400	59	1.481	59
TOTAL	282.200	268.600	496	233.300	221

Figure 2

(U) Analysis of the Review Group reveals that increasing emphasis was being placed on multiyear efforts. This is of some concern to program managers in that follow-on years of multi-year efforts have priority when formulating an FY program. Therefore, the greater the number of multi-year projects, the less the flexibility in formulating new programs and thrusts.

MULTI-YEAR EFFORTS

LENGTH OF EFFORT	NUMBER OF EFFORTS
2 YR	35
3 YR	8
4 YR	10
5 YR	3
6 YR	1
7 YR	2
8 YR	2

Of 336 projects active or planned, 151 are single-year efforts.

185 projects represent 61 efforts.

Figure 3

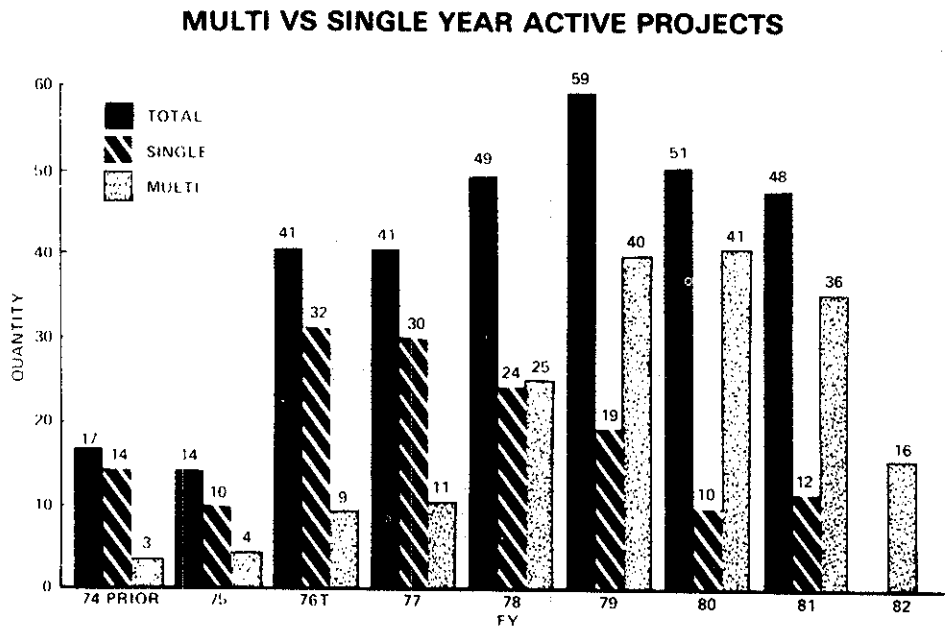


Figure 4

(U) The Review Group reviewed performance and the effectiveness of the program. A constant factor was found in a slippage of about 19 months from the time a project is started after contract award until the final report is issued.

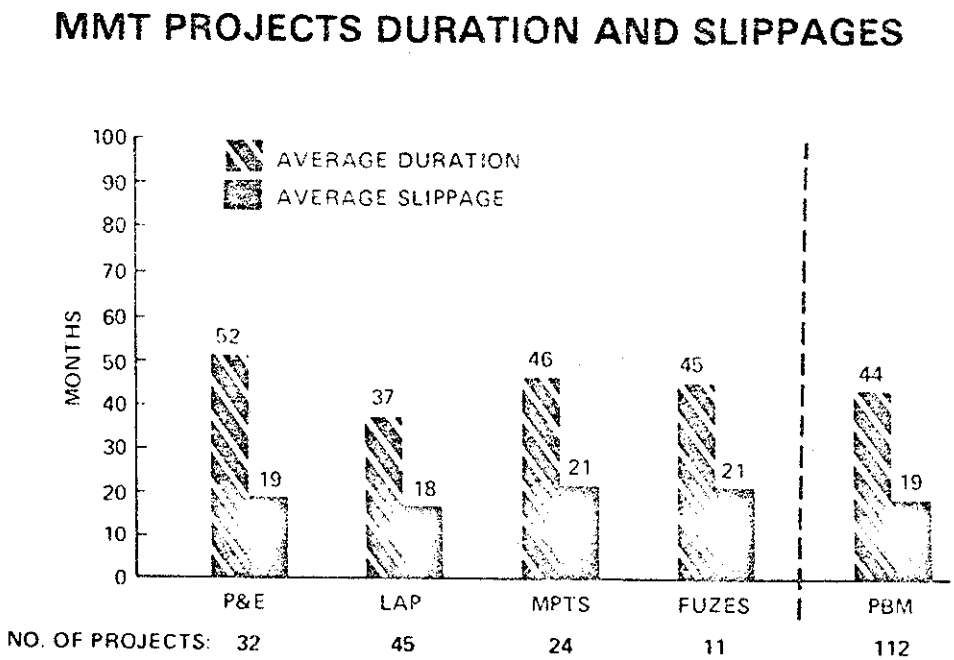


Figure 5

(U) In discussing the effectiveness based on the criteria that a project is successful if applied to the production base, the overall MMT effort is 69 percent effective

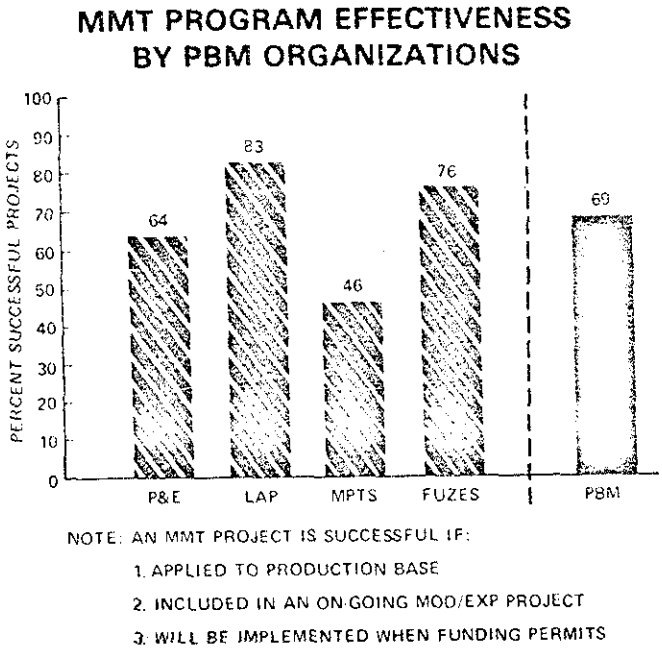


Figure 6

(U) An analysis was made of the status of unexpended funds for the 3d and 4th quarters. The analysis showed that FY 1979, in comparison with the previous fiscal years, showed no significant variance in trends.

% UNEXPENDED DOLLARS OF FISCAL YEAR

	FY 79	FY 78	FY 77	FY 76T	FY 75
Current Year	94.4	93.4	94.3	79.3	84.8
1st Prior	53.5	50.4	61.7	29.5	42.1
2d	20.5	13.9	10.3	21.1	11.2
3d	6.7	4.9	7.1	2.2	5.0
4th	4.5	3.8	1.3	0.9	1.0
5th	2.7	0.4	0.5	1.5	1.8
6th	0.2	0.01	1.1	0.05	
7th	0.01	0.006	0.05		
8th	0.0001				
Overall Prog	17.3	17.6	19.9	24.0	31.0 As of end of 3d Qtr

Figure 7

% UNEXPENDED DOLLARS OF FISCAL YEAR

	78	77	76T	75	74
Current Yr	86.3	86.2	78.4	74.1	84.1
1st Prior	41.3	32.1	27.4	33.1	42.6
2d	10.8	9.4	20.6	4.6	14.4
3d	4.0	5.3	2.2	2.0	7.8
4th	3.1	1.3	0.9	0.008	
5th	0.2	0.5	0.1		
6th	0.01	0.1			
7th	0.006	0.9			
Overall Prog	15.0	18.1	23.5	25.8	48.0

As of End of 4th Qtr

Figure 8

(U) A final report was given on 7 September 1979 to the PM and staff in the form of a briefing and the Review Group made 13 recommendations which were reviewed and acted upon.

(U) 1979 M&E Plan. Stress was placed upon the next five years of planning with stratification of funding into Core, Minimum, and Enhanced Cases. Each of these is driven by various buys or requirements and correspond to different authorized acquisition objective (AAO) force packages.

(U) Each year has a Core Case designed to meet planned procurement and initial production facilities to support weapon systems fielded during FY 1981-1985. The Minimum Case was in support of the 90-day AAO based upon sizing to buy the AAO in five years on a 1-8-5 basis. The Minimum Case fits between the Core and Enhanced.

(U) For the Enhanced Case the funding was for a base sized to the 180-day AAO and the main operating base (MOB) rate, Alternate II. Thus, the stratification of the modernization and expansion (M&E) Plan produced a minimum sizing of facilities in the Core Case by concentrating on initial production facilities (IPF) for new items and small expansions to meet planned procurement. The 90-day AAO level in the Minimum Case and the Enhanced Case expanded to the 180-day AAO and MOB levels in the most important areas.

(U) The 1979 Plan reflected the priority of the new Division Air Defense (DIVAD) system in FY 1981, the pending decision on the 81mm mortars, UK version versus an improved US version, and the reduction in 155mm XM795 facilities.

(U) The Five-Year Funding Plan at the end of the fiscal year is shown at Figure 9. A comparison of the DA projection objective memorandum (POM) and the finally approved DOD PDM denoted a sizable decrease of $436.4 million in the overall facilities plan. This decrease was significantly attributed to a change in DOD policy which limited facility construction to that required to support approved procurement.

TOTAL OBLIGATIONAL AUTHORITY FUNDING PROFILE

PROGRAM YEAR DOLLARS ($ MILLIONS)

LEVEL	FY81	FY82	FY83	FY84	FY85	TOTAL
CORE	247.5	150.7	159.5	218.0	236.9	1012.6
MINIMUM	231.6	50.5	98.4	146.2	85.9	612.6
ENHANCED	86.3	63.2	148.1	107.6	24.0	429.2
TOTAL	565.4	264.4	406.0	471.8	346.8	2054.4
CONSTANT FY79 DOLLARS ($ MILLIONS)						
CORE	183.3	109.2	109.2	141.6	146.2	689.5
MINIMUM	171.6	36.6	67.4	94.9	53.0	423.7
ENHANCED	63.9	45.8	101.4	69.8	14.8	295.7
INFLATION FACTORS (BASE YEAR FY79)						
DRC	1.357**	1.373	1.448	1.526	1.608	
CE	1.350**	1.390	1.470	1.560	1.640	

**FY81 INFLATION FACTORS ARE FROM THE SEPTEMBER OMB INFLATION GUIDANCE. FACTORS FOR OTHER YEARS ARE FROM THE MAY OMB INFLATION GUIDANCE.

Figure 9

The Program

(U) The FY 1979 Program at the end of the fiscal year was comprised of 30 facility projects (released) valued at $180,831,000 and 59 manufacturing methods and technology (MMT) projects (released for $27,025,000, or a total of $207,856,000.

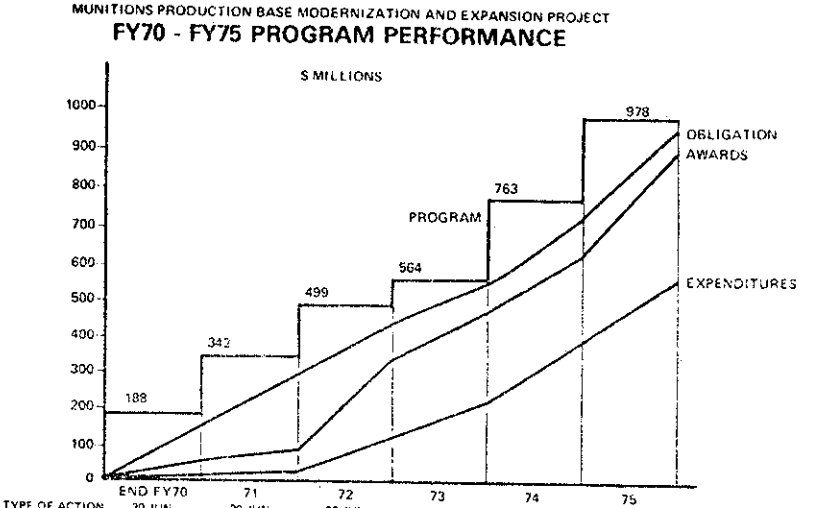
(U) At the end of the fiscal year 93.3 percent of the FY 1979 Program was obligated and 72.9 percent awarded. The break out was as follows:

	OBLIGATIONS	AWARDS
MMT	$ 25,293,000	$ 25,293,000
FACILITIES	$168,542,000	$126,245,000
TOTAL	$193,835,000	$151,538,000

(U) Total obligations and awards accomplished during the fiscal year (FY 1979 and prior years) were as follows:

	RELEASED PROGRAM	OBLIGATIONS	AWARDS
MMT	$ 26,940,000	$ 26,126,000	$ 26,126,000
FACILITIES	$187,790,000	$202,793,000	$217,797,000
TOTAL	$214,730,000	$228,919,000	$243,923,000

(U) Program performance for FY 1970-1979 is shown below at Figures 10 and 11.



TYPE OF ACTION	END FY70 30 JUN	71 30 JUN	72 30 JUN	73 30 JUN	74 30 JUN	75 30 JUN
PROGRAM	188.5	341.8	498.9	564.1	762.8	977.5
OBLIGATIONS	178.9	315.0	479.1	555.8	721.3	956.4
AWARDS	70.0	95.1	363.9	499.4	667.1	897.7
EXPENDITURES	2.0	26.6	144.5	224.2	414.4	564.1

Figure 10

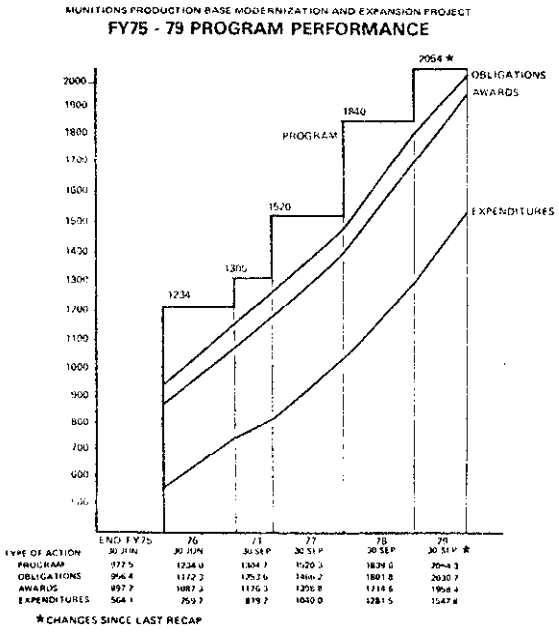


Figure 11

(U) Charts showing program summaries are at Figures 12 and 13.

MPBME FACTS
$ MILLIONS
FACILITIES

SEPT 79

FY	NUMBER OF PROJECTS	NUMBER OF PROJECTS FIN COMP	$ PROJECTS FIN COMP	SPT	IPF/EXP	MOD	TOTAL*	RELEASED	OBLIGATED	AWARDED	EXPENDED
70	51	44	124.2	1.7	1.0	202.2	204.9	204.9	204.9	204.9	203.9
71	27	19	30.6	5.1	2.2	124.3	131.6	131.6	131.6	131.6	128.1
72	31	22	40.2	3.8	1.0	120.7	125.5	125.5	125.5	125.5	122.2
73	35	22	28.1	9.3	9.6	92.4	111.3	111.2	111.3	111.3	107.9
74	32	22	40.8	8.6	91.7	27.6	127.9	127.9	124.8	124.2	121.1
75	28	12	11.6	7.4	109.7	122.9	240.0	240.0	239.6	238.5	218.8
76	39	15	18.2	3.8	74.4	57.2	135.4	135.4	135.0	134.4	127.9
77	11	3	5.2	5.1	6.0	44.4	55.5	55.5	55.4	52.7	38.8
77	23	0	0	0	110.7	71.7	182.4	182.4	181.7	180.9	133.3
78	37	2	.1	6.5	197.3	73.6	277.4	277.4	272.7	248.6	94.7
79	30	0	0	8.9	131.8	40.2	180.8**	180.8	168.5	126.2	12.3
80-85**	82	0	0	110.2	774.7	401.3	1286.2**	0	0	0	0
TOTAL	426	161	299.0	170.3	1510.1	1378.5	3058.9	1772.7	1751.0	1678.7	1308.9

* EXCLUDES COE OMNIBUS
** INCLUDES COE OMNIBUS

Figure 12

MM&TE

FY	ARRADCOM (PA)		ARRADCOM (FA)		ARRADCOM (EA)		ARRADCOM (HDL)		TOTAL		TOTAL	
	NO. OF PROJ	$	NO. OF PROJ	$	NO. OF PROJ	$	NO. OF PROJ	$	NO. OF PROJ	$	NO. OF PROJ COMP	$
70	15	3.9	5	3.3	2	8.3	0	0	22	15.5	22	15.5
71	22	9.3	5	4.2	2	2.9	0	0	29	16.4	28	15.9
72	17	14.5	7	6.1	1	.4	0	0	25	21.0	24	20.3
73	38	25.6	14	7.2	6	1.8	1	.3	59	34.9	56	23.6
74	43	24.7	20	9.9	4	2.5	3	.6	70	37.7	55	22.3
75	30	21.4	13	8.6	5	5.4	3	.6	51	36.0	38	18.0
76	36	23.1	16	8.1	5	4.3	4	.9	61	36.4	30	10.8
77	16	4.7	1	1.3	2	.4	2	.1	21	6.5	15	3.0
78	31	17.1	11	7.6	3	1.1	3	.7	48	26.5	8	2.2
79	35	16.8	12	5.3	2	.8	2	.8	51	23.7	2	.1
80	43	22.8	10	2.8	3	.6	3	.8	59	27.0	1	0
81	42	24.2	2	.6	3	1.0	4	1.4	51	27.2	0	0
TOTAL	368	208.1	116	65.0	38	29.5	25	6.2	547	308.8	279	131.7

Figure 13

(U) Program Overview. During late FY 1978 a new look was taken at program performance. First,by category. Figure 14 depicts the relationship of funding level categorized by equipment and construction. The early program was construction intensive until FY 1973-1975. After a significant reduction in construction in FY 1976-1979, again increased in FY 1980 and FY 1981. Construction funding has averaged 35 percent in the M&E Program.

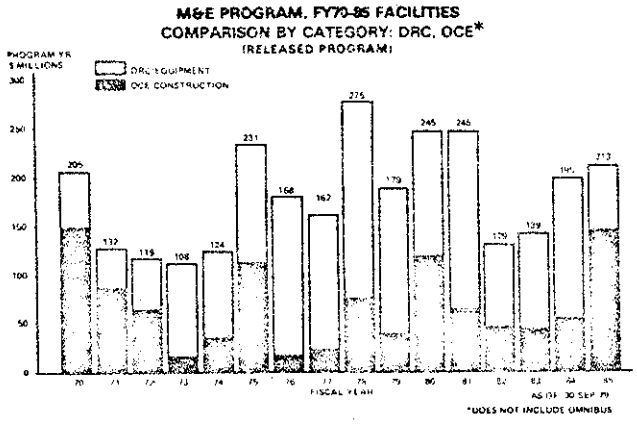


Figure 14

(U) The status of project completion was viewed in two ways: by number of projects and by dollar value (program year dollars). Figure 15 shows a picture of the FY 1970-1979 project completion status by number of projects. There were 51 projects in FY 1970, and as shown on the chart, approximately 40 fiscally closed out while almost 50 physically completed. Figure 16 shows project completion status by dollar value. Again, using FY 1970 as an example, the program value was $205 million. Fiscally closed out projects amounted to nearly $100 million while the value of those projects physically closed out amounted to nearly $200 million.

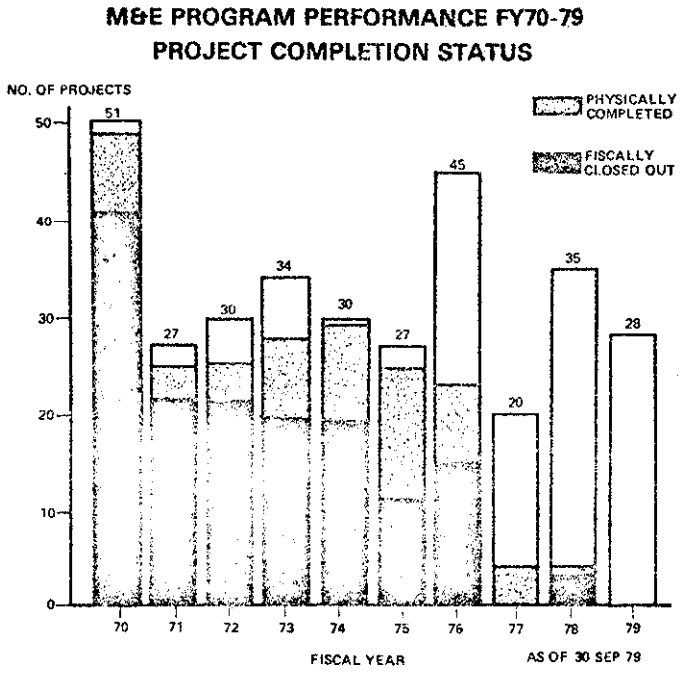


Figure 15

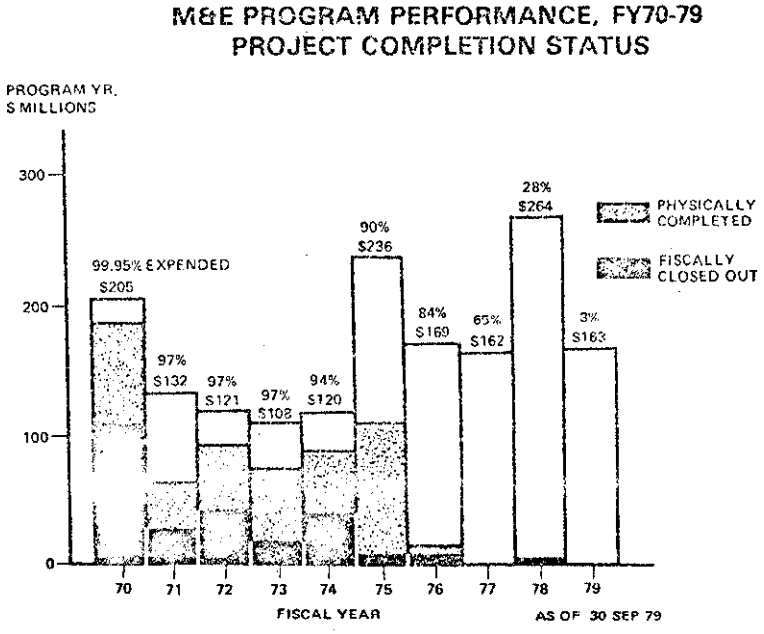


Figure 16

(U) Examining the total number of active projects managed yearly from FY 1970-1979 shows clearly that the M&E Program continued to grow (Figure 17). In addition to the 176 active projects at the close of the fiscal year, the FY 1980 program added another 16 projects for a total of 192 projects to be managed during FY 1980.

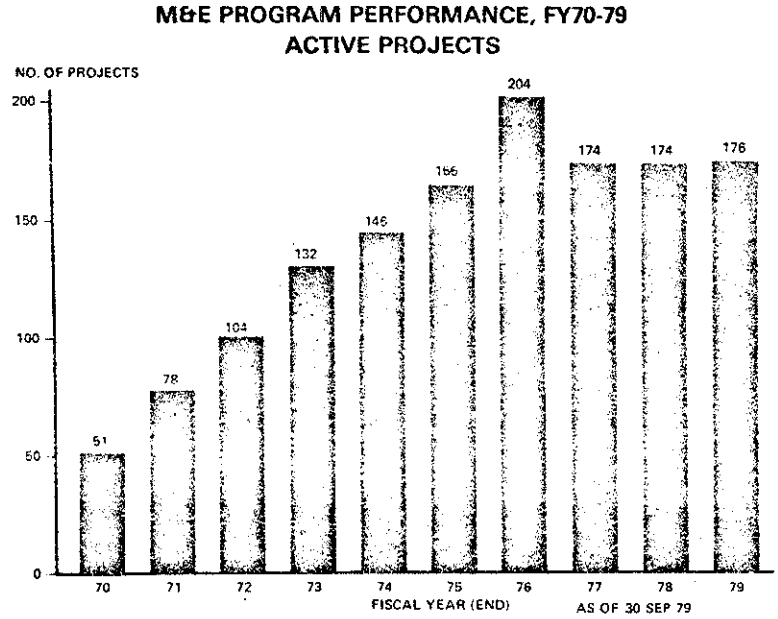


Figure 17

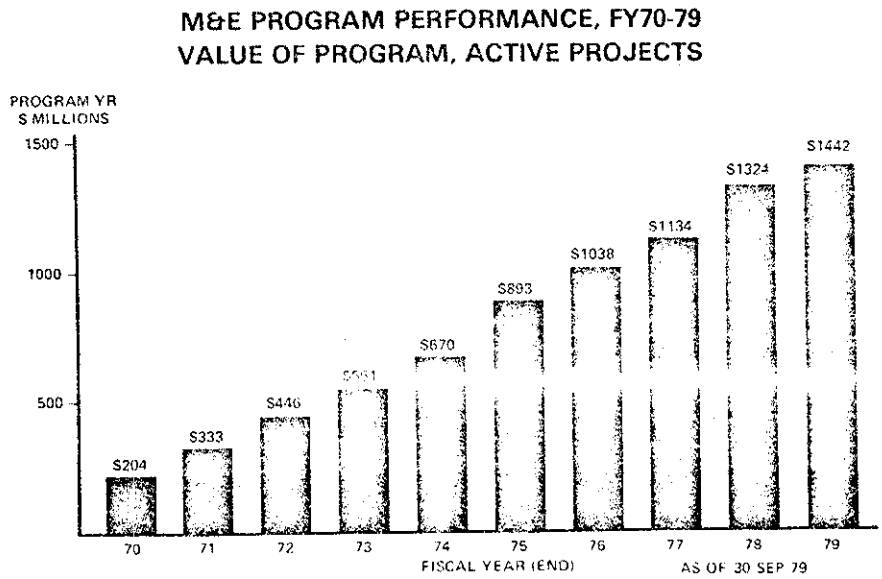


Figure 18

(U) Figure 18 expresses in program year dollars the total annual program for active projects, with the same growth pattern apparent. The total FY 1979 dollar value of the program managed was $1.4 billion, which was the highest in the Project's history. Due to shrinking resources, management of this program represented a major challenge.

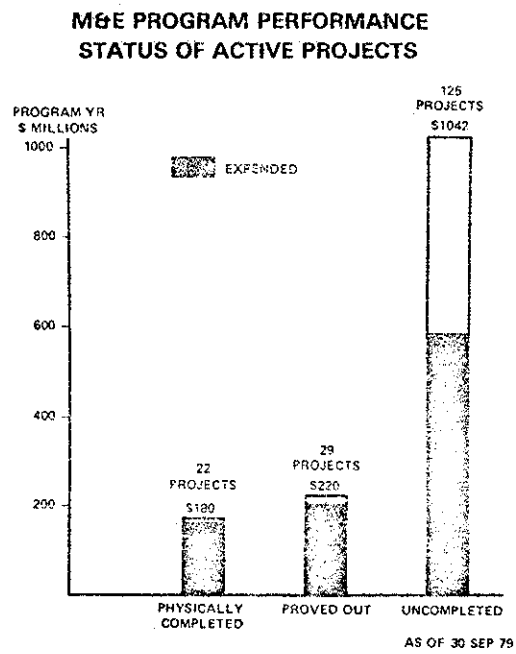


Figure 19

(U) Figure 19 shows that 22 of the 176 active projects were physically completed at the end of the fiscal year. These projects represented a dollar value of $180 million. Twenty-nine additional projects had been both physically completed and proved out, with a total value of $220 million. The remaining 125 projects that are uncompleted represent a program value of $1,042 million.

(U) Figure 20 indicates program performance for FY 1979 and forecast for FY 1980. During FY 1979 four projects were physically completed, 12 projects proved out and 33 fiscally closed out.

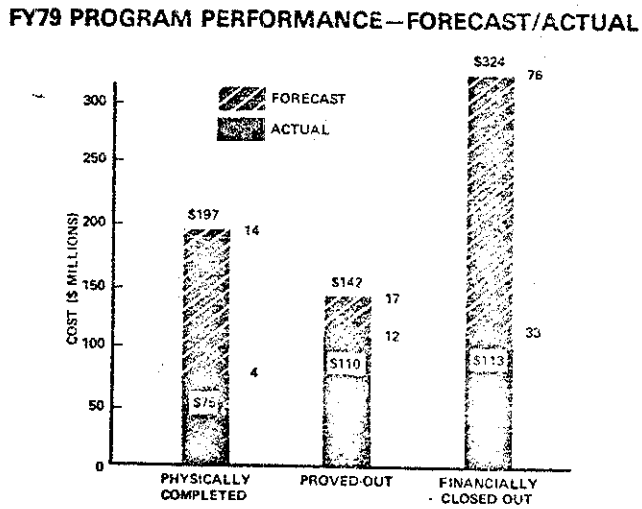


Figure 20

(U) Operation and Maintenance, Army (OMA) Program. The internal operating budget of PBM is supported solely through OMA funding. A profile of the OMA program indicating actual data for FY 1978 and FY 1979 is at Figure 21.

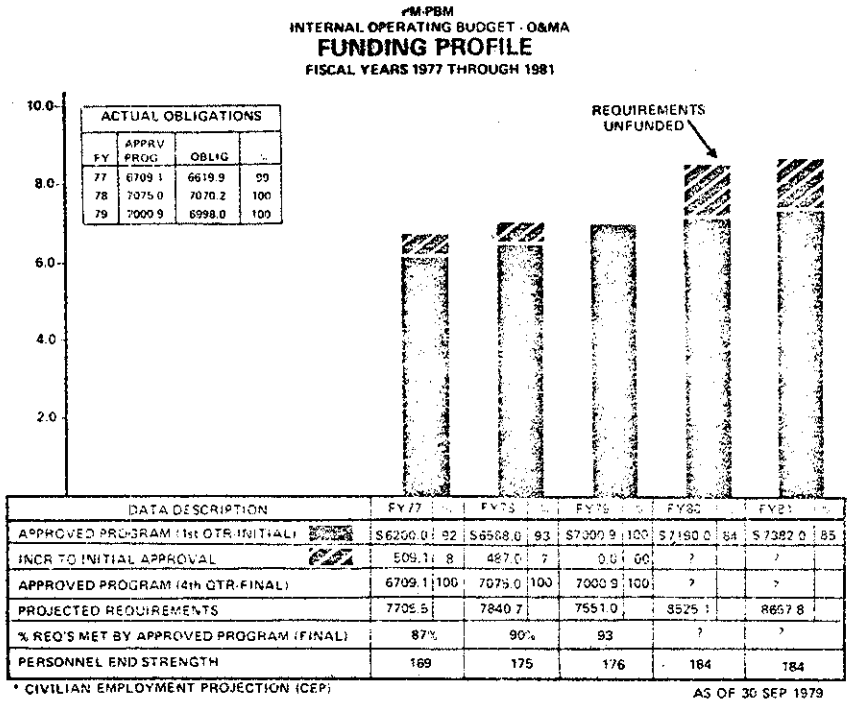


Figure 21

Actual obligations against the approved program for each fiscal year are summarized as follows:

Budget Activity	FY78 Obligations	FY79 Obligations
Salary & Wage	$4,369,400	$4,608,200
Personnel Benefits	429,000	419,000
Host/Tenant Agreement	1,235,000	1,001,600
Other	1,036,800	969,200
Total OMA Program	$7,070,200	$6,998,000
Other - Delineated		
Transportation of Things	$ 7,800	$5,400,000
Supplies & Materials	8,700	8,800
Contractual Services	500	73,100
Training	34,100	31,000
Equipment Maintenance	300	800
Equipment Buy	7,500	22,300
Equipment Rental	36,300	7,100
Travel	509,100	449,100
AIF Purchased Services	432,500	371,600
Total Other	$1,036,800	$6,363,800

Budget Activity	FY78 Obligations	FY79 Obligations
AIF Purchased Services - Delineated		
Communications	$ 21,700	$ 81,800
Shared Time Computer	80,000	2,000
Facilities Services	12,600	214,600
Graphic Arts Services	271,600	62,500
Tech Data/Config Mgmt Svcs	46,600	s 10,700
Total AIF Puchased Services	$432,500	$371,600
Distribution of Budget Program		
AIF	$1,667,000	$1,373,200
NAIF	5,403,200	5,624,800
	7,070,200	$6,998,000

(U) Omnibus Engineering Program. Omnibus engineering funds are provided to plants and other Government agencies, such as HDL, ARRADCOM, US Navy facilities, and commercial plants, to accomplish preliminary work for future year projects prior to approval and availability of project funds.

(U) Project 5793046 was authorized for $15.2 million of which $15 million was issued to plants, US Navy, commercial plants, and ARRADCOM in support of FY 1980, FY 1981 and FY 1982 projects. Funds issued to ARRADCOM were used to support PBM activities both in engineering and quality assurance areas as well as Huntsville Division for special studies in support of the M&E Program.

FY79 OMNIBUS ENGINEERING PROGRAM

AUTHORIZED:	15,239,482.62
ISSUED:	15,239,482.62
BALANCE:	-0-

DISTRIBUTION -

ARRADCOM	3,322,571.40
CHAMBERLAIN	101,075.00
BADGER AAP	46,981.00
HOLSTON AAP	143,834.00
HUNTSVILLE DIV ENGR	8,378,884.00
INDIANA AAP	360,806.00
IOWA AAP	177,354.00
KANSAS AAP	113,199.00
LAKE CITY AAP	125,476.76
LONE STAR AAP	10,653.00
LOUISIANA AAP	150,501.00
PINE BLUFF	314,600.00
RADFORD AAP	1,098,274.00
ST. LOUIS AAP	41,420.00
FLINCHBAUGH	274,924.46
LANSDOWNE	153,229.00
US NAVY	372,450.00
SUNFLOWER AAP	5,250.00
MILAN AAP	35,000.00
ARRCOM	13,000.00
TOTAL	15,239,482.62

(U) Delegation of Authority to Certify Year End Fiscal Reports. DARCOM-R37-2, 31 July 1978, entitled "Reconciliation and Year-end Certification Procedures," specifically precluded a Product/Project Manager from delegating authority to the servicing comptroller for year-end certification of fund balances.

(U) Based on the wide geographic separation between PMs and their servicing comptrollers, this restriction was waived by DARCOM at year-end FY 1978 and lifted completely by DA at year-end FY 1979. Certification of year-end reports now rests with the allottee who is the responsible individual for such funds, whether his title is that of commander,

director or PM. This authority, however may be delegated to the comptroller furnishing budget and accounting support, but must be accepted by the comptroller providing that support. The delegation and its acceptance must be in writing.

(U) Although requirements were changed to accommodate the certification of reports by other than commander, PM, etc., it nevertheless remained the position of the Commanding General of DARCOM that commanders, directors, and PM should certify their own reports.

(U) The PM's option of delegation of authority was one of automatic acceptance by the comptroller at HQ ARRCOM.

(U) The Comptroller at HQ ARRADCOM, however, accepted delegation of authority for only those allotments under his control, i.e., prior year OMA and as allottee for PAA funds managed by PM-PBM.

(U) In compliance with the DARCOM position, the PM certified the year-end fiscal report of OMA funding used by PM-PBM during FY 1979.

(U) Scopes of Work (SOW). In addition to tracking MMT and facility SOW through the procurement cycle from inception through placement on contract, during this fiscal year, the selected omnibus SOW was added into the tracking system. This milestone tracking system was the basis for discussions in regularly scheduled meetings initiated in 1979 to review obligation status. These meetings and milestone tracking data on which the meetings were based contributed significantly to exceeding obligation goals.

(U) Post contract award reviews were also made for four government owned contractor operated (GOCO) plants to determine compliance with the SOW requirements. These reviews revealed some misunderstandings on data management requirements and a need for training in this area.

(U) Cost/Schedule Control Systems Criteria (CS^2). During the fiscal year, this office participated in seven assistance visits made to assure compliance by the contractor with the contractor's validated cost and schedule control system. This office also assisted Mississippi Army Ammunition Plant (AAP) in establishing its CS^2 Surveillance Program during the fiscal year.

(U) This office also composed and presented a CS^2 training session offered to both US Army Research and Development Command (ARRADCOM) personnel and personnel of PBM who had not attended previously offered training sessions.

(U) Cost Accounting Standards (CAS). This office consistently held that G&A Expense for M&E effort should not be computed on the same basis as the purpose or profit objective of the business. The Procurement and Cost Analysis Branch advocated a separate treatment

of G&A for M&E effort in every available form. On 26 January 1979, this effort was rewarded when CASB issued Working Group Item 79-24 which reads in part, ". . . Facilities acquisition contracts normally do not require the same level of contractor risk and associated management attention as contracts which provide for the delivery of regular goods and services. As a result, a full allocation of a contractor's management or G&A expense to such contracts would generally not be equitable . . .

". . . When a contractor has one or more facilities contracts, such contracts should be reviewed to ascertain whether they receive significantly less benefit from G&A expense than other contracts. This is usually the case.

"When it is determined that facilities acquisition contracts will not receive an appropriate allocation of G&A expense by participating in the contractor's selected G&A expense allocation base, a special G&A expense allocation under the provisions of CAS 410.50(j) shall be required."

(U) Effects of Competition Study. In response to a request by Procurement and Cost Analysis Branch, the Army Procurement Research Office (APRO) conducted a study to determine the effects of competition on the unit price of ammunition. The specific study objectives were to: (a) provide a methodology for estimating the price savings due to repetitive competition, (b) exercise the methodology on a selected sample, (c) develop a forecasting methodology for use with current and future acquisitions, and (d) relate the findings to the larger question of choosing optimum number of producers.

(U) The methodology developed in the study provides an acceptable method of estimating the competitive savings in unit price. Based on the sample data, the study indicates that the best forecast for competitive savings in unit price for a future acquisition is 7.1 percent.

(U) The final report was due for release in late January 1980.

Technical Support Division

(U) Mission. In FY 1978 the mission of the Technical Support Division was to plan, develop, manage, direct, coordinate, and control the safety/security, product assurance, value engineering (VE), control systems, graphics/visual aids, and other specialized or interorganizational programs for the PMO. Additionally, the division was responsible for planning, direction, technical management and control, coordination, and execution of the fuze modernization and expansion (M&E) Program (to include supporting manufacturing methods and technology (MMT) efforts), the Systems Engineering Management Program, the

configuration management Program and the Data Management Program; also to direct, manage and coordinate the required interfaces with GOCO and GOGO plants, ARRADCOM/ARRCOM, CE, private industry, higher headquarters and other Government agencies/military Services to insure proper consideration of the specialized disciplines within the division's mission; and provide technical support to the PM and his staff in the life cycle management of the program.

(U) The Reliability, Availability, Maintainability (RAM) Handbook prepared by Texas A&M for this office was published and distributed to our contractors, other Government installations, and commercial contractors. A letter was received from DARCOM, Director of Manufacturing Technology commending this effort as a major achievement.

(U) During this period, ARRADCOM-PAD provided support to 32 different projects in various phases of the life cycle:

TASK	ACTIVITY
Planning	Product Assurance Plans RAM
Acceptance of Equipment	Review/Input SOW and Equipment Specs/Dwgs
Acceptance of Product	Update/modernize item specs Establish QA/QC System w/Contractor Approve Inspection Equipment
Acceptance of Facility	Demonstration Test Spec Demonstration Test Plan Data Collection Plan Monitor Prove Out and Analyze Data

(U) MMT Projects. ARRADCOM-PAD had eight active projects during the reporting period. Some significant accomplishments were the following:

1. Acceptance of Black Powder (BP) for Artillery Systems (4303). A contract was awarded to Princeton Research Lab for fabrication of a test device to check BP flame spread. The device was installed at Indiana AAP and was to be evaluated in FY 1979 during prove out of the BP line (5742084) in FY 1980.

2. Application of RADAR to Ballistic Acceptance Testing of Ammunition (ARBAT, 4139). In FY 1979 developmental and performance testing with 155mm projectiles was completed. Preliminary results indicated good tracking performance for 155mm projectiles fired at intermediate QE and charges less than seven. This device was to provide the Army with a first time capability of tracking high velocity small targets (projectiles 40mm to 8 inch) from launch to impact (up to 50 km) with real time data analysis.

(U) MMT Projects. ARRADCOM-PAD had 10 active projects which would support various projects in the PBM program. Upon completion, some of these would be picked up as MMT projects by PBM. Some significant accomplishments were:

1. Holographic Defect Detection by Pressure Stressing (PA-133-77). A study to establish feasibility of this technique for detecting discontinuities in shell metal parts (M483) was completed. Study indicated the technique was feasible; however, it was partially successful in detecting defects in all areas. In FY 1979 additional work was required.

2. Nondestructive Optical Testing Technique for Presence and Location of Threads in the M223 Fuze. This contract was awarded to Innovation Associates to develop an inspection device.

(U) Numerous requests for the GENMOD user manual for Production Line Simulations were received. The manual and key punch deck were forwarded at no cost to our contractors, such as Century Brass, Day & Zimmerman, Mason Chamberlain, commercial consulting organizations (D&E) other services (Navy and AF) and the British Embassy.

(U) A number of projects were closed out following the procedures outlined in Prove Out Plan 702-2 for transferring projects to ARRCOM. Contact was made with ARRCOM(IR) to formalize this procedure. The plan was briefed to Generals Eicher and Harper at the July 1979 Interface meeting and was accepted. Some of the projects closed out were:

Project No.	Title
5750268	WP LAP Line, PBA
5734841, 5732957	Proj Metal Parts, 105mm M1,
575, 76 & 772579	National Presto Inc.
5774863	ADAM Mines, Honeywell

(U) At the request of PMO, ARRADCOM-PAD prepared a document summarizing the development, current application, and future application of nondestructive test (NDT) methods that are under consideration or will be utilized to detect critical defects in artillery and tank shell metal parts. The document contains schedules for inspection equipment availability in support of projects. It has proven very useful in planning future inspection equipment requirements.

(U) Mr. Richard Schubert was nominated to serve as a member of the Ad Hoc Team to review and analyze the continuous NC process equipment at Radford AAP which was involved in a serious incident resulting in equipment damage and injuries.

(U) A new procedure was developed to reduce ARRADCOM-PAD manpower required to process and analyze prove-out data. The contractor now records data he collected during prove out into key-punch cards, using a format provided by ARRADCOM-PAD. The cards are sent to ARRADCOM-PAD for data processing into various listings which are returned to the contractor for use in preparing his test report. Special programs were developed to process the information. This procedure was successfully demonstrated during prove out of the M483A1 Projectile Metal Parts line at Norris, Los Angeles, California. A standard operating procedure (SOP) will be prepared for use at other installations.

(U) Intensive support to MSAAP 155mm Complex was provided by ARRADCOM-PAD and the PBM Product Assurance Group. Among the more significant accomplishments was the exploration of new inspection techniques for inspecting the shell body (holography and flux leakage) and M42/M46 Grenade (fluoroscopy, eddy current, flux leakage). Agreement was reached with MCI on a prove-out concept for the projectile metal parts (PMPTS) facility, and a preliminary test plan was prepared. A prove out P-15 for FY 1981 was submitted in the amount of $15 million. This amount was approximately $19 million less than the original estimate ($34 million) provided by MCI. Savings were accomplished essentially by reducing support activities and provisioning from a 3-8-5 (120,000 per month) operation to a 1-8-5 (40,000 per month) and deleting activities not directly attributable to the PMPTS facility. GARD Corporation completed a simulation of the Mississippi 155mm M483 Projectile Metal Parts complex using GENMOD and recommended reduction of 25 machines.

(U) Greater ARRADCOM participation in plant modernization prove out was actively pursued. Analysis of prove out RAM data from Kansas and Lone Star AAP 155mm M483 assemble and pack lines enable preparation of realistic equipment acceptance test specifications for Milan 8 Inch M509 assemble and pack line (5783506). The analysis identified areas of equipment deficiency and recommended improvements to increase efficiency. Riverbank AAP 60mm MPTS line was successfully proven out (5753246). Prove out enabled the Government (COR) to negotiate a follow-on production buy at reduced cost due to the information gained during prove out.

(U) Value Engineering. The PBM VE Office continued to pursue an active VE program during FY 1979. The staff of two full-time engineers was augmented in February 1979 when two Industry and Technology Office personnel were brought into the program. The larger staff permitted increased activity and more in-depth VE-type reviews of the facility projects.

(U) The thrust of the FY 1979 program was concentrated in three areas: (1) Independent third-party reviews by Government teams or private contractors on equipment and facility designs (a total of five were conducted during FY 1979.) (2) Value Engineering Funded (VEF) investigations and studies on specific equipment/process/facility areas both in-house and with GOCO plant and private contractors. (Seven VEF efforts were pursued). (3) VE participation by GOCO plant operators through their contract VE program requirements and incentive clauses. (The FY 1979 funded and obligated program for accomplishing third-party reviews and VEF was approximately $400,000).

(U) Through the use of these three approaches, the FY 1979 DARCOM VE Goal was achieved by PBM in all assigned categories (49 VEP actions vs 24 goal, 38 VECP actions vs 36 goal, and $14 million savings vs $8 million goal). Some specific examples of major FY 1979 VE cost savings/avoidance achievements were:

1. A third party review of the Cargo Metal Parts facility at Mississippi Army Ammunition Plant by Day and Zimmerman, Inc., Philadelphia, Pennsylvania, which resulted in a number of adopted design changes (estimated project savings - $5 million, cost of study approximately $150,000).

2. A VEF effort conducted by ARRADCOM on reducing the time required for chemical analysis of detonator (M55) composition by applying a polarograph technque in lieu of a manual chemical lab type analysis. Application to detonator facilities such as Iowa and Lone Star (estimated facility savings - $500,000, cost of effort approximately $65,000).

(U) Process Control Systems. The National Bureau of Standards (NBS) published for distribution the proceedings of a workshop studying "Control Systems Readiness for Munitions Plants: A First Pass." This effort resulted from coordinated actions of the control systems element, ARRADCOM and the NBS, and contained the consolidated recommendations of industry experts on the control systems readiness problem.

(U) Systems Engineering. The Systems Engineering Element was redesignated the Systems Engineering Group in October 1978. The group functions consisted of: Configuration Management, Systems Engineering, Data Management/SOW Review and processing, and Precriteria Project Review.

(U) The Configuration Management work load remained heavy, averaging approximately 60 engineering change proposals (ECP) per month. Monthly PMs Configuration Control Board (PMCCB) meetings were held and a significant number of urgent ECP was coordinated via telephone.

(U) The Systems Engineering effort was delayed because of erosion of ARRADCOM support based on organizational changes and transfer of key personnel. The remainder of the effort was conducted within the group. PBM SEMP 70-3, "Systems Engineering Master Plan" and PBM Memorandum No. 70-5 "Systems Engineering," were published 1 August 1979.

(U) Personnel of the group also instituted and coordinated efforts to apply additional aspects of Systems Engineering to MSAAP, which consisted of: Documentation Requirements, Interface Definition, and Computerized Network Analysis

(U) The CE, Huntsville Division, and the MSAAP Systems Integration contractor, MCI concurred on the above and have scheduled implementation for the 1st Quarter FY 1980. PBM OSM 70-2, "Precriteria Project Review," was revised and was scheduled to be released in October 1979.

(U) During this period it was decided to conduct a complete in-house Data Management Program. Previously, HQ, ARRCOM provided support, but because of the wide geographical separation, many problems arose. The in-house effort proved successful; and most problems, especially those based upon excessive processing time, were eliminated. PBM Memorandum 700-1, "Army Data Management Program," was revised in September 1979.

(U) The SOW review and processing proved to be a heavy and time-consuming work load, but steadily improved. The regular SOW review board meetings were held and procedures for processing were developed. PBM Memorandum No. 715-9, "Facility Scopes of Work Processing," was published 1 May 1979. A Draft PBM Memorandum No. 715-10, "Manufacturing Methods and Technology (MMT) Scopes of Work Processing," was prepared but not published. A procedural letter for MMT processing was prepared and disseminated on 19 July 1979. However, problems arose with ARRADCOM, and all procedures/requirements were not resolved. It was projected that MMT procedures would be released in October 1979.

(U) A new concept, General Support Service, was developed and implemented for expediting contract SOW with GOCO in conjunction with PBM/ARRADCOM Legal and ARRCOM Legal Offices. It enabled the PMO to contract via letter listing the services required, and reduced contract award time by an estimated 25 percent. General Support Service includes the following: Routine Support Services, Components/GFM/Shipping and Special handling/Loading/Shipping. At the close of the reporting period, the Systems Engineering Group had five personnel assigned.

(U) Fuze Group. The Fuze Group continued an active schedule of project management involving extensive coordination with private industry. Two significant contracts were awarded for the M724 and M587 Electronic Time Fuzes. These fixed price contracts were for initial

production facilities for fuze and power supply assembly tied directly to three-year production quantities. They were awarded to Eastman Kodak for fuze assembly and Eagle-Picher and Accudyne for the power supply assembly. All facilities will have a capability of 60,000 per month on a one-shift basis.

(U) A potential problem area was identified in that there was no domestic production base for fine-pitch, precision-ground carbide hobs required for the manufacture of pinions used in mechanical time fuzes and safing and arming devices.

(U) Two MMT projects were initiated to study the possibility of domestic production of improved high speed steel hobs to fill this requirement.

Propellants and Explosives Division

(U) Facility project execution on several important projects is listed in the following paragraphs:

(U) Sunflower AAP - Project 5752632. In FY 1979 construction of the $104.5 million nitroguanidine plant at Sunflower AAP, DeSoto, Kansas progressed smoothly. The prior sole source producer was Cyanamide of Canada. The status of the project in fiscal year 1979 was as follows: construction of the basic nitroguanidine plant neared 99 percent completion; the operating contractor, Hercules Inc., completed 37 percent of the punch list modifications. The calcium cyanamide plant was 96 percent complete; the bricks of the rotary kiln were cured and fired. The boiler house rehabilitation and ash handling lagoon system were completed; prove out of the boilers was initiated. The SAC was 90 percent complete; however, the first stage heater shells required reglassing. Some scheduled delays were encountered within the project. These resulted as contractors experienced difficulty obtaining qualified personnel; several major oil refining facilities in the Kansas City area were overhauled, reducing available manpower resourses considerably. The Stage 1 prove out was 23 percent complete in the basic nitroguanidine plant area.

(U) Project 5702072 - 300 T/D Weak Nitric Acid Plant. Leaks which were encountered in the waste heat boiler during the performance test of the 300 T/D weak nitric acid plant at Holston AAP were repaired, and layaway of the facility was initiated. Fiscal completion and final project close out were planned in early FY 1980.

(U) Project 57T2664 - Administration Building - Holston AAP. In FY 1979 construction of the new administration building was in progress, and no problems surfaced. Site preparation, foundations, and framing were completed. Installation of wall panels and roof sections, to enclose the structure, was started.

(U) Project 5822052 - Comp B Line 1 Improvements. Additional modifications to the dryer for Comp A-7 in Comp B Line 1 at Holston AAP corrected the loss of explosive dust from the dryer to the building interior. Holston AAP maintained that the dust problem had been solved by these changes on the basis of operating test results obtained from tests following the modifications. ARRCOM accepted the dryer without further testing or modification on the basis of the test results, notwithstanding reservations expressed by PBM. ARRCOM agreed to accept the entire finishing area as is and initiated plans to lay away this part of the line. The RDX recrystallization building would be the sole process building affected by the project.

(U) Propellants. The FY 1979 program for the Propellants Branch was relatively modest compared with former years. In the facilities area, only four new projects were funded for a total of $5.6 million. In the manufacturing technology portion, the approved program of $2.7 million consisted of four continuing projects and the initiation of four new development projects. However, there was considerable activity in the design of new facilities for future program years and the completion and prove out of several prior year projects. Emphasis continued on applying lessons learned to design and execution, value engineering (VE) of new designs, and expediting close out of completed projects.

(U) Sunflower AAP. In FY 1979 the solventless roll and continuous paste preparation facilities entered the prove out phase, and mechanical debugging and correction of design deficiencies were nearing completion.

(U) Prove out of the Chemico acid plants was suspended because of excessive corrosion problems with the nitrogen oxide compressor in the AOP and a multi-effect evaporator in the NAC/SAC. The nitrogen oxide compressor was being rebuilt using materials agreed upon between the Government and equipment vendor. The multieffect evaporator system was redesigned with tantalum specified as the material of construction. Rebuild was in progress at the end of the fiscal year.

(U) The sulfuric acid regeneration facility, a turnkey facility design, was nearly completed and construction was well ahead of schedule. The LWT facility design was completed and a construction contract was awarded to V. S. DiCarlo General Contractors, Inc. Prove out was anticipated to begin in November 1979.

(U) The construction contract was awarded for eight igloo magazines which were to be utilized to store nitroguanidine, and construction was to be completed in CY 1980.

(U) Badger AAP. The sulfuric acid regeneration facility was completed by Stearns-Roger under directions of the Omaha District, Corps of Engineers (CE). Several attempts were made to prove out the plant.

However, it was learned that the unit was not able to meet its designed capacity when the specified amount of spent acid was used for regeneration. The combustion furnace and other front end components of the facility were redesigned to meet the capacity requirements for the plant. These modifications were to be completed in the next fiscal year with appropriate prove out of the facility.

(U) The AOP at Badger AAP was completed, with the exception of the installation of the nitric oxide (NO_x) compressor, which would be delivered and installed in the next fiscal year. The long-awaited Ingersol-Rand compression train for the AOP was installed at the facility during the summer. This facility was scheduled for prove out in the spring of 1980.

(U) The NAC/SAC Units at Badger AAP were completed using the lessons learned and the experiences gained from the operation of similar units at Radford AAP and Sunflower AAP. On 16 July 1979, the prove out of one of the four concentration units in the facility was initiated, but was suspended to make repairs and replace some rubber lined pipes which failed. The prove out was to be continued in early October 1979.

(U) Radford AAP. The Continuous Automated Single Base Line (CASBL) was physically nearly complete. The remaining tasks were the correction of design and construction deficiencies, repair of damage resulting from sink holes, and modification of the CASBL LWT Facility to prevent fouling of the reverse osmosis filters by alum and silt. The repair of damage resulting from formation of the sink holes was scheduled for completion in November 1979, and the expected completion date of the LWT modification was January 1980.

(U) Due to changes in propelling charge requirements, it was decided to provide the CASBL with a capability to produce M6 propellant for the M119A1 155mm Propelling Charge in addition to existing 105mm M1, 8 inch M1, and 175mm M6 propellant capabilities. By providing the line with this additional capability, the CASBL can be used to produce propellant to support fiscal year defense appropriation plan (FYDP) requirements for the next several years.

(U) Initial stages of prove out, such as the preparation of procedures and software, equipment debugging, etc., were started in early CY 1979 with actual demonstration testing to begin in FY 1980.

(U) The restoration of Nitroglycerin Area 2, destroyed by an explosion in January 1978, proceeded smoothly and on schedule. The Corps of Engineers (CE), in November 1978, awarded a $1.1 million contract to Biazzi of Switzerland for the nitrating equipment. In January 1979, this contract was transferred from the Omaha District to ARRCOM. The Biazzi process equipment was scheduled for delivery to Radford, and the CE construction contract was awarded in January 1979 to the McDonnough Construction Company.

(U) On 2 November 1978, there was an incident at Radford AAP in one of the centrifuges in the C-Line Continuous Nitrocellulose Facility. Although the line was badly damaged, it was restored to one-half its original capacity. To meet FY 1981 production schedules, completion of the B-Line continuous nitrocellulose facility was expedited. An FY 1981 project was programmed to repair the damage done to the C-Line Nitrocellulose building and restore the other half of its capacity.

(U) The two FY 1978 expansion projects for manufacturing RAP propellant grains (155mm and 203mm) at Radford are proceeding satisfactorily, with completion scheduled by the end of CY 1979. It was decided to procure an additional lathe for the 155mm RAP grain project from available funds to enhance a marginal grain finishing capacity.

(U) Indiana AAP. Initiation of start-up/prove out of the BP manufacturing facility experienced three months delay which resulted from problems related to completion of the facility and installation of process material handling equipment. Additional work was underway to enhance the lightning protection system. Live demonstration acceptance test run was rescheduled to the first quarter of CY 1980.

(U) Indian Head Naval Ordnance Station (IHNOS). The initial production facilities (IPF) Surface Launched Unit Fuel Air Explosives (SLUFAE) rocket motor facility project for the IHNOS was approved. However, execution of the project was suspended at the direction of DA pending the outcome of Congressional action of the FY 1980 SLUFAE rocket motor production facility for Longhorn AAP.

(U) Callery Chemical Co. Construction of a facility costing $7.5 million to produce 15,000 pounds per year of carborane was completed in May 1979. The facility was located at Callery Chemical Company, Callery, Pennsylvania, and the carborane process equipment furnished with Government funds was severable. Carborane, which has a necessary burning rate, was an additive used in the VIPER (Improved LAW) Weapon System to assure propellant burn-out in the launch tube. Prove out of the facility was stretched out due to delays in the overall VIPER program. Prior to the construction of the facility, only 500 pounds per year of carborane was produced at a cost of $1,600 per pound. With this facility, carborane could be produced at a cost of less than $550 per pound.

(U) Continuous Automated Multibase Line (CAMBL). Design was completed for CAMBL (Hybrid) at Radford AAP.

(U) It was expected that this project would be a four-year effort, with the first two years to be at Radford and the last two years at Sunflower. The Sunflower effort would adapt the batch techniques developed at Radford to the continuous paste and mechanical roll facilities at Sunflower. Representatives of this PMO also served as members of the Source Selection Board for the system contractor to manage the RDTE effort of Technology Transfer, Testing, and Fabrication. It was expected that some of the FY 1980 effort would involve an integration of the related testing and test hardware between the MMT and the system contractor.

(U) Nitrocellulose Purification. A contract was signed with Hanspeter Moser Processing of Switzerland for a 2,000 pound per hour Conicell unit, with delivery expected in July 1980.

(U) Forced Air Dryers (FAD). Manufacturing Methods Technology (MMT) efforts continued on a modernized FAD. These FAD, used for drying multi-base cannon propellant, are a major source of pollution due to hydrocarbon emissions. Work was initiated to modify an FAD building to improve its operating efficiency, and design work continued on the pollution abatement system. It is expected that the modifications to the FAD will greatly reduce the volume of air required, lessening the demand on the pollution abatement equipment.

(U) Ball Propellant. Efforts continued in FY 1979 to improve the ball propellant manufacturing processes. Progress was made on a project to develop a drying system for use in the modernized ball propellant facility planned for Badger AAP. The control and fire protection systems for the fluidized bed dryer previously provided were installed. The sprinkler system was successfully tested. Using inert material, it was shown that the dryer feed system could deliver 200 pounds per hour of propellant. Based on the ARRCOM preoperational safety review, approval was given to process energetic material through the pilot drying line.

(U) In a second project, progress continued in pilot plant studies to develop more efficient methods for the wet processing of ball propellant. The continuous wet line was installed and checked out. As part of the ball propellant wet processing studies, external lacquer makeup is being investigated in order to reduce still cycle times.

(U) Under a project to optimize the ball propellant deterrent coating process by using a programmable controller, it was found that emulsion particle size was not critical to deterrent absorption. Parameters for the programmable controller and modifications to the coating still were defined. A purchase order for the programmable controller was issued.

(U) Methods for safely and efficiently drying low density propellant were being studied. Under this project, a contract was awarded for the procurement of a small fluidized bed dryer to develop methods for drying propellant and generating data needed for the design of a full sized facility.

(U) Ultrasonic Extrusion. Work continued on adapting an ultrasonically activated die for the extrusion of propellant. The electrical control system was modified and the system tested by extruding inert material. Live N5 propellant would be extruded, shipped to Radford AAP for finishing, and statically fired once additional funding was provided. Work was to be completed in FY 1980.

Other Activity

(U) Assistance to ARRCOM Following Nitrocellulose Incident. Following the 2 November 1978 incident in the "C"-Line nitrocellulose building, PBM offered to assist ARRCOM, as necessary, to restore production capability at Radford. The PBM project engineer for nitrocellulose facilities spent three weeks on-site assisting the Board of Inquiry in its investigation of the incident. As an adjunct action, the PM chartered an Ad Hoc Committee for the Review and Analysis of the Continuous Nitrocellulose Process Equipment. The final report of its evaluation was due by the end of CY 1979. Serving on the preoperational safety review team, which serveyed and ultimately released the repaired and modified line for resumption of production, was the Chief, Propellants Branch of the PBM office.

(U) Standard Details Study. A contract was awarded by the Huntsville Division, CE, to Black and Veatch, Kansas City, for the preparation of architectural standard details for propellant ammunition facilities. The firm visited Radford, Holston and Sunflower AAPs to collect data and to review existing applicable details of construction presently being used in the design of new facilities. The development of these standard details will achieve a certain degree of standardization, shorten the design approval cycle, provide better quality control during construction, reduce costs and enhance safety.

(U) Support to DA Staff. In March 1979, in preparation for the FY 1980 Authorization Bill, DA requested assistance from representatives of the Propellants Branch in briefing staff members of the House Armed Services Subcommittee (HASC) on the CAMBL project. A briefing was presented on 7 March to the HASC staff by the branch representatives. Several weeks later, these same staff members were accompanied by a Propellants Branch representative to Radford AAP for an inspection of the proposed CAMBL site. The project was subsequently authorized for construction by the Congress.

Selected Munitions & Engineering Support Branch

(U) Mission. This branch has the primary responsibility in the technological areas of pollution abatement engineering, energy technology development, safety barricading, chemical manufacturing facilities, pyrotechnic engineering, and materials engineering in support of facilities. Brief descriptions of the projects and summary of FY 1979 activities follow:

(U) Integrated Binary Munitions Facility. Progress continued on the integrated binary munitions facility. Funds were released and a sizing study was initiated to determine economical sizes and the number of lines required for the expanded GB2 facility, Phase 2. In addition,

a late start FY 1979 technology project was funded to provide waste treatment and design for the VX-2 module, Phase 3. The problem of ultimate waste salt disposal for the GB2 module was addressed and resulted in submission of another technology project for the FY 1980-1981 programs, which in FY 1979 were under review.

(U) The announcement that a binary complex was planned for Pine Bluff Arsenal caused some negative reaction. The former governor of Arkansas (now a US Senator) objected to the precedent. Because of the controversy aspect, an environmental impact statement (EIS) for the total facility would be required. Planning for the preparation of EIS was underway and a draft EIS was to be submitted in accordance with guidelines issued by the Council on Environmental Quality.

(U) Because the initial phase of the binary complex was deferred from FY 1980 to 1981, Phases 2 and 3 were rescheduled, tentatively, to FY 1983 and 1984, respectively.

(U) Energy Technology Development. In the energy area, the multi-task energy conservation technology Project 4281 was scheduled through FY 1981, costing $6.835 million as outlined below:

FUNDING LEVEL (Dollars in thousands)
(By FY)

Project No.	75	76	7T	77	78	79	80	81
4281	191	875	0	1,000	1,062	1,285	1,234	1,188

The following tasks comprised the FY 1979 portion of Project 4281:

Task No. 1-1 - Process Energy Inventory
Task No. 1-2 - Optimized Insulation
Task No. 1-3 - Synthetic Natural Gas for Process Operations
Task No. 1-4 - Energy Recovery from Waste Heat
Task No. 1-5 - Energy Recovery from Wood Waste
Task No. 1-8 - Cavitational Removal of Explosives

(U) Project 4281, Task 1-1. Process energy inventories are being conducted at Radford, Kansas and Lone Star AAPs to (1) establish energy consumption on a unit process basis, (2) define energy ineffeciencies, and (3) formulate plans for adapting energy conservation technology to process operations. The majority of work planned at Radford and Kansas has been completed resulting in the identification of numerous energy saving opportunities. The effort at Lone Star, however, was interrupted when production on the line being audited (M72A2 LAW Line) was terminated. A decision was being made to either (1) leave the instrumentation in place and resume the audit when the line is reactivated or (2) transfer the equipment and conduct the audit on an alternate line.

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(U) Project 4281, Task 1-2. Efforts were initiated in FY 1979 to select, apply and evaluate a suitable insulation material on one of the stainless steel boiling tubs used in the nitrocellulose purification operations at Radford AAP. To date, the conceptual designs have been completed which, when applied, were expected to constitute an advance in energy conservation technology by establishing the technological basis for insulating the remaining boiling tubs at Radford and other nitrocellulose manufacturing facilities.

(U) Project 4281, Task 1-3. An effort was initiated in FY 1979 to review and compare proven processes for coal gasification, the objective being to select a specific process or devise a composite system for producing a clean-burning gas that is compatible with existing operations at Radford AAP. A survey of natural gas usage at Radford AAP was underway during the fiscal year, and successful completion of this project was to provide a technological basis for reducing the Army's dependence on natural gas which is in questionable supply.

(U) Project 4281, Task 1-4. A report entitled, "Recovery of Waste Heat from Propellant Forced Air Dry House," (Contractor Report ARLCD-CR-78029) was published December 1978, covering the design, fabrication, and evaluation of heat pipe based energy recovery system to recover waste heat from a multibase propellant forced air dry house. Annual savings on the order of $1.5 million per year were estimated under mobilization conditions if this recovery technique was applied to the multibase propellant drying operation, such as at Radford AAP.

(U) During the fiscal year, a project was in progress to build and evaluate a demonstration facility at Radford AAP to recover energy in the hot waste water from the nitrocellulose purification operation by preheating incoming process water. TRW, Inc., was contracted to assist in the design of a heat pipe/heat exchanger for the recovery system. It was projected that about $1.0 million per year could be saved at Radford AAP under mobilization conditions if this system were fully implemented.

(U) Project 4281, Task 1-5. A study jointly sponsored by the Army and NASA was conducted to determine the feasibility of using wood waste as a source of energy at the MSAAP/NSTL complex. Study results indicate that there is sufficient wood available to meet the energy requirements for the joint site. A wood-fired spreader stoker furnace was selected as a conversion system, and a series of three systems was designed to meet various combinations of the energy requirements at this site.

(U) The economics of the individual systems indicate that they would be attractive alternatives for fossil fueled plants; and in view of the anticipated long-term impact and reliability of forest management programs, this is the time to develop and implement this concept.

(U) Project 4281, Task 1-8. A feasibility study showed that the use of a cavitating water jet to remove explosives from rejected projectiles was both safe and efficient. A pilot facility study, conducted at Iowa AAP, in FY 1979, was expected to result in the demonstration of a process which would produce energy and cost savings when implemented at Army LAP facilities.

(U) Energy Steering Committee (ESC). The objectives of the interagency ESC in FY 1979, were to provide a forum for the exchange of ideas in energy conservation and management and to provide recommendations leading to reduced energy requirements or conversions to alternative energy sources at ammunition plants and arsenals. Mr. Leon Saffian, Chief, Energetic Systems Processing Division, ARRADCOM, Dover, NJ, served as chairman of the committee from 1 October 1978 through 30 September 1979. The ESC met in January, May, and September 1979. Speakers included representatives of the Navy Energy Office and AF Systems Command as well as personnel from the Army Energy Office, Army Engineer Division, Huntsville, Construction Engineering Research Laboratory, Facilities Engineering Support Agency, Materiel Development and Readiness Command, and Mobility Equipment Research and Development Command. Topics included the Army, Navy and AF Joint DOD-DOE Energy Showcase Programs, the Energy Conservation and Management Program at AAP, Army Facility Energy Plan, Energy R&D Plan for Mobility Operations, Modernization Plan for AAP Steam Generating Facilities, and technical papers on many topics including Process Energy Inventories, Biomass Utilization, Electric Load Analysis, Heat Pump Technology, and Waste Heat Recovery.

(U) Permits Application Workshop (PAWS). The PAWS was presented to some 50 engineering and other interested personnel from both the PMO and associated ARRADCOM personnel at two one-day sessions, for which training credit was given to the attendees.

(U) Speakers from USAEHA and the New York Region of EPA conducted the workshops in the interest of providing guidance to Federal agencies in complying with new requirements for obtaining various types of legal permits, such as operating and construction permits from the states and local agencies. Topics were: Clean Air Act Legislation, Air Quality Control Regions, Prevention of Significant Deterioration and Nonattainment, Permits/Registration, Sources of Permit Information, and Sample Registration Forms for Virginia.

(U) PMO Internal ESC. During the fiscal year, the ESC met four times at the PMO office and the following topics were covered: (a) Electrical Power Systems Design Study (demand factors), (b) TRW/Lehigh University Biomass Study, (c) Coal Based Community - Extended Analysis, and (d) Army Power Plant Study.

(U) The ad hoc committee of the interagency steering committee (consisting of members from ARRADCOM and PMO) evaluated the Lehigh University conclusions from the Electrical Power Systems Design Study and

recommended that the electrical systems design handbook (of demand/diversity factors) not be pursued further. The Lehigh University study showed that although the attainment of the handbook was feasible, it would be impractical and uneconomical. Instead, the ad hoc committee recommended that the study be halted at this point, and that the involved agencies in PMO electrical design (ARRCOM, PMO, CE, I&S, AAP) be advised to tighten up their adherence to current electrical design regulations and guidance.

(U) TRW/Lehigh University Biomass Study. As a natural continuation to the 1978 omnibus type studies contract (#78C0185) with Lehigh University, a replica contract for 1979 (#79C0224) was let to Lehigh University.

(U) The primary task 1, the analysis of TRW's proposals for the Biomass (wood trash burning) at Mississippi AAP/NSTL site, was given to Lehigh University in mid-August 1979.

(U) Lehigh University's task was to evaluate, both technically and economically, the three systems designed by TRW to meet energy requirements at this site. The evaluation is still in progress and is expected to be completed by early FY 1980.

Pollution Abatement Program.

(U) Project 6748 (SCAMP Pollution Abatement). The bids for the installation of the complete SCAMP Pollution Abatement System exceeded available funding. The technical scope was reduced to accommodate the funding which required resolicitation. The project has proceeded with the installation of the lubricant and oily waste treatment portion of the system only. The treatment of acid and heavy metal wastes will be deferred until funding becomes available. Contractual delays with Lake City AAP have deferred the start of physical installation of the equipment until the end of September 1979.

(U) Project 4084 (Opacity/Mass Emission Correlation). This first phase of a two-year project was initiated at Scranton AAP to simplify the smoke stack monitoring instrumentation required for meeting EPA and state regulations. The monitoring is being conducted by JACA Corporation.

(U) Project 4114 - Task 3-6 - On-Line Biomonitors. The 1977 effort was continuing the investigation for the use of biological monitors (blue gill fish) for the detection of toxic effluents in P&E plant waste streams. During this period the biomonitoring trailer, piping, and utilities were installed. Preliminary testing using a synthesized effluent was performed. R&D funding was solicited to develop a more reliable analysis technique for data obtained from the biomonitors.

(U) Project 4214 - Task 2 - Reuse of Treated Effluents. In the current "In-Plant Reuse of Pollution Abated Waters" project the following areas at Holston AAP were searched for process water recycle posibilities:

Nitric Acid Area: No economical methods were found.

The B-Line Primary Distillation Area: Not economical.

The Explosives Manufacturing Area: Nine possible recycle methods were being evaluated, two of which were in incorporation buildings. These were recycling of scrubber water from the dust scrubbers in the incorporation building and finishing area and the recycling of spray water which was used for cooling the casting operation in the incorporation building. This operation may have been confused with wash water, since there was no wash water in the incorporation building. At full mobilization the recycle of spray for casting operation could recycle 162,000 gpd. The recycling of water from the recrystallization building was being evaluated.

(U) It was learned from Mr. Edward Justus (Holston Defense Corporation) that there was a provision to recycle the effluent from the ILWTF and use it as process water. Acceptability of this water as process water would be determined after the plant was built and running.

(U) Project 4214 - Task 3 - Low Cost System for Pink Water Treatment. Pink water, a solution of TNT and other nitrobodies, has been a major pollutant of ammunition plants engaged not only in the manufacture of TNT, but also in the load, assembly and pack (LAP) of munitions. In FY 1979, the water was purified by carbon adsorption, but this process was expensive and inefficient.

(U) Alternative demonstration modules of new technologies for the treatment of pink wastewater at lower costs were designed and installed at Iowa AAP. These included ultraviolet/ozonolysis, white oil solvent extraction, and electro-chemical oxidation/coagulation.

(U) The surfactant process for treatment of pink water was undergoing evaluation on a pilot scale at an industrial contractor. Results obtained in FY 1979 showed that with pink water containing TNT alone, the TNT content could be reduced to less than one ppm in less than an hour of reaction time. When the pink water also contained RDX (as in Comp B), both TNT and RDX could be removed in less than an hour of reaction time. Work was being conducted to determine the optimum reaction conditions as well as the structure and properties of the TNT surfactant complex.

(U) This technology development was designed to satisfy the 1983-1985 legislative deadlines for clean water at the various AAP.

(U) Late Start FY 1979 Project 4225 - Red Water Disposal by Sulfite Recovery. "Red Water," the product resulting from the sodium sulfite washes required to remove the undesirable isomers in TNT purification, was included on the Environmental Protection Agency's (EPA)

proposed list of hazardous materials. FY 1979 methodology for disposal included incineration and landfill or sale to the paper industry. These methods were undesirable because of expense, availability of landfill sites, pollution abatement, and reliability.

(U) Numerous approaches were investigated to either concentrate for disposal or recover reusable products. From a more recent assessment of existing technology conducted to meet the immediate needs for the TNT facility at Radford AAP, a process developed by the Sonoco Products Company, Sonoco Sulfite Recovery Process (SSRP), was selected. The selection was based on facility and operating cost, simplicity of design and suitability for adaptation on a modular basis to meet various AAP requirements at current production and mobilization rate.

(U) Development of the SSRP for red water disposal, conducted by Special Technology Branch, Mechanical Technology Division, progressed through pilot testing and multihearth furnace for red water reduction. This process would result in a closed loop system as the off gases of reduction were scrubbed with the soluble ash for sulfite recovery/reuse in TNT purification. A Project Development Brochure was submitted and approved for facility construction in the FY 1982 MCA program at Radford. A late start FY 1979 project was initiated to accelerate this effort. Manufacturing Methods and Technology (MMT) efforts continued to develop design data, supporting the CE and their architect and engineer, for the mixing, drying and transport of feedstock, development of a more efficient scrubbing concept, and for adaptation of the process at other TNT manufacturing facilities.

(U) Project 5791354 - Sludge Volume Reduction and Disposal Process (PBA). In FY 1979, work was completed in the following areas: (1) collection and evaluation of monitoring data from central waste treatment, (2) pilot-scale treatment and biotesting on pilot incinerator scrubber effluent from red smoke experimental burns, and (3) review of sludge dewatering alternatives.

(U) Project 5791355 - Manufacturing Plants Effluent/Emission Pretreatment Evaluation (PBA). The identification of toxic substances continued for both north and south areas of PBA.

(U) Static biotesting continued for water influent to the central waste treatment facility, treated water prior to settling, and effluent from the settling ponds after pH adjustment. Toxicity was detected in the influent water that was removed by carbon treatment and flocculation.

(U) A continuous biotesting system was developed by Battelle, Columbus Laboratories for PBA that detects aquatic toxicity of PBA effluents by measuring the breathing rate of the blue gill fish. The system detects the presence of toxic materials in PBA effluent waters long before their concentrations reach the lethal concentration.

The continuous biotesting system was completed laboratory evaluation at Battelle using PBA materials and will be installed at PBA during the 1st quarter of FY 1980.

(U) A contract was being negotiated with Battelle, Columbus Laboratories to assist in the identification of additional compounds by both chemical and biological methods, similar to Resource Conservation and Recovery Act guidelines.

Load, Assemble and Pack Division (LAP)

FY 1979 Late Start:

MMT 1905 - Automatic Pilot Line for Controlled Cooling and Processing of HE Loaded Projectiles.

MMT 4263 - Automatic Pilot Line for Controlled Cooling and Processing of HE Loaded Projectiles.

FY 1980 Apportionment:

MMT 1902 - Mfg Methods of Gel Fuel for FAE BLU 96/B (withdrawn).

MMT 4071 - Explosive Dust Hazards in Munitions Plants.

MMT 4078 - Upgrade Safety, Readiness & Prod of Existing Melt-Pour Line (eliminated).

MMT 4086 - Reprocessing Explosive Fines and Drill Scrap.

MMT 4200 - TNT Crystallizer for Large Caliber Munitions.

MMT 4285 - TNT Equivalency for Safety Engineering.

MMT 4288 - Explosive Safe Separation and Sensitivity Criteria.

MMT 4291 - Blast Effects in Munition Plant Environment (eliminated).

MMT 4492 - Water Deluge System Application in Munition Plants (eliminated).

MMT 4493 - Design Parameters for Large Scale Process Vessels (eliminated).

MMT 4454 - Auto Inspection Device for Explosive Cast in Shell (AIDECS).

FY 1981 Budget:

MMT 4071 - Explosive Dust Hazards in Munitions Plants.

MMT 4086 - Reprocessing Explosive Fines and Drill Scrap.

MMT 4200 - TNT Crystallizer for Large Caliber Munitions.

MMT 4285 - TNT Equivalency Testing for Safety Engineering.

MMT 4288 - Explosive Safe Separation and Sensitivity Criteria.

MMT 4454 - Automatic Inspection Device for Explosive Cast in Shell.

MMT 4492 - Water Deluge System Application in Munition Plants.

(U) IPF - LAP, 155mm, XM795 - Louisiana AAP (Project 5812171). Initial efforts at developing an initial production facility (IPF) for the XM795 were conducted under Project 582X036 which initiated investigation of the conversion of the 115mm melt-pour facility at Lone Star AAP. In addition, Project 5812677 at Iowa AAP originally included the capability to LAP the XM795 along with the two RAP rounds: 155mm M549 and 8 inch XM650. The LAP of the XM795 at Iowa was then considered as a separate proposal.

(U) Project 5810036 was initiated in June 1978 to establish an IPF for the XM795 with provisions made to include future conversion capability for production of the 155mm M549 and M107 and the 8 inch XM650 and M106.

(U) While no firm requirements for the XM795 existed in the fiscal year development plan (FYDP), design would be completed per DA Directive. In order to increase the chances of facilitizing the project, the main effort was redirected in February 1979 toward the correction of deficiencies in major caliber munitions, namely, base separation in the M107. Accordingly, the project number was changed from 5810036 to 5812171. The change in project emphasis did not have any significant impact on the design effort as both projects were virtually identical.

(U) Lack of M107 requirements resulted in the project again being redirected primarily toward the IPF of the XM795, but with the capability of correcting the M107 deficiencies.

(U) The concept design was begun in October 1979 and baselined in May 1979. The 90 percent construction final design, submitted in September 1979, was expected to be approved in December 1979.

(U) Equipment Functional Criteria was submitted by Louisiana AAP in August 1979 and was projected to be baselined in October 1979.

(U) Personnel problems, including the death of Thiokol's point of contact, resulted in the slippage of some milestones such as Hazard Analyses and Final Safety Review Submission.

(U) Expansion - Loading of 60mm XM720 and 81mm M374A3 (Melt-Pour) - Milan AAP (Project 5782709). In FY 1979 the CE effort was approximately 70 percent complete, and approximately $5 million of the DRC funding had been awarded. The CE contractor was behind schedule, and the latest date for the completion of the total effort was April 1980. Three items remained to be awarded by Milan AAP: these were the explosive pouring machine, the cast finishing system, and the trapping machine.

(U) The explosive pouring, based on the ARRADCOM concept in use at Lone Star AAP and ARRADCOM, was out for bid. Tests were completed on the pressurization of the system and it was shown to be satisfactory. Numerous meetings were held with the prospective contractor and Milan AAP to discuss the machine. Award of this contract was expected to be in October 1979.

(U) The cast finishing system was redesigned to provide a simpler system. Bids were received and contract award was expected in October 1979.

(U) During the fiscal year, several engineer change proposals (ECP) were approved to change several portions of the project, and two ECP, approved to revise the cooling of the melt pour buildings, were submitted for CE contractor accomplishment.

(U) Execution of Project 5782709 continued through the next year, and because of the CE contractual problems the delay in the pouring machine procurement, it was expected to be completed by April 1981.

(U) MMT Automated Inspection Device for Explosive Cast in Shell (AIDECS) - AMMRC/ARRADCOM (Project 4454). Work continued at the IRT Corporation on the engineering model for the 105mm HE projectile. The program was continually delayed by technical difficulties such as overheating due to the Cobalt-60 source, problems of fabrication of the collinator, hydraulic problems, and round holder problems. These problems caused financial overruns which had to be resolved by AMMRC, who handled the MMT for the engineering model. These financial problems still continue. Only in September 1979 did the total system indicate that defect detection was possible; however, much more work needed to be accomplished.

(U) On the ARRADCOM manufacturing methods and technology (MMT) effort, work was initiated at IRT Corporation on the preliminary design of an inspection system for the 155mm M549 projectile. It proceeded with concepts for design determined; however, because of the problems with engineering model, the resultant delays of the engineering model, the changes that were required for the engineering, PBM requested ARRADCOM to hold an in-process review of the total AIDECS

effort. This review was held in late September 1979, with a Red-Blue Team system of evaluation used by ARRADCOM. A total restructure of the project was recommended with the new development concepts for the M549 prototype model tested on the engineering model. It was expected that ARRADCOM would present a revised program for PBM approval in October 1979.

(U) MMT Automatic X-Ray Inspection System (AXIS) - ARRADCOM - (Project 5804327). Work on the contract for the development of a prototype inspection system to automatically read and interpret X-Ray film for the purpose of detection defects in explosive casts in shell continued at the Lockheed Corporation.

(U) With the direction of the prototype to tank rounds, problems were encountered due to the cone in the shell. It has been necessary to provide additional funding to the contractor because of these difficulties.

(U) In FY 1979, it was expected that work would continue on the prototype into the next report period. In October 1979, a review of computer software developed to date would take place to determine if hardware procurement should occur. If the determination was seen to indicate satisfactory progress, it was estimated system assembly would be completed by August 1980.

(U) Image Amplification System - Kansas AAP (Project 5722163-01). Work on the image amplification system developed at Kansas AAP for the detection of defects in mortar rounds continued to be delayed by problems in the electronics and priorities in manufacturing the handling system. A visit by ARRADCOM to observe the operation in January 1979 was delayed because of weather problems. The visit was rescheduled, but electronic problems again cropped up. ARRADCOM observers visited Kansas AAP in May to observe operation, but once again electronic difficulties caused problems. Afterward, the system was corrected; and Kansas COR observed operation in lieu of ARRADCOM personnel who stated that the system functioned satisfactorily. In FY 1979 there was no more funding on the project, and closeout action had been initiated.

(U) MMT Application of Radar to Ballistic Acceptance Testing (ARBAT)-ARRADCOM (Project 4139). In January, the ARBAT prototype system, after checkout and limited testing at the contractor (ITT Gilfillan), was shipped to Yuma Proving Ground (YPG) for actual testing with ammunition. Many difficulties were experienced with equipment (largely GFE), software and computer problems, and problems with test priorities. The testing was initiated with mortar rounds and it was planned to proceed through to the 155mm round. However, because of the difficulties and the resultant increases in funding required, testing, after the 81mm tests, proceeded to the 155mm rounds. This was concurred in by all concerned. It was decided that YPG would test the system with other

rounds when they took over the system. Acceptance testing occurred in Sept-Oct, 1979, and the prototype unit was turned over to YPG for their use in November 1979. A second ARBAT unit would be procured in FY 1981 by TECOM.

(U) MMT-PBX Continuous Casting for Munitions Loading (Project 5791905). This project was a late start submission for the Navy at Yorktown in January 1979, with anticipated follow-on efforts in FY 1981-1984. Current and projected Navy and Air Force requirements for castable PBX indicate insufficient capacity utilizing existing batch-type processes.

(U) This effort would consist of an evaluation of processes and equipment used in similar industries, Hazard Analysis of PBX and prospective equipment, listing and evaluation of proposed equipment, and processes and development of prospective pilot plant layouts with economic analysis of each. Delays had been encountered by Yorktown in getting assistance from another Navy organization, and proposals had not been received from contractors as of the end of FY 1979.

(U) The follow-on efforts were not anticipated to be approved until requirements for castable PBX were set.

U) FAE II LAP Facility IPF - Kansas AAP (Project 5822928-01). In FY 1979 the FAE II munition was an air-delivered weapon for use on high-speed aircraft that would supplement existing HE bombs, and would produce a blast/shock wave with minimum fragmentation and large overpressures for blast sensitive targets. The FAE II was a joint development program between the Navy and AF and was to be produced in two versions. The small version (BLU 95/B) was a 500 pound size and the large version (BLU 96/B) was a 2,000 pound size.

(U) Site selection was begun by ARRCOM with Navy assistance in March 1979. NAVAIR's procurement strategy proposed the selection of a prime systems contractor who would be responsible for acquisition, integration, and reliability of the complete item. This strategy, along with ARRCOM's Plant Utilization Policy enabling the prime contractor to subcontract directly with the contractor-operator of a munitions plant for LAP of an item, precluded the utilization of a GOGO (Government Owned, Government Operated) and affected the site selection process. Site selection of Kansas AAP was completed by ARRCOM on 10 July 1979, and NAVAIR's concurrence of the site selection and endorsement of the procurement strategy was transmitted on 9 August 1979.

(U) A meeting was held at ARRCOM on 21 August 1979 to clarify the effects of the procurement strategy on the omnibus effort. Direction was given to have the design performed by the operating contractor with the Navy and the prime systems contractor providing comments on the deliverables to PBM.

(U) An Omnibus Statement of Work (SOW) was staffed for comments in September 1979, and it was expected to have the comments resolved and the SOW approved by mid-October 1979.

(U) A supporting MMT Project 5801902 to provide a capability for loading a gel fuel into the FAE II weapons was approved. The use of gel fuel would greatly improve the safety of the item by preventing the flow of flammable fuel in the event of spillage or container rupture.

(U) However, due to weapon development schedule adjustments, the Navy indicated that they would not be ready for this project in FY 1980. It was anticipated that this project would be resubmitted for FY 1982.

(U) Surface Launched Unit Fuel-Air Explosive Delivery System (SLUFAE) Load, Assemble and Pack (LAP Facility IPF - Hawthorne AAP. In March 1976, this office assumed responsibility for provision of a SLUFAE production facility. The SLUFAE which was a rocket propelled mine field neutralizing round, offered a standoff capability for clearing mine fields. The round was developed by the Naval Weapons Center at China Lake and was funded through MERADCOM. TC for the round has slipped to 1Q FY 1981.

(U) The final equipment Technical Development Plan (TDP) was submitted by the Naval Weapons Center, China Lake, in December 1978 and baselined in April 1979.

(U) The construction final design was approved in November 1978. Bids were opened on 28 February 1979 for the Military Construction, Army (MCA) portion. Two bids were received, and the low bid exceeded the programmed amount of $1.547 million by more than 25 percent. The poor response and the amount of the bids were attributed to the remoteness of the plant and good construction markets in Reno and Las Vegas.

(U) The Army Materiel Plan (AMP) FY 1981-1985 Review of 12-16 February 1979 indicated that the SLUFAE system would not be funded at the core level during the FY 1981-1985 time frame. As a result, Hawthorne AAP was directed to complete work on its equipment procurement package, but not to solicit bids or proposals. The CE was also directed to defer seeking additional funds or readvertising until the status of the SLUFAE was resolved.

(U) Funding for the SLUFAE was reinstituted in May 1979, and direction was given to proceed with project execution. Action was then initiated on 1 June 1979 to obtain additional MCA funding. OCE identified $1.0 million in savings on the FY 1979 MCA project for the ARRADCOM Engineering Administration Building. Permission to use this money was obtained from the Secretary of the Army and OSD. Sacramento District advertised for bids on 11 September 1979, and bids were to be opened on 11 October 1979 with a 60-day award period.

(U) Hawthorne AAP completed its equipment procurement data package in June 1979. Hawthorne solicited bids for the inertial welder, because it had a long lead time. Bids were to be opened in late October 1979. The remainder of the equipment package was to be solicited after opening of the MCA bids on 11 October 1979, assuming the bids would not exceed the revised programmed amount.

(U) Manufacturing Methods and Technology (MMT) of Press Loading For Navy Projectiles. This project, originally submitted as a joint ARRADCOM/ Navy effort, was resubmitted by the Navy in the latter part of FY 1977 after it was determined that the Army could not support their requirement for the project. In November 1977, the Project was submitted as a late start FY 1978 project, but was deferred pending review of the entire late start program.

(U) During May 1978, the project was approved for late start funding. The feasibility study and design were completed on 30 November 1978, and the contract for the prototype equipment was awarded on 15 May 1979.

(U) All hardware, with two exceptions, was received by the end of September 1979. The remaining equipment was expected by 15 October 1979. Installation would be completed by 1 December 1979, and live testing would begin by January 1980. Acceptance of the prototype was scheduled for 15 March 1980 with all work complete by 30 June 1980.

(U) MMT Development of Automated Equipment for LAP of 60mm/81mm Ignition Cartridges. The Statements of Work (SOW) for this effort would, upon completion, provide six equipment modules capable of automatically loading and assembling 81mm mortar ignition cartridges. In addition, the project would provide a final design package for the tooling required to convert to the manufacture of the 60mm ignition cartridge.

(U) The designs for Modules 2 and 3 were completed, and FMC had projected that design of all modules would be completed during 1979.

(U) Financial reports from FMC indicate that a significant portion of the funds on contract were being expended in the design phase and that a cost growth on the project was imminent. A reduction in the SOW for this project was a credible course of action to limit funding expenditures to the amount on contract. This action would impact on Project 5803602, IPF - LAP 60mm/81mm Ignition Cartridges.

(U) MMT Continuous Automated Post Cyclic Conditioning Facility For Large Caliber Composition B Loaded Projectiles. The purpose of this single year effort was to develop controlled cooling procedures for TNT loaded and Comp B loaded 155mm, M549/XM795 and 8 Inch, XM650 projectiles to produce optimum cast quality and tightness, thereby enhancing the effectiveness of subsequent heat treatment (cyclic conditioning) processes. The data generated were used as a basis for production processes to be used in facility projects for these rounds at Iowa and Louisiana AAP.

(U) Preliminary loading process data indicated the need for a single probing operation as the large caliber projectiles solidified. A four projectile probe machine was designed, fabricated, installed, and used in all subsequent loading tests.

(U) Developmental and confirmatory tests were completed for the 155mm, M549 and 155mm, XM795 projectiles. The ability of the established processes to produce acceptable projectiles with no base separation of the explosive cast was verified by X-ray examination and physical examination of sectioned projectiles. The process data were provided to Iowa AAP in support of Project 5812677 and to Louisiana AAP in support of Project 5812171 and LAP of projectiles for the XM795 development program.

(U) Problems were encountered with the funnels designed for loading the 8 inch, M650 projectiles, such that redesign and fabrication of new funnels were necessary to have adequate heat transfer to the funnel neck area. At that point, project funds were completely exhausted and the need identified for an additional $96,000 to complete the program. The two remaining tasks were the completion of M650 process development/confirmation testing and evaluation of the effects of postcyclic conditioning on projectiles loaded using the improved process.

(U) MMT Automated Pilot Line for Controlled Cooling and Processing of HE Loaded Projectiles. This continuing project (FY 1974 - 1979) expanded existing melt-pour pilot plant facilities at ARRADCOM to include projectile processing work stations, a controlled cooling system, and a material handling system for continuous processing of medium and large caliber projectiles under the control of programmable logic controller.

(U) The facilities would be used to establish process criteria for the modernization and expansion of large scale loading lines.

(U) The expanded pilot line, consisting of the projectile handling system, controlled cooling system, metal parts preheat system, thread protector and funnel insertion machines, funnel/riser and thread protector removal machines, and the programmable logic controller, was debugged and shells were successfully loaded with Comp B explosive.

(U) In January 1979, additional FY 1979 funding of $329,000 was obtained to operate the melt-pour pilot plant as originally planned. The funding was required because pilot plant start-up costs were higher than anticipated due to construction contractor delays, incomplete contract work on the buildings, and control system damage caused by rodents during temporary layaway.

(U) A Standard Operating Procedure (SOP) and a video tape were prepared for the pilot plant operations and sub-system calibration accomplished.

(U) Iowa AAP Project 5812677 was supported by supplying needed data for production scale equipment design. Heat transfer tests were conducted to determine thermal operating characteristics of the controlled cooling system. The post heater shroud was tested to confirm its ability to maintain required processing temperatures. A control specification was prepared for the production system at Iowa AAP based on the ARRADCOM programmable logic controller system.

(U) 105mm Melt-Pour Facility - Lone Star AAP. A number of construction deficiencies were identified following beneficial occupancy in October 1978. Amplified by the extremely cold weather experienced from December 1978-January 1979, the inability of heating systems to maintain interior design temperature, the failure of steam trail systems to prevent freeze damage, and the lack of adequate freeze protection for steam pressure relief valves were evident.

(U) Also, extensive leakage in ramps, buildings, and igloos and other miscellaneous deficiencies were identified to the Huntsville Division, Corps of Engineers (CE), during the period February to April 1979; and additional funding was provided to the CE from the DARCOM portion of the project for corrective action. As of September 1979, a few of the corrections had been completed and the balance were in progress.

(U) In April 1979, the project was rejustified for physical completion in December 1979 and fiscal completion in June 1980. Physical completion was later reforecast to May 1980 to permit economical utilization of available manpower, completion of the Total System Hazard Analysis, and the design/acquisition of automated thread cleaning equipment previously delayed by a Value Engineering Change Proposal (VECP) evaluation.

(U) Prove out of the facility slipped from January-February 1980 to June-July 1980 because of delayed project completion. The planned FY 1980 prove out project was deferred due to limited FY 1980 funding. An alternate plan to support prove out using a surplus of facility project funds available at Lone Star AAP was pursued. However, increased overhead and the implementation of UCARS (Uniform Cost Accounting and Reporting System) at Lone Star AAP in September 1979 consumed the surplus and resulted in a forecast $200,000 deficit. As a result, the most probable source of prove out funding became the FY 1981 Prove Out Program, although other higher priority projects could cause prove out of this project to be deferred even further.

(U) In FY 1979, it was anticipated that by January 1980 the total cost of correcting construction deficiencies and deficiencies that might be identified by the Total System Hazard Analysis would be known. Supplementary funding to complete the project was then to be sought.

(U) 155mm, M549 and 8 Inch, XM650 LAP Facility - Iowa AAP. The purpose of this project was to establish modernized production capability at Iowa AAP to LAP the 155mm, M549 and 8 inch XM650 RAP at rates of 67,000 per month and 9,000 per month respectively.

(U) Draft addenda to equipment functional criteria and construction design criteria (PDB-1) were reviewed on-site in January 1979 and subsequently approved in February 1979 and March 1979, respectively. A major Engineering Change Proposal (ECP) providing additional PDB-1 Clarification of fire protection, barricades, and miscellaneous other requirements was approved in June 1979.

(U) Booker Associates, Inc., the AE firm selected to accomplish construction design entered into a contract with Huntsville Division, CE (Corps of Engineers), in June 1979 for concept design, several study efforts, and an option for final design.

(U) Review of Iowa AAP Status on equipment design in June 1979 revealed limited progress and a substantial forecast cost growth, which predicted reevaluation of PBM's continuing support of the project. The adverse schedule and cost impact coupled with the reduced project priority based on revised program guidance, resulted in the decision to terminate project activity at the concept design level. The previous plan had been to complete the project design in preparation for execution at a time when revised priorities would permit.

(U) Formal termination actions were initiated in September 1979 to bring both equipment and construction design activity to an orderly conclusion and to document completed effort.

(U) LAP, 8 Inch XM650 IPF (Project 5780010). This project establishes an initial production capacity for the 8 inch, XM650 Projectile of 4,000 per month on a 1-8-5 shift basis on Line 3 at Iowa AAP.

(U) During the reporting period, project execution continued at Iowa AAP. Final contract award was made in February 1979 and in-house equipment fabrication was completed in September 1979. Except for the warhead pouring funnels, which were delayed until December 1979, all equipment was delivered by September 1979.

(U) Equipment installation was completed to the degree possible in September 1979, since Line 3 was to be used in the November 1979-March 1980 time period for a production order of 8 inch, M106 projectiles. Final installation of tooling and fixtures for the 8 inch, M650 projectile was to occur in February 1980, with initial production scheduled in March 1980.

(U) MMT Evaluation of TNT, Cyclotol, Octol with ARRADCOM Melt-Pour Facility - ARRADCOM (Projects 578/794466). The purpose of this project is to determine the physical modifications and performance characteristics of the ARRADCOM continuous melt-pour equipment necessary for processing TNT and other explosives. The existing equipment was designed and has been used primarily for Composition B to date.

(U) Extended delays were encountered under another project (5794263) in reactivating the ARRADCOM melt-pour pilot plant. However, the special instrumentation required for the TNT slurry tests was installed, and all TNT explosives were required to support the testing program. In November 1979, testing to determine the ability of the instrumentation continuous melt-pour system to produce TNT slurries with the desired solids content will begin.

(U) The continuous melt-pour system will subsequently be utilized in a test program to establish the optimum operating parameters and/or modification required for processing octol and cyclotol.

(U) A secondary approach to TNT processing involves the use of an ancillary mixing device for combining molten TNT and solid (flake) TNT. A search of industrial literature indicated the commercial availability of such a device. Following a competitive solicitation that involved a number of prospective suppliers, a contract was awarded in September 1979 to the S. Howes Company for a Funken Auto-Feeder and Flow-Jet Mixer. Delivery was scheduled in June 1980, installation completion in September 1980, and system evaluation completion in January 1981.

(U) MOD - Automatic Assembly Equipment for LAP of 60/81mm Mortar Ammunition (Project 5752692 (Lone Star AAP) and Project 5732505 (Milan AAP). In FY 1979, installation of both the Lone Star and Milan AAP automated assembly systems was completed at the respective plants. Prove out of the systems was to be sequential, with demonstration testing of the Milan AAP system to be initiated during October 1979, and testing of the Lone Star AAP system was to be initiated during December 1979. Subsequent to prove out, the Milan AAP system would be used in support of the FY 1978 81mm, M374A3 procurement, and the Lone Star AAP system was to be placed in layaway.

(U) MOD - Utilities Water Distribution - Ravenna AAP (Project 5762690). In FY 1979 the construction of the Water Distribution System was approximately 95 percent complete. However, a delay was encountered in the physical completion of the project. A slope failure occurred near the water intake structure, requiring the construction of a retaining wall to stabilize the backfill material on the slope. Funding was provided to the CE in July 1979 to accomplish the required construction.

(U) IPF - Automated LAP of 60/81mm Ignition Cartridge (Project 5823602). MMT 5774431/5784431 was terminated due to the excessive cost of the project. The project was reoriented to produce the equipment on a semiautomated line, and the schedule was slipped from FY 1980 to FY 1982.

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Tank, Chemical & Nonballistic Munitions Activities

(U) Mission and Organization. The Tank, Chemical, and Nonballistic Munitions Branch, as organized in FY 1979 has been in operation since May 1975. The branch mission is to provide the technology and facilities for the expansion and modernization of the LAP production base for tank and antitank rounds, rockets, chemical munitions, and nonballistic ammunition items. This branch in FY 79 was fully staffed with a Branch Chief, secretary, four engineers and a production equipment specialist.

(U) Initial Production Facility (IPF) to LAP the VIPER, Iowa AAP (Project 5782182). The original Statements of Work (SOW) for this project was to provide a production base to LAP the VIPER rocket. The LAP responsibility was divided during FY 1979 to assign the assembly and packout of the VIPER to General Dynamics at their Camden, AR, facility. Iowa would load the warhead billet and PIC booster for shipment to General Dynamics. The initial equipment contract award was made by Iowa AAP in May 1979, and the initial equipment delivery was made in August 1979. Final equipment delivery at Iowa AAP was scheduled for June 1980. The Camden facility was placed on hold until Research and Development (R&D) problems were resolved.

(U) MMT Automated Loading of Flash Reducers, ARRADCOM (Project 5754050). Project provides for the development of automated equipment to load flash reducers for large caliber propellant charges. Fabrication and debugging of the equipment was completed and testing was conducted in April 1979. Testing of the rectangular 8 inch flash reducer was successful; however, the test of the circular 155mm flash reducer was not successful with sewing and location of the stitch closure as the main difficulties. ARRADCOM submitted a cost growth to correct the problem; however, in FY 1979 this office was awaiting an Indiana AAP proposal on correction and utilization of the equipment prior to deciding on project action.

(U) 105mm, M67 Bag Loading and Assembly Operations, Indiana AAP (Project 5772500). The FY 1977 portion of Project 2500 provides the building and the FY 1978 portion provides the manufacturing equipment. Construction proceeded to where the facility was 97 percent complete. An area electrician strike caused a day-by-day extension to project completion, which was scheduled for 15 February 1980.

(U) 105mm M67 Bag Loading and Assembly Operations, Indiana AAP (Project 5782500). Contracts for the scales, the charge assembly system, and the bag loading carousels were awarded. A preaward survey for the deluge system was completed, and award was expected in October 1979. A cost growth of $1.9 million was being processed. The major cause of the cost growth was inflation and a poor design estimate on the airveying system. Award of the airveying contract was expected in November 1979.

(U) Additive Liner Manufacture Operations, Indiana AAP (Project 5762613). In FY 1979 this project was physically complete and proven out. However, fiscal completion and project closeout were delayed due to an unsettled claim. Claim negotiations were continuing and closeout was expected in FY 1980.

(U) 60mm/81mm Prop Charge LAP IPF, Indiana AAP (Project 5793601). Contract awards on all pieces of equipment, except spare parts, were made. Rehabilitation of the building began and equipment deliveries were made. Installation was scheduled to be complete in December 1979 with project completion scheduled for early CY 1980.

(U) Application of Solar Energy for Boiler Feedwater, Lone Star AAP (Project 5792006). This project was designed to provide facilities to preheat boiler feedwater using solar energy. The Statements of Work (SOW) included the purchase and installation of solar panels and associated piping and controls. It was the first solar energy project to be executed at an AAP.

(U) The contract SOW was approved and fiscal obligation was made in February 1979. The entire project was awarded to Day and Zimmermann to perform the scope with DRC/PAA dollars. In July 1979, the bids were opened, and because the low bid was above the programmed amount, it was determined that a construction waiver and authorization was necessary prior to contract award.

(U) During the interim, it was suggested that an FY 1981 Manufacturing Methods and Technology (MMT) project be added to this effort. The MMT project included a solar energy system consisting of shallow ponds, but due to the magnitude of the increase in the SOW, the ponds were deleted.

(U) At the end of FY 1979, the request for the waiver was being processed, and the cost increase had been approved. Construction authorization and contract award were scheduled for the 1st Quarter FY 1980.

(U) Central X-Ray Facility, Milan AAP (Project 5/92/20). In FY 1979, this project was designed to provide the construction of a complete facility for X-ray operations and the procurement and installation of X-ray process equipment. Fiscal obligation for the equipment was made in March 1979 and procurement procedures were initiated. Initial equipment contract award was made in May 1979, and the first equipment delivery was made in June 1979. The construction contract was awarded in April 1979 and completion was scheduled for 1st Quarter FY 1981. In August 1979, a change was made to the construction design to include conductive and nonsparking floors in the applicable areas.

(U) LAP of M732 Fuze, Lone Star AAP (Project 5783542). This project was designed to establish a production base for the LAP of the M732 Artillery Proximity Fuze by including the purchase and installation of production equipment. The construction, which included installation of utilities, was performed by the operating contractor, D&Z, and contracts for all the equipment were awarded by the end of FY 1978. The initial equipment delivery was made in March 1979 with installation initiated in April 1979. The delivery schedule for some of the equipment slipped due to manufacturing deficiencies. The Swanson-Erie Machine Base was not made to D&Z specifications; and the pelleting press failed the acceptance test, due to problems with the heads and upper punches. Final equipment delivery was scheduled for November 1979.

(U) LAP of M739 PD Fuse, Milan AAP (Project 5793559). This project was designed to provide production facilities at Milan AAP to LAP the M739 point detonating artillery fuze. The Technical Development Plan (TDP) for this fuze specified that it be assembled in an environmentally controlled atmosphere. The construction contract was awarded in February 1979, the design baselined in March 1979, construction was initiated in March 1979, and completion was expected in June 1980. A delay experienced in construction was due to Engineering Change Proposals (ECP). These included the roof replacement for the assembly building and the installation of conductive flooring in the applicable areas. Fiscal obligation for the equipment was made in March 1979 and contracts were initiated. Final equipment award was scheduled for March 1980 due to the extensive work to be performed in the assembly building.

(U) LAP of Mortar Fuzes, Milan AAP (Project 5793562). This project was to establish a production base to LAP the M734 multi-option mortar fuze. The construction contract was awarded in March 1979 and the final design was baselined in May 1979. Completion of the construction effort was scheduled for July 1980. Changes made in the design during FY 1979 included a new roof to the assembly building and conductive flooring was added to the applicable areas. Fiscal obligation for equipment was made in March 1979 and procurement was initiated. The addition of the new roof has delayed the construction and also the equipment installation schedule.

(U) Modernization of Pelleting Equipment, ARRADCOM (Project 5734825). This project was designed to modernize the pelleting operation and to provide capabilities for producing pellets of complex configurations in a controlled environment. The scope included the purchase and installation of two pellet presses. The application of a nonconductive floor was completed in August 1979 and the presses were installed. Closeout procedures were initiated in September 1979.

(U) Modernization of Process Testing Equipment, ARRADCOM (Project 5734826). This project was designed to update the existing equipment within the ARRADCOM Loading Division in order to effectively perform the various acceptance and inprocess tests required for the monitoring of LAP operations. The installation of the equipment was completed and the project was closed out in August 1979.

(U) Facilities Modernization, Louisiana AAP (Project 5812507). This project was designed to provide support facilities for current and projected production schedules. The work included new guard houses, road work, railroads, warehouses, chemistry lab, and electrical power systems. At the end of FY 1978, an ECP was submitted to resite the Chemistry Lab to meet safety approval. The ECP was approved in February 1979, and the CE was instructed to proceed with design. Due to the priority of the project and the shortage of design funds, the design effort was terminated until FY 1980.

(U) Container Distribution System, Lone Star AAP (Project 5803106); Milan AAP (Project 5793109); Iowa AAP (Project 5813108); Louisiana AAP (Project 5823107); Kansas AAP (Project 5823111); Indiana AAP (Project 5823115). These projects were designed to provide facilities for the handling of containerized ammunition which would be used for blocking and bracing of ammunition, storage of empty containers, and temporary storage of full containers awaiting shipment. Construction has been initiated on the Milan AAP project and completion was anticipated in FY 1980. Designs were finalized for the Lone Star, Louisiana, and the Kansas AAP projects. An on-site review was conducted and omnibus funds were furnished in September 1979 for the project at Indiana AAP. Foundation investigations were conducted for the Iowa AAP project and design was scheduled for November 1979.

(U) Rehabilitate and Improve Main Heating Plant, Iowa AAP (Project 5793593). This project was designed to provide for the rehabilitation of an existing coalfired heating plant. The SOW included the installation of new boilers, a coal handling system, and renovation/replacement of auxiliary equipment. As a result of the increased SOW to install new boilers versus repairing the existing boilers, the project was rescheduled from the FY 1979 program to FY 1982. Because the facility design had to be completely revised, an architect was selected and design was initiated in September 1979.

(U) MMT Colored Smoke (CS) Mix Facility, PBA (Project 5781353). This project was designed to provide the technology necessary for the design of a modernized mix facility which would meet environmental constraints, safety constraints, and Occupational Safety and Health Act (OSHA) requirements. During FY 1979 the prototype equipment was installed, and approximately 1,200 pounds of three typical worst case pyrotechnic mix formulations were manufactured in the prototype. These

materials were shipped to the NSTL for testing as part of a safety certification study. The safety study was completed to approximately the 90 percent level during the past year. Candidate automatic materials handling systems were tested at vendor facilities.

(U) IPF - LAP of 155mm/8 Inch Center Core Prop Charges, Crane AAA (Project 5790012). This project was released in FY 1979 and was in execution. The MMT prototype load and assembly modules have been delivered and installed in Building 145 at Crane AAA. The packout system is being procured by ARRADCOM as part of this initial production facility (IPF) and was scheduled for delivery during the 3d Quarter FY 1980. Start-up on the load and assembly equipment was scheduled for the first quarter FY 1980 with changeover to live materiel scheduled for January 1980. During October 1979 to June 1980, a manual packout system was to be used, and upon receipt of the semiautomatic packout equipment, another prove out would be conducted on that system.

(U) Power Tie-Line, Indiana AAP (Project 5822066). This project was designed to provide the installation of a single electrical power source. When the BP manufacturing plant was being constructed, it was more economical to install a second source rather than tying into the main source. The new service would be sized to include the BP, P&E, and LAP areas, and would not include requirement for the modernized P&E area planned for the FY 1990s. An onsite review conference was conducted to determine design parameters. They inspected the existing facilities. Omnibus funds were released to Indiana AAP for development of the Project Development Brochure as well as design support to the CE.

(U) Modernization of Support Facilities, Iowa AAP (Project 5752691). This project provided the construction of a primary water supply and access roads to the ammunition storage area. The subproject for the access roads was closed out in FY 1977. The primary water project was completed in December 1978, and fiscal closeout was completed in September 1979.

(U) MMT - Ammunition for the 120mm Tank Main Armament - Task 2: Explosive Loading of 120mm HEAT-MP, ARRADCOM (Project 5794309-01). The 120mm tank gun and ammunition system represents a cooperative effort between the US and Germany to support the interoperability of the 120mm tank gun and ammunition. The US Army will adopt the 120mm Tank Main Gun System, based on a German design, and integrate it for use as the future main armament of the XM1 Tank. The FY 79 process (German) for explosive loading of the 120mm HEAT-MP was both capital equipment and labor intensive and was extremely time and space demanding. This MMT would develop an Americanized process to meet the explosive composition and charge quantity sufficient for mass production facilitization. The first of a two-year effort, funds were released to ARRADCOM and the SOW was completed in September 1979.

(U) MMT-Continuous Mixer - Illuminant Composition Analysis and Control System, ARRADCOM (Project 5794460). This project, which had a designed and evaluated prototype illuminant composition analyzer with the capability to control the mix being generated prior to being fed to the consolidation press, was a late start project for FY 1979. During that year, a SOW and literature survey were completed, and arrangements were made to test an X-ray fluorescent analyzer in November 1979.

(U) MOD - Automate M18 Grenade Fill and Press Facility, PBA (Project 5810280). This project would provide a facility to correct OSHA/EPA deficiencies for the production of M18 CS grenades. It was preceded by pacing MMT Project 5751316, Advanced Technology for Processing Smoke Grenades. Design work in FY 1979 was being conducted using omnibus funds.

(U) MOD - Modernization of Smoke Mix Facility, PBA (Project 5810283). This project was designed to provide equipment to mix CS mixtures in a way that would correct OSHA/EPA deficiencies and at the same time result in a better end item. Project 5781353, Smoke Mix Process was a pacing MMT for this project. In FY 1979, design work was being conducted using omnibus funds.

(U) MMT Improved Process/Substitution of Nontoxic Dyes in M18 Smoke Grenades, ARRADCOM (Project 5791403). This project was designed to improve/modify the process for yellow and green smoke mixes used in M18 grenades or use substitute nontoxic dye mixes. Funds were obligated in August 1979, and purchase requisitions were prepared for the needed chemicals, grenade hardware, and fuzes. Pyrotechnic mixing and loading equipment was moved to set up the required facility.

(U) Loading, Assembly and Packout for the 155mm, XM211 Propellant Charge - IPF, Indiana AAP (Project 5810045). This project was site selected for Indiana AAP by ARRCOM and plans to renovate load line 2A. The AE contract was awarded and final design was scheduled for 15 November 1979. This project would provide ARRCOM with an initial facility for production of the 155mm, XM211 that utilizes the latest in the state-of-the-art of LAP equipment.

(U) Modernization of the Igniter Powder Preparation Area, Indiana AAP, (Project 5812117). This project modernized the class 1.1 powder preparation area. The CE (HND) designed the facility with plans for completion by early FY 1980. The equipment being proposed was all state-of-the-art (off-the-shelf) equipment. Completion of this effort was to eliminate numerous safety and potential EPA problems.

(U) LAP of 155mm/8 Inch Center Core Propellant Charges, Indiana AAP (Project 5802694). This project would expand the production base for the loading assembly and packout of the 155mm, M119, M203 or the 8 inch, M188, and result in the first full-scale, balanced facility for this type propellant charge.

(U) The equipment design was completed in FY 1979 and the associated MMT completed in October 1979. The design of the building to be constructed as part of this facility was completed in early FY 1979. Final design was scheduled for January 1980. It was estimated this change would save $1.5 million construction costs.

(U) MMT - Automated Packout of Small Shaped Charge Rockets, ARRADCOM (Project 57X4009). The acceptance testing was completed at the contractor's plant and the equipment approved for shipment to Lone Star AAP. Although shipment was made, installation was deferred pending a report from ARRADCOM on alternative installation sites. In FY 1979, General Dynamics was considering use of this equipment on the VIPER at Camden,AR.

(U) MMT - Automated Propellant Bag Manufacturing and Process Control Equipment, ARRADCOM (Project 5744054). The main effort required was to improve the reliability of the equipment as the demonstration test indicated the bags could be produced but the rate had to be increased as the downtime was excessive. This upgrading of the prototype would be done at ARRADCOM as part of a coordinated effort on the XM211 development program.

(U) MMT Automated Loading, Assembly and Packout of 155mm/8 Inch Center Core Propellant Charges, ARRADCOM (Project 57X4105). The prototype assembly module, which was fabricated and demonstrated in FY 1979, proved successful and the unit was approved for shipment and installation under IPF Project 5790012 along with the load module. Installation of these two units was completed in August 1979.

(U) The packout system had the design completed, and all components which required procurement were purchased and received by the contractor. The fabrication of this module and installation would be made in June 1980.

(U) Improvement to HC Smoke Mix Facility, PBA (Project 57T0265). This project was designed to modernize an antiquated HC smoke mix facility using the latest available technology. Processing operations were automatically controlled to eliminate hand operations, and a more homogeneous mix without moisture contamination be produced. Project work was physically completed in May 1979, and financial closeout was expected in December 1979.

(U) Modernize the WP LAP Facilities, PBA (Project 5770268). This project provided for the modernization of the WP LAP lines at PBA and included automation of fiber container packaging stations on the 60/81mm and 2.75" Rocket lines. Although project work was physically completed in October 1978, no production run was available for its prove out. However, since much of the equipment was off-the-shelf items, no problems were anticipated, and financial closeout was scheduled prior to December 1979.

(U) Establishment of Capability to Produce Improved 105mm, M84A1 and 155mm, M116E2 HC Rounds - IPF, PBA (Project 5760273). This project provided initial capability to produce improved 105mm, M84A1 and 155mm, M116E2 HC Smoke ammunition to meet Army buy requirements.

(U) Project work for the 105mm, M84A1 HC Round was completed in August 1977. The 105mm fill and press facility successfully produced 800,000 HC canisters. All canisters were loaded into M84A1 Cartridges at new LAP facility; project work for 155mm, M116E2 was completed in June 1979; and financial closeout of this project was expected by December 1979.

(U) MMT Evaluation and Prove Out of WP Munitions Leak Detection Prototype, Chemical Systems Lab. (Project 5751250). This project selected and evaluated a prototype in-line leak detection system for WP filled munitions. The new prototype WP leak detection system consisted of electrical induction heat equipment and a flame photometric phosphorus detector. Test result demonstrated that this prototype was workable. The project work was completed and final report was issued in June 1978. However, due to limited testing (approximately 1,200 shells), additional funding of $40,000 was approved for further leak testing to provide additional statistical data on the acceptability of the system. This additional work (leak testing of 3,000 WP rounds of 105mm M60) was completed in February 1979 and project closeout was initiated in May 1979.

(U) MMT WP Dry Fill Line, Chemical Systems Lab, ARRADCOM (Project 5761274). The earlier FY 1975 effort (completed in March 1976) designed, installed, and proved out volumetric filling equipment for a line which fills M60 105mm shells. This was a new process which eliminated the old wet fill method and its attendant pollution problems. The FY 1976 project provided a semiautomated production filling line capable of filling four WP munitions (M60 105mm, M302 60mm, M375 81mm, and M156 2.75" Rocket) at a design rate of 8,000 per eight-hour shift. Project work was completed in December 1978, and project closeout was initiated in May 1979.

(U) IPF for RP L8 Grenades - IPF, PBA (Project 5800037). This project was to provide the capability to produce the L8 Grenade in the US.

(U) The US obtained the data rights from the British to manufacture their launcher and grenades in the US. To augment the data rights and establish the technology to produce the grenades, MMT Project 57T-771337 was approved to develop the required technology to support this facility project. Omnibus design work was completed. However, this project was disapproved by the HAC in September 1979, due to an earlier decision by the HAC to delete the accompanying MCA portion of the project. It is expected that the Senate Appropriation Committee will restore this project.

(U) LAP, Gator (Expansion Projects 583B041 and 584B041). These projects were site selected for Lone Star AAP. When complete, the projects will expand the capability to LAP the Navy and AF Gator mine dispensing systems. Omnibus engineering effort was to commence to develop expansion facility design.

(U) LAP, 8 Inch, M509 Projectile, Milan AAP (Project 5783505). This project expanded the 8 inch, M509 Projectile LAP capacity from 22,000 rounds per month (Lone Star) to 72,000 rounds per month under mobilization requirements. The line, similar to Lone Star and Kansas AAP, had alternate capability for producing 155mm M483.

(U) The design of the facility was developed during the FY 1976 and FY 1977 funding periods, and duplicated the processes developed for Lone Star and Kansas AAP, and included equipment improvements developed during debug and prove out of those lines.

(U) FY 1978 funds were released in January 1978 and fiscal obligation was concluded in May 1978. During the ensuing period, approximately 75 percent of the contracts for equipment were awarded. The construction contract was awarded in July 1978, which included demolition of five small buildings, building rehabilitation, loading barricades, TM walls, and ramp enclosures and extensions.

(U) The final contract award was made in March 1979, the original construction contract was completed in September 1979, and the DRC equipment installation was forecast for 4th Quarter FY 1980.

(U) Development of Rotary Continuous Motion M42/M46 Grenade/Fuze Assembly Machine, Kansas AAP (Project 5772005). This project was a late start project established to develop a 90 ppm high speed rotary assembly machine for M42/M46 Grenade/Fuze assemblies to overcome many of the difficulties experienced with the 30 ppm indexing machines supplied under Projects 5745508/5745509/5745514. The SOW and performance specifications were completed during the last quarter of FY 1977. A sole source contract was awarded to Automated Systems, a division of National Lead Industries, in December 1977. During the remaining three quarters of FY 1978, equipment designs were completed and approved, and the manufacturing of the machine components was initiated. Final machine completion with demonstration test at the vendor's plant was scheduled for late October 1979. The machine would then be shipped to Kansas AAP for off-line production capability. Project 5792173 was to provide the interface accumulation conveyor system required to supply ribbon assemblies, and would also be supplied with equipment developed under Project 5764338. Final acceptance of the 90 ppm machine at Kansas AAP was scheduled for May 1980.

(U) MOD Development of M483/M509 Backup Production Equipment, Kansas AAP (Project 5782125). This project provided alternate equipment for operations on the M483/M509 production line at Kansas AAP. Dual and backup equipment would assure minimum production downtime caused by either equipment malfunction or preventive maintenance requirements. Procurement of this auxiliary backup equipment would provide continued production, system reliability, and ease of maintainability. This project assures production capability rather than increasing production capacity.

(U) The nest cleaning stations, marking machines, hydraulic cleaning systems, air filtering system, and carts were fabricated in-house at Kansas AAP, and the base plug torque machine, forward plate insertion machine, and leak test equipment fabricated by a subcontractor. In FY 1979, work was three months ahead of schedule, and project completion was programmed for August 1981.

(U) MOD Compound Lower Tooled Press, Milan AAP (Project 5763142-41). Project 5763142-41 was established to eliminate a process being used at Lone Star and Kansas AAP in which the M42/M46 grenades were loaded using floating fixtures (nests) to prevent entrapment of explosives in the cone swage area. This method required a machine to automatically position the grenade body on the fixture, a machine to automatically remove the body from the fixture, and a machine to automatically clean the fixture. Utilizing the compound lower punch on a Vector/Coltor 270-18 consolidating press eliminated three machines per press station for a total of 18 machines at Milan AAP.

(U) Phase I of the project established the continuous loading of 1,500 grenades on the compound tooled press. One hundred and twenty of these grenades would be shipped to Lone Star AAP and tested against requirements.

(U) Phase II allowed for the soft pressing of 120 grenades using a punch tip furnished by MCI and 120 grenades using a punch tip furnished by Kansas AAP. The cones would be inserted and the Composition A-5 reconsolidated, then be tested against known requirements.

(U) From these methods the most feasible lower tool design would be determined.

(U) Manufacturing Methods and Technology (MMT) Injection Molding for Production Explosives (Project 5794312). This was an MMT effort to determine the technique to establish that injection molding could be successfully adapted to provide an improved method for automated loading of molten explosives. Kansas AAP would be responsible for the design and fabrication phase. Contract award was made in late August 1979. Work commenced in early September 1979 and would extend for 18 months. Kansas AAP would install and test a "model 1" injection molding prototype machine which was designed at Picatinny Arsenal in 1975 to confirm the feasibility of the process. Design and fabrication of a

production model would be pursued depending on the results of testing with "model 1". Several explosive compositions would be used in the prototype testing along with different types of munitions--BLU 63 and BLU 61. An FY 1980 project was planned as a continuation of the FY 1979 effort.

(U) Expansion, Line 4A LAP Detonator Facilities, Iowa AAP (Project 5782765). This is an expansion project that was designed to establish both a frontline and backline on Line 4 at Iowa AAP.

(U) The multitooled loader designed and built under MMT Project 57T-4457 was included in the project during March 1979. The construction award was scheduled to take place in August 1979, but bids were considered excessive and rejected. The job was readvertised and award was scheduled for December 1979. A shortage of funds was experienced but was resolved by a reduction in the equipment scope. These reductions were to allow for the completion of the project with authorized funds while maintaining the original P-15b schedule. Equipment awards were delayed but in FY 1979 were proceeding with all awards scheduled to be completed fo 31 March 1980.

(U) MMT Development of Automated Process for Grenade Ribbon Assemblies and Prepack of M42/M46 Grenades, ARRADCOM (Project 5764338). The original purpose of this project was to design and develop system equipment to automatically fabricate ribbon stiffener assemblies for the 30 and 90 ppm M42/M46 grenade/fuze assembly machines. In addition, a second machine was to be developed to prepack the assembled grenades into a ring along with the necessary inert spacers and keys for layer stacking of grenades into the 155mm and 8 inch projectiles.

(U) The Scope of Work (SOW) and performance specifications for both machines were detailed, and a contract was awarded to MB Associates in September 1977 for development of both machines. The prototype for the 30 ppm ribbon assembly machine was forecast for completion the 2d Quarter FY 1980, and was competed against a value engineering funded (VEF) machine developed by D&Z (Lone Star AAP) to perform the same function. The machine with the best demonstrated capability would be funded under a separate project to supplement the existing M42/M46 production lines at Lone Star, Kansas, and Milan AAP.

(U) The 90 ppm ribbon stiffener machine equipment, deleted from MBA's contract, would be procured on a Performance Specification with a TDP and manuals to be provided after delivery of the 30 ppm machine.

Metal Parts Division Activities

(U) Manufacturing, Methods and Technology (MMT) Engineering. Artillery and Mortar Ammunition - MMT efforts in support of Improved Conventional Ammunition are showing progress. In development of the inertia welding

process for attachment of the rotating bands to these thin-wall projectiles, the contract for a production size machine was awarded and the machine was scheduled for delivery in January 1980. Parallel work on automation of the welding process and collecting data for design parameters was accomplished.

(U) Awards were made to two contractors to continue the MMT program for process improvement in the manufacture of M42/M46 grenade metal parts.

(U) Rotary forging of the 155mm, M483 HE projectile body was performed at the GFM Corporation in Steyr, Austria, on a machine manufactured for Russia. The forgings and a report awaited evaluation in FY 1979.

(U) Work on developing a prototype Electro-Magnetic Acoustic Transducer (EMAT) inspection device for metal flaw detection proceeded with Rockwell International. This equipment, developed specifically to inspect the 155mm, M549 RAP warhead, was expected to be ready for trial runs in March 1980.

(U) The program involving computer-aided modeling of forming operations showed considerable progress in FY 1979 with models developed for nosing, cabbaging, and piercing and the drawing model successfully demonstrated with both hot and cold drawing trials.

(U) On the project for ultra-high-speed metal removal, the plasma arc assisted machining device was shipped from the United Kingdom (UK) and was installed at Watervliet Arsenal for initial trials on gun tube machining. A contract was placed with Jones and Lamson Division of Waterbury Farrel Corporation for the projectile high-speed machining investigation.

(U) Work on Technical Readiness Acceleration through Computer Integrated Manufacturing (TRACIM) continued with manufacturing data packages furnished for the 155mm, M483 by Chamberlain, New Bedford, and for the 105mm, M735 by Flinchbaugh Products. Tooling for M483 was fabricated on the NC precision lathe, and the analysis of lead time and cost reduction data was initiated.

(U) The feasibility of utilizing an automatic transfer-hot forming press for 81mm mortar projectile manufacture was successfully demonstrated. Further work is needed before this process could be implemented in a facility.

(U) Small Caliber Ammunition. MMT effort to develop an improved process for the manufacture of cartridges case dupes that would match the new Small Caliber Ammunition Modernization Program (SCAMP) facilities for the 5.56mm ball facilities continued in FY 1979. Project 5776200 developed such a process for the 5.56mm cup, and the resulting data were incorporated into the final Technical Data Package (TDP) for design and

procurement of new generation cupping equipment to be installed at three GOCO plants. Project 5786753 will develop a similar process for 7.62mm cartridge case cups.

(U) Cannon Caliber. In FY 1979 efforts continued to complete the 20mm fuze-to-projectile assembly machine. Incorporation of necessary explosion proofing was underway to assure compatibility with the safety requirements of a production environment. Contract negotiations for the acquisition of a 25mm High Explosion Incendiary (HEI) charging machine proceeded and would be finalized early in FY 1980. An MMT contract for the 25mm M791 APDS-T round was awarded to Ford Aerospace for the forming and assembly of the APDS projectile. The 30mm MMT contract with Honeywell was continuing to investigate improved methods for manufacturing the HEDP projectile and shaped charge liner and charge the HE mix.

(U) Fuel Air Explosive Weapons. An MMT contract was signed with Honeywell to develop improved methods for the forming of the tail cone and rolling of the skin for the BLU-96/B. The two components, because of their size, present a challenging process problem. In FY 1979 it was expected that Phase I would produce the design and in FY 1980 Phase II would complete the fabrication of the prototype equipment.

(U) Tank Ammunition. In the area of Tank KE ammunition, an MMT effort was initiated to reduce the amount of depleted uranium (DU) machining chips by forming close to net shape and toward recycling chips into a remelt operation for the XM774 core.

(U) Efforts to form the tungsten core close to net shape by taper swaging provided unsuccessful since the resulting cores failed ballistic tests. In FY 1979 final reports were being prepared.

(U) Quality assurance of shaped charge liners by X-ray diffraction, MMT Project 6640, is investigating the use of this method of assessing quality by means of grain orientation (the spin compensating ability of shaped charge liners). In FY 1979, prototype equipment was complete, and project completion awaited final phase contract effort with Chamberlain using precision liners and cross rolled stock. Completion was scheduled for 1 March 1980.

(U) Small Caliber. By the end of 1979, the major portion of the Small Caliber Ammunition Modernization Program (SCAMP) equipment for five lines for producing 5.56mm ball ammunition was installed and accepted. During January 1979, regular production was initiated on one line, and by the end of September over 40 million cartridges were produced for stockpile. During 1979 debugging of previously installed equipment continued, some of the equipment voids were filled. At the end of the year, there remained some voids and equipment improvement needs. It was planned to complete these areas through various means with the majority of the remaining tasks to be provided in a 1982 facilities project. The specifics of 1979 progress were discussed in the following paragraphs.

(U) The completed SCAMP system would consist of five each case submodules (SM), bullet SM, primer insert SM, load and assemble SM, packaging SM; one each automatic material handling system (AMHS), ballistic test SM (BTSM), process quality control system (PQCS); and specialized inspection and maintenance equipment. By the end of 1979, all of the key SM had been accepted. Of the load and assemble SM, four had been accepted with no restriction and one was conditionally accepted. The contractor, Gulf and Western Corporation, was taking corrective action and retests were being accomplished. Refinement of the cartridge case measurement system continued, and the cartridge measurement system was delivered, installed and interfaced with the load and assemble SM. Work continued during 1979 on the PQCS interface and software refinement. Off-line gages were delivered and installed. The production schedule for 1979 called for five million cartridges per month. Variable performance was experienced during the first part of the year. However, in August 1979 improvements in process control on the case SM resulted in an upward trend in productivity.

(U) In FY 1979, because of funding constraints and revised lower mobilization requirements, it appeared that SCAMP would be completed in a three-plus -two configuration. There would be three complete 5.56mm ball ammunition lines plus two lines which would be capable of manufacturing 5.56mm ammunition but would be missing certain ancillary equipment required for optimum production efficiency.

(U) Based on execution of the planned FY 1981 project, the SCAMP facility was scheduled for completion of the three-plus -two configuration by June 1983.

(U) Environmental Statutory Compliance Action. Reference is made to SAR, 25 January 1979, reference letter signed by General Guthrie in a 25 January 1979 letter to Vice Chief of Staff General Kroesen requesting Presidential exemption to Clean Air and Water Acts compliance. The opinion was that action to request such exemptions would be supported by Office of the Chief of Staff, ASA (IL&FM), Chief of Engineers, and other DA staff elements, but not by DA Energy Office and DASD Energy, Environment and Safety. It appeared that some elements desired more justification whereas others did not favor elevating the issue to the top levels of Government.

(U) US/Canadian Defense Development Sharing Programs. The programs addressed Memorandums of Agreement, Armed Services Procurement Regulations (ASPR) Restrictions on R&D contracting with Foreign Sources, and other documents to include Secretary of Defense Memorandum, 26 August 1977, briefing DCSRDA, 5 February 1979, and USD/R&E Memorandum 2 February 1979. These documents defined renewed emphasis on Canadian proposal to fund up to 75 percent of R&D costs on development programs with US portion to be remainder.

Mr. Gorman was queried as to the Canadian issue of reactivating or re-establishing a munitions production base. Copies of MPBME program brochures were furnished to Ottawa through embassy channels.

(U) Environmental Statutory Compliance. It was reported that Army Under Secretary La Berge had signed off on the request for Presidential Exemption on Statutory Compliance with Clean Air and Water Acts with reference to AAP. Later events proved this to be partially correct, as Deputy Assistant Secretary of Defense (Energy, Environment and Safety) George Marienthal convened a hurried meeting at the Pentagon on 6 May 1979 and a follow-on meeting on 7 March 1979. Principal attendees included Secretaries Marienthal and La Berge and Generals Guthrie, Grier, and Morris (CE). Marienthal stated emphatically there would be no request for Presidential Exemption forwarded from DOD. A Federal Compliance Agreement was (or would be) developed that would permit installations to remain in operation as opposed to shutdown provided projects/actions were underway to correct the noncompliance situation. The agreement plus all facts bearing on the problem have been referred to the OSD Legal Staff for their considered opinion.

(U) HASC. Mr. Gorman attended prebrief of Radford Continuous Automated Multibase Line (CAMBL) presentations by A. Siklosi and L. Laibson, PBM, together with COL Townsend and R. Barnett, DCSRDA-CSM, and Peter C. Scrivener, 7 March 1979. Principal areas of interest were 60-day AAO buyout, peace time versus mobilization requirements, wage differentials, safety, and OSHA and EPA aspects. Members requested a five-minute presentation be prepared for possible use before the HASC or subcommittee.

(U) Single Manager for Conventional Ammunition. The Director, Resources and Management, DALO, briefed DASD (Manpower, Reserve Affairs and Logistics) (MRA&L) on the SMCA on 13 March 1979. DARCOM would furnish program element details of resources provided to SMCA for FY 1979 and FY 1980, changes to be addressed, plus impact on the SMCA or other programs. An additional briefing to the DASD (MRA&L) would be presented the week of 26 March 1979 on funding status, requirements to fully implement the program, problem areas and shortfalls, alternative measures to accomplish the program, and recommended solutions.

(U) PBM Data Management System. Mr. Gorman conducted discussions with representatives of OPM and Directorate of Development and Engineering relative to the revision of Supplement No. 1 to AR 700-51, Army Data Management Program. The orollary purpose of discussions was to address DARCOM proposed response to PBM message, DTG 131330Z Mar 1979, Subject: Army Data Management Program. Proposed response was to direct delay of implementation of PBM DM Program at least 60 days until revision of Supplement 1. Mr. Gorman and OPM nonconcurred in the proposed response.

(U) DOD/DOE Energy Showcase Conference. Mr. Gorman attended a conference at US Army Engineering Division Huntsville (HND) by architect/engineer firms on various terra-tecture installation approaches, to examine their approaches, and to review, analyze, and comment on HND's approach to the feasibility assessment study based on the presentation. The conference was attended by representatives of Day and Zimmerman (D&Z), David Smith-Carter-Rider, Moreland Associates, CE HND, and PBM, J. Bomengen. HND proposed to combine PDB I information with precriteria study results, request design proposals from the principal architectural firms, and select the best proposal. The PBM position expressed in the conference with Colonel Dobson was that additional design funds would not be available to support this three-prong proposal effort. In FY 1979, it was agreed that the Department of Energy (DOE) would be queried as to design funds and the $500,000 previously identified as forthcoming but not yet available.

(U) ADPA Munitions Symposium. Mr. Gorman attended Planning Conference with AF, Navy, ARRCOM, ADPA, and Industry representatives to develop objective, scope, agenda, and speeches for Executive Level Munitions Symposium held in October 1979 at Harry Diamond Labs (HDL). Principal thrust is to assess impact and gain industry insight and reaction to major development in munitions production base and ammunition in general policies, such as sustainability, lead time, program concepts, acquisition policies, technology, vulnerability, RSI, transition from development to production, Phase II SM (if published), and preparedness concepts.

(U) Improved Nitrocellulose Purification Process, Conicell Unit. Correspondence on subject was referred to OSD Cost Accounting Standards Board on 7 May 1979 and returned on 8 May 1979 with direction to restructure the basic request for waiver to address Moser refusal to accept disclosure and consistency in Cost Accounting Practices Clause, ASPR 7-104.83 A2, and not a refusal to submit a disclosure statement. Disclosure statement is required only if company did $3 million business with USA in the previous year, which Moser did not. Consensus is waiver can be granted on CAS 401 and 402 dealing with Cost Accounting Standardization requirements and charging of both direct and indirect charges respectively. Status is basic letter being revised at DARCOM, verification of backup information by ARRCOM by telephone calls to Moser. Documentation was to continue to be hand carried by Mr. Gorman to expedite. Opinion at ASD and ASA was that approval would be forthcoming in month of May 1979.

(U) DCAS. In the Booz-Allen Study, completed in FY 1979, it was recommended to consolidate some DCAS regions and restructure others. This may have had some effect on the administration of some PBM/CE contracts subsequently. The implementation of the study results was somewhat delayed. However, at a recent meeting the Deputy Under Secretary of Defense for R&E (Policy Acquisition) established a milestone

376-617 O - 82 - 23

schedule of 1 June 1979 for establishment of the Defense Department position on the subject, 1 July 1979 for Service Comments to Defense, and 1 October 1979 for final Defense Department Position Report to Congress.

(U) Rock Island Arsenal (RIA) Project Rearm. Mr. Gorman was invited to attend briefing on RIA Project REARM, 9 July 1979. REARM is a $13 million program (1st increment) to improve productivity and effectiveness of RIA in order to provide for economic peacetime production and necessary mobilization capacity. Briefing was presented as informational to advise MG Sharp and the Procurement and Production Directorate Staff as to the contents and progress of the program. Major recommendations to the RIA representatives was to include in the briefing specific examples of major contributions of RIA in support of Vietnam, Korea, and other emergency actions that were accomplished due to the Arsenal capability and without the prompt reaction could not have been possible. Considerable discussion ensued concerning "in-house" versus "out-of-house" capabilities in view of the timely interest in Office of Management and Budget (OMB) Circular A-76 and 109.

(U) Conventional Ammunition Special Project Review (CASPR). MG Ragano was assigned to the Office of the IG, US Army, Washington, DC, for duty as Director, CASPR. It was understood that the task force/IG team would include approximately seven IG personnel, three secretaries, and approximately 10 to 15 TDY special duty personnel. The review was to take approximately one year and would investigate problems in the broad spectrum of ammunition life cycle. The major thrust of the review, as conceived in FY 1979, would determine what assistance was required to solve the many long standing problems in ammunition. MG Eicher was briefed on the general aspects of the review on 30 July 1979 at the Pentagon IG Office. The single manager (SM) concept, FAO report, Ammunition Initiatives Task Force, Sustainability and other studies and actions bearing on the problem would be subjects of discussion and investigation. Mr. Gorman was requested to act as point of contact between the DAIG and PBM/ARRADCOM with reference to IG visits and general matters. General Guthrie was briefed on the scope and intent of CASPR. The team was to operate out of the NASSIF Building, Falls Church, Virginia.

(U) Mississippi AAP. As a result of the discussions ensuing at the Workload Management and Plant Utilization Briefing to the Commanding General, DARCOM on 7 August 1979, relative to changed peacetime production requirements for the M483 155mm projectile, action was underway in FY 1979 at the DARCOM Materiel Management Directorate and ARRCOM to reassess workload requirements for the M483 for Mississippi, Kansas and Lone Star AAPs. General Guthrie's concern was the possible effect of these changes on his statement before HASC on Military Installations and Facilities on 23 June 1979 to the effect that Mississippi, Kansas, and Lone Star AAPs would be required to support peacetime buys of the M483.

(U) GAO Report - Centralized Munitions Management - A Goal Not Yet Achieved. This GAO report on Single Manager for Conventional Ammunition (SMCA), was publicly released and transmitted to appropriate agencies on 20-21 August 1979. Mr. Gorman sent copy by ARRADCOM pouch mail to PBM-J, 21 August 1979. Highlights of the report of interest to PBM were:

1. The Office of the Secretary of Defense (OSD) prepared two draft directives. One provides that the Secretary of the Army establish and organize a single manager operating agency for conventional ammunition as a major command of the US Army. The other directive established a Defense Munitions Agency as a separate agency under the DOD. GAO favors leaving the mission with the Army but elevating it to department level.

2. Under the SM at DA level alternative, GAO considered it essential that a Washington, DC command office be established for overall management direction. However, the operating activity could be ARRCOM.

3. GAO listed 10 major recommendations, with recommendation 10 reading: Direct the Secretary of the Army to assign the Project Manager for Production Base Modernization and Expansion to the Single Manager, after the single manager organization is strengthened.

(U) International Symposium on Armament Systems. Mr. Gorman, as a member of the American Defense Preparedness Committee (ADPA) Steering Committee on symposium entitled, "Where is NATO Going in Large Caliber Artillery Weapons", held on 24-26 June 1980 in Ottawa, Canada, attended structuring session on 21 August 1979 in Washington, DC. The symposium was to encompass six sessions identified earlier in SAR on 12 June 1979. The meeting would be cosponsored by ADPA and Canadian National Defense Department. The area of principal interest to PBM was New Ammunition Concepts plus Packaging and Resupply of Ammunition. Mr. Gorman was responsible for arrangements for principle Army speakers, LTG Gregg and MG Merritt.

(U) GAO Report - Centralized Munitions Management - A Goal Not Yet Achieved. Meeting convened 27 August 1979 to draft DARCOM/DA response to GAO Report. Meeting was chaired by BG Harper per direction of the CG, DARCOM. Twelve issues were identified with which SMCA concurred. Eleventh issue was PM-MPBME report to the SM after the Single Manager is strengthened. SMCA originally nonconcurred and stated Gen Guthrie, DARCOM direction to assign the PM to the SMCA, 1 October 1979, should be sustained. Mr. Gorman discussed existing administrative lag of 30-90 days would preclude meeting 1 October 1979 and, in view of possible clarification of location and rank of SMCA being imminent, that transfer of PM on 1 October 1979 was premature. BG Harper changed nonconcurrence to concurrence with wording of GAO issue. Date of 1 October 1979 for transfer was deleted.

(U) Commanding General, DARCOM, reviewed the entire package at his quarters evening of 28 August 1979 and initialed without comment. Package was then awaiting transmittal signature of DARCOM Chief of Staff, MG Moore, to DA-DCSRDA.

(U) Mississippi AAP Igloos. Mr. Gorman, per request of the PM, met with LTC Bowers and Hall to discuss active problems of possible relocation of igloo area to accommodate desires of NASA based on future expansion/NASA test area. It was concluded that specific problem definition together with revalidation of the PBM position was essential. Letter addressing NASA position and PBM revalidation was expected no later than 14 September 1979. DARCOM, OCE, real estate personnel and NASA, if required, would be requested to participate in formal discussions upon results of review.

(U) H. R. 4040, DOD Authorization Act, FY 1980. Mr. Gorman confirmed that joint session was scheduled for mid- to late September 1979. Subject bill was not yet signed into law. Therefore, Section 805 concerning requirement for Congressional approval for transfer of commercial or industrial function from DOD to private contractor was not in effect but would be on the date of the enactment of the act.

(U) Appointment. Secretary of Defense Brown announced the appointment of Dr. Vitalij Garber to the newly established position of Deputy Under Secretary of Defense (International Programs and Technology). Dr. Garber would administer the control of technology export for the DOD, and would be the focal point for technology transfer policy and all activities involving munitions and commercial export cases, and for the identification of critical technologies involved in exports to foreign nations.

Nuclear Munitions

Nuclear Weapons Logistics Management Conference

(FOUO) During the year the ARRCOM Field Office hosted the second DA sponsored Nuclear Weapons Logistics Management Conference held at ARRCOM HQ during 31 October - 2 November 1978. The conference included representation from 26 separate commands/agencies and DA staff members. The conference was designed to facilitate meeting the challenges of:

a. Improving communication within the logistical community.

b. Expanding logistical considerations in research and development programs and in operational requirements.

c. Improving logistical techniques and procedures.

d. Conducting cost effective materiel readiness programs.

e. Effectively managing nuclear weapons logistics.

(FOUO) The presentations, discussions and actions which resulted from the conference were instrumental in improved logistics management toward optimizing nuclear weapons support.

XM785 Nuclear Projectile

(FOUO) Funding for FY 1979 was received in the amount required to begin DOD Engineering Development. On 30 September 1979 all funds had been obligated. The FY 1980 - 1981 programs were submitted at the spring RDTE Review. Guidance received indicated the full FY 1980 requirement was approved, with a new life cycle cost estimate based on the latest DA guidance.

(FOUO) The XM785 Projectile Required Operational Capability (ROC) was approved as a basis for continued planning by DCSOPS on 6 December 1978.

(FOUO) The W82/XM785 Coordinated Project Summary (CPS) was signed, distributed and updated during FY 1979. It highlighted significant project milestones, information requirements, and decision points.

(FOUO) A Letter In-Process Review (IPR) was transmitted through DARCOM to DA in March 1979. This review was planned to address the initial Acquisition Plan (AP), review program status and provide required information prior to the Spring Research, Development and Acquisition Committee (RDAC) meeting for the FY 1981 budget cycle.

(FOUO) The FY 1979 major gun firings consisted of successful structural and muzzle velocity tests of the titanium rocket motors and ballistic modules at the Tonopah Test Range, Phase I low zone performance test at Yuma Proving Ground, New Mexico and Phase I "User" ballistic similitude firings at Fort Sill, Oklahoma.

(FOUO) Major baseline design decisions were made during FY 1979 in the areas of the high energy rocket motor erosion liner, interchangeable spline joint, rotating band, miniaturization and structural design of the fuze, warhead electrical system, nuclear physics package, external use denial lock (UDL), and monitoring requirements. In FY 1979 the program was on track with the preliminary baseline design and interfaces established.

(FOUO) In late FY 1979 efforts were made to upgrade the XM785 Test Priority at Yuma with the intent to move this program into the Number 1 position as the Test Schedule increased in intensity during FY 1980.

(FOUO) BOIP I feeder data for XM785 Projectile associated equipment was prepared and processed through the DARCOM Equipment Authorization Review Activity (EARA) to TRADOC in February 1979.

(FOUO) Draft Training Device Letter of Requirements (TDLR) for XM820 Type X and XM841 Type W Training Warhead Sections, Type 3D Cutaway Warhead trainer and Prescribed Nuclear Load (PNL) Simulation Container were presented to TRADOC schools and approved by the XM785/W82 Logistical Working Group. TRADOC did not plan to process these documents to HQDA since they stated that the ROC for the XM785 Projectile established the requirement for these devices.

(FOUO) Due to the HQDA October 18 requirement to submit BOIP and QQPRI at the same time, the previously submitted PQQPRI (August 1978) was updated and submitted. However, administrative problems in processing CNWDI classified information significantly delayed delivery to TRADOC. This was finally completed in July 1979.

XM753 Nuclear Projectile

(FOUO) In October 1978 the DOE was authorized to resume production activities, which had been suspended as a result of the 13 July 1977 Byrd-Baker Amendment to the DOE appropriation for FY 1978 production, related to the W79 weapon program. Based on a PM-NUC/DOE Enhanced Radiation (ER) change out study, the Project Officers Group recommended a Limited Life Component (LLC) van option to support this requirement.

(FOUO) The XM753 Projectile program began to transition from the development to the production phase. Development efforts continued on the XM38 Fuze Setter, XM613E1 Container, the LLC Assembly Van and the LLC Assembly stand. DT II/OT II continued with satisfactory results. M735 Fuze, Rocket Motor, Type 3A Trainer, MC 3395 Disable Module, MC3138 Controller and T1554 Decoder production activities were initiated.

(FOUO) An Interim Design Review and Acceptance Group (DRAAG) meeting was held in September 1979 to review the DOE W79 Warhead Interim Development Report. The DRAAG recommended that the DOE continue with the design as presented to the DRAAG.

(FOUO) As with the XM785 Nuclear Projectile, in FY 1979, efforts were made in coordination with ARRADCOM LCWSL and SEO in establishing the XM753 Test Program at Yuma as the Number 1 ARRADCOM Test program. This enabled the XM753 program to remain on schedule.

(FOUO) An additional $2.5 million in FY 1978 funds and $2.9 million in FY 1979 funds were provided by DA to cover increased procurement costs of the M735 Fuze and Rocket Motors. A letter contract was awarded by Harry Diamond Laboratory in September 1979 for production of the M735 Fuze. ARRADCOM awarded Phase II of the Rocket Motor Contract in September 1979 also.

LANCE

(FOUO) To reduce the FY 1980 operating budget, the DOE initiated action to delay the W70-3/4 production schedule for two years. Upon DA objection, the DOE revised production scheduling to reflect a one year slip. DA was considering the acceptability of this delay.

(FOUO) In FY 1979, development of the XM144 Hard Link Arm/Safe Device (HLASD) continued with flight tests held in November 1978 and March 1979. During the March flight the HLASD had a single channel failure whose root cause was attributed to interference of one of the locking levers of the "g" weight. It was estimated that this problem would cause a one year delay in the development program. In June the Nuclear Weapon Systems Safety Committee (NWSSC) concluded that the HLASD would not eliminate the need for Safety Rule 6. In addition, the user did not support the need for this device, however they did request that the mating connection to the warhead be made more reliable. Based upon the delay in development as well as the NWSSC and user concerns, DA canceled all development activity on this PIP and suggested an alternate method be developed.

(FOUO) A Product Improvement (PIP) to develop a method to simplify the mating of the Adaption Kit cable to the warhead and accordingly to increase the reliability of the mating operation was initiated. This PIP was initiated upon the cancellation of the HLASD development program to establish an alternate means to satisfy the requirement for ensuring a safe and reliable AK/WH cable connection concurrent with operational requirements.

(FOUO) Action was initiated to procure from the DOE the MC3504 Command Disable System (CDS) Locking Device Trainers. Activity was also initiated to generate the Engineering Change Proposal (ECP) package required to provide these trainers to the FMS customers for use with their M240 Trainers.

(FOUO) Efforts to provide M240 and M241 Training Warhead Sections for support of a new FMS case and associated US General Support Unit were successful. Two M240 Type X Trainers were delivered during May 1979 to the new FMS customer. One M241 was delivered to the supporting US GS unit during September 1979.

PERSHING II

(FOUO) In December 1978 the PERSHING II system received approval to enter Engineering Development. The Air Burst/Surface Burst option was given unrestricted approval while the Earth Penetrator (EP) option was directed to continue development to protect 10C but not commit large funds pending study which would independently assess the usefulness of the EP.

(FOUO) In May 1979 the Phase III request by the DOD was accepted by the DOE. Los Alamos Scientific Laboratory was the DOE developing laboratory and designated the warheads as the W85 (Air Burst/Surface Burst) and the W86 (Earth Penetrator).

(FOUO) Martin Marietta has baselined the design of the PERSHING II as of the end of FY 1979. Though there are some unresolved interfaces among the warhead, AK and missile, the PERSHING II system on a 1st order basis has been finalized.

(FOUO) The 10C date for the Air Burst/Surface Burst has been officially accelerated by 16 months without any added funding. This basically resulted in a production decision being forced earlier in the DT II/OT II program. Correspondingly a release for long lead time procurement would also be scheduled earlier.

(FOUO) In an effort to reduce costs PERSHING Program Manager's Office (PPMO) undertook a safing, arming and fuzing system consolidation study to identify cost savings associated with consolidating all safing, arming and fuzing (SAFS) work for PERSHING at Sandia Laboratories. Upon review by OPM Nuclear Munitions, it was agreed upon by PPMO and our office that PM NUC would redo the study. As a result of the revised consolidation study which indicated a possible $15 million acquisition cost differential, it was decided that the Army should continue to develop the SAFS for the AB/SB option of the PERSHING II.

The M454/M197/M198 Compatibility Program

(FOUO) The pretest phase of the program to establish compatibility of the M454 projectile with the M197 propelling charge in the new M198 155mm towed howitzer was initiated in May 1979. This phase was to determine if the M454/M197 combination would exceed DOE Major Assembly Release (MAR) limits for the M454. Seven special M454 test projectiles (designated T5119) were manufactured to support this phase.

(FOUO) Results of firing the first T5119 and several conventional reference projectiles, up weighted to that of the M454, showed high differential pressures and propellant pressure time traces that were not "smooth". Analysis indicated the probable cause was the jamming of the M197 charge against the tapered chamber wall of the M198 howitzer. During firing, the jamming allowed an initial pressure build-up behind the jam which dips and then rises normally as the jam is burned through.

(FOUO) When the M197 was developed the effects of differential pressure and its measurement were not state-of-the-art. Tests were conducted that determined the M197/M454 not exhibit differential pressure problems in the M109A1 SP howitzer. The M197 was developed to fire the M454 in the M109A1.

(FOUO) As the fiscal year ended several additional T5119/M197s had been fired to expand the data base. In FY 1979 all the test data were being summarized for transmittal to DOE for their determination of whether the M454 could survive the forces imposed on it by the M197 in the M198. This would determine whether a new charge would have to be developed prior to conducting the full compatibility firing program.

M422 Program (8 inch)

(FOUO) The Extractor Tool H4277 was fielded during this period. The tool capable of extracting forces of 100,000 lbs (proof tested load). The production program for the H4277 was completed during CY 1979. Only forty more tools remain to be delivered.

Atomic Demolition Munition (ADM)

(FOUO) PM-NUC reviewed SHAPE/NATO studies evaluating the active need ADMs, and together with ARRADCOM met with USANCA to consider Army alternatives. PM-NUC provided briefings and prepared joint PN-NUC/ARRADCOM recommendations to DA concerning the Army/ADM role. Draft requirements for a new ADM were generated.

PERSHING 1a

(FOUO) During 1979, PM NUC continued the management of follow-on procurements of PERSHING 1a M15 Warhead Section subassemblies placed in 1978. Because of fiscal constraints in FY 1978, additional procurement actions were necessary in FY 1979. The total procurement costs were in excess of $8 million.

(FOUO) Based on analysis of planned requirements for PII and subsequent coordination with HQDA, requirements for production of PIa warhead sections were reduced and a significant cost avoidance realized.

Power Supplies for Permissive Action Link (PAL) Equipment

(FOUO) Plans to field the ERADCOM (HDL) head crank generator (G76) for use by artillery personnel as a backup power source for PAL equipment were made during FY 1979. Primary power source will be via slave receptacles on NATO and US vehicles.

(FOUO) PM-NUC together with ARRADCOM initiated a Phase I feasibility test program toward replacing the current NICAD MC1605B PAL equipment battery with a lithium sulfur-dioxide battery. A small number of Mallory cell assemblies were tested which proved far superior to the battery currently in use. The lithium batteries are smaller, cheaper and provide more energy over a wider temperature range with less operational impact than the NICADS currently in use. Technical Report ARLCD-TR-79020, "A Lithium Replacement for the Nickel Cadmium MC1605B PAL Equipment Battery," describing the evaluation program was distributed in August 1979.

NIKE HERCULES/HONEST JOHN W31 Weapon Systems

(FOUO) The Deputy Project Manager for Nuclear Munitions was tasked by DA to Chair a NIKE HERCULES/HONEST JOHN W31 Weapon System Improvement Group to analyse the various proposals submitted by both the DOE and Army to improve the safety of these systems. The various proposals were considered with respect to safety provided, logistical and operational impact, and compatibility. The group agreed upon a DOE option as the recommended approach and submitted conclusions and a recommendation to DA on 21 September 1979.

(FOUO) The HONEST JOHN demil program was delayed until September 1979 pending decisions relative to PAL. Favorable presidential authorization was received and Outside Continental United States (OCONUS) demil would be accomplished as soon as source documents were published.

(FOUO) OPM Nuclear Munitions participated in a Phase I study of the above proposed system. A Phase I report was generated and is being staffed. Subject system would be used to defend minuteman missiles during the early 1980s time frame.

Armor Blanket

(FOUO) In accordance with direction from DCSOPS, PM-NUC and US Army Nuclear and Chemical Agency (USANCA) were tasked to evaluate a proposal by Sandia Laboratories to use armor blankets to protect nuclear weapons from small arms fire. A report was prepared which addressed subject proposal from both a technical and operational point of view. Report recommended that proposal not be pursued any further by Army mainly because of operational impact and limited protection afforded. DA concurred in recommendation.

Electromagnetic Radiation (EMR)

(FOUO) PM-NUC participated in a meeting held by Communications System Agency (DRCPM-COM-RD) concerning a new program for the use of EMR monitoring equipment at sites handling nuclear weapons. The acquisition schedule was revised and the testing program for reliability, availability and maintainability (RAM) was streamlined.

Chemical Decontamination

(FOUO) PM-NUC coordinated with Chemical Systems Laboratory at Aberdeen Proving Ground (APG) on implementation of a program to handle design requirements involving decontamination. PM-NUC was instrumental in having basic requirements documents modified by US Army Chemical and Nuclear Agency to reflect a more realistic approach toward chemical decontamination. Information was coordinated with ARRADCOM.

(FOUO) PM-NUC has prepared revisions to regulation AR 70-24, "Research and Development Special Procedures Pertaining to Nuclear Weapon Systems Development and Acquisition," for submission to DA for update of basic regulation. Purpose is to make regulation consistent with other updated regulations and with present procedures for nuclear materiel acquisition.

Nuclear Survivability

(FOUO) PM-NUC participated in Study Group Chaired by HDL on "Nuclear Hardness of Electronic Fuzes." The Group developed recommendations to assure adequate and realistic survivability criteria throughout the stockpile-to-target sequence for present and future systems.

(FOUO) PM-NUC participated as member of Nuclear Survivability Committee Secretariat meetings held at US Army Chemical and Nuclear Agency in Springfield, Virginia. As a result of revised tactics, the Secretariat revised the PERSHING II Stockpile-to-target (STS) nuclear environments.

Stockpile Reliability Test Program

(FOUO) The Joint Army/DOE Stockpile Reliability Test Program was conducted as planned for FY 1979 with exception of the M422 Flight Test Program due to problems in qualification of the on board "memory pack" non-radiating telemetry. Where test results indicated that safety/reliability of stockpiled munitions were adversely affected, follow-on action was taken to establish root cause of the problem and corrective action to the stockpile was taken to assure that requirements for safety and reliability continued to be satisfied.

(FOUO) A joint DOE/Army Methodology AD-HOC working group was established for purpose of selecting a methodology to express reliability in terms of lower confidence bounds in joint Army-DOE Reports. At the end of FY 1979, agreement had been reached on the methodology to be used for the FY 1980 reports.

(FOUO) The FY 1979 approved program was funded at $7.567 million. Included in the program were funds amounting to $450,000 for the Special Stockpile Engineering Investigative Program (SEEIP).

Value Engineering (VE)

(FOUO) The VE Goals established for the office for FY 1979 were achieved and exceeded. The following table shows the results:

	Goal	Actual	% of Goal
VEPs Initiated	6	11	183
Savings Validated	$500,000	$1,684,170	337

Five of the VEPs, for $1,684,170 came directly from this office. The balance was accomplished by ARRADCOM and was planned for validation in the FY 1980.

Life Cycle Systems Management Model (LCSMM)

(FOUO) LCSMM is undergoing revision to update the document to present Acquisition and Development regulations.

Life Cycle System Cost Model (LCSCM)

(FOUO) Action was initiated to develop a detailed life cycle cost estimating model for nuclear munitions as a management tool. This model would address all nuclear peculiar requirements, and compliment the Life Cycle System Management Model.

Publications and Maintenance of Nuclear Launch Equipment by Friendly Nations

(FOUO) During FY 1978 a study was completed and recommendations were made to DA to assure compatibility between US and friendly foreign nations materiel and publications should US nuclear munitions be authorized for employment. As a result of the study, HQDA decided in FY 1979 to send to friendly foreign nations an early photo copy of all manuals/changes and revisions, which should help eliminate the time gap in receipt of publications between US forces and other nation forces. The recommendation concerning US translation cross-check for accuracy was not favorably considered.

(FOUO) During FY 1979 the Product Improvement Proposals (PIP) approved and unfinanced for PERSHING in FY 1978, were cancelled. The basis for cancellation was the time planned for system life for benefits to be realized.

NUWAX - 79

(FOUO) During FY 1979 the office participated in planning for a nuclear weapon accident exercise, conducted at the Nevada Test Site in April 1979. This first of its kind joint exercise was conducted to allow evaluation of the command, control, communications, and other functions involved in interdepartmental coordination and related activities at the scene of a major nuclear weapon accident. NUWAX - 79 involved weapons of all three Services and required support by all DOE design laboratories. PM-NUC provided coordination for materiel support of the Army LANCE Warhead Sections used for NUWAX - 79 as well as DARCOM representation associated with the exercise. PM-NUC also provided NUWAX - 79 briefings to other DARCOM elements responsible for nuclear accident/incident control.

MK74 Shaped Charge

(FOUO) The MK74 Shaped Charge was Type Classified as Standard for Army use in FY 1979. However, the delivery schedule was changed because of difficulty experienced by the contractor in satisfying First Article Test requirements. At the close of the fiscal year, the contractor was preparing a third first article sample in coordination with Crane Naval Depot (Navy was the design proponent for this item).

ILS General

(FOUO) Considering the unique requirements of Nuclear Munitions an agreement was reached with Materiel Readiness Support Activities to tailor the milestone reporting requirements of DARCOM-R700-13, to be more responsive to the needs of the nuclear munitions program.

(FOUO) A visit was made to the organizational directorate at HQ TRADOC to discuss means of improving the processing of QQPRI and BOIP feeder data into the QQPRI and BOIP in light of classification requirements and access for critical nuclear weapon design information. At close of FY 1979, a proposal for processing our QQPRI/BOIP through this office to the Nuclear Biological Chemical Directorate in TRADOC was drafted and provided to DARCOM for consideration and approval.

Command, Control and Security

(FOUO) This office funded AMSAA to perform a detailed command, control and security study. The purpose of the study was to provide a basis for the Army to determine if it had a need for certain types of security hardware, e.g., Category E and F Permissive Action Link System.

During the fiscal year this office hosted six working reviews relative to study inputs and progress. It was anticipated that this study would be completed during FY 1980. The completion date was based on the premise that input from Department of Energy and Army activities would be completed by 2d Quarter FY 1980.

Summary

(FOUO) In FY 1978 the PM-NUC requested that DARCOM Headquarters provide the funding guidance for programs for which this office exercised management responsibility directly to it and not the system PMs. This request was denied. Management responsibility continued for those assigned systems without commensurate authority to control nuclear program funds.

(FOUO) In FY 1979 this office was in the process of renegotiating support agreements with system PMs which would alleviate this problem to as great an extent as practical. It was also recommended that separate program elements be established for all nuclear/nuclear support items and that these elements be controlled by the system PMs. This approach would identify for planning purposes the Army funding for the nuclear warhead section.

Office of the Project Manager
for Nuclear Munitions

NUCLEAR MUNITIONS PROGRAMS APPROPRIATIONS
($ in Thousands)

APPROPRIATION	FY 80	FY 81	FY 82	FY 83	FY 84
Procurement	29367	32975	26161	32641	25200
RDTE	32941	44280	46491	34252	32878
OMA	25576	26933	27017	27017	27017
Total	92073	104188	99669	93910	85095

Training Devices (TRADE)

(U) Project Manager (PM) TRADE was organized under a charter signed by the Secretary of the Army on 23 December 1974, and General Order Number 140, dated 14 July 1974. In the formation of PM TRADE, the Army Training Device Agency (ATDA) in Orlando, Florida, became the subordinate organization. Coincident with the establishment of PM TRADE, TRADOC Headquarters established at Fort Benning, Georgia, a counterpart organization called Training Device Requirement Office (TRADER). TRADER was originally established at Fort Benning in order to be close to the user and to be colocated with the US Army Training Support Center (TSC) which was to have been located at Fort Benning. Based on a later decision by TRADOC, TSC was located at Fort Eustis, Virginia. PM TRADE relocated to Naval Training Equipment Center (NTEC), Orlando, Florida, and merged with ATDA on 1 September 1976.

Review of PM TRADE for FY 1978 and 1979

(U) Cost Estimate Control Data Center. During FY 1978 twenty-one cost estimates were validated by the OPM TRADE Cost Estimate Control Data Center (CECDC). During FY 1979 the OPM TRADE CECDC validated twelve cost estimates. In addition to the cost estimated, the CECDC validated the cost portions of all RECAPS and LOGCAPS presented during this time frame.

(U) Management Information Systems. During the FY 1978 and 1979 time frame, OPM TRADE has developed from being an activity whose only contact with automatic data processing was monthly hard copy printouts from the Finance and Accounting Office to one which depends upon an on-line Management Information System (MIS) for most of the project information required for decision making. As a prototype development agency for the DARCOM Executive Level Interactive Terminal Environment (ELITE), OPM TRADE has installed and is operating a Project Information Report which contains fifteen fields of data on each major OPM TRADE program. Initial implementation of this program required expenditure of over 3000 person hours over a five month time frame.

(U) RSI. Although DARCOM policy required Rationalization, Standardization, and Interoperability (RSI) efforts to be an integral part of PM TRADE development programs, present staffing at PM TRADE does not allow implementation of more than a minimal effort.

(U) PM TRADE's contribution to RSI goals has been a result of the normal source of business (schools, FORSCOM, and USAREUR) and is expected to continue on this basis. The following is a list of FY 1978 accomplishments:

a. Exchanged engagement simulation technical information.

b. Evaluated training device/simulator capability of NATO.

c. Continued an advanced development program on the wide angle visual system enlisting the capabilities of NATO.

d. Procured equipment and technical data package on Hoffman MTG/WESS from NATO.

FY 1979 RSI activities included the following:

a. Main Tank Gun - Weapons Effect Signature Simulator.

b. Observed Fire Trainer.

c. Medium Girder Bridge Models.

d. Combat Training Theater.

e. Multiple Integrated Laser Engagement System.

f. Marksmanship and Gunner Laser Device.

(U) Initial OPM Study. The Office of Personnel Management (OPM) formerly the Civil Service Commission (CSC), conducted a Special Inquiry at USA Project Manager for Training Devices (PM TRADE) during the period 16-20 October 1978. The review concentrated on assessing the quality of PM TRADE's position classification program. OPM's evaluation team pointed out weaknesses in the GS-13 and GS-14 middle management structure at PM TRADE. As a result of this inquiry, PM TRADE commissioned the Army Management Engineering Training Activity (AMETA) to examine PM TRADE's organization.

(U) The Army Management Engineering Training Activity (AMETA) study was completed and a report submitted on 30 April 1979. AMETA observed that the emphasis within PM TRADE over the last several years has been getting the job done. But the mushrooming workload has overwhelmed the capacity of individuals because staffing resources were spread extremely thin. The key recommendations made by AMETA include the following:

a. To effectively manage the many projects assigned to PM TRADE within a tight structure promoting the managerial rather than operational aspect of project direction.

b. To give necessary emphasis to the planning process with appropriate management held accountable for the effectiveness of the planning effort.

c. To establish civilian chiefs in the operating divisons to provide project continuity.

(U) Upon receipt and review of proposed AMETA recommendations, PM TRADE incorporated the recommended management concepts and specific reorganizational changes within the Logistics Management Division, Configuration Management Office, Product Assurance Office, Field Office and Program Management Division.

(U) FY 1978 Projects. Major system training devices being acquired by PM TRADE during FY 1978 included the following:

DEVICE	PHASE
Synthetic Flight Training System (FTS) 2B40 AAH64	Concept
M-60 Tank Training Device	Concept
XM1 (11 Devices)	Concept
Fighting Vehicle Systems	Concept
ROLAND	Concept
SFTS 2B31 (CH-47)	ED
SFTS 2B33 (AH-1Q)	ED
SFTS 2B38 (BLACKHAWK)	ED
Firefinder	ED
SFTS 2B24 (UH-1)	Production
TOW/COBRA Part Task Trainer	Production
Blackhawk Part Task Trainer	Production

Major non-system training devices being acquired by PM TRADE during FY 1978 included the following:

ARMOR Remoted Target Systems (ARETS)	Concept
360° Annular Visual System	Concept
Maintenance Technology	Concept
Tank Appended Crew Evaluation Device	Concept
Tank Weapons Gunnery System	Concept
Universal Infantry Weapons Trainer	Concept
Air Ground Engagement System	Concept
Miles Indirect Area Fire	Concept
Wide Angle Laser Scan	Concept
ARMOR Full Crew Interaction Simulator*	Concept
Marksmanship and Gunnery Laser Device (MAGLAD I)	AD
Infantry Remoted Target System (IRETS)	AD
Blank Firing Adapter (BFA) M2 and M85	ED
Multiple Integrated Laser Engagement System (MILES) (3 Projects)	ED
Observed Fire Trainer (OFT)	ED
Combat Vehicle Kill Indicator - Pyrotechnic Device	ED
Medium Girder Bridge	Production
Electronic Warfare Co. Simulator	Production
IRAN Part Task Trainer	Production
Reactive Electronics Equipment Simulator	Production

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DEVICE	PHASE
Training Extension Course (TEC) (20 Projects)	Production
Weapons Effects Signature Simulator (WESS)	Production
Conversion Kit 5.56mm Rifle	Production
Artillery Direct Fire Trainer	Production
Truck Driver Trainer	Production
Fire Control Combat Simulator (Chrysler COFT)	USER EVAL

(U) FY 1979 Projects. Major system training devices being acquired by PM TRADE during FY 1979 included the following:

Synthetic Flight Training System (SFTS) ASH Flight Simulator	Concept
Fighting Vehicle Systems (3 Devices)	Concept
ROLAND	Concept
Ground Support Rocket System	Concept
SFTS AH-64 Flight and Weapons Simulator	Concept/ED
M-60 Tank Training Devices	Concept/ED
XM1 (5 Devices)	Concept/ED
Firefinder	ED
SFTS UH-60 Flight Simulator	ED
SFTS AH-1 Flight and Weapons Simulator	ED/Production
TOW/COBRA Selected Task Trainers	Production
Blackhawk Selected Task Trainers	Production
SFTS CH-47 Flight Simulator	Production
SFTS UH-1 Flight Simulator	Production/Fielded

Major non-system training devices being acquired by PM TRADE during FY 1979 included the following:

Computer Image Generation	Concept
Laser Marksmanship	Concept
Maintenance Technology	Concept
Squad Weapons Analytical Trainer (SWAT)	Concept
Weapons Effect Program	Concept
Miles Indirect Area Fire	Concept
360° Annular Visual System	Concept
Integrated Laser Optics	Concept
Wide Angle Laser Scan	Concept/AD
Army Training Battle Simulation System (ARTBASS)	Concept/AD
Blank Firing Adapter MAG 58	Concept/AD
Air Ground Engagement System/Air Defense	Concept/AD
Armor Full Crew Research Simulator	AD
Marksmanship and Gunnery Laser Device (MADLAD I)	AD
ARMOR Remoted Target System (ARETS)	AD
Infantry Remoted Target System (IRETS)	AD
Observed Fire Trainer (OFT)	ED

DEVICE	PHASE
Multiple Integrated Laser Engagement System (MILES)	ED/Production
Blank Firing Adapter (BFA) M2/M85	ED/Production
Combat Vehicle Kill Indicator	ED/Production
Universal Externally Mounted Sub-Cal Device	ED/Production
Reactive Electronics Equipment Simulator	Production
Electronic Warfare Co. Simulator	Production
Stationary Tank Target System (STATS)	Production
Brewster Device	Production
Field Artillery Turret Maintenance Trainer	Production
Weapons Effects Signature Simulator (WESS)	Production
Training Extension Course (TEC) (20 Projects)	Production
Antitank Weapons Effect Signature Simulator (ATWESS)	Production
Conversion Kit 5.56mm Rifle	Production
IRAN Part Task Trainer	Production
Medium Girder Bridge	Production

(U) Requirements Document Function. Another major improvement caused by the reorganization of US Army PM TRADE was the consolidation of requirement activities at one location that previously was divided between activities in the Orlando Office and the Fort Eustis Field Office. In order to tie the requirements document process into the overall PM TRADE long range planning process, to facilitate coordination of requirements document preparation, which was split between Orlando and the Field Office, and to enable more effective management of manpower resources, the entire training device requirements document function was moved to the Program Management Division in Orlando.

(U) Responsibilities under the proposed organization place the planning and scheduling of new work and subsequent requirements generation activities in the Program Management Division while giving clear organizational responsibilities of technical assessment and concept formulation to Research and Engineering Division. Under the proposed organization, the staff elements carry an increased responsibility for setting the project objectives and key parameters to meet PM TRADE interests.

(U) Bergquist Study. In 1979, HQ DARCOM decided to study the training device business to determine if the PM TRADE organization and missions needed to be changed. This training device study consisted of two phases; Phase I was the DARCOM/TRADOC interface Study and Phase II was the DARCOM Internal Study. The latter impacted PM TRADE significantly. To alleviate the problems described in the study, DARCOM considered the following alternatives: (a) Create a training device commodity command; (b) Disband PM TRADE and distribute their workload; (c) Realign mission and functions within existing organizations.

(U) General Guthrie selected alternative three since it alleviated potential problem areas with minimum disruption of on-going programs and DARCOM resources. In order to implement this realignment, the following actions were necessary; (a) Realign PM TRADE missions; (b) Integrate logistic support into a standard system; (c) Transfer TEC mission to the Army Audio Visual Activity (Sacramento, California).

(U) In FY 1979, PM TRADE was working with HQ DARCOM in the implementation of the actions on the Bergquist Study. At the request of TRADOC the TEC Program was to be transferred to their command and not Sacramento as previously directed.

(U) OPM Final Decision. In an attempt to correct the deficiencies noted in the Office of Personnel Management (OPM) Report on the Special Inquiry conducted at PM TRADE in October 1978, PM TRADE presented a proposed reorganizational plan to OPM in October 1979. Subsequent to that meeting, PM TRADE submitted correspondence advising OPM of the status of the proposed reorganization. OPM stated that because of the time lapse since the initial review of PM TRADE positions and in consideration of the potential impact of the projected reorganization of subject positions, OPM closed the file on the Special Inquiry and required no further action from PM TRADE.

(U) Ground Systems Division. In FY 1979, four Firefinder Training Devices were installed at Fort Sill, Oklahoma. Each device contained an instructor station and six student stations. All four devices could be used to train personnel in the operation of the AN/TPQ-36 and the AN/TPQ-37 Radars. One device had the additional capability to train personnel in the organizational maintenance of the AN/TPQ-36. Consideration is being given to the development of a fifth trainer which would have the capability of training personnel for organizational maintenance on the AN/TPQ-37. This program was particularly significant in that the training devices were developed concurrent with production of the operational equipment and were available to train OT III test personnel.

(U) In October 1977, a Training Device Letter Requirement (TDLR) was approved for an interim tank target system. The system which resulted from this TDLR was commonly known as the Automatic Tank Target System (ATTS). By FY 1979 731 target mechanisms had been delivered to 17 locations in CONUS and Korea. The ATTS consisted of remotely controlled Target Mechanisms (TM) capable of raising and lowering full-sized, two-dimensional tank targets and transmitters which could control up to 40 TMs. The advantage of using commercially available equipment was apparent because the first lot of equipment was delivered one year after the requirements document was approved.

(U) Development of the Multiple Integrated Laser Engagement Simulation System (MILES), completed in FY 1979, was type classified and produced. An ancillary to MILES was the Blank Fire Adapters (BFA) which

added realism to exercises by providing realistic weapon effects signatures. BFAs for the M2 and M85 machine guns were developed and type classified. These BFAs were in production and were to be fielded concurrently with MILES. Engineering development of M240 BFAs for the complete range of MILES equipped vehicles was also underway.

(U) A contract was awarded to Xerox Electro Optical Systems Corporation for development of the Air-to-Ground Engagement Simulation (AGES) and Air Defense (AD) Systems. These systems, with an anticipated IOC of 1983 provided a logical extension of MILES to include Aviation of Air Defense in the engagement simulation exercises. The basic aviation offensive weapon system was COBRA with simulation of the TOW, 20mm gun and 2.75 Rocket Systems. The OH-58A and UH-1H acted as targets. The Air Defense Systems included the VULCAN, CHAPARRAL and STINGER; future expansion for AD was to include DIVAD Gun and ROLAND.

(U) PM TRADE agreed to undertake development of operation and maintenance trainers for PM ROLAND, which were designated as ROLAND Institutional Trainers (RIT). Two RITS were installed at the Air Defense School in Fort Bliss, Texas, and each was to contain an instructor console and six student stations. The student station would realistically portray the commander and gunner position with dynamic real time exercises. The RIT program was in the third step of the new four-step procurement process. The maintenance trainers were to be a combination of panel and three-dimensional trainers that would permit hands-on diagnostic training.

(U) The Army Training Battlefield Simulation System (ARTBASS) was to provide real time, dynamic training in command and control for Maneuver Battalion Commanders and their staffs. The ARTBASS is a conversion and update of the Combined Arms Tactical Training Simulator (CATTS) which is currently in use at Fort Leavenworth, Kansas. It is planned to convert existing CATTS software from the 1974 large scale computer configuration and van mount the system. ARTBASS was also in the third step of the new four-step procurement process.

(U) The Infantry Remoted Target Systems (IRETS) had successfully concluded DT/OT I and preparation was underway in FY 1979 for entry into engineering development.

(U) To satisfy the artillery community's requirement for an Observed Fire Trainer, a Force Development Test and Evaluation (FDTE) was conducted at Fort Sill on two different commercially available items. The results of the test indicated that both items would meet the Army's requirement. A Special in progress review (IPR) was to be conducted to obtain a decision for a Nondevelopmental Item procurement and type classification of the system. Upon successful completion of the IPR, the program would be transitioned to ARRCOM for procurement.

(U) Three, Day Record Fire Ranges were installed at Fort Jackson. Subsequent improvements were added to the system to prevent damage from lightning. A fourth system has been procured and installed at Fort Leonard Wood, Missouri.

(U) Research Engineering Management Division. Major Simulation and Training Device (SATD) technology base efforts were continued using approaches patterned after OMB Circular A-109. This approach provided maximum opportunity for the industrial sector SATD technology base to participate in achieving a satisfactory solution while making best use of limited personnel resources within the Government sector. A best technical approach for an Automatic Weapons Effects Signature Simulator (AWESS) was selected by a competitive evaluation. The AWESS program had been initiated to develop alternatives for offsetting the prohibitively high cost of blank ammunition that would be incurred during engagement simulation training exercises. The magnitude of these costs was first recognized from the baseline cost estimate prepared by the PM TRADE Systems Engineering Division for the Multiple Integrated Laser Engagement Simulation (MILES) System.

(U) Initially, four contractors were selected for developing competitive approaches for simulating machine gun signatures. Upon completion of the first phase, two of the four contractors were selected to build breadboard demonstrations of their approach for evaluation. Life cycle cost and suitability of the simulated signatures were the principal criteria used in selecting the final concept. Full implementation of the approach selected would result in a cost avoidance for blank ammunition in excess of $3.5 billion over the 20-year life cycle of the MILES system.

(U) A similar A-109 approach was being used for developing a systematic approach for development and acquisition of Army maintenance equipment. The Army Maintenance Training Evaluation and Simulation System (AMTESS) program selected four contractors to develop concepts for a modular family of maintenance training devices. Principal selection criteria for this program included life cycle costs; procedures for selecting appropriate media for two-dimensional (heads-on) and three-dimensional (hands-on) training; adaptability of the system design for institutional and unit level training; adaptability of the system design for introductory institutional training, unit sustainment training and proficiency evaluation and suitability of the system design for use of common configuration items across the full front of Army maintenance training requirements.

(U) The first phase of the program was completed and evaluation proceeded to select one or two of the phase one concepts for breadboard evaluations. Upon completion, the AMTESS program was expected to provide a systematic approach for continuing competitive acquisition of Army maintenance training devices based on proven training effective designs.

(U) Significant progress was made in coordinating Army SATD Technology Base needs and programs with the Air Force and Navy SATD technology base programs. Efforts by Naval Training Equipment Center (NTEC) engineers in developing a specification for the AH-64 Combat Mission Simulator (CMS) in accordance with concepts developed by prior PM TRADE SATD technology base efforts identified areas of high technical risk in the visual simulation system required for meeting Nap of the Earth (NOE) flying requirements.

(U) Contacts established through the DOD Simulation Technology Advisory Group (SIMTAG) and Joint Logistics Commanders Joint Technology Coordination Group for SATD provided the opportunity to enter into a joint program with the Air Force Human Resources Laboratory for developing and evaluating visual simulation approaches suitable for meeting the AH-64 CMS visual simulation requirements. Discussions were initiated for entering into similar joint programs with the NTEC laboratory programs in selected areas of mutual interest.

(U) Coordination within the Army for SATD technology base activities was advanced through entering into a Memorandum of Agreement with Army Research Institute (ARI). Under this agreement, both organizations would work to develop a cooperative and complementary program for SATD technology base research.

(U) Initial emphasis was placed on measuring, evaluating and predicting the training effectiveness of training devices. Other accomplishments were the coordination of program activities ongoing at the Army Signal School and Army Communicative Technology Office. A second annual conference for all Directors of Training Developments from the TRADOC proponent schools was held to promote early coordination and participation by both the training and materiel developer in training device acquisition programs.

(U) Instructional Systems. In 1978, Instructional Systems Division initiated four new programs in support of the Army's Training Extension Course program. These four contracts were for an estimated quantity of 2300 new TEC lessons. These contracts are as follows:

a. Three were awarded for the design, development, and reproduction of 1100 kits for 17 schools and DOD agencies.

b. A Job Training Package contract was awarded for total MOS analysis and design along with the development of master training kits and production training kits. It was estimated that 1270 master training kits would be developed for 19 MOS/job specialties for 11 separate Army schools and DOD agencies.

(U) Instructional Systems Division continued to provide contract administration and management support for the Training Extension Course and related programs during the fiscal year 1978. No new contracts were awarded in FY 1979, and the outlook for FY 1980 would include requirements similar to the FY 1978 requirements.

(U) Instructional Systems Divison continued to become more active in the area of Skill Performance Aids, especially in the area of mass reproduction.

(U) Aviation Division. The AH-1 (COBRA) Flight/Weapons Simulator final Government acceptance was completed at Fort Rucker, Alabama in December 1978. The DT/OT II, conducted April to August 1979, showed the trainer to be very efficient and cost effective for training personnel, particularly in the area of gunnery training.

(U) In July 1980, the Aviation Division accepted a new program in support of the CH-47D model aircraft. This effort centered around fielding three part task maintenance trainers to support the TRADOC schools.

(U) In other areas, the first BLACK HAWK composite maintenance trainer was delivered to Fort Eustis, Virginia in FY 1978; a letter contract was awarded for three CH-47C Flight Simulators defined in FY 1980; and also three more Maintenance Panel Trainers were delivered to Fort Eustis and in-plant acceptance testing commenced on the BLACK HAWK Flight Simulator.

(U) Product Manager, Armor Training Devices. During FY 1978 and 1979, the need for training devices had continued to grow. One of the major areas with increased emphasis was toward the armor community. This is evident from the development of the XM1 Tank and the Fighting Vehicle System. The improvement of the M60 Series of Tanks, the establishment of the Tank Force Management Group at DA, and the increase in funds for tank crew training devices.

(U) To provide intensive management of Armor training device developments, DARCOM established (by Charter, 23 February 1978) a Product Manager for Armor Training Devices (PM ARD). The Product Manager is directly responsible for the development and acquisition of Armor Non-System Training Devices and for Armor System Training Devices as tasked.

(U) In FY 1979, PM ARDwas working on Research, Development and Acquisition of Training Devices in the following categories;

XM1 Training Devices include a Driver Trainer, Maintenance Trainers and a Conduct of Fire Trainer (COFT).

FVS Training Devices include a Driver Trainer, Maintenance Trainers and a Conduct of Fire Trainer (COFT).

M60 Training Devices include Maintenance Trainers and a Conduct of fire Trainer (COFT).

(U) Other Armor Training devices include a Tank Weapons Gunnery Simulation System, Eye-Safe Simulated Laser Rangefinder and Subcaliber Training Devices.

(U) Contracts were awarded for full scale engineering development of M60 Maintenance Trainers in FY 1978 and XM1/M60 COFT, XM1 Driver Trainer and XM1 Maintenance Trainers in FY 1979.

(U) A contract for production of a Universal Externally Mounted Subcaliber Training Device was awarded in October 1979.

CHAPTER VI

MATERIEL READINESS

(U) In the words of General Bernard W. Rogers, Chief of Staff, U. S. Army, "The ultimate objective toward which we strive is to improve Army force readiness: our ability to man, equip, and train our forces and to mobilize, deploy, and sustain those forces to accomplish their wartime mission."[1]

(U) The Army in FY 1979 was at a central juncture in the development and application of resources necessary to provide for the kind of forces required by the international environment and the future battlefield.[2]

(U) In pursuit of force readiness a three-pronged strategy was adopted to establish program and budget priorities. This strategy provided for the near-term readiness of the Army through the application of immediately available resources and current state-of-the-art technology, mid-term modernization, and the ability to sustain Army forces throughout the duration of any conflict to which they might be committed.

(U) All methods of reducing base operations costs were being pursued aggressively. The Army sought to staff installation support activities as economically as possible and, where appropriate, increase commercial contracting for installation support services.

(U) To manage Army property and equipment more effectively and reduce costly losses, a new property accountability system was initiated to fix responsibility where it belonged, with the unit commander. The new system provided simplified procedures for attaining relief from accountability and a realistic approach for recoupment in cases of negligent loss or destruction of property.

(U) In pursuit of near-term readiness, the Army applied a management approach called force packaging. This aligned requirements for Army forces, Active and Reserve, into four levels or force packages associated with the priority of their assigned missions. The first force package included forces and supplies already deployed in Europe or scheduled to reinforce NATO within 30 days following mobilization.

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1. Posture of the Army, Statement by General Bernard W. Rogers, Chief of Staff of the U. S. Army, before the Committee on Armed Services, House of Representatives, First Session, 96th Congress, 5 Feb 79.

2 "Logistically Speaking--Posture of the Army", Army Logistician, May-June 1979.

Also, it included those units tasked to support non-NATO contingencies. The second and third force packages related to the 60-and 90-day NATO reinforcement increments. The fourth force package provided for the remaining essential Army requirements.

(U) Although costly, pre-positioning unit equipment and supplies was the quickest method of reinforcing NATO rapidly. Army could not afford duplicate sets of equipment for early deploying forces. Consequently, some Active and Reserve force units in CONUS reduced levels of equipment for day-to-day training in order to achieve the desired pre-positioning and war reserve stock levels.

(U) FY 1980 budget was to provide for pre-positioning the equipment of an additional division and its support elements, with further increases planned for subsequent years. War reserve and munitions stocks in Europe were also to be bolstered, though they were to remain below desired levels. Increases in pre-positioned stocks required added personnel, materiel, and facilities to test, warehouse, and maintain the materiel being stored.

(U) Procurement dollars enhanced near-term readiness. Research and development dollars insured continued readiness through modernization. Approximately one-third of the fiscal year 1980 budget was earmarked for investment. Unnecessary delays in the procurement of development process increased the cost of emerging systems and rendered those systems more susceptible to early technological obsolescence.

(U) The characteristics of modern military forces and changing nature of land warfare dramatically accelerated the anticipated rates of battlefield consumption and attrition. In Europe, the Army had to be prepared to absorb a massive combined arms attack calculated to overwhelm NATO defenses before reinforcement. In other areas of the world where the United States did not have an established support base, contingency forces had to be logistically self-sustaining. While the Army was progressing in the modernization efforts, it had to improve its ability to provide materiel and logistics support well forward to sustain combat forces in battle.

(U) Increased reliance on air lines of communication (ALOC) to supply repair parts directly to oversea units reduced inventory investment, improved supply distribution, and permitted peacetime use of the distribution system which would be used in time of war. However, ALOC heightened the need for a responsive wholesale supply and maintenance system in the United States. Maintenance, supply, and procurement programs had to satisfy peacetime requirements at an austere level but had to be rapidly expandable in time of war.

(U) Army wholesale support base was inadequate to fully meet the peacetime needs and far short of wartime requirements. It did not provide resources for accomplishing the established Army goals of improving supply performance responsiveness and developing a wartime surge capability. The civilian manpower and dollar resources were not sufficient to maintain a level of readiness support required for the field units.

(U) Along with its NATO allies, the Army continued to pursue weapon system effectiveness and sustainability through rationalization, standardization, and interoperability. It sought a greater interchangeability of ammunition; integration of command, control, and communications and battlefield surveillance-target acquisition systems; common tactical and logistics doctrine; a common logistics support system; and expanded host nation support.

(U) Increased standardization and interoperability, reliance on assured host nation support, and development of a common logistics system offered the best prospects of insuring adequate long-range logistics support during a European conflict.

Materiel Management

(U) On 15 January 1979, Major General Patrick M. Roddy became Director of Materiel Management, succeeding Brigadier General Ernest A. Vuley, Jr., who had commanded from September 1977 to 31 December 1978.

(U) Narrated below are some of the events, developments, accomplishments, and problems which occurred in the Directorate for Materiel Management during FY 1979.

Key Supply Performance Trends

(U) During FY 1979, substantial gains were made with respect to two major indicators of supply performance: stock availability and back orders outstanding. This improvement was evidenced by comparing stock availability and back order data for the 4th Quarters of FY 1978 and FY 1979. During this time frame, DARCOM stock availability rose by 4 points, from 77 to 81 percent. This improvement was shared by each command. For example, TARCOM rose by four points from 78 to 82 percent; ARRCOM rose by seven points from 73 to 80 percent; TSARCOM increased by two points from 82 to 84 percent; CERCOM improved one point from 77 to 78 percent; and MICOM was up by six points from 70 to 76 percent. FY 1979 also witnessed a major reduction in back orders outstanding--the first decrease in over two years. Total back orders declined by 11 percent from 270K to 239K. All but one of DARCOM MRC's shared the reduction: TARCOM, down three percent to 115K; ARRCOM, down 28 percent to 55K; TSARCOM, down four percent to 23K; and MICOM down 26 percent to 17K. CERCOM back orders held constant at 29K.

(U) The above improvements were the result of the conscientious efforts of numerous individuals at all levels of the supply system. For example, in January 1979, representatives from HQ DARCOM visited each MRC to intensify efforts aimed at improving the stockage position of each command through rapid implementation of the stock availability action plan. A particular emphasis was placed on expediting the delivery of materiel already on contract. This effort yielded a handsome dividend as the dollar value of quarterly receipts began to increase during the year.

(U) While the above actions and the resulting improvements were encouraging, a variety of problem areas remained. For example, the stock availability for reparable and other hard core problem items remained below satisfactory levels, MRC's were continuing to intensively manage these items, focusing upon increasing field returns and expediting active contracts. As a result of these efforts, further improvements in supply performance were anticipated with the likelihood that the DARCOM goal of 85 percent overall stock availability would be reached during FY 1980.

Army and Joint Oil Analysis Programs Background

(U) In 1961, after experiencing several internal problems in H23 engines and transmissions that resulted in the grounding of 350 of these aircraft, the Army entered the H23s in the Navy Oil Analysis Program. Due to the test reports received from the Navy, several components were disassembled and internal defects discovered. As a result of these findings, the Army established its first laboratory at Fort Rucker in September 1961. In 1963 a second laboratory was opened at the US Army Aeronautical Depot Maintenance Center, (ARADMAC). Since that time, ten more Army laboratories were established to support an expanding Army Oil Analysis Program (AOAP).

(U) From 1961 through 1966, participation by aviation units in the AOAP was voluntary. In 1966, the Department of the Army directed that the Army Materiel Command prepare a plan to make the program mandatory. This resulted in the first Army regulation[3] on oil analysis. The regulation[4] covering current AOAP activities was issued during 3d quarter FY 1977.

(U) The US Army Aviation Systems Command was responsible for management of the program from its inception in 1961 until 1968. In 1968, the Army Materiel Command transferred this responsibility to

[3] AR 750-13, Spectrometric Oil Analysis, 5 Dec 66.

[4] AR 750-22, Army Oil Analysis Program, 12 Apr 77.

the Army Maintenance Support Center, Letterkenny Army Depot. Responsibility for management of the AOAP was assigned in 1973 to the US Army Maintenance and Management Center (USAMMC), Lexington, Kentucky. Policy, guidance, and program direction were provided by the Department of the Army, Deputy Chief of Staff for Logistics, and Headquarters, US Army Materiel Development and Readiness Command, Directorate for Materiel Management. During this period the staff for the AOAP management office, US Army DARCOM Materiel Readiness Support Activity (MRSA), consisted of six personnel.

(U) Non-aeronautical equipment was entered in the AOAP on a test basis in 1967 at which time samples from various items of equipment, such as M-578s and M109s, located in Alaska, were brought into the program. During 1968, additional test programs on non-aeronautical equipment were begun in Korea, Germany, and in CONUS (Fort Hood) with the resultant findings of all the tests supporting oil analysis as a useful supplement to existing maintenance procedures. Further evidence supporting the applicability of oil analysis to non-aeronautical equipment was obtained during an M60A2 test conducted at Fort Knox in 1971. This test included the AOAP as part of a comprehensive program that required the engines of five tanks to be operated to failure. Both engines and transmissions were included in the oil analysis test, and though no transmissions failed during the test, the five engines did. All five engine failures were predicted in advance by the laboratories analyzing the samples. Despite these successes, non-aeronautical equipment was not entered in the AOAP on a routine basis until February 1975, at which time the Deputy Chief of Staff for Logistics approved entry of all AVDS 1790 series engines. In May 1976, combat and construction vehicles equipped with 6V53 and 8V71 engines were also approved for entry in the AOAP. Approval for inclusion of these engines was due in part to the Breakdown Maintenance Test conducted by the US Army Forces Command (FORSCOM). The AOAP participated in this test, and FORSCOM credited the AOAP with saving 89 engines and reducing engine replacement by 25 percent.

(U) In April 1975, the GAO evaluated the Services' oil analysis programs and stated that the objectives set forth in 1972 [5] were not being met. To achieve the previously established goals, and insure the three oil analysis programs acted in concert, the GAO recommended a single manager at DOD to manage the Services' programs. The DOD response to the GAO draft report did not concur in the single manager concept. As an alternative to the GAO recommendation, the Air Force Logistics Command, in coordination with the Army and Navy, introduced the Services' oil analysis programs as a discussion item at the 18 July 1975 Joint Logistics Commanders' (JLC) meeting. The commanders approved a revised joint agreement[6] which was later signed by the Assistant

[5] Joint Agreement for the Interservice Equip. Oil Analysis Program, Oct 72.

[6] Tri-Service Agreement for the Joint Oil Analysis Program, 5 Jan 76.

Secretaries, Installations and Logistics. The agreement established the Joint Oil Analysis Program Coordinating Group, and approved a Joint Oil Analysis Program Technical Support Center (JOAP-TSC).

(U) AOAP History. During FY 1979, the AOAP continued its expansion. In a 24 August 1979 message, DA approved the inclusion of numerous items of non-aeronautical equipment that had not previously been entered in the AOAP. Tactical wheeled vehicles, 2½ ton and larger, and generator sets, 15kw and larger, were among these new items.

(U) During FY 1979, approximately 525,000 oil samples were analyzed. This represented an increase of 20 percent from FY 1978. Approximately 40 percent of these samples were from non-aeronautical equipment.

(U) Program effectiveness continued to be high. Of 855 feedback reports received, 788 were "hits" (correct prognoses by laboratory) and 67 were "misses" (incorrect prognoses by laboratory). The cost avoidance for FY 1979 was approximately $58 million, a figure that included $10 million in costs avoided on Navy aircraft enrolled in the Army program.

(U) To accommodate the expanding workload, three laboratories were opened in FY 1979. They were located at Hunter Army Airfield (Fort Stewart), Fort Lewis, and Fort Polk. Also, computer terminals capable of giving the AOAP laboratories real-time-on-line evaluation assistance and record-keeping capability have been installed in eight of the CONUS laboratories.

(U) In April 1979, DESCOM questioned Corpus Christi Army Depot's (CCAD) responsibility as regards the maintaining and operating an AOAP data program. Further, they recommended that the DARCOM Materiel Readiness Support Activity (MRSA) assume full responsibility for the data system. Actions were being taken by DARCOM, MRSA, and DESCOM to assure an uninterrupted transfer of the AOAP data system mission.

(U) Reliability Centered Maintenance (RCM). In compliance with Department of Defense imposition of Air Transportation Association Maintenance Study Group (MSG2) principals on the three services, the Army developed the program of RCM in 1976 and directed all commands to consolidate their maintenance planning efforts under the RCM strategy.

(U) Several RCM-related programs were initiated in recent years which had goals in common with RCM (e.g. reducing cost of maintenance while retaining equipment reliability) or which revised a maintenance activity through similar processing methods. Some of these were implemented prior to RCM, including the Army Oil Analysis Program;

On Condition Maintenance (OCM) program for aircraft; Project LEAP, Issue, 127, Three-level Maintenance for Aircraft; and Project Inspect. Other programs such as Preventive Maintenance and Checks and Service (PMCS) Review, Depot Maintenance Work Requirements (DMWR) Scrub, and addition of OCM to tracked vehicles, were initiated after RCM was endorsed by OSD.

(U) Skilled Performance Aids (SPAS) Program. SPAS was an Army program with an objective of increasing equipment maintenance and training effectiveness through the integrated development and use of Technical Manuals (TM) and Extension Training Materials (ETM).

(U) The single most significant accomplishment in the SPAS Program over the last year was the joint HQDA/TRADOC/DARCOM effort that led to formal establishment of SPAS as an official Army program by the Chief of Staff, Army (CSA) in December 1978. Deputy Chief of Staff for Operations and Plans (DCSOPS) was assigned as the DA program proponent with the CG, DARCOM as the principal Army program manager supported by TRADOC in matters pertaining to training.

(U) In October 1978, ODCSOPS staffed with HQ DARCOM and HQ TRADOC, a final report of the effectiveness of Army maintenance and operations which might result from SPAS. This report was prepared by an independent management overview assessment team (LTG Collins (Ret), MG Pezdritz (Ret)) and briefed to the CSA in September 1978. In December 1978, ODCSOPS, which was assigned DA proponency for SPAS, prepared a SPAS Program decision memorandum for CSA based on the fully coordinated recommendations. On 27 December 1978, the CSA approved the implementation of the SPAS Program. Interim guidance on the SPAS Program was distributed by ODCSOPS on 4 January 1979.

(U) One of the first actions taken by DARCOM to implement the new SPAS requirements contained in the interim guidance, was to establish and chair the SPAS Working Group with the initial meeting occurring on 31 January 1979. The Working Group was comprised of representatives from TRADOC, FORSCOM, USACC, INSCOM, DARCOM Materiel Readiness Support Activity (MRSA), in addition to members from this headquarters. DARCOM-R 15-5, SPAS Working Group, 6 August 1979, was the official document which prescribes the objectives and functions of the working body.

(U) Also contained in the DA interim guidance on subject program was direction to conduct a detailed evaluation of SPAS materials using in-house resources instead of soliciting contractual assistance in this matter. DARCOM MRSA, designated to chair the evaluation effort, prepared preliminary plans to satisfy the objectives of the study. The evaluation, which was expected to last a minimum of two years, could include the services of several DARCOM activities, e.g., AMSAA, TECOM, in addition to direct participation of TRADOC and FORSCOM.

376-617 O - 82 - 25

(U) In March 1979, HQDA approved the FY 1979 SPAS Program for fielded systems. This program added two systems to the number of on-going projects initiated since 1976. Also, in August 1979, DARCOM finalized coordination with TRADOC and forwarded to HQDA a recommended SPAS Program for FY 1980.

(U) On 4 June 1979, HQDA published SPAS Program policy by TAG letter. This letter assigned DARCOM overall field responsibility for the program. Initial implementation of specific responsibilities outlined in the TAG letter was effected. A large number of projects were also under way to improve the definition of SPAS through regulations, procedures, specifications, handbooks, conferences, and formal training conferences.

(U) An information briefing was given on 12 September 1979, to apprise the Joint Logistics Commanders of the Army's efforts to improve technical documentation and training. This event provided the Army the opportunity to solicit cooperation from the other Services in applying the SPAS Program requirements to common-use equipment. The Commanders expressed interest in the advancement of the state-of-the-art but were concerned over the additional cost implications of SPAS.

(U) SPAS (TM and ETM) were being developed for selected fielded systems and all developmental systems (some exemptions were permitted). A list of weapon systems for which SPAS projects were on-going is included below. The first SPAS equipment TMs were scheduled to be fielded in the spring of CY 1980, and were to include manuals on selected tactical and combat vehicles.

ON-GOING SPAS PROJECTS

Fielded Systems	Developmental Systems
● Tank Turret (M60, M551, M728)	● XM1
● Wheeled Vehicles (2½ and 5T, GOAT)	● 1FV/CFV
● TOW	● GSRS
● DRAGON	● SOTAS
● M60 Tank Chassis	● SINCGARS
● CH-47C Helicopter	● MILES
● AN/GRC-106, -122, and -142 Radios	● AAH
	● BCS
	● RPV
	● PII
	● DAS 3

(U) Initial Provisioning Computational Methods. DODI 4140.42 provided specific and detailed guidance on how initial support requirements were to be computed for Secondary Item Spare and Repair Parts. This guidance provided detailed policy on how the Services were to compute initial provisioning requirements, and hedged against overprocurement by allowing no safety levels and an initial retail operating level of one for demand supported parts. It did not consider total O&S cost optimization or mission operational requirements (to include operational requirements in the ROC). Also it permitted the use of mathematical models for optimizing inventory or minimizing system down time. The modeling results, however, were constrained by an arbitrary funding base which had no relationship to the system readiness requirement or total support optimization. Modeling objectives were, therefore, nullified.

(U) As a result of the above, the Standard Initial Provisioning (SIP) model (programmed by DARCOM in accordance with the rules of DODI 4140.42) did not provide adequate initial repair parts support for low-density systems or systems requiring a high-operational availability. Because of this, DARCOM developed, for application to selected systems, a number of models aimed at providing the lowest cost mix of essential parts needed to support a required operational readiness. These were referred to as Essential Repair Parts Stockage List (ERPSL) models. In many cases, their results exceeded the funding ceiling of DODI 4140.42 and, therefore, the recommendation to DA and OSD had been that the DODI be changed to address operational availability.

(U) The ERPSL computation methodology was both new and complex. The Army had an extremely difficult time explaining the logic and rationale of this modeling approach. In February - March, the entire issue was briefed to DA, Secretariat, and action officers in OSD by the Director of Materiel Management (MG Roddy). Despite these efforts, skeptics remained.

(U) The briefings were followed up with complete and detailed written justification of the DARCOM approach and forwarded it to DA for their use in obtaining approval from OSD to use the ERPSL models on selected systems. DA used the DARCOM justification in their written request to OSD.

(U) There was considerable discussion in process at the OSD level between the proponents of policy governing system acquisition and those concerned with the initial provisioning budget. In the meantime, the Army continued to support the Army position that readiness requirements and total system optimization must be considered for both initial and follow-on support.

(U) Redesign of CCSS Provisioning System. For over two years ALMSA was working on a major redesign of the CCSS Provisioning System. Phase I and IA of the redesigned system were fielded in May 1978, and provided DARCOM with the capability of accepting provisioning technical data in standard DOD format and significantly facilitatedjoint Service provisioning projects.

(U) Phase IIA was fielded in September 1978 and provided automated review of the Provisioning Master Record (PMR) for update of the NSNMDR. The last phase (IIB) will provide automated update of the NSNMDR when the PMR is changed and was scheduled for implementation in December 1979.

Storage

(U) DOD Materiel Distribution System (DODMDS). The DOD Materiel Distribution System (DODMDS) study was published in August 1978. Subsequent thereto, an OSD Materiel Distribution System Study (MDSS) was undertaken to make an independent assessment of the DODMDS. This was completed in April 1979, and verified that there was sufficient excess capacity in the system to safely reduce the number of depots, but not to the extent of the DODMDS study. OASD (MRA&L) issued a memorandum on 31 July 1979 that tasked DLA to have DLAO prepare a comprehensive study plan for the evaluation of DOD Materiel Distribution System policies. This plan was due on 1 November 1979.

(U) Production Planning and Control Scheduling Model for Supply. With the implementation of SPEEDEX and conversion of AIF, there arose a need for greater communication between each depot and the central workloading agency, DESCOM. Periodic revisions to AR 740-18 strengthened the procedural aspects that made this dialogue possible. However, very little had been done to give depot supply managers the capability of integrating workload and resources as a basis for planning, scheduling, and controlling work at the work center level. A model was developed and a prototype test run at New Cumberland Army Depot (NCAD) from April through October 1978.

(U) An In-process Review was held at NCAD in November 1978. It was concluded that the prototype test had been successful. The mode was mechanically sound and was used by management and operational levels at NCAD. It provided greater operational control and served as a basis for movement of personnel.

(U) The overall plan called for implementation of the model at either SHAD or RRAD. It was to proceed one depot at a time with the limiting factor being resource availability at LSSA to provide on-site assistance.

(U) Care of Supplies in Storage (COSIS). The COSIS Program had enjoyed a low priority for funding at DOD/DA level. Central to this issue had been a general lack of awareness of program dynamics and an inability to forecast realistic workload data to determine and substantiate budget and manpower requirements. DARCOM developed a methodology to provide a valid basis for quantifying COSIS requirements and impacts on readiness when COSIS was not performed. Performing COSIS while materiel was in storage rather than at time of shipment had been fully documented as beneficial. The case for COSIS investment in terms of economic and readiness grounds was surfaced through the Army chain of command, and to the personal attention of the Vice Chief of Staff, Army, by the DARCOM Commander. Briefings were also provided to OSD budget examiners and to the GAO who was examining program application in DARCOM depots. As a result of those efforts, approximately $10 million were restored to the COSIS program by higher headquarters.

Transportation

(U) Over Ocean Cargo Forecasting. Guidance was provided to the DARCOM Automated Logistics Management Systems Activity, the DARCOM Logistics Control Activity, and the materiel readiness commands finalizing action to implement in September 1979, a semi-automated improved Over Ocean Cargo Forecasting System. Forecasts were used by the Military Airlift Command and the Military Sealift Command. Meetings to develop and implement a feedback system were planned.

(U) Improve Depot Operations Training. An intensive review of course material used to support depot oriented training at the Army Logistics Management Center (ALMC) was initiated in September 1978. This review resulted in improved major revisions to many of the lessons involved. This effort was completed in March 1979.

(U) CONUS Installation Mobilization Outloading and Receiving Capability Study. Exercise Nifty Nugget/MOBEX 78 revealed that accurate up-to-date information regarding outloading and receiving capabilities of depots and other installations was not readily available at the materiel readiness commands, DESCOM or this headquarters. A study effort was initiated in March 1979 with completion scheduled for October 1979. In addition to providing a complete analysis of outloading and receiving capabilities, the study was to provide recommendations relative to the expansion of outloading and receiving capabilities during mobilization.

(U) STROM. During FY 1979 research, concept development and testing of methods to minimize risk of explosive incidents continued. Progress was made in the determination of intransit exposure; prevention of intercar/interpallet propagation; fire sensing/suppression systems; and railcar stability/shock and vibration studies. DARCOM hosted the Safe Transportation of Munitions (STROM) quarterly meeting held

in June 1979. Cooperation/coordination between DARCOM elements (Defense Ammunition Center and School/Ballistic Research Laboratory), Naval Weapons Center, MTMC and the Federal Railroad Administration of DOT were extremely good. Draft reports were submitted for four of the tasks and final reports for all tasks were due by April 1980.

(U) Third Transportation Control Number (TCN). During the second quarter of FY 1979, the third or intermediate consolidation Transportation Control Number (TCN) was added to the Consolidated Shipment Status Card (DICBB), and was included in the Logistics Intelligence file. This inclusion allowed complete visibility of shipment units which were consolidated by the Consolidation Containerization Points (CCP).

(U) DLA/CCP Enhancement. A major effort toward source data automation between DLA depots and the DARCOM CCP's was initiated during FY 1978. In FY 1979 specialized equipment necessary to the effort was procured and placed at NCAD. The depot ADP programs were modified, and the DLA data transmissions were reviewed. This concept was to be tested during the 1st quarter of FY 1980.

(U) Completion of SPAM Record by BBC Input. In FY 1979, the LSSA developed a procedure to complete the Shipment Planning and Movement Cards (SPAM) by using the initial input of the Consolidated Shipment Status Card (DIC BBC) at the CCP's. This procedure was to eliminate the manual preparation of the SPAM Cards and will improve the shipment history. The procedure will be tested during the 1st quarter of FY 1980.

(U) Depot Capability During Nonmobilization Contingencies. During the incident at Three Mile Island nuclear power plant, it appeared that NCAD would be lost to the Army for an indefinite period of time. An ad hoc group was assembled at HQ DARCOM to develop a plan of action which would allow other DARCOM activities to absorb the NCAD workload. It was readily apparent to the group that more planning data were necessary in order to make sound management decisions during nonmobilization as peace time contingencies. Therefore, the US Army Materiel Systems Analysis Activity was tasked to study possible nonmobilization threats to DARCOM activities and develop planning data as a basis for decision making in future incidents. The study was to be completed during the 2d quarter of FY 1980.

Packaging

(U) The 8th Annual DARCOM Packaging Seminar. Approximately 100 people attended the Seminar which was held in conjunction with the International Packaging Exposition in Chicago, IL from 31 October to 2 November 1978. The 1978 seminar focused on the interrelationships of military packaging with the commercial packaging industry to give visibility to new developments and innovations in packaging.

(U) LOGMARS (Logistics Application of Automated Marking and Reading Symbols). This effort was chartered by DOD to develop a standard machine-readable symbology for marking packages. Four major milestones were completed which recommended specific data elements to be coded and symbologies for further testing. Two symbologies (3 of 9 bar code and OCR-A) were to be tested in laboratory and prototype tests. A December 1980 completion date was established for this effort.

Toxic Chemical Munitions

(U) Toxic Chemical Munition Maintenance. Minor maintenance operations were performed at Tooele Army Depot, Umatilla and Pueblo Army Depot Activities, Pine Bluff Arsenal, and Newport Army Ammunition Plant. Items processed included 105mm GB and HD, 8" GB, and ton containers of GB, HD, and VX. Operations scheduled in FY 1980 include additional quantities of the above items, VX mines, 155mm GB and VX, and Air Force spray tanks.

(U) Toxic Chemical Movements. Planning continued for the fourth and fifth of five large scale movements of toxic chemical agents and munition. OPLAN RMT, a movement of WETEYE bombs from Rocky Mountain Arsenal to Tooele Army Depot were being held up by the problems of minor leakages of the bombs within the containers. Planning continued on OPLAN SETCON II scheduled for later this fiscal year. It involved movement of the Toxic ID sets remaining in CONUS installations, from the SETCON I move.

(U) Toxic Agent Security. Approval and equipment was obtained for weighing one ton containers to Tooele Army Depot and Pine Bluff and Newport Arsenals. Operation at Umatilla Army Depot Activity was completed.

(U) Toxic Chemical Maintenance Facilities. Design work on facilities for Anniston and Tooele Army Depots and Umatilla Army Depot Activity was completed in FY 1979 and MCA requests incorporated in the DESCOM program. An interim facility at Anniston was completed and awaits completion of a laboratory to begin work. An urgent minor MCA program for an interim facility at Tooele is being processed. Preliminary design work for limited interior facilities is in progress for Umatilla and Blue Grass.

(U) Laboratory and Air Monitoring Equipment for Chemical Maintenance Operations. Requirements for laboratory and air monitoring equipment were identified and initial quantities were procured in FY 1979. Additional items required to support operations scheduled at all installations were to be procured in FY 1980.

(U) Toxic Chemical Rewarehousing Operations. Operations at Pine Bluff Arsenal were ready to begin after completion of MCA program to build new igloos was completed. Operations at Tooele awaited completion of new igloos.

Inventory Accounting

(U) Wholesale Property Accountability Improvement Program. The last phase of this program was being implemented. Two system changes were programmed and were to be implemented into CCSS in December 1979 to improve accountability of assets, reduce research time by approximately 50 percent and increase the effective utilization of resources. These changes, along with prior ones made to the inventory system, were to result in a more efficient and effective wholesale property accountability system.

(U) Centralized Funding of Items to Update Sets, Kits and Outfits (SKO's). HQDA directed DARCOM to develop a plan to provide update items for Procurement Appropriation Army (PAA) funded SKO's on a free issue basis. The plan included requirements of $46.8 million for materiel to update SKO's in the field and first year update items; and 55 personnel spaces to implement the program. The proposal came under review at DA.

(U) Small Arms Records Accuracy. During FY 1979 DARCOM recognized a need to improve the accuracy of the Small Arms Serialization Program (SASP) records. The need was recognized because DARCOM inventory accuracy had consistently fallen below the DA accuracy goal. Secondly, a GAO investigation was being conducted and the initial indication was that GAO would write an adverse finding. A 4-phase "get well" program was proposed for implementation by ARRCOM. This plan provided for short range improvements to current computer programs and eventual major redesign of the program and recording on a dedicated computer at ARRCOM. The ARRCOM implementation plan was under review by DARCOM/HQDA.

(U) Item-by-Item Count of Toxic Chemical Munitions. The item-by-item count of toxic chemical munitions continued through FY 1978 and was to continue into FY 1980. Due to innovations in methods, primarily the adoption of X-ray techniques to verify the presence of the munitions, the estimate of time to conduct the count had been reduced from 5 years to 3 years. The estimated cost also was reduced from approximately $26 million to approximately $16 million.

(U) Inventory Management Reviews. DARCOM conducted Inventory Management Reviews (IMR's) of Materiel Readiness Commands and depots in which inventory, receipts, issues adjustments, catalog data, and related areas were reviewed. A large number of findings which surfaced in each review had inventory system-wide application rather than parochial

interest to the visited command. These highlighted where the standard system needed changing, or where a deviation from the system had proven to be a better way to do business. The discrepancies were subsequently resolved and necessary changes made.

Cataloging Provisioning System (CPS) Phase I

(U) CPS Phase I was part of a three phase program to enhance the cataloging and provisioning operations at the MRC's in CCSS. Phase I was implemented in CCSS Release 57, in June 1979. This program automated the preparation of the Provisioning Master Record update transactions from data residing in the National Stock Number Master Data Record on match conditions. Prior to this automation, the transactions were prepared manually.

Depot Maintenance Plant Equipment (DMPE)

(U) OSD directed the planning, programing, and budgeting for DMPE be transferred from OMA appropriation to the Procurement Army Appropriation. However, due to the lack of communication between OMA and PA the FY 1978 and FY 1979 programs were omitted from the PA program. Through the efforts of DARCOM, the dilemma to support the DMPE program was accomplished and high priority projects were funded. Also through intensive management and close cooperation with the MRC's, the FY 1980-1984 POM programs were developed to satisfy the Army Depot Maintenance Equipment requirement. The current program would not only support depot maintenance but was to assure support for new systems.

Test Measurement and Diagnostic Equipment (TMDE)

(U) In FY 1979 some 5000 different test measurement diagnostic equipment (TMDE) items were in the field. There was considerable proliferation in the field with non-standard commercial type test equipment. The fielded TMDE was difficult and costly to maintain, and in many instances does not meet mission needs.

(U) In cooperation with TRADOC, DARCOM and specifically CERCOM, a program was developed in FY 1979 for the modernization of TMDE. The program was designed to upgrade and reduce the number of TMDE in the field from 5000 to 450.

(U) DOD approved the TMDE modernization program (estimate $160 million requirements for FY 1979 and outyears). There was $22.8 million in funds allocated for FY 1981 to start procurement of equipment pertinent to TMDE. In addition, at depot level of maintenance, TMDE was being considered synonymous with plant equipment requirements.

Transfer of Investment End Items

(U) In consonance with DODI 7040.5 all OMA items (expenditure account) costing over $1,000 were to be transferred to the Procurement Appropriation, Army (PAA) (investment account). These items were commercial, nonstandard, "off-the-shelf" items utilized by the posts, camps, and stations (depots/installations within DARCOM).

(U) COA as focal point for this realignment, made a decision to transfer, in the FY 1981 budget, the OMA items costing over $1,000 to PAA funding. From a DARCOM standpoint, the Army Materiel Plan (AMP) was not considered to be the best vehicle to administer this item transfer effort. DARCOM expressed concern to DCSRDA who, in turn, obtained visibility of the problem at the ASA level. As a result, the Directorate for Materiel Management was requested to participate in a DA working group headed by Mr. Wallace, Deputy for Management Systems, Office of ASA, IL/FM.

(U) The Directorate efforts to educate the DA Working Group resulted in the following: it kept the additional OMA items being transferred to PAA out of the AMP; the COA was designated the administrator of this budget program; program identification and appropriation coverage would be handled at DA level; and finally, the DARCOM community would be a user as opposed to an administrator of the program.

(U) These items involved were chapel organs, cameras, copying machines, playground equipment, etc., which were DLA, GSA and local purchase in nature. The user could best be served by not including them in the formal AMP process. Further, there would be no value to have DARCOM interposed between the user and DA in the budget and procurement process.

Secondary Items - Management and Budgeting

(U) During Fiscal Year 1979 the execution of the DARCOM Division (Wholesale) Army Stock Fund continued to improve. The FY 1979 program was approved at $1150.7 million and $1134.6 million was obligated for a 98.6 percent program accomplishment rate. This was attributed to a sound stock fund program for FY 1979, and management emphasis on program execution.

(U) Procurement Appropriations for Secondary Items also reflected marked improvements in program execution over the previous fiscal year.

(U) Procurement Appropriation, Army (PAA) financed spares and repair parts, was still under close scrutiny by the OSD/OMB analysts concerning the "Repair Cycle" element of the requisitioning objectives of our National Inventory Control Points. Although our FY 1977 programs

and budgets were not impacted, the program Budget Directive for FY 1978, in effect, directed that the Repair Cycle elements would be reduced in FY 1978 and further reduced in FY 1979. Since this was a very significant element, both from a dollar requirement and operating standpoint, procedures were developed and implemented to measure and streamline actions that occurred in the Repair Cycle time period. The net result realized, showed a 24 percent reduction to the repair cycle time frame from that experienced in FY 1977. This was an ongoing effort which was to continue into FY 1980.

Cryptologic Activities

(U) The Electronic Materiel and Readiness Activity (EMRA) provided materiel management, supply, maintenance and support functions for Federal Supply Classification (FSC) 5811. Also it provided engineering and technical assistance to strategic intelligence units. EMRA was transferred to the operational control of the Communications and Electronics Readiness Command (CERCOM), effective 1 July 1978.

(U) The Signals Warfare Laboratory (formerly Signal Intelligence and Electronics Warfare (SIGINT/EW) Research and Development Activity) is under the operational control of the Electronics Research and Development Command (ERADCOM). This laboratory was responsible for the research, development, and acquisition of new and improved signals intelligence and electronic warefare equipment and systems to support operational missions.

(U) The following is a summary of the FY 1979 financing:

	COBE (Dollars in Thousands)	
FY	Requirement	Financed
1979	$6,391	$6,345

Communications Security (COMSEC)

(U) The COMSEC Commodity Manager at Fort Huachuca, Arizona, provided for the operation of the COMSEC National Inventory Control Point, COMSEC National Maintenance Point, and the Army COMSEC Central Point of Record.

(U) COMSEC Depot Operations at Lexington-Blue Grass Army Depot (LEAD), Kentucky, provided for the receipt, storage and issue of COMSEC materiel, maintenance, modification of COMSEC equipment/components and funds for Design Control Repair Parts.

(U) Following is a summary of the FY 1979 financing:

	(Dollars in Thousands)	
FY	Requirement	Financed
1979	$12,185	$10,907

Supply Depot Operations

(U) The Supply Depot Operations provided for the receipt, storage, and issue of assigned stocks in Army depots and arsenals. In FY 1979 programs expenditures were estimated to be $283,556,000 against a requirement of $365,600,000 leaving $82,044,000 unfinanced. In FY 1979 depots and arsenals expected to receive 1,911,648 line items and 1,011, 636 short tons, and ship 6,282,000 line items and 1,379,000 short tons.

(U) Year-end unobligated funds within the DARCOM complex resulted in approximately $2,000,000 which was placed on project orders. This in turn significantly reduced FY 1979 unfinanced requirements. At FY 1979 year-end the most critical unfinanced requirements were in the functions of COSIS, inventory, rewarehousing, and Single Manager for Conventional Ammunition functions.

(U) In FY 1979 resource allocations to this PE continued to be extremely limited due to OSD/OMB arbitrary reductions which were made without regard to logistics readiness impacts.

Supply Management Operations

(U) This Program Element (PE) provided for the operation of CONUS National Inventory Control Points (NICP's), Service Item Control Centers (SICC)/Secondary Inventory Control Activities (SICS), including inventory control, cataloging, stock control and direct support functions. FY 1979 financing for this PE was $158.8 million.

(U) The FY 1979 COBE reflected a requirement of $177.0 million, of which $22.4 million was unfinanced. This unfinanced amount was not recognized as high enough priority for funding during the year of execution.

First Destination Transportation

(U) Congress transferred first destination transportation funding from Procurement Appropriations to the Operation and Maintenance, Army (OMA) Appropriation as stated in DOD Appropriations Bill, 1979 Report No. 95-1398. Congress requested that the funding be treated as a special interest item and that no funds provided by the bill for first destination transportation be transferred with out prior approval of the House Appropriations Committee.

(U) To develop appropriate controls and detailed documentation to be used for budgeting, accounting, and reporting, a new program element with nine subaccounts was established.

(U) The following is a summary of FY 1979 funding:

FY	(Dollars in Thousands) Required	Financed
1979	38,693.1	38,693.1

The breakout of the funding by subaccount follows:

Subaccount	$ in Thousands	Short Tons Shipped
Aircraft	320.9	1,971
Missiles	1,070.0	5,544
Tracked Combat Vehicles	5,030.4	64,521
Weapons	138.4	1,232
Non-tracked Combat Vehicles	0.0	0
Ammunition	23,136.0	262,578
Tactical & Support Vehicles	5,795.7	66,853
Communication & Electronic Equipment	927.3	4,550
Other Support Equipment	2,274.4	25,070

In addition to the above funding, $8,812,500 were earned from reimbursable services.

Second Destination Transportation

(U) This program provided for Second Destination line haul and air transportation to transport troop support cargo of materiel after the materiel has been accepted into the Army supply system. The breakout of the FY 1979 funding of $50,105,000 is as follows:

$48,192,300 for line haul freight moved 677,960 short tons of materiel.
$769,000 for air transportation moved 3,398 short tons.
$63,100 for through bill of lading moved 701 short tons.
$1,080,600 were expended for flyaway aircraft by TSARCOM.

Oversea Port Units (MILVAN/CONEX Control)

(U) This program element provided for the control of all MILVAN/CONEX containers used in shipping materiel worldwide. The control of container equipment included the movement of the containers and all relocations to meet military requirements.

(U) The following is a summary of the FY 1979 financing:

FY	(Dollars in Thousands) Requirement	Financed
1979	368	368

Depot Materiel Maintenance and Support Activities

(U) FY 1979 experienced the same difficulties as prevailed in the previous year, that is severe constraints on the resources (manpower and dollars) required to meet the ever increasing requirements and cost associated with maintaining and supporting the major items of equipment in the field, and those scheduled for introduction into the Army inventory. In addition, to the severe constraints on dollars and manpower, the P7M Program experienced other internal turbulence which required constant reprograming actions and changes required to meet the overall program requirements. These changes included the following:

The transfer of USAREUR Calibration mission to PE732207, effective in FY 1980.

Integration of PE732897 (Total Maintenance Technical, Administrative, and New Equipment Training) into the PE738017 account.

Plant equipment previously under 732207.09T was transferred to the procurement appropriation.

Programing and budgeting by Weapons Systems received greater emphasis at all levels.

The Operating and Support Cost Management Information System (O&SCMIS) was approved for transfer to P7S Base Operations account beginning in FY 1980.

(U) The FY 1979 P7M direct funding guidance (excluding projected pay raise - $27.0 million) of $952.0 million was approximately $87.0 million lower than the FY 1978 actual. However, the major impact resulted from an OSD/DA reduction after the beginning of FY 1979. This meant a cut of approximately $30.0 million in the Overhaul/Modification Programs (OP-25 Forms) which had already been workloaded in the depots and planned for contract. The reduction of $30.0 million resulted in an identified unfinanced backlog of approximately $340.0 million ($196.0 Overhaul/Modification, $144.0 Maintenance Support and Training). In addition, this reduction resulted in cancellations and/or reductions of many line items (Overhaul/Modification) during the 1st Quarters of FY 1979. Many reprograming actions had to be taken during 2d Quarter to achieve as balanced a workload and accomplishment of as much of the highest priority needs as possible. The continuous reductions to P7M funding and reprograming actions required within the Depot Maintenance Program caused serious turbulence within the Depot Maintenance System which affected productivity and efficiency.

(U) As a result of funding reductions and the necessity to finance some high priority unfinanced requirements, the Combat Vehicles Overhaul/Modification Program had to assume its fair share of unfinanced backlog in order to obtain the best balanced workload programs in the depots. Without increased funding guidance there was no alternative but to have an unfinanced Combat Vehicle backlog in FY 1979. Therefore, the DA/OSD/Congressional guidance goal to reduce the Combat Vehicle backlog (fully financed) by end of FY 1979 could not be achieved.

The Direct Support System - CONUS (DSS-C)

(U) During this period a DA post implementation review of DSS-C was conducted, and a test of DSS in the ARNG was begun. Action continued to incorporate all DSS policies and procedures in established DOD and Army publications. A refinement of DSS was the Air Line of Communication (ALOC). Also, under ALOC, all but a few selected repair parts and heavy components were shipped by air. Action was initiated to establish an ALOC to Alaska and Hawaii.

Air Line of Communication - Korea (ALOC-K)

(U) ALOC capitalized on and was a further refinement in Direct Support System (DSS) procedures. The ALOC employed the DSS technique of consolidation/containerization of materiel at selected depots in the CONUS for direct delivery to the general/direct support level overseas. ALOC-K consolidated materiel at Sharpe Army Depot for air transport via military airlift command to Korea.

(U) The ALOC-K test of the 1 December 1978 - 30 November 1979 period entered Phase II on 1 June 1979. Upon implementation of Phase II the ALOC-K overall order ship time objective of 44 days for Phase I was reduced to 35 days. The six month average overall order ship time for August 1979 was 29.5 days. An interim evaluation of ALOC-K was conducted by HQDA with HQ MAC, EUSA, OTSG, HQ DARCOM, LCA, USAAA , and DESCOM (SHAD) as participants. There were no major problems or problem areas identified to ALOC-K.

Improvement of EW/SIGINT Support

(U) The responsibility for support of all EW/SIGINT materiel was transferred on 1 December 1976 from the Army Security Agency (now the Army Intelligence and Security Command) to DARCOM. Since that time, requisition fill rates were monitored and found to be unsatisfactory.

(U) A study of the stockage criteria and requirements computation practices applied to electronics warfare and signal intelligence materiel was initiated in July of 1978. The initial study findings indicated that significant gains in supply performance could be achieved by modifying the management techniques.

(U) In July 1979 the study was completed and a final report was issued. This study concluded that performance could be improved from a 40 percent fill rate to an 80 percent fill rate by use of modified Commodity Command Standard System for EW/SIGINT materiel management. The study was being implemented by the Communications-Electronics Materiel Readiness Command and should reflect improved support of EW/SIGINT during FY 1980.

(U) The Logistic Control Activity (LCA). The LCA maintained a data bank, known as the Logistic Intelligence File (LIF), which was designed to monitor supply and transportation actions relating to Army sponsored requisitions placed on the wholesale supply system and report on performance of the total logistics pipeline.

(U) The remote query program, initiated in FY 1978 was ongoing with 25 terminals in operation and 79 approved. LCA logistic management was expanded to include medical items (Class VIII) for Korea.

(U) Dependency on the LCA Logistic Intelligence File (LIF), reports and special analysis continued to increase. Services were extended to the Positioning of the Materiel Configured Unit Sets (POMCUS) a contingency program; the ENEWETAK cleanup, a retrograde program; and the PLL/ASL package shipments in support of new items, a provisioning program.

Maintenance Interservice Support Management Office

(U) Under guidance of the Joint Logistics Commanders (JLC) and the Joint Policy Coordinating Group on Depot Maintenance Interservicing (JPCG-DMI), the Maintenance Interservice Support Management Office (MISMO), in conjunction with the other Service MISMOs, continued to act as a strong advocate to achieve increased interservicing of depot level maintenance support among the Services.

(U) During this period, the Service Interservice Liaison Officers (ILO) concentrated their efforts on achieving visibility of new equipment (DMI new starts) for processing to the Maintenance Interservice Support Group, Central (MISG-C) for study and recommendation as to potential candidates for interservicing.

(U) A status briefing was given to the JLC in December 1978 relative to DMI program progress. The JLC authorized the JPCG-DMI to use the presentation to brief OASD; however, no official request was received from that office for a progress briefing during FY 1979.

(U) In order to strengthen the relationships between the DMI and acquisition communities, a Depot Maintenance Interservice New Start Assistance Team visited several Service activities to assure that new personnel were briefed on the DMI interface. Positive response to these visits and ILO follow-up actions were reflected by the increased number of equipments identified as potential DMI new start candidates.

(U) The JPCG-DMI met at HQ DARCOM in April 1979 and were briefed by various MISMO representatives on overall implementation of DMI decisions, the relationship of OMB Circular A-76 to DMI new starts, MISG-C progress, individual and joint Service initiatives, and Depot Maintenance Interservice Support Agreement implementation problems. At this meeting, the Air Force accepted chair responsibility for the Group when the US Marine Corps asked for a one-year deferment of their turn in the normal rotation. The JPCG also agreed to hold semi-annual meetings rather than quarterly meetings, with special meetings to be called by the chairman when required.

(U) Action continued in the reconstruction and reconciliation of the Defense Integrated Materiel Management/Nonconsumable Item Subgroup (DIMM/NIS) efforts and DMI program records to (1) insure that depot maintenance decisions were processed into the Federal Files and implemented with the DIMM Phase II effort, and (2) establish auditable records and a data file to provide visibility of depot maintenance decisions and associated PICA/SICA actions.

(U) In conjunction with the reconciliation effort, DMI data automation requirements were defined and documented in preparation for a meeting with appropriate computer systems personnel at Tobyhanna Army Depot to establish an automated DMI information file with remote access capability. Additionally, arrangements were completed to provide the MISG-C capability for direct interrogation of the Defense Logistics Services Center File through Oklahoma City Air Logistic Center facilities.

(U) As of the end of FY 1979, the MISMO/ILO/MISG-C JLC DMI effort had encompassed 680 maintenance decisions, reflecting $61.5 million of potential interservice workload and $303.1 million of workload which was single Serviced and no longer a candidate for study.

(U) In the new equipment area, some 126 decisions were made which should yield a one-time potential cost avoidance of $90.3 million in depot level support equipment, software and training.

(U) There were some 162 projects registered at the MISG-C for study, 82 recommendations were completed, 5 projects cancelled and 75 still in process.

376-617 O - 82 - 26

(U) Progress was made during FY 1979. Review of postured items and reconciliation between DIMM/NIS and DMI records was nearing completion. Efforts in the new start area were on the increase, and a better understanding of the complexity of the overall acquisition process and interface for evaluation for interservicing was achieved.

Readiness

Personnel Changes

(U) During the period 1 October 1978 to 30 September 1979 the Directorate for Readiness underwent various key personnel changes. Major General George S. Patton was designated Director in February 1979. Mr. William Oldham assumed, in an acting capacity, the duties of Assistant for Integrated Logistics Support Data Applications after Mr. Willard F. Stratton transferred in January 1979 to the USA DARCOM Materiel Readiness Activity.

(U) In March 1979 the Office of Personnel Management (OPM) disapproved the position of the Associate Director for Integrated Logistics Support at the GS-16 level. Colonel Robert M. Reynolds was assigned this position as Acting, in April 1979. Lieutenant Colonel Donald V. Celata reported in July as the Executive Officer, and Lieutenant Colonel Lark R. Murray was assigned as the Acting Assistant for Integrated Logistic Support Development and Deployment as well as the TMDE Project Officer. In August Mr. William Oldham was selected for the position of Assistant for Integrated Logistic Support Data Applications.

Major Activities or Events

(U) Modification Work Order (MWO). As part of a continuing effort to improve the MWO process, Appendix G, DARCOM-R 750-50, Modification of Materiel, was revised and distributed to DARCOM subordinate commands for implementation. The detailed functional system requirement (DFSR) to convert the DRCRE 303 (Rev 1) MWO Program Status Report to ADPS was approved in June 1979 under a system called Modification Work Order Record Status (MODWORS). Prototype testing of the MODWORS ADPS concept was expected to occur mid FY 1980. Data output from MODWORS should provide a basis to eliminate manual preparation of DRCRE 303 (Rev 1) Reports.

(U) Implementation of the MWO Program Improvement Approach during FY 1979 resulted in significant decreases in OMA 2207 Direct Army funding required for kit application. Funding associated with decreases during FY 1979 amounted to $8.6 million which became available to Headquarters DARCOM and the Readiness Commands at a time when DARCOM faced major reductions in the overall OMA budget emanating from DA. A similar funding decrease was expected to occur in requirements for kit application in the FY 1980 program.

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(U) Improvements in the Equipment Improvement Recommendation (EIR) Program. Improvements to increase the effectiveness of the EIR program in both DARCOM and the field continued during the year. The adoption in July 1979 of SF 368 in lieu of DA Form 2407 for reporting of EIR's was expected to promote uniformity of reporting with all Governmental agencies/services besides enhancing the ADP application through usage of a standard form. This office, together with the appropriate Quality Assurance Office, redrafted CCSS cell 3E28 to provide a single input program for receiving data from the SF 368 and automating this process to provide multiple output reports for management and analysis at the Materiel Readiness Commands (MRC). A similar concept was applied to the Commodity Command Standard System (CCSS) cell 1W32 used by Materiel Readiness Support Activity for providing output reports to headquarters for management and analysis of the EIR program. This ADP process was being tested by ALMSA prior to the prototyping and implementation at the MRC's during 1st quarter, 1980. This system was to enhance the statistical data base and provide more information on field materiel failures and equipment improvement recommendations. DARCOM (AMC) Regulation 750-3 was being revised to include all the changes in policy and procedures relating to EIR's.

(U) Army Logistic Readiness Evaluation System (ALRES)(FS). In July 1977, DCGMR approved the implementation of ALRES which permitted DARCOM a routine, systematic procedure to provide a monthly readiness analysis to DA, MACOMs and Materiel Readiness Commands. The system automated input from several readiness reports which enabled the Directorate for Readiness personnel to provide a comprehensive readiness evaluation. It worked exceedingly well and enabled the analyst to quickly focus on readiness problems.

(U) During the 1979 fiscal year, the several changes that were made in the Materiel Readiness area included the elimination of the Problem Equipment Indicator Report (PEIR). This report indicated the equipment that failed to achieve the Operational Readiness (OR) ratings assigned to the equipment. The Materiel Readiness Support Activity (MRSA) forwarded the list of failing equipment to the responsible MRC who would determine the causes for failure and approximate date of achieving "OR" rate. In many cases the MRC's would have to obtain information from the LAO network. By the time the report was published approximately four months would have elapsed, and/or the unit had made necessary repair. It was proposed to replace the PEIR report with a system that identified weapon systems that were continuously failing to achieve their "OR", then furnish this list to the LAO network, requesting that they observe these systems during their daily visits to assigned units. It was further proposed that the findings be reported in the monthly activities reports, and that in the event of major discrepancies, report them on a daily flash report.

UNCLASSIFIED

DARCOM Readiness Evaluation System (DRES) (FS)

(C) There was no appreciable change in DARCOM's Readiness condition in the past year. Based on the DRES reports as of 31 March 1979, DARCOM was assessed to have an overall peacetime readiness posture of C-2 (Substantially Ready) with a mobilization posture of C-4 (Not Ready). The major contributing cause for DARCOM's REDCON continued to be a deficiency in funding. Resource areas which were not ready were Personnel, Stock Availability, Industrial Preparedness, Facilities, ADPE, and Capital Equipment. It was felt that if DARCOM were to perform the mission for which it was intended, additional funds had to be provided in order to support the total force structure.

Total Logistics Readiness/Sustainability (TLR/S) Analysis (FS)

(U) Total Logistics Readiness/Sustainability (TLR/S) was a comprehensive assessment of the capability of the US Army to deploy logistically ready forces and to sustain the force in combat. Two TLR/S analyses were conducted each year by DA ODCSLOG using the Army Operational Analysis (OMNIBUS) and the Total Army Analysis scenarios. In support of TLR/S 79-85, DARCOM was tasked by a DA letter dated 19 June 1979, to provide TLR/S logistics data to the Logistic Evaluation Agency (a field activity of DCSLOG) for the TLR/S analysis. The DARCOM Deputy Commander General for Materiel Readiness by memorandum, dated 30 August 1979, transferred the overall DARCOM TLR/S staff responsibilities from the Doctrines and Systems Directorate to the Readiness Directorate. DARCOM contributed significantly to the support of TLR/S TAA-85 by furnishing requirements and asset data for all classes of supply except Class VI (personal demand items), Class VIII (medical material and repair parts), and Class X (non-military support items). Also, DARCOM provided an analysis of the capability of the CONUS industrial base to respond to TLR/S TAA-85 requirements for major end items and ammunition. An analysis of the capability of the DARCOM workload forecast to be generated under conditions of mobilization was also furnished by DARCOM for the TLR/S TAA-85 Analysis. Because of the cancellation by DA of TLR/S OMNIBUS 79, DARCOM was not required to furnish OMNIBUS 79 logistic analysis data.

(U) Planning for the TLR/S 80-86 analysis has started and during the period of 7-9 August 1979, DA ODCSLOG convened a TLR/S planning conference at the Logistic Evaluation Agency, New Cumberland, Pennsylvania. Representatives from HQ DARCOM, Materiel Readiness Commands/Activities, and the Depot Systems Command attended the conference.

Logistic Support of Reserve Components (FS)

(U) Under the current DA Military Priority List (DAMPL) approved by DA on 8 April 1979, designated Reserve Component (RC) roundout units were assigned a higher priority than certain active Army units. This

UNCLASSIFIED

action resulted in an increased quantity of Equipment on Hand (EOH) and Equipment Status (ES) for the RC.

(U) The Materiel Assistance Designated (MAD) reports received from the RC was processed on a priority basis by DARCOM and positive actions were taken to improve equipment availability dates consistent with DAMPL priority.

(U) The Reserve Components submit Unit Status Reports semi-annually, on 15 April and 15 October. During the period October 1978 through April 1979, the RC units reflected improvement in EOH and ES. Due to redistribution and expedited supply actions by all levels of management, the RC EOH improved from 44 percent to 50 percent. The RC ES improved slightly from 88 percent to 89 percent. All indications were that this favorable trend would continue.

Reserve Components Dedicated Maintenance Program (FS)

(U) Since June 1976, DARCOM had intensified the management of selected items in the Reserve Components Dedicated Maintenance Program (RCDMP) and accelerated completion dates for certain items. The RCDMP data were updated bi-monthly and efforts were expended to expedite the program completion dates.

(U) The initial RCDMP report of June 1976 had 26 line items compared with the November 1978 report that indicated three line items remaining on the RCDMP. As of November 1978 the RCDMP was 88 percent complete.

(U) Due to the extended estimated delivery/issue dates of the three line items remaining on the RCDMP and to reduce reporting requirements and workload, the RCDMP report was terminated effectively January 1979.

Reserve Units and Full Mobilization

(U) In its continuing effort to evaluate its readiness posture to support all contengencies, DARCOM submitted, on 30 July 1979[7], to the US Army Deputy Chief of Staff for Logistics, a proposal to use Reserve Component Units to augment the CONUS depots/depot activities in case of full mobilization.

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7 Letter, DRCSA-NG to HQDA (DALO), Subject: Requirements for Reserve Component Units to Augment CONUS Depots/Depot Activities Upon Full Mobilization, dated 30 July 1979, signed by MG Robert L. Moore.

UNCLASSIFIED

(U) DARCOM submitted that the most critical time under such circumstances was the period immediately following the mobilization and deployment directive, prior to the time adequate for civilian personnel to be hired and trained to fill mobilization TDA. It was felt that the use of Reserve Component units to augment the CONUS depots/depot activities was considered the most viable approach to solving serious shortfall.

(C) The workloads used in developing requirements for Reserve Component units were developed using the guidance contained in Annex H (Logistics), DARCOM Mobilization Plan, as reflected in the DARCOM Baseline Study as of end of FY 1978. Exercise Nifty Nugget/MOBEX 78 demonstrated the seriousness of the DARCOM shortfall in resources required to support a full mobilization. This exercise revealed that the depot system could not adequately support a short warning NATO scenario without augmentation of the depot workforce during the critical period following M-Day.

(C) It was found that the most significant workforce shortfall was in the area of ammunition handling. Therefore, DARCOM's highest priority was for 11 ammunition companies at specified installations. It was recognized that ammunition units were also high priority organizations for USAREUR and the CONUS sustaining base. These competing requirements had to be evaluated to determine their impact upon the total Army combat service support effort. DARCOM strongly recommended that the required number of units to initiate the ammunition pipeline from CONUS be provided DARCOM immediately upon mobilization.

(U) The same rationale pertaining to ammunition companies was also applicable to general supply and maintenance unit requirements. DARCOM considered the mobilization surge in those areas was also tremendous, since support had to be provided for both the mobilizing force and those forces deploying or already deployed to the field. The requirement for maintenance was emphasized as being very critical, in that depot maintenance units were a primary source of supply, especially during the first 90 to 180 days following mobilization.

(U) If Reserve Component units were to be of assistance to DARCOM during the critical surge, they had to be well trained and prepared to accomplish a predetermined mission upon their arrival at the designated depot/depot activity. Therefore, it was considered essential to the success of this concept that DARCOM be authorized to establish a working relationship with units chosen to fill this requirement, preferably under the provisions of AR 11-29, Affiliation Program.

(C) This command emphasized that units assigned this mission should be assigned a DAMPL priority sequence number commensurate with the overall importance of this mission. They had to be considered "early mobilization/deployment units" and be provided the resource support necessary for them to maintain the highest possible readiness posture.

Readiness of Missile Systems Worldwide (FS)

(U) A DA DCSLOG Missile Materiel Readiness Steering Group was established in October 1978 to investigate a new Missile System Availability (MSA) reporting required by AR 220-1. The MSA "Amber" rating reported a degraded readiness condition that was ambiguous.

(U) The steering group developed a GO/NO/GO standard for each missile system expressed in an OR, NORS, NORM profile. Missile units were no longer required to submit DA Form 2406, Materiel Readiness Reports for those missile systems listed in Appendix C. TM 38-750. A revised AR 750-40 was to require the missile units to furnish Missile Readiness Reporting to MICOM on a new DA Form 3266, Army Missile Materiel Readiness Report. MICOM was then to provide MRSA the missile readiness data formerly required by TM 38-750.

(U) USAREUR and EUSA continued to report a high state of Missile Readiness for I HAWK units. Programs previously initiated resulted in increases in GREEN ratings and decrease in AMBER ratings in MSA reporting.

US Support to United Nations Peacekeeping Forces (FS)

(U) UN participation Act of 1945 as amended, authorized the President to furnish supplies and equipment to the UN and to require reimbursement from the UN for any expenses incurred by the United States.

(U) On 3 October 1973, the Joint Chiefs of Staff (JCS) requested Chief of Staff, Army (CSA) to be the Executive Agency for all requirements for US Logistic Support of the United Nations Emergency Forces (UNEF). The CSA designated the DA, DCSLOG as his representative. This function was subsequently assigned to DARCOM by DA.

(U) The majority of the requirements requisitioned since October 1978 to September 1979 were repair parts and major assemblies. Approximately 2,209 single line requisitions were processed. Approximately 10 percent of UN requirements were furnished by CONUS (major items primarily and repair parts not available from Camp Darby, Italy). However, as of 1 July 1978, the UN support was entirely furnished from CONUS. Materiel flowed from assigned CONUS Depot through the consolidation point at New Cumberland Army Depot to Camp Darby Italy, marked for UN Depot, Pisa, Italy.

Logistic Assistance Program Organization Restructuring (FC)

(U) The readiness and sustainability of the Army in the field were frequently impacted by factors outside the traditional logistic functions of supply, maintenance, transportation and services. Matters

such as personnel, training, doctrine or funding were often the source of many problems that appeared on the surface to be due solely to a deficiency in the logistic system. Recognizing the need to detect the existence of their problem areas and to react to them while they were still in a relative correctable state, a logistic assistance concept was developed to force continuing consideration of the relationship of personnel, training, doctrine and funding to functional logistics. The concept had as its overall objective the improvement of readiness and the sustainability of the Army in the field, with the most basic precept of detecting and resolving problems at the lowest level possible.

(U) To assume an organizational posture conducive to implementing such a concept and to realize the fullest benefit possible, DARCOM implemented a plan during 1978 and which was refined during 1979. The implementation brought about changes in policies and procedures, and the logistic assistance office's (LAO) organizational structure. The policy and procedure changes were written into a revised AR 700-4, Logistic Assistance Program, effective 15 January 1979, and implemented by DARCOM Regulation 700-100 dated 13 September 1979. The LAO organizational structure changes required the overseas LAO's to establish subordinate LAO's or sub-offices at the Division and other appropriate elements within the overseas major command. Such an LAO structure basically existed with the CONUS Major Commands to include FORSCOM and TRADOC.

(U) The subordinate LAO's/sub-officer were charged with the responsibility of orchestrating the activities of all DARCOM logistic assistance personnel operating in their geographical areas of responsibility. This structure insured a well balanced effort providing the greatest payoff in terms of improved or sustained user readiness.

Camouflage Painting of Vehicles

(U) For years camouflage painting of vehicles has been the responsibility of the troops in the field (AR 750-58). Even as late as 1974 a new paint, alkyd, was selected because of its ease of application by the troops in the field. Observations and reports from the field indicated that thousands of troop man-hours were being expended for camouflage painting. In March 1979 the US Army Tank-Automotive Materiel Readiness Command (TARCOM) was requested by DARCOM to make a study of the alternate means of camouflage painting of vehicles. The TARCOM study, though not complete, indicated it would be more costly to do the camouflage painting in DARCOM depots. TARCOM was coordinating with the Armament Command (ARRCOM) on Polyurethane Paint (PUP) Implementation Working Group which was developing a recommendation as to which type of organization was to apply this new paint. The Army Surgeon General recommended a very strict paint application procedure which was to preclude spray application of PUP at the unit level (field). It was projected that the implementation plan for PUP was due in DARCOM on 15 March 1980.

Chemical Resistant Finish for Army Equipment

(U) In 1974, the Army changed its finish paint coat for tactical equipment from semigloss olive drab, to lusterless four-color camouflage patterns. The paint adopted at that time was alkyd enamel and was selected because of its relatively low cost and its ease of application by troops in the field. During the period 1974 to FY 1979, the alkyd enamels were applied worldwide to tactical Army Equipment.

(U) At this time the Department of the Army became increasingly concerned about the ability of continued operations in the face of a chemical attack. The ability to rapidly and easily decontaminate equipment is an essential part of the chemical defense posture. A new two-component polyurethane paint was believed to provide an impermeable finish which was hoped would offer an easier decontamination capability. Based upon early indications of the improved qualities of PUP over alkyd as determined in the Laboratory, ARRADCOM, in March 1979, requested a deviation to the requirement for alkyd to the use of PUP on 780 vehicles being produced by Bowen-McLaughlin-Young Company (BMY).

(U) In May 1979, the Deputy Director of Readiness made known his recommendation not to use PUP on the new production of M109A2 and M110A2. The recommendation was based on the many unanswered questions on the application safety, cost, durability, maintainability of PUP. Fielding vehicles painted with PUP would result in systems that the depot and field maintenance personnel were not prepared to support. A pilot test program was recommended to resolve the unanswered questions and to provide a basis for a decision on the use of PUP on future vehicle production; however, TRADOC, in message dated 13 April 1979, requested DARCOM undertake immediate action to insure all new tactical equipment be painted with PUP on the production line.

(U) The Acting Associate Director for Integrated Logistic Support (ILS), on 6 June 1979, restated the Deputy Director of Readiness position to the DARCOM Chemical Office. "This office does not recommend immediate adoption of PUP for all new production items of combat equipment." DRCRE again recommended the conducting of a detailed pilot test program prior to applying PUP to any new equipment production vehicles or converting existing alkyd finishes or fielded vehicles to PUP. This course of action would provide for the gathering of all the data on PUP prior to a decision to convert any new or existing equipment to polyurethane finish.

(U) This action of DRCRE (ILS), in coordination with DRCMM-MS, in effect, resulted in the establishment of a Test Integration Working Group (TIWG) and an Implementation Plan Working Group, which was to develop answers to the critical issues of polyurethane paint and develop and implement a pilot test program. This test program was to expand

the work done in the laboratory by actually painting PUP on tactical equipment, testing the PUP by chemical contamination and later by decontamination.

ILS Management/Meetings

(U) Two major meetings were held to improve management of ILS. Representatives from throughout the DARCOM community attended the DARCOM annual ILS meeting which was held in St. Louis, Missouri on 5-7 December 1978. The meeting focused on the theme "ILS Interface with Provisioning", and achieved the objective of a review and evaluation of ILS execution with the provisioning interface. A DARCOM mid-year meeting was held in Troy, Michigan, 5-7 June 1979, where the focus was on the theme "Execution of ILS", and achieved the objective of review and evaluation of: Volume of ILS regulations and implementing guidance; responsibilities for ILS missions between development and readiness commands; and ILS management tools. Both meetings achieved the additional objectives of identifying problems and actions to resolve the problems; and promoting exchange of ideas among DARCOM ILS managers.

New Initiatives in ILS

(U) Contract Requirements. Contract line items were to be included in solicitation and contract documents in the areas mentioned below to assure that the required work was accomplished.

(U) Training requirements were to be scheduled as contract line item(s) in solicitation and contract document(s). The contract scope of work was to identify training related tasks to be completed, the training devices to be completed, and the schedule for completion of all training requirements. Also, the scope of work was to provide for delivery of a training device requirements analysis as described in DARCOM Pam 750-16.

(U) A system support package (SSP) was to be scheduled as contract line items in solicitation and contract documents.

(U) The conduct of an LSA program was to be scheduled as contract line items in solicitation and contract documents and was to be supported by an appropriate scope of work. A logistic support analysis review team chaired by the proponent ILS manager and composed of representatives of government ILS functional and management elements was to review program data prior to delivery by the contractor. The team was to review the contractual LSA/LSAR either totally or by sampling to assure performance in accordance with contractual specification, and to verify the accuracy/adequacy of the entire LSA/LSAR effort. TRADOC (user representative, combat developer and trainer) representatives and LEA will be encouraged to participate in all review team activities.

(U) ILS Process Reviews. ILS staff visits at materiel development and readiness commands, and PMs were to be conducted by HQ, DARCOM and/or MRSA acting as HQ, DARCOM agent to provide assistance regarding ILS execution. These staff visits may have addressed ILS management control, a single issue, a specific program directive, or a specific program event or meeting. They were to evaluate the status and implementation of ILS on a single system/equipment item or all items managed by a command/PM. The purpose of staff visits was to assist ILS execution by identification of problems in a specific acquisition program or general problems which required resolution through assistance and/or issuance of supplemental policy and guidance.

(U) Logistic Related RAM. This was a measure of the support burden to keep (or restore) an item or system in an operational state. Development commands with support by readiness commands were responsible for conducting RAM program in accordance with AR 702-3 and DARCOM Supplement 1 thereto, with emphasis on the maintainability engineering and logistic related reliability aspects of the program.

(U) Logistic Demonstration. In addition to a physical teardown and evaluation per AR 750-1, a logistic demonstration was also to include a Skill Performance Aids (SPAS) verification when required. Logistic Demonstrations were to be contained and scheduled in the Coordinated Test Plan (CTP), DA Pam 70-21, and the Test and Evaluation Management Plan (TEMP), DODD 5000.3. Within available resources, a dedicated prototype for the full scale engineering development phase was to be provided for ILS-SPAS purposes. If sufficient resources were not available to procure a "second" prototype for these purposes, arrangments were to be made to accomplish the demonstration on a time phased sequential claimant basis.

ILS Policy Improvements

(U) DARCOM Regulation 700-15, Subject: Integrated Logistic Support had been approved for publishing by November 1979. The regulation accomplished the following: It established US Army Materiel Development and Readiness Command (DARCOM) policies and assigned responsibilities for integrating logistic support considerations into the materiel acquisition process and the life cycle management of weapons systems and related equipment. It implemented the ILS provisions of DOD Directive 4100.35, AR 1000-1, AR 700-127, AR 611-1, other Army Regulations in the 70, 71, and 750 series, DARCOM Reg 11-27, DARCOM Reg 700-97, and should be used in conjunction with these documents. Interacts with regulatory and/or procedural ILS and ILS-related DOD, Army and DARCOM guidance (regulations, circulars, pamphlets, MIL-STD, MIL-HDBK, TM's).

DARCOM Resources for Integrated Logistic Support (ILS) Management

(U) During FY 1979, DARCOM Headquarters continued to emphasize throughout the programing and budgeting process the necessity for the materiel development commands, materiel readiness commands, and project managers to identify and highlight resources to provide for management of the ILS process for all DARCOM materiel. Accordingly, this effort served to provide detailed data for DARCOM to document ILS management resource requirements to DA which set forth DARCOM's emphasis upon sound ILS management.

Logistic Supportability Guidance

(U) Logistic supportability emerged as a powerful tool for measuring the adequacy of new or product improved DARCOM materiel and its logistic support (i.e., the materiel system).

(U) A previous study by the US Army Logistic Management Center, Logistic Studies Office identified the elements of Integrated Logistic Support which bear on supportability. These elements were extended in "spider chart" format to determine essential elements for test and evaluation. Also, the Logistic Studies Office did some work on identifying data requirements to be collected from tests for use in Logistic Supportability Evaluation.

(U) The Army Materiel Systems Analysis Agency (AMSAA) provided outstanding assistance in formulating criteria and methods for logistic supportability evaluation as part of their responsibility for independent evaluation of development tests on major and DA designated non-major materiel systems.

(U) Recently the Test and Evaluation Command (TECOM) undertook the job of assembling all available materiel into an Integrated Logistic Support (ILS) Guide for Logistic Supportability Demonstration, Test and Evaluation. This guide embraced the physical teardown and maintenance evaluation of early prototypes of new systems/equipments, Skill Performance Aids (SPAS) verification (when required), an evaluation of logistic support data and documentation, and evaluation of troubleshooting maintenance procedures, all of the tests and evaluations of logistic supportability during development tests, and a logistic supportability quantitative evaluation of the system following each test.

(U) TECOM was arranging for preparation of a test operating procedure so that testing and evaluation of logistic supportability could be initiated. It was expected that verification of these new procedures and the methodology was to be accomplished by application to systems/equipments scheduled for test and evaluation in FY 1980.

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Contractor Logistic Support (CLS)

(U) With the publication of OMB Cir A-109, Major Systems Acquisitions, 5 April 1976, based on recommendations of the Commission on Government Procurement, increased attention was focused on the use of CLS for new or improved systems and equipments. After a period of time, use of the general term, CLS, in connection with Integrated Logistic Support planning for new materiel, caused concern in DARCOM due to the possibility of failures in contractor performance under wartime conditions.

(U) To clarify the implications of CLS as it existed in 1979 in DARCOM, a command-wide survey was made to obtain information on programs planning to use contractor logistic support. A total of 31 systems were identified including PATRIOT, BLACK HAWK, and Fighting Vehicle Systems. The basic conclusion developed from the survey was that CLS was generally being applied under sound principles. An in-depth review appeared necessary in a few cases. Principles considered acceptable were as follows:

a. Contractor services essential to combat operations of tactical equipment should not go below depot level.

b. High dollar, low density fixed station equipments were ideal candidates for CLS when cost effective.

c. Non-development items where the commercial supplier had supply, maintenance, and distribution systems existing worldwide, were strong potential candidates for CLS.

d. New development complex systems required to be fielded before design stabilization had been achieved should be initially supported by CLS when economically justified.

(U) The principles and considerations developed from the study were assembled for use in review, analysis, and refinement of DA and DARCOM policy for CLS planning, implementation and transition, when required, to in-house support.

DARCOM Force Modernization Office

(U) On 1 April 1979, Department of the Army established the Army Force Modernization Coordination Office (AFMCO) as a separate office in the Office of the Chief of Staff, Army. As a result of this new management initiative by the DA staff, DARCOM evaluated the need for the establishment of an organization similar to the DA, AFMCO within the Headquarters staff. Initial reports were completed to set forth the recommended staffing and the foreseen mission and functions toward the proposed establishment of a DARCOM Force Modernization Office in early FY 1980.

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System Training Device Acquisition

(U) The requirement for training devices was established early in the life cycle of the system to assure their availability concurrent with, or shortly thereafter, on the fielding of the item. The cumulative costs for training devices associated with 42 systems, were receiving special attention by the Department of the Army. These conservative figures gave an appreciation for the magnitude of the increasing reliance on system training devices.

(U) Heiser Study on Test, Measurement, and Diagnostic Equipment (TMDE). Management of the TMDE Program had not been adequate since planning, programming and budgeting was accomplished by many agencies and it appeared a single activity could not effectively accomplish management or review of the total TMDE Program. As a result, a study was initiated in July 1979 with LTG J. M. Heiser, Jr. (USA Retired) for a special management overview assessment of the DARCOM TMDE Program to determine adequacy of regulations, assignment of responsibilities, organizational structure, control and expenditure of resources, and ultimately the effectiveness of the program.

Accelerated Fill of Prepositioned Materiel Configured to Unit Sets (POMCUS)

(U) The Associate Directorate for POMCUS, Directorate for Readiness was formally established on 8 March 1979, legitimizing the previous special POMCUS Task Force formed under the auspices of the Director for Readiness, Headquarters, DARCOM. Comprised of two military and six civilians, the mission of the Associate Directorate for POMCUS was to accomplish and/or coordinate those actions required of HQ DARCOM in support of DA plans to rapidly reinforce NATO by increased prepositioning of materiel configured to unit sets. With a full component of personnel, less the converted upward mobility position which was expected to be filled shortly, this office undertook the tracking of assets required for the rapid reinforcement of NATO.

(C) The Vice Chief of Staff, Army (VCSA) directed goal was to bring 90 percent of the active POMCUS (Reforger, 2 plus 10, MR LOGAEUR, and Medical Augmentation) unit sets to C-1 REDCON (90 percent of the ERC A LIN at 90 percent fill) in equipment on hand (EOH) by 30 September 1979. While falling short of this goal, significant strides were made in the development of a tracking mechanism for POMCUS and the development of additional management tools to be used in the intensive management of POMCUS. These management tools were to significantly increase the capability of this office to provide the off-line management required to monitor the fill of current POMCUS and all additional POMCUS packages.

(C) OSD Program Decision Memorandum, dated 16 August 1977, and Amended Program Decision Memorandum, dated 12 September 1977, directed the Army to add three additional division sets of equipment to POMCUS in Europe. The first additional division set, referred to as Division Set 4, was to be in place in Northern Germany by the end of FY 1980 and the two remaining sets (Division Sets 5 and 6) in place by the end of FY 1982. The original Headquarters, Department of the Army plan was to preposition approximately one brigade slice by the end of FY 1979, with the remaining two brigade slices by the end of FY 1980. However, the goal of one FY 1979 brigade slice had not been met. Also, the fill of NORTHAG POMCUS was constrained by the lack of adequate storage facilities in Northern Germany. The attainment of the FY 1980 goal of 100 percent of the Division Set 4 unit sets at C-1 REDCON for equipment on hand was dependent on the adherence to a firm construction schedule of the needed storage facilities. In an effort to time-phase equipment deliveries to coincide with the availability of covered storage, a phased delivery program was established whereby USAREUR requested delivery of only those items for which adequate storage space existed. This program had a shakey start, and unless requested phase delivery accelerated, the FY 1980 goal would not be attained.

(C) The Associate Directorate for POMCUS continued to participate in the Theater Stock Status Review conducted quarterly at the Theater Army Materiel Management Center (TAMMC) at Zweibrucken, Germany. During this meeting, a detailed review was conducted on all Equipment Readiness Code (ERC) A items required in POMCUS. In addition, a quarterly POMCUS Review meeting was conducted between HQDA, USAREUR, and DARCOM representatives where management actions and decisions relative to the accelerated full of POMCUS were discussed. In addition, availability information was updated for all items required in POMCUS. Meetings such as these enabled the principal participants in HQDA, USAREUR, and DARCOM to form a united management team to accomplish the OSD directed goals relative to the accelerated fill of POMCUS.

Procurement and Production

Industrial Base

(U) The Industrial Preparedness Operations (IPO) program, PE 728011, was fenced during FY 1979. It was done by the House Appropriations Committee to insure that the additional $15 million provided over and above the President's Budget was to be utilized in this area. This action was invaluable to the program and would be desirable in future fiscal years to insure maximum progress toward a reliable industrial base.

(U) The Army Production Base Support Program Report, RCS CSGLD 1123(RI)(MIN), was being published on a monthly basis. During FY 1979, a training session dealing with correct procedures to follow in preparing the 1123 Report was conducted by the Research Development and Acquisition Information Systems (RDAISA) for DARCOM subordinate commands. As a result of this effort, the responsiveness of the commands improved and the contents of the reports was more valuable to the command as a management tool.

(U) The PBS program by appropriation was as follows:

APPROPRIATION	$ IN MILLIONS
1. Aircraft	$ 15.806
2. Missiles	8.880
3. Weapons & TCV	112.111
TCV	(86.491)
Weapons	(25.620)
4. Ammunition	239.770
5. Other	33.434
Tactical	(4.190)
Comm/Electronics	(9.304)
Other Support Equipment	(19.940)
TOTAL	$410.001

The OMA PE 728011 program was $77.991 million

(U) DOD Wide Review of Plant Equipment Management. The Office of the Assistant Secretary of Defense (MRA&L) established a Defense Logistics Agency study to review the management of plant equipment across the DOD. It was to determine the potential for integrating the commodity management of that range of materiel identified as Industrial Plant Equipment (IPE) and identify the problems associated with the management of IPE, Other Plant Equipment (OPE), and Special Test Equipment (STE). Major data input for the study was obtained by visiting the Major Readiness Commands. The study was scheduled for completion in early CY 1979, but it was rescheduled for early CY 1980.

(U) Plant Equipment Package (PEP) Recertification. OSD delegated to ASA(RDA) authority and the responsibility to approve and recertify PEPs. ODCSRDA subsequently directed the establishment of an interim data base at DARCOM Headquarters to support management of PEP pending full automation of the Production Base Plan. This required the submission of a revised Format A on all Army PEP's to serve as a one-time update for the interim data base. To date, this action was approximately 94 percent complete. The data base was to be automated utilizing system 2000 (S2K), and was scheduled to be operational in FY 1980.

(U) Plant Equipment Upgrade. Upgrading Industrial Plant Equipment during the past year was significant. The Army upgrading facilities utilized during CY 1979 were Seneca Army Depot and to some extent Lima Modernization Center. Seneca completed a three year effort at Colt Industries on 254 machines for $3.12 million. The upgrading was accomplished on site, without interrupting production. Seneca was also upgrading equipment for Maremont Industries, Stratford Army Engine Plant, and the Red River Army Depot. Lima lost its upgrading capability when the plant's resources were channeled totally into the XM1 tank production. This action decreased the Army upgrading capability by approximately one half, and prompted studies for additional upgrade facilities.

(U) XM1 Tank Production Facilities. The Army obligated $559 million through FY 1979 for facilities to produce the XM1 tank. Of this amount, $289 million had been for production engineering and tooling while $270 million had been for construction and plant equipment. The total cost for XM1 tank facilities was to be $811 million. With the facilities now in use, Chrysler could produce 10 tanks per month. Additional investments through FY 1981 was to provide added capacity to the Lima Army Tank Plant and new capacity at the Detroit Arsenal Tank Plant to produce a total of 60 tanks per month on one shift and 150 tanks per month on three shifts.

(U) Modernization of Cannon Producing Facilities at Watervliet Arsenal. The renovation of armament manufacturing (REARM) was to provide Watervliet Arsenal with the ability to efficiently machine thick walled cannons. In the FY 1979 Military Construction Authorization Act, Congress approved $27 million for a four year construction program and of this amount, $20.5 million was appropriated in FY 1979. The remaining $6.5 million may be appropriated in FY 1982. In addition to the construction program, $135 million was to be invested over a six year period to rehabilitate or purchase new plant equipment. During FY 1979, $20.4 million in MCA funds was obligated and demolition commenced, but because of an inflation rate that nearly doubled the rate forecast, approximately $2.3 million of work could not be accomplished. The purchase of equipment continued in FY 1979 as $12.9 million was obligated for this purpose.

(U) DOD Priorities and Allocations Program Guidance (PAM). In March 1978, the Joint Logistics Commanders approved the completely rewritten and updated DOD Directive 4400.1-Delegation of Authority and DOD Manual 4400.1-M Priorities and Allocations Manual (PAM). This culminated a major effort, which required over a year of extensive coordination between Army, Navy, Air Force and Defense Logistics Agency personnel. DARCOM (DRCPP-I) chaired this project. The final products were staffed through the higher echelons of each military Service and provided to the Under Secretary of Defense (Research and Engineering), in June 1978. Publication by the Department of Defense was expected in the first half of FY 1980.

376-617 O - 82 - 27

(U) Master Urgency List (MUL) Nominations. Based on instructions from OUSDR&E, a revised unclassified procedure for item/program nominations was issued by HQ DARCOM to Project Managers (PM) and Major Subordinate Commands (MSC). Complete technical analyses were performed by HQ DARCOM on BRICK-BAT and CUE-CAP nominations, after which accepted nominations for MUL were forwarded through appropriate channels for approval. To date, no official acceptances or disapprovals of these nominations have been received. They were being channeled through to the Secretary of Defense and the President of the United States.

(U) Fafnir Bearing. On 22 April 1979, the Fafnir Bearing Company Division of Textron Incorporated had a labor dispute (work stoppage) involving bearing production output. The greatest impact on Army programs effected production of XM1 Tank turbine engines, Bell Helicopter, new aircraft production and Army helicopter maintenance programs. During the period of labor dispute, supervisory personnel were able to continue production of critical bearings on a very limited basis.

(U) DARCOM requested that the commands provide a bearing impact study to determine procurement programs requiring Fafnir bearings. These were to be utilized by the Department of Commerce for the development of an order board shipment priority to meet all Services' requirements on an equal basis.

(U) Resolution of the labor dispute in September 1979 and return of production relieved the criticality of meeting bearing deliveries. It was expected that Department of Commerce was to continue the order board priority shipments until Fafnir production met requirements.

(U) Long Fiber Chrysotile Asbestos. Long fiber asbestos utilized on NASA and Tri-Service missile programs for heat barriers and for Naval electrical applications was no longer available, except from Rhodesia, due to the Canadian mines material exhaustion. The only known available source at that time was the national stockpile, which required Congressional and Presidential approval prior to release. Action by DRCPP-IP was initiated to determine DARCOM requirements. The resultant action lead to a release from the stockpile to satisfy immediate service program requirements.

(U) DOD Priorities & Allocations Guidance. Increased emphasis was placed on Defense Materials System (DMS), Defense Priorities System (DPS) and the interrelated procedure of special priorities assistance as being a means for alleviating lengthening leadtimes. DRCPP-IP, as a result, initiated DMS/DPS briefings for the MSC's contracting/procurement officers and Program/Project managers. The briefings given with the Department of Commerce were presented to all the MSC's with the exception of ARRCOM, which was tentatively scheduled for November 1979. In addition the briefing was scheduled at the DARCOM PM Conference 10-12 October 1979 and the annual Procurement/Legal Conference 6-8 November 1979.

Special Studies

(U) HQ DARCOM was tasked to ascertain the future Army needs for silver to cover the next ten years. This analysis was necessitated by House of Representatives Bill 1325, which if passed as law, would authorize the disposal of silver from the national stockpile. The Army deferred comment on the bill until an analysis was conducted to determine their future requirements for silver. Analysis determined that a need for a continued inventory of silver in the National and Strategic Critical Materials Stockpile was in order. In conjunction with above, the House Armed Services Committee rejected a bill authorizing the sale of 15 million troy ounces of silver from that stockpile.

(U) JLC Direction. DRCPP-IP was chairing a Tri-Service JLC Subpanel on Lengthening of Production Leadtimes. The JLC subpanel, formed in April 1979, was working closely with industry and other Federal agencies addressing the leadtime problem of all Services and was to present its findings and recommendations before the Joint Logistic Commanders meeting on 11 December 1979.

Defense Materials System (DMS) and Defense Priorities System

(U) Request for Special Priorities Assistance (SPA). SPA requests steadily increased over last year primarily due to the lack of production capacity in foundries which manufactured long leadtime forgings and castings. A severe shortage of critical/strategic materials such as titanium and cobalt, which were heavily utilized in the aerospace industry, had led to multi-year procurement leadtimes. Overloaded capacity in the lengthened field (connectors, etc.) had also contributed to increase in Special Priorities Assistance cases.

(U) Industrial Preparedness Management Course. Since its inception in fiscal year 1978, 178 DARCOM personnel attended subject course. The course was open to, and attended by, other than DARCOM personnel. Below is a breakout by command of attendance:

COMMAND	ASGN	CUM TOTAL
HQ DARCOM	23	11
ARRCOM	165	134
CERCOM	15	8
MICOM	11	7
TARCOM	14	12
TSARCOM	7	6

The FY 1980 Annual Review of Program of Instruction, i.e., Industrial Preparedness Management Executive Seminar and Industrial Preparedness Basic was accomplished in the 3d quarter, FY 1980. Recommendations were made as follows:

a. Financing the Industrial Preparedness Program be expanded to two hours.

b. That more emphasis be placed on the 1123 report. The Industrial Preparedness Management correspondence course materials were reviewed and approved.

(U) Data Item Description for Industrial Preparedness Planning DI-P-7046. In May 1979, the Associate Director for Industrial Base was tasked to develop implementing instructions for a new Data Item Description (DID) for Industrial Preparedness Planning (IPP). DID was developed to provide a means to acquire IPP information on new major weapon systems at the earliest possible time in the material acquisition process. It allowed the Government to reimburse the contractors for supplying IPP information as a required contract delivery item. Working closely with the appropriate Readiness Command, the Program/Project Manager for the system was to supervise the initial development of the Industrial Preparedness Plan for the system and, with continued use of the DID, monitor and update the data throughout the production phase of the weapon system. The new DID for the Industrial Preparedness Program was to supply comprehensive, contractor generated IPP data as a contract line item in future contracts. Also, in the tightly constrained fiscal environment within which the Industrial Preparedness Program operated, the DID for IPP provided planners with a vehicle to maximize the return on dollars invested in the IPP program. The DID was designed to provide data which was to enable in-depth analysis of the total production base for new major weapon systems which were to enter the Army's inventory within the next five-to-ten years. Complete implementing instructions for the DID were to be published in the 4th quarter of FY 1980.

(U) OSD Sustainability Study. Associate Director for Industrial Base served as the coordinator for the DARCOM input into the OSD Sustainability Study. The study, completed and distributed in October 1978, was directed toward providing a sound analytical basis upon which to structure policy decisions concerning the appropriate emphasis to be accorded combat sustainability in designing future Defense programs. Also, the study examined the response capability of the existing production base for more than 60 individual items, both munitions and equipment/weapon systems concentrating on determining the level of resources associated with developing additional production capacity in response to a variety of hypothetical scenario-derived production demand levels. DARCOM supplied detailed study item analyses of the costs, time and efforts necessary to create a production capacity of responding to the "short war concept" requirements as well as possessing the ability to support the sustained conflict. The DARCOM input was considered vital in support of the Army's position that a strong industrial production base must be retained and maintained to insure the combat effectiveness of US Forces under any condition.

(U) Machine Tool Industry Study. Early in 1978, this headquarters was tasked by the Assistant Secretary of the Army (Research, Development, & Acquisition) to examine various problems associated with machine tool industry. These problems were the subject of letters written to the President and the Assistant Secretary of the Army, which expressed interest in DOD involvement in the machine tool industry through its procurement function. Accordingly, DARCOM through the Industrial Base Engineering Activity conducted a study reviewing various aspects of the machine tool industry such as leadtimes, foreign competition and technological standing. The study, completed during May 1978, disclosed the information that the industry consisted, for the most part, of small firms. Annual sales for the entire industry totaled less than $2.5 billion. The most noteworthy economic characteristic of the industry was the severe cyclic nature of the new order bookings. During periods of high orders, shortages of highly skilled workers occurred. Cash flow problems during business cutbacks interfered with productively improving programs. The industry had not kept pace with national productivity gains, and Research and Development expenditures were at an extremely low level. Foreign competition had increased with the result that foreign purchases of US tools diminished while US purchases of foreign tools increased. The industry was experiencing a period of good times; new orders were at an all time high. Department of Defense procurement of machine tools was not a major factor in the market in as much as, even with the inclusion of peacetime military consumption, DOD procurements only comprised approximately 5 percent of the market. The study was forwarded to ASA(RDA) on 15 May 1979.

(U) Army System for Automation of Preparedness Planning (ASAPP). The ASAPP was a totally integrated multi-phase Industrial Preparedness Planning (IPP) automated data base which was to be utilized, in Phase I to produce the Production Base Plan (PBP) and, in subsequent phases, to produce other reports which were to enhance overall IPP management efforts. Maximum use was to be made of existing IPP information already available in automated format by utilizing a direct interface between the ASAPP and other existing automated data systems such as SAMPAM (System for the Automation of Materiel Plans for Army Materiel) and CCSS (Commodity Command Standard System). The system was to dramatically reduce the manpower needed to produce the present PBP, while increasing the timeliness, accuracy and availability of all IPP reports generated by the system. ASAPP was to be utilized to produce the first automated PBP in July of 1980.

Cost Performance Reporting

(U) Progress in Applying C/SCSC. The number of accepted implementations of the DOD Cost/Schedule Control Systems Criteria (C/SCSC), involving DARCOM-led reviews, increased from 108 at the end of FY 1978 to 127, a total of 19 accomplished during FY 1979. There were 38

more applications of C/SCSC in various stages of the implementation process at the end of FY 1979. Of the 127 accepted implementations, 11 related to in-house activities, and eight to Government owned-contractor operated (GOCO) Army Ammunition Plants.

(U) Training and Orientation. The Office of Associate Director for Cost Performance Reporting (DRCPP-K) continued to support the four training courses conducted by the Army Management Engineering Training Activity (AMETA), Air Force Institute of Technology (AFIT) and the Defense Systems Management College (DSMC). This support involved soliciting and screening applicants, review and advice concerning course content, and presentations and panel participation during classes. This office also provided representatives to participate in industry/Government meetings and seminars on the subject of C/SCSC.

(U) Independent Assessment of Project Managed Programs. DRCPP-K performed monthly independent analyses of cost/schedule performance and projections on the major contracts of the Army's "Big Five" programs and briefed the DCGMD on the results. This office also analyzed other major acquisition contracts which received Cost Performance Reports (CPR) from contractors.

Procurement Program - Army Appropriations

(U) There was a significant increase in the overall dollar value of procurement programs during the last four years. The Army program showed substantial growth during this period, from $2.9 billion in FY 1975 to $6.8 billion in FY 1979.

(U) Progress in Executing by Procurement Appropriations Army (PAA) FY 1976 - FY 1979 as of 30 September 1979. DARCOM established a dollar award goal of $6810.6 million for FY 1979. The overall award command performance exceeded the DARCOM goal by $570.3 million for a performance of 108.4 percent. This compared favorably over the DARCOM FY 1978 performance of 104.0 percent. Following table reflects above accomplishments.

Procurement

(U) Secretarial Determination and Findings (D&F). The Office of the Assistant for Policy of the Directorate for Procurement and Production received and staffed for Secretarial Approval, 19 RDT&E D&F's under 10 U.S.C. 2304(a)(11), having an estimated value of $1,476,928,166; and 40 Procurement Appropriation D&F's under 10 U.S.C. 2304(a)(13), (14) and (16) having an estimated value of $4,809,160,601.

PROCUREMENT PROGRAM, ARMY APPROPRIATIONS
DIRECT ARMY/REIMBURSABLE RELEASED PROGRAM
M OF $
FY 79

COMMAND 1/	2/	FY 75 2/	(15 MONTHS) FY 76/7T 2/	FY 77 1/	FY 78 1/	FY 79 1/
ARRCOM	ARMCOM	2413.2	2363.7	2034.2	2285.1	2178.7
ARRADCOM	ARMCOM	------	------	224.3	406.3	522.4
AVRADCOM	AVSCOM	------	------	------	229.2	437.3
CERCOM	ECOM	443.3	561.0	759.7	418.3	496.8
CORADCOM	ECOM	------	------	------	299.4	425.6
ERADCOM	ECOM	------	------	------	223.0	353.7
MIRADCOM	MICOM	------	------	79.4	193.8	479.1
MIRCOM	MICOM	1649.7	1708.8	966.2	1010.0	986.0
TARCOM	TACOM	1064.7	2225.8	1853.1	1776.1	1531.7
TARADCOM	TACOM	------	------	125.2	449.9	613.4
TSARCOM	TROSCOM	166.6	234.3	865.6	748.6	796.2
TSARCOM	AVSCOM	351.9	560.9			
Other Commands		51.0	145.4	81.8	152.6	197.0
TOTAL		6140.4	7799.9	6989.5	8192.3	9017.9
ARMY		2945.4	4604.9	5162.4	6248.4	6834.6
REIMBURSABLE PROGRAM		3195.0	3195.0	1827.1	1943.9	2183.3

NOTES:
1/ Reorganization of DARCOM
2/ Prior to reorganization

UNCLASSIFIED

DARCOM FY 79 ARMY PROCUREMENT APPROPRIATION (APA)

PERFORMANCE

AS OF 30 SEP 79

($ MILLIONS)

COMMANDS	DIRECT ARMY			REIMBURSABLES			TOTAL		
	1 CUM AWDS	2 EOY FCST	3 EOY % FCST	4 CUM AWDS	5 EOY FCST	6 EOY % FCST	7 CUM AWDS	8 EOY FCST	9 EOY % FCST
ARRADCOM	374.4	365.8	102.4	44.2	31.5	140.3	418.6	397.3	105.4
ARRCOM	1073.3	985.9	108.9	615.8	449.0	137.1	1689.1	1434.9	117.7
AVRADCOM	395.3	389.6	101.5	------	------	------	395.3	389.6	101.5
CERCOM	313.5	297.9	105.2	40.5	36.8	110.1	354.0	334.7	105.8
CORADCOM	322.2	343.0	93.9	------	------	------	322.2	343.0	93.9
ERADCOM	286.3	281.7	101.6	------	------	------	286.3	281.7	101.6
MERADCOM	77.9	95.5	81.6	------	------	------	77.9	95.5	81.6
MIRADCOM	407.7	387.9	105.1	38.8	35.3	109.9	446.5	423.2	105.5
MIRCOM	450.7	447.3	100.8	373.7	292.1	127.9	824.4	739.4	111.5
TARADCOM	561.0	539.2	104.0	.4	1.0	40.0	561.4	540.2	103.9
TARCOM	984.6	898.1	109.6	349.9	318.7	109.8	1334.5	1216.8	109.7
TSARCOM	597.7	547.1	109.2	30.9	24.1	128.2	628.6	571.2	110.0
OTHER	42.1	43.1	97.7	------	------	------	42.1	43.1	97.7
TOTAL	5886.7	5622.1	104.7	1494.2	1188.5	125.7	7380.9	6810.6	108.4

DARCOM'S COMMITMENT TO DA

PERIOD	1 CUM AWARDS	2 (LESS DEOBS)	3 NET OBLIGATIONS	4 COMMITMENT TO DA	5 % ACCOMPLISHED (3÷4 X 100)
DA	5886.7	156.7	5730.0	5701.8	100.5
REIMB	1494.2	69.3	1424.9	1410.3	101.0
TOTAL	7380.9	226.0	7154.9	7112.1	100.6

UNCLASSIFIED

(U) Acquisition Strategies for Nondevelopmental Items (NDI). As a result of the Office of Procurement Policy (OFPP) emphasis on the purchase of "commercial off-the-shelf products when such products will adequately serve the Government's requirements," the Army Procurement Research Office (APRO) Project 803 was initiated by the Directorate for Procurement and Production (DRCPP) letter, dated 27 February 1978. The objective of the project was to submit a report in pamphlet format developing detailed guidance and policy for acquisition and support of commercial and other items requiring no development effort. OFPP's emphasis on acquisition of commercial items followed a DARCOM (then AMC) initiated effort which began in 1968 to improve the readiness posture of engineer units through the acquisition and support of Commercial Construction Equipment (CCE).

(U) The APRO pamphlet titled "Acquisition Strategies for Nondevelopmental Items" (NDI) was accepted on 24 April 1978 by DRCPP. It established the basic DARCOM position and with slight revisions was to be released after DA published interim policy guidance for NDI during October 1979. The interim guidance was to eventually be published as Chapter 6 to AR 70-1 "Army Research, Development and Acquisition."

(U) Application of Time-Sharing Computer Technology to the Army's Procurement/Pricing Function (Copper Impact Program). The object was to improve the Army's pricing capability through application of computer technology to the procurement/pricing process. It was a time-sharing system basically consisting of one or more computer terminals connected through the telephone system to a central computer operations facility. The terminal consisted of a keyboard used to select the desired computer program and to input data to the computer and a printer and/or cathode ray tube to display the results of the computations and data collection.

(U) During the 4th quarter of FY 1977, the General Electric time-sharing system was implemented at three DARCOM major subordinate commands. This action marked Army's entry into an overall system network that was being utilized by all the military Services and DLA (DCAS field activities).

(U) COPPER IMPACT was installed in all major subordinate commands. However, TECOM's computer was located at White Sands Missile Range. This system was installed in another Army Plant Activity (Hughes Helicopter) for a total of two. The CONRATES (Contractor Rates Data) which inserted the latest contractor's labor rates and pricing factors was eliminated from the program in FY 1979. Experience proved that the program was too time consuming and not current enough to be of benefit to the using activity. A specific example of how beneficial this system could be was reflected in the fact that General Electric was developing a cost model for the evaluation of the AAH multi-year incentive proposal with economic price adjustments. This was a major procurement action and the results of the cost model should play a major part in the evaluation.

(U) The commands using COPPER IMPACT found the system highly beneficial and effective in analyzing and developing the Government's negotiation position and using the computer in negotiations. TSARCOM, CERCOM, and CORADCOM were using portable terminals on Should Cost studies to insert data directly into the computer and thus minimize preparation time for contract negotiations.

(U) Procurement Automated Data and Document System (PADDS). PADDS was a mini-computer based system designed to automate the procurement solicitation process, the contract award and modification process, and product selected management reports. This system was scheduled to be installed at our MRC's by May 1979 but has been delayed until October 1980.

(U) Acquisition Planning and Tracking System (APATS). During FY 1977 the CCSS was not programmed to accept the entry of data pertinent to acquisition planning and tracking prior to the issuance of a procurement work directive (PWD), funding document. Modification of the CCSS to accept planning and statistical data prior to the issuance of funding documents would provide the MRC's with the ability to develop planning milestone schedules and reporting procedures for use of management for selected items and also satisfy the various forecasting and report needs of the MRC's. This system was planned for installation at the MRC's in May 1981.

(U) Procurement Automated Manpower Utilization and Projection System (PAMUPS). As a by-product of PADDS and APATS, PAMUPS would provide an automated procurement personnel productivity measuring system for managing and justifying resources. The key aspect of this work measurement system was that it required no direct input to attain manpower projections on a uniform work measurement basis predicated on engineered and statistical standards. The targeted date for implementation of PAMUPS was April 1980.

(U) Central Procurement. Central Procurement Activities were directed toward obtaining, through contractual means, the supplies and equipment required to maintain materiel readiness. Virtually all of the Procurement Appropriations and Stock Fund and over one-half of the RDT&E Appropriations were obligated by the Central Procurement Offices.

(U) During the past few years Central Procurement had not had sufficient resources to adequately perform its mission. As a result there was an increase in the backlog of procurement actions and a degradation of the quality of work performed within Procurement and Quality Assurance offices. Projected FY 1980 backlog of procurement actions was 85,315. It was estimated that 70,315 of these actions representing 2,268 manyears of effort were excessive. Increases in funding and manpower between FY 1979 and FY 1980 would result in some

increases in the number of procurement actions accomplished and allow partial improvement in the quality of work. However, these resources were insufficient to permit full accomplishment of the required procurement program. If tentative Congressional cuts were sustained, excessive backlog would further increase to 82,615 procurement actions, representing approximately 2,665 man years of effort. An excessive backlog level in procurement translated into reduced field readiness when equipment was down in the field due to lack of repair parts resulting from procurement delays.

(U) Although DARCOM had met and continued to meet program execution targets, the critical procurement personnel shortage forced procurement managers to cut corners, slip essential functions, and delay the acquisition of urgently needed spare parts. Continued understaffing in procurement resulted in both reduced Army readiness and increased program costs.

(U) Formation of the Office of the Assistant for Operations. In February 1979, the Office of the Assistant for Operations was established as a fourth branch of the Office of the Associate Director for Procurement.

(U) The Assistant for Operations was assigned the following major missions: Develop, interpret and issue Commercial Industrial Type Activities (CITA) procurement procedures and policies; serve as DARCOM point of contact on procurement and production matters for all activities for which DARCOM was the Head of Contracting Activity (HCA); respond and follow up on Procurement Management Reviews (PMR) and other inspections, investigations and audits; and perform periodic on-site visits to those activities for which DARCOM was the HCA. The Assistant for Operations was also responsible for operational aspects, assistance and coordination of foreign source procurements, and coordinated procurement support provided by US Army Procurement Agency Europe.

Special Assistant for Small Business

(U) During the year, Public Law 95-507 (Amendments to the Small Business and Small Business Investment Act of 1958) was passed 24 October 1978 providing greater emphasis and means to increase the small and disadvantaged business opportunities. The resultant DOD implementation of the Law (DAC 76-19) was approved 27 July 1979 and the Army Supplement (ADARS) was being prepared. Additionally, DARCOM's small business goals were changed from percentum to dollars, and two new goals were assigned by DA: (a) direct award to minority business and (b) subcontracting with small business.

(U) Fourth Quarter procurement statistics revealed that DARCOM exceeded all goals except small business and the direct awards to

minority business. In both cases, the end-of-year obtained results were reasonably close to meeting their respective goals, i.e., $1.4913 million achieved versus a $1.54413 million small business goal, and $23 million achieved versus a $28 million direct minority business goal. It must be noted that since the statistics reported by DA to OSD were to be on a total minority basis, DARCOM exceeded the minority goal.

(U) DARCOM awarded $122.2 million in 8(a) versus a $95 million goal. This represented a 51 percent increase over FY 1978. For small business set-asides, DARCOM awarded over $483 million to exceed the $462 million goal. While the subcontractors information was not yet available, from an informal review it was estimated that DARCOM would meet or be close to its assigned FY 1979 goal of $153 million.

Materiel Readiness Plans, Doctrine, and Systems

Organization and Mission

(U) The Directorate for Plans, Doctrine and Systems was organized in April 1976 under the Deputy Commanding General for Materiel Readiness.

(U) In April 1979, the Military Plans and Operations Division of the Directorate for Plans and Analysis, was redesignated the Associate Directorate for Military Plans and Operations and assigned to the Directorate for Plans, Doctrine and Systems. Concurrently, the Associate Directorate for Plans and Doctrine was redesignated Associate Directorate for Concepts and Doctrine. The War Reserve Group (five personnel) was transferred from the Associate Directorate for Concepts and Doctrine to the Associate Directorate for Military Plans and Operations. Colonel Fred E. Elam became its Director, effective 30 August 1979.[8]

(U) The mission of the Directorate for Plans, Doctrine and Systems was to act as the principal logistic planner for the Deputy Commanding General for Materiel Readiness (DCGMR); establish policy and provide guidance and direction for logistics plans, concepts and doctrine; insure development of wholesale logistics systems, including data processing applications that were compatible with Army-in-the-field and other wholesale systems; act as the Materiel Readiness Rationalization, Standardization and Interoperability (RSI) coordinator; and to manage the development and conduct of mobilization, contingency and emergency planning and operations.

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8 DF from DRCGS, Subject: Designation of Director, DRCDCS, 30 August 1979, signed by COL L. A. Hergenroeder.

DARCOM Readiness Evaluation System (DRES)

(U) The DARCOM Readiness Evaluation System (DRES) was officially instituted on 24 October 1978 as an on-going system with the publication of the implementing regulation (DARCOM-R 700-14). With the implementation of DRES, a significant improvement in DARCOM's ability to assess and articulate its resource needs was realized. While DRCPS involvement in the DRES ended with the publication of the DRES regulation and concurrent assumption of system proponency by DRCRE, DRCPS was involved in several actions during 1979 designed to improve the basic DRES. In late September 1979, the US Army Materiel Systems Analysis Agency (AMSAA) was designated by DRCRE to conduct an in-depth review and analysis of the active DRES to determine whether additional improvements were needed. Accordingly, DRCPS actions in the DRES improvement area were to be rolled into the AMSAA effort and DRCPS involvement terminated.

Rationalization, Standardization and Interoperability (RSI)

(U) In January 1979, DRCPS was assigned the Materiel Readiness RSI coordination mission by the DCGMR. DRCPS was to perform all RSI logistical functions necessary to act as the readiness counterpart to the existing Materiel Development RSI organization.

(U) A Materiel Readiness RSI Working Group was established in March 1979 as a result of a DCGMR Memorandum. The working group was tasked to identify and analyze the feasibility of logistics RSI initiatives, to review DA Pamphlet 310-35 (Index of International Standardization agreements), and to identify logistics areas covered and not covered by existing STANAGs. These tasks and actions supported a Vice Chief of Staff, Army (VCSA) letter dated 5 April 1979.

(U) DRCPS, as a continuing requirement, reviewed, analyzed and provided comments on RSI plans received from Project Managers, RSI POC's and major subordinate commands.

(U) Technical support representation was provided during the 10-14 September 1979 period at the 7th Land Forces Logistics Working Party (LFLWP) held at Brussels, Belgium. At this meeting, draft STANAG's on "Classes of Supply and Colour Markings," "Marking Combat Rations and Standardization of Combat Rations," and "Procedures for Requesting Logistics Assistance" were distributed for comments/approval. In addition, as new business, the US proposed to establish a "Supply Systems Panel."

(U) A project was initiated to identify equipment modifications/product improvements designed to enhance the interoperability of fielded equipment.

(U) On 20 June 1979, DARCOM was granted observer status for the US/GE Logistics Staff Talks. DARCOM participation was approved in light of continued and expanded interest with rationalization, standardization and interoperability objectives in the NATO logistics area. COL Robert W. Gruen, Associate Director for Concepts and Doctrine, was the designated DARCOM representative.

Coordination of Tables of Distribution & Allowances (TDA)

(U) As a result of the 1976 reorganization of this Command, the Directorate for Plans, Doctrine and Systems was assigned the task of coordinating the development of TDAs relating to the HQ, DARCOM DCGMR structure and the installations and activities under jurisdiction of the DCGMR. The basic purpose of this function was to evaluate the redistribution of resources within the Headquarters and the major subordinate commands due to the shifting missions and functions that resulted from this reorganization.

(U) The original requirement for the subject function no longer existed during fiscal year 1979. An internal examination of the mission, functions and management of this Directorate revealed that the great majority of proposed TDA revisions consisted of minor changes and realignments which adjusted TDA's to reflect manpower guidance from this Headquarters and had little impact on the readiness mission of the DCGMR. A revised mission and functions statement was submitted to the Personnel Support Activity,[9] which limited DRCPS TDA responsibilities to isolation of voids and shortfalls in current logistic organizations and operations within the DCGMR areas of responsibilities.

(U) Pursuant to the above, routine TDA revisions consisting of minor changes required to align organizations with approved manpower guidance were submitted directly to the specific DCGMR Directorate having staff supervision over the mission/function being impacted by the proposed TDA revision. TDA changes were routed through DRCPS only if they involved organizational realignments, significant changes in mission and functions, or if comments by the submitting organization indicated that there was a mission impact.

Army-Wide Training Literature Program (ATLP)

(U) In the 4th quarter FY 1979, new emphasis was initiated on the ATLP by HQ DARCOM visits to the Army Logistics Management Center (ALMC) and each materiel readiness command. This office requested each participating DARCOM command or agency to make a thorough review of the publications currently listed in DARCOM-P 310-3, index of Army Wholesale Training Literature, to determine if these documents contained the

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9 DRCPS DF to the Personnel Support Activity, dated 17 Apr 79, subj: Realignment of Military Plans and Operations Division (DRCPA-M) and Reassignment of DODMDS Study Group Spaces.

doctrine which prescribed the operation methods for wholesale logistics. Through ATLP publications, DARCOM could distribute newly approved concepts which would impact on the wholesale level way of doing logistics business. Plans for FY 1980 included revision of DARCOM Supplement 1 to AR 310-3, and rejuvenation of the DARCOM Logistics Doctrine and Literature Council, to increase awareness of, and headquarters participation in, the ATLP program.

Phase II Study-Logistics Operations in the Communications Zone (COMMZ)

(U) Upon completion of a DA, DCSLOG sponsored study, on 30 May 1978, the Army Chief of Staff approved 21 concepts to be used in the development of logistic planning and doctrine. These concepts were to be used for supporting the operational needs of COMMZ logistic organization in the NATO European environment and ensuring logistic capability to meet wartime requirements.

(U) Further study was required to determine the impact and feasibility of DARCOM assuming new functions as a result of the DA study recommendations. By January 1979 it became obvious that a DARCOM/USAREUR maintenance Memorandum of Understanding (MOU) could not be negotiated until a number of studies/analyses were conducted to provide the necessary basis for meaningful decisions. Wartime maintenance workloads in USAREUR needed to be projected, wartime ASL's needed to be calculated and command/control considerations had to be addressed.

(U) DARCOM and Logistics Center action officers started the development of a draft management plan for use during SUPERLOG conferences in USAREUR in late May 1979. On 24 April 1979, DA DCSLOG issued a tasker assigning specific responsibilities to proponent major commands to complete prescribed studies/analyses necessary for fully incorporating the 21 logistic concepts into the Army's logistic support structure. The draft management plan was generally agreed upon during the USAREUR conferences, with some actions already implemented or in process by USAREUR.

(U) Additional meetings were held during the period June-September to further define specific actions to be taken and emphasize that the computation of reliable battle damage factors was essential to any analysis of wartime maintenance workloads. The computation responsibility was assigned to the Log Center for accomplishment by in-house or contractual resources.

(U) The management plan was forwarded to HQ TRADOC for approval and forwarding to DA. It was anticipated that DA DCSLOG was to call the first meeting of the General Officer In-Process Review within 30 to 60 days after receipt of the management plan.

Selected Item Management System-Expanded (SIMS-X)

(U) During FY 1979 design and development continued on the Selected Item Management System - Expanded (SIMS-X). A series of meetings were held with HQDA and the MRC's during the 2d Quarter to identify all open functional issues preventing system implementation. On 17 July 1979, HQDA provided functional guidance needed to continue SIMS-X development. The DARCOM system design agencies were tasked on 24 July 1979 to prepare Detailed Functional System Requirements (DFSR).

(U) In addition, the Logistics Studies Office (LSO) at the US Army Logistics Management Center was tasked to prepare an Economic Analysis, combining input from the wholesale,retail levels.

Standard Army Maintenance System (SAMS)

(U) The SAMS Detailed Functional System Requirement (DFSR) was submitted to DA and was approved July 1979. Because of the long delays in scheduled implementation of retail level SAMS, DARCOM sought interim means of acquiring maintenance engineering data. Therefore, DARCOM assembled a study team to determine the acceptability of data from active automated retail management systems and the suitability of collecting and using the data in an interim system pending implementation of retail SAMS. The study was approved by DA for implementation August 1979. To accommodate the Interim System it was determined that a portion of the Field Data Collection System, compatible with the data elements available from FY 1979 retail automated systems, was to be incorporated into CCSS. Data emanating from the current retail system was to be processed through a "Bridge System" at the Materiel Readiness Support Activity (MRSA). This bridge was to place the data collected from the active automated retail systems into SAMS format for transmission to the appropriate readiness command. Based on this approach it was planned to complete a Functional Description (FD) package for the final portion of the Field Data Collection early FY 1981. This should provide the necessary means for approaching the Logistics Systems Review Committee for a release priority.

(U) The Maintenance Data Management System (MDMS) portion of SAMS was being administered and developed by the Maintenance Management Functional Coordinating Group (MMFCG). During FY 1979 the FCG revitalized its efforts toward the completion of five DFSR's for MDMS.

(U) During FY 1979 two important tasks were completed. The FCG developed a milestone schedule for MDMS and made the following task assignments for completion of MDMS FD: Maintenance Management and Control (ALMSA to finalize the package); Maintenance Work Directives (TARCOM to prepare FD); Maintenance Financial Parameters (TSARCOM to prepare FD); Contractor Program Status Report (MICOM completed FD); Maintenance Support Services (ARRCOM/CERCOM completed FD).

(U) According to the milestone schedule these FD's were to be completed for presentation to the LSRC for release scheduling during May 1980.

Total Army Equipment Distribution Program (TAEDP)

(U) During FY 1979 the design and development of FORCE Packaging Methodology was completed, and Phase II was implemented in February 1979. Prototyping was successfully completed during August 1979 at Fort Carson, Fort Polk, and ARRCOM. The sub-system Phased Equipment Modernization design was completed and tested successfully during September 1979.

Logistics Systems Review Committee (LSRC)

(U) The Logistic Systems Review Committee (LSRC) conducted four In Process Reviews (IPR) of CCSS Releases during the fiscal year. IPR I for Release 56 was conducted at Automated Logistics Management Systems Agency (ALMSA) on 12 October 1978. The results of Division Level Tests were presented by the Functional Coordinating Group Chairman (FCG) and recommendations made for prototyping. IPR II for Release 56 was conducted on 28 and 29 November 1978 at Tank-Automotive Materiel Readiness Command (TARCOM) for the purpose of reviewing the prototype results. The results were briefed to the LSRC by the FCG's, and the release was approved for proliferation.

(U) There was a special meeting on International Logistics conducted at Missile Command (MICOM) on 14 and 15 March 1979 to discuss special problems relating to Foreign Military Sales (FMS). This meeting resulted in a number of directed actions to improve the system. By the end of the year most of these had been accomplished. Remaining actions were scheduled for implementation within the coming year.

(U) IPR I for Release 57 was conducted at ALMSA on 18-19 April 1979 and IPR II was conducted at MICOM on 13 and 14 June 1979. This release was also approved for proliferation upon completion of IPR II.

DARCOM Disaster Control Plan

(U) Under disaster relief operations, as provided in AR 500-60, "Disaster Relief," and DARCOM Disaster Relief Plan, DARCOM supported DA directed relief operations as follows with communications packets released from prepositioned operational projects stored at selected DARCOM depots:

6 July 1979 - 1 Repeater Packet to Nuclear Regulatory Commission for 3-Mile Island Reactor Facilities, Harrisburg Pennsylvania.

376-617 O - 82 - 28

6 July 1979 - 1 Commercial Radio Packet to Nuclear Regulatory Commission for 3-Mile Island Reactor Facilities, Harrisburg, Pennsylvania.

23 Sept 1979 - 2 Commercial Radio Packets to Federal Emergency Management Agency (FEMA) for Mobile, Alabama disaster relief operation.

23 Sept 1979 - 1 Telephone Patch Packet to FEMA for Mobile, Alabama disaster relief operation.

(U) On 22 June 1979, Change 2 to the DARCOM Disaster Control Plan was published, which included a new Annex M, titled "Crisis Emergency Relocation Plan." The purpose of the new annex was to provide additional emphasis and guidance to subordinate commands, installations, and activities. Annex M was to be used to reassess their vulnerability, primarily to disasters man-made or natural, on or off installations, which could partially or totally disrupt the installation's operations, endanger lives, destroy facilities, and create chaos. The plan also addressed the requirement under above situations for possible transfer of key functions and operations to alternate DARCOM locations for continuity of operations. Publishing of this plan was necessitated because of the 3-Mile Island Nuclear Reactor incident, Harrisburg Pennsylvania, which caused radiation fall-out in the nearby areas including the New Cumberland Army Depot, whose disaster plan did not address coping with this type disaster.

Command Post Exercise

(U) DARCOM's participation in the NIFTY NUGGET/MOBEX 78 exercise included a command self-assessment of capabilities and the play of the JCS Command Post Exercise (CPX).

(U) The DARCOM Capability Assessment was conducted prior to and independent of the actual MOBEX 78 CPX. The assessment was DARCOM's first attempt to portray the stress of full mobilization and the implementation of a major operation plan against DARCOM resources. The assessment simulated the materiel fill of the following: Theater war reserve shortages; OPLAN requirements; RC/NG units shortages (to bring them from ALO-3 to ALO-1); CONUS training base requirements; and other service requirements. These time-phased requirements were "filled" from the DARCOM asset posture as of June 1978. The "simulation" resulted in assessing the following five areas: Materiel, manpower, physical facilities, ADP and communications. The details of the assessment, while classified, indicated deficiencies in several areas. The results of the capability assessment were published on 22 November 1978 and were briefed to all levels of the Department of the Army and various segments of the Defense Establishment.

UNCLASSIFIED

(U) Data from the assessment was presented to Congress and used to justify budgetary requests for future years.

(U) The CPX was conducted during the period 8 October 1978 to 10 November 1978. It provided the entire command a dramatic opportunity to exercise the Mobilization Plans and War Emergency Plans at all levels, while reacting to contingencies of JCS, DA and Theater commanders. Although the CPX was played by a large team composed mostly of personnel who had not been involved in the self-assessment, the lesson learned and conclusions supported the findings of the self-assessment.

War Planning

(C) The LOGPLANS and ancillary planning documents below were drafted, published and/or revisions as necessary made to existing plans during this reporting period.

(C) DARCOM LOGPLAN 6500. LOGPLAN 6500, defense of Panama and Panama Canal Zone, was completed on 30 June 1979 and coordinated with the FORSCOM/CDR, SOUTHCOM and other appropriate agencies and DARCOM staff elements. This plan was published and distributed on 23 August 1979 for computation of supply requirements data and transportation movement data (ERD/EDD).

(C) DARCOM LOGPLAN 7120. LOGPLAN 7120 supported FORSCOM/ARRED OPLAN 7120, defense of Alaska. This was a new LOGPLAN which was in draft stage with staffing action and publication date delayed due to changes in the CINCARRED/FORSCOM Time Phased Force Deployment List. Wartime procedures for DSS and airlines of communications (ALOC) for Class 9 and selected Class 2 materiel were to be used as backup to support deployed forces in the event deployment would be required before completion of the above plan. Regular monthly follow-up with the DA and FORSCOM plan action officers were being made in order to expedite the necessary TPFDL.

(U) Class IX ASLs. Upon request from CDR, FORSCOM's ASLs were computed for the following type units:

Forward Maintenance Companies	11 each
Rear Maintenance Companies	6 each
TC Airctaft Maintenance Companies	3 each
CS Repair parts Companies	3 each

(U) Additionally, it was requested to incorporate the computed SL's in DARCOM's preplanned supply schedules for LOGPLAN 4102 on the basis that upon execution of OPLAN 4102 there would not be sufficient time to develop ASLs for the reserve DS/GS support units.

UNCLASSIFIED

UNCLASSIFIED

[redacted]

(C) DARCOM LOGPLAN 77AD. LOGPLAN 77 AD supported various sized task forces derived from the XVIII Abn Corps Airborne "D" Package Plan. These task forces were considered a high priority immediate response force with worldwide orientation in support of the various unified commands operation plans. The LOGPLAN was coordinated with HQDA, FORSCOM, XVIII Abn Corps, 82nd Abn Div, DARCOM Staff, and DARCOM MRC's, and was finalized for publication in October 1979.

(C) Logistics support was planned to be accomplished through a combination of unit accompanying supplies with the task forces units and DARCOM/XVIII Abn Corps coordinated preplanned supply which were to be available on an on-call basis for shipment and demand supported requisitions submitted by XVIII Abn Corps (1st COSCOM MMC) to CONUS ICP's.

(C) DARCOM computation of DARCOM/XVIII Abn Corps coordinated preplanned supply was planned for completion in 2d Quarter, FY 1980.

(C) DARCOM LOGPLAN 5027. LOGPLAN 5027 supported CINCPAC OPLAN 5027 and EUSA OPLAN 5027 - Defense of Korea.

(C) This LOGPLAN was coordinated with HQDA, EUSA, USARJ, WESTCOM, DARCOM staff and DARCOM MRC's and was finalized for publication in October 1979. The DARCOM plan provided for the logistics support of US Army elements, ROK ground forces, and the provision of common items support for the USAF, USN and USMC elements committed in defense of Korea. Logistics support was planned to be accomplished through a combination of prepositioned war reserve stocks for US Army and ROK ground elements, operational project stocks, in-country operating assets to include those assets in the pipeline at the time of execution of the plan, unit accompanying supplies deploying with augmentation units, and DARCOM/EUSA coordinated preplanned supply for US Army and limited preplanned supply for ROK Army forces which were to be available on an on-call basis for shipment. Preplanned supply would be supplemented by demand supported requisitions submitted by the EUSA MMC to CONUS IPC's.

(U) DARCOM computation of DARCOM/EUSA coordinated preplanned supply was planned for completion in 2d Quarter, FY 1980.

Prepositioned War Reserves

(U) DOD efforts in FY 1979 were directed toward expediting the fill of the higher priority prepositioned war reserves. As expected, USAREUR was allocated the total of the fiscal year war reserve stock appropriation. In addition, all conserved funds generated by the sell-off of CONUS prepositioned war reserves were reallocated to USAREUR.

UNCLASSIFIED

[redacted]

(U) To further expedite the fill of the USAREUR prepositioned war reserve, DARCOM was tasked to develop a program to transfer lower priority CONUS prepositioned war reserve stocks to USAREUR. A procedure was established whereby USAREUR would submit unfunded requisitions for secondary item shortages and DARCOM would fill the requisitions from available CONUS war reserves. OSD had also directed that certain CONUS war reserves would be allocated to higher priority prepositioned war reserves.

(U) The impact of the above actions was not yet measurable. However, it was expected that a considerable improvement in the USAREUR prepositioned war reserve would be evident in FY 1980.

CHAPTER VII

HIGHLIGHTS AND TRENDS

Mission and Priorities

(U) The broader aspects of the DARCOM Mission in support of the total Army has been a five fingered affair including: (1) Research, development, and acquisition of Army materiel, (2) Readiness of materiel in the hands of troops, (3) Readiness of war reserve, POMCUS (Prepositioned Materiel Configured to Unit Sets) and Operational Project Stacks, (4) DA executive agent for security assistance, and (5) Single manager for conventional ammunition. Monitarily, the DARCOM mission involves the expenditure of approximately $13 billion or 60 percent of the Army budget exclusive of personnel costs which are funded separately. DARCOM also manages the Army Materiel inventory encompassing nearly 300,000 different line items worth more than $41 billion.

(U) The overall DARCOM priorities during FY 1979 were to: (1) Provide DARCOM managerial and technical capability to assure development and readiness support to Army units, (2) Support DARCOM logistics and procurement requirements having a direct and immediate impact on readiness capability of Army units (near term readiness), (3) Support DARCOM research, development, test, evaluation, procurement, and logistics requirements having a direct impact on the near term readiness capability of Army units, (4) Maintain schedule to satisfy high priority user, joint service and international ROTE requirements (mid-term modernization), (5) Support DARCOM workload/programs to maintain a viable readiness wholesale logistics base, and (6) Support other assigned logistical operations for the field Army and other DOD programs.[1]

(U) To provide for these priorities in an extremely constrained resource environment, DARCOM took the following steps to improve resource justification, allocating, and mission performance analysis: (1) Established the Deputy Commanding General for Resource Management, (2) Established DARCOM's manpower baseline requirement by relating personnel requirements to both peacetime and wartime workload and performance to available manpower, (3) Revitalized the Program-Budget Advisory Committee, (4) Consolidated the productivity measurement talent in a methods and standards activity, and (5) Established a Command Performance Indicator Review System to emphasize the Director's accountability for mission performance and resource management. Specific programs established or underway in DARCOM working toward monitary, personnel and facilities savings are highlighted below.

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[1] General John R. Guthrie, CG, DARCOM Briefing to DAIG, 26 Oct 1979.

CITA Functions

(U) CITA (Commercial and Industrial Type Activities) involved an aggressive contracting out program. CITA includes those functions which, in their executions, provide the same type of products or services which could be obtained by contract from private commercial or industrial sources. Initiating the CITA program, DARCOM foresaw that over the ensuing five year period approximately one-third of DARCOM's personnel would be subject to review for contracting. Examples of commercial and industrial type activities under scruting included: audiovisual products and services; ADP; maintenance, overhaul, and repair; systems engineering, installation, and O&M manufacturing fabrication; processing and packaging; real property; industrial shops and services; health services; transportation; printing and reproduction; research and development; office services; security; food services; and other items such as laundry, library, mopping, architect/engineering, cataloging, training, and utilities.

(U) DARCOM candidates for review during FY 1980 involved some 3,115 personnel spaces as follows:

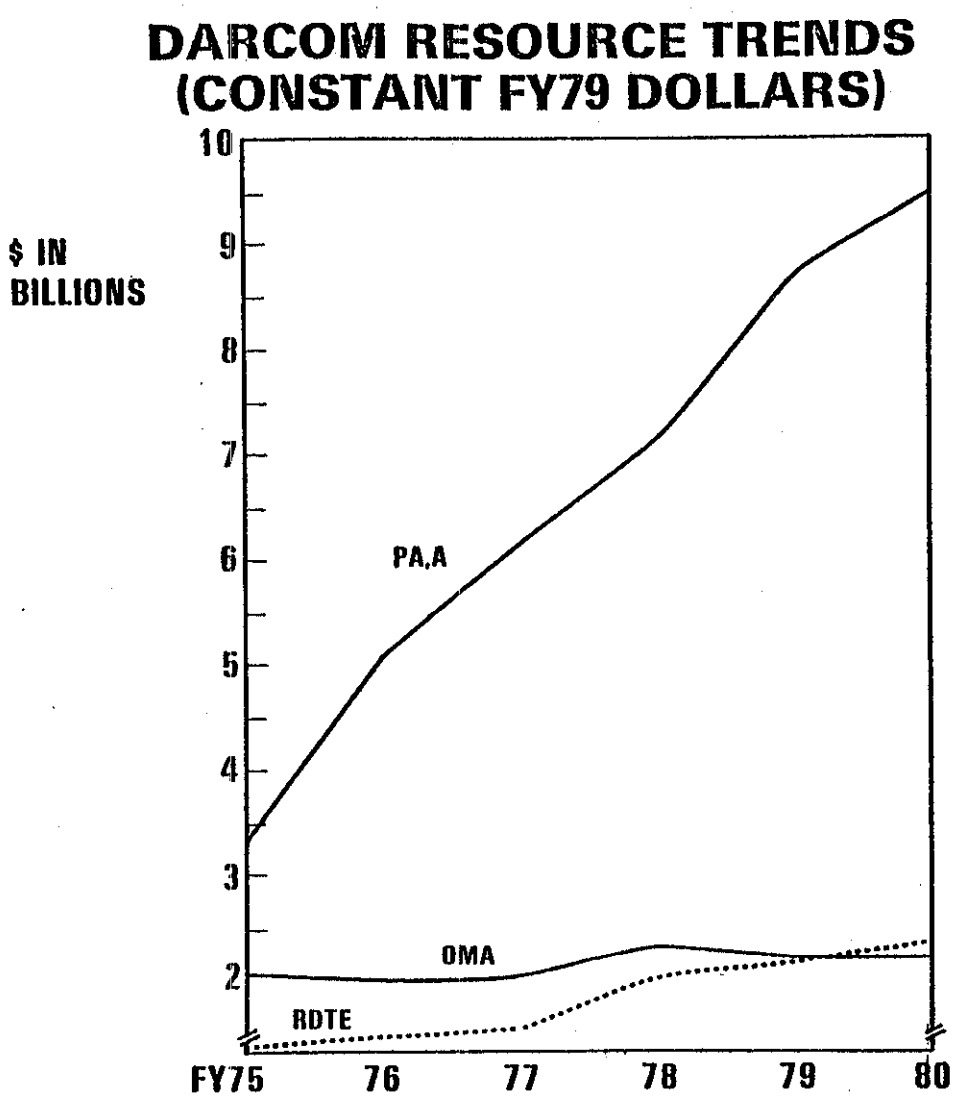
HQ DARCOM Service Support Activity	145
Hawthorne	745
Jefferson Proving Ground	375
St. Louis Area Support	210
Selfridge	165
Motor Vehicle Maintenance (11 activities)	370
RRAD Conventional Ammo	275
SAAD Installation Support	270
FFA Caretaker	70
CCP (NCAD, SAAD)	350
MSC Support Functions	140
Total	3,115

(U) DARCOM was anticipating several problems in complying with the CITA program. Such problems had been raised at higher levels at DA and OSD in numerous occasions. Involved were the unfinanced requirement for DARCOM to conduct the CITA reviews. It was estimated that the transition from in-house work to contracted out work would, when approved, cost approximately $15.5 million in FY 1980. Also, any premature withdrawal of spaces by DA or OSD would cause a significant problem for DARCOM especially if the proposed contract ultimately remained in-house. There was emerging opposition from Congressmen who objected to contracting out as it effected their areas. Unions also opposed contracting out.

Resource Trends

(U) Measured over a five-year period, FY 1975-FY 1980, by constant 1979 dollars, the DARCOM workload was increasing. Procurement had increased from less than $3.5 billion to $9.5 billion, a 271 percent increase. The

RDT&E appropriation rose from $1.4 billion to approximately $2.5 billion, a 79 percent increase. During the same period, the OMA appropriation had not kept pace, only increasing from $2.2 billion to $2.3 billion, a five percent increase. Obviously, such a small increase in OMA funding, which provides the pay for personnel, materiel acquisition (RDT&E), and procurement (PA,A) area, was inadequate for mission performance. This was a problem with which DARCOM Commander and managers had been struggling for a number of years. (See graphics display of the imbalance between PA,A/RDT&E, and OMA.)



(U) In attempting to perform its mission in the procurement program, DARCOM had to cut corners elsewhere. DARCOM had been successful in obligations in the procurement program according to plan, 99.1 percent in FY 1979. However, adequate procurement planning was sacrificed to reach these high levels of procurement program obligation. For example, funds were tied up that could have been more effectively used with other requirements. The area of should cost studies was being neglected because of the shortage of personnel, with the emphasis upon timely obligation of procurements. In some cases, should cost studies on selected sole source procurements, valued in excess of $1 million were not being performed at all resulting in a projected loss of future savings of an estimated $30 to $40 million annually. Other losses were suffered in the area of contract close-outs. In many cases, funds were tied up that could have been deobligated and reprogrammed to satisfy other requirements.

(U) The decline of DARCOM manpower authorizations, down by some 20,000 spaces, 40 percent since 1962, was impacting in numerous other procurement functions such as career training, production management, production lead time forecasting, timely definitization of letter contracts, timeliness and completeness of cost and price analyses, and post-contract reviews.[2]

(U) Compared on an Army-wide basis, DARCOM had borne an inordinate share of the manpower reductions. As Figure 1 indicates, under current trends, by 1980 DARCOM civilian strength was expected to be some 39 percent below the 1962 baseline. Whereas Army civilian strength was expected to remain 6 percent above the 1962 baseline. A similar trend was seen for Army military strength (See Figure 2). Such reductions continued despite quantifiable work load reviews. In just the ten years from 1970 to 1980, DARCOM would have declined in strength from 169,000 (154,000 civilians) to 110,000,(102,000 civilians) or a 35 percent reduction totaling 59,000 personnel spaces, a reduction of 492 spaces per month for ten years. (See Figure 3).

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[2] Ibid., p. 19.

COMPARISON OF ANNUAL PERCENTAGE CHANGE IN NON-DARCOM ACTUAL

ARMY CIVILIAN STRENGTH AND DARCOM CIVILIAN STRENGTH

FY 1962-FY 1980

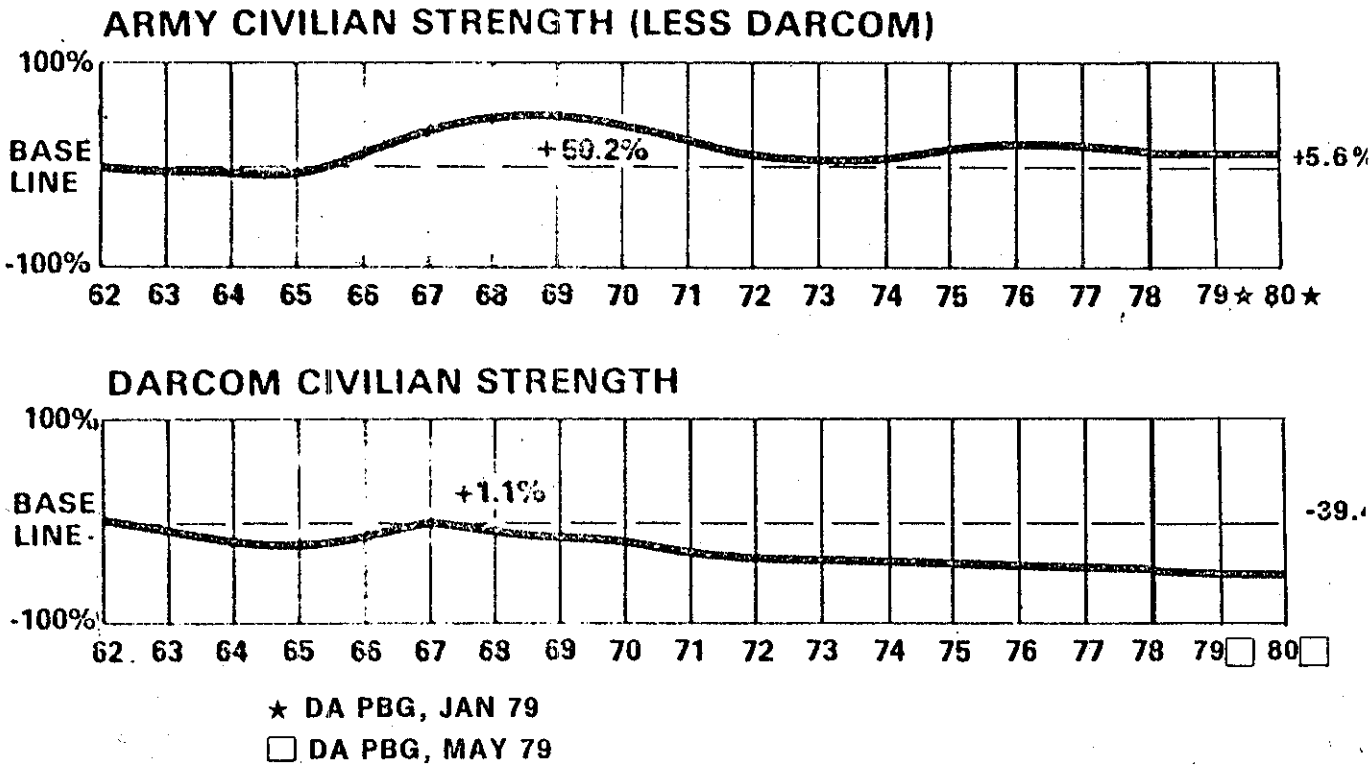

Figure 1

COMPARISON OF ANNUAL PERCENTAGE CHANGE IN TOTAL ACTUAL

ARMY MILITARY STRENGTH AND DARCOM MILITARY STRENGTH

FY 1962-FY 1980

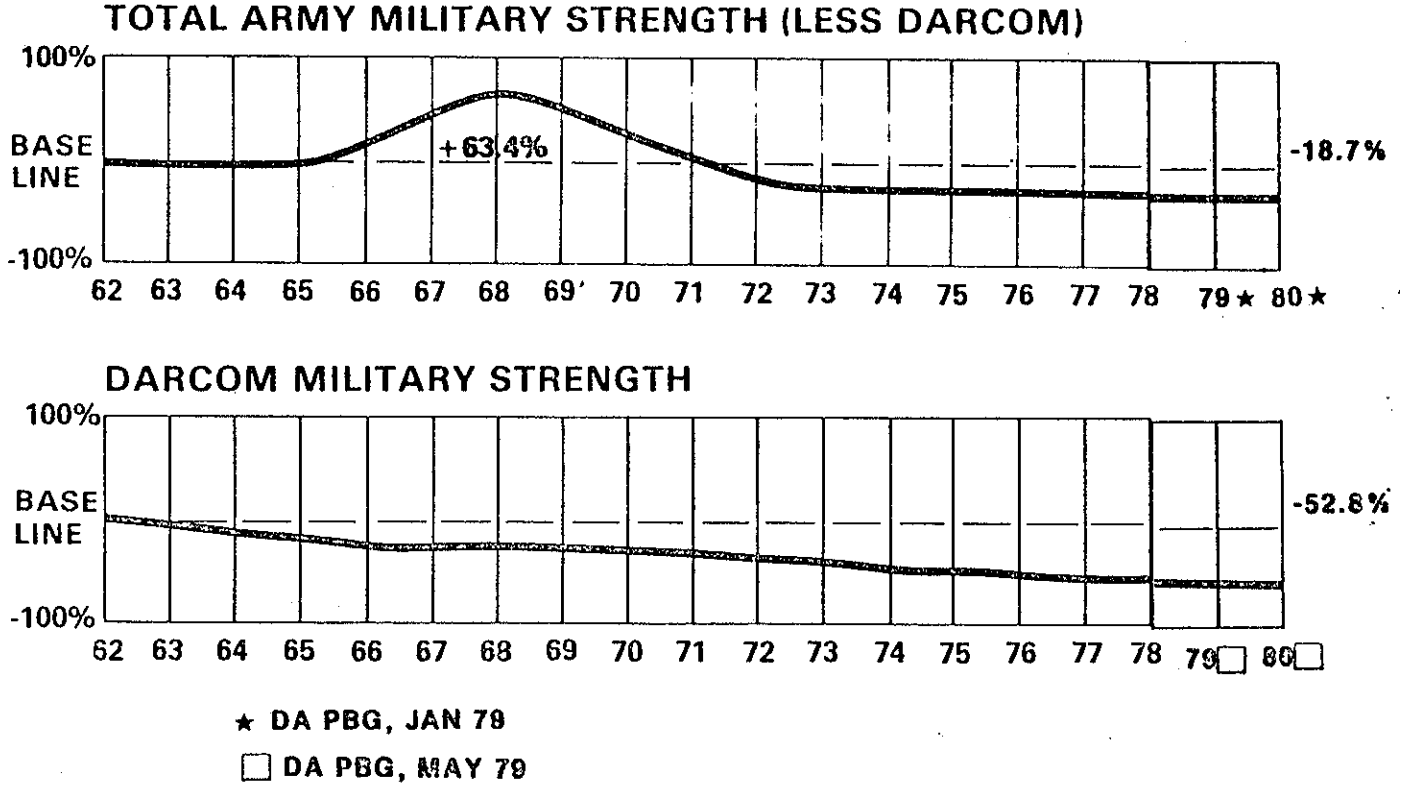

Figure 2

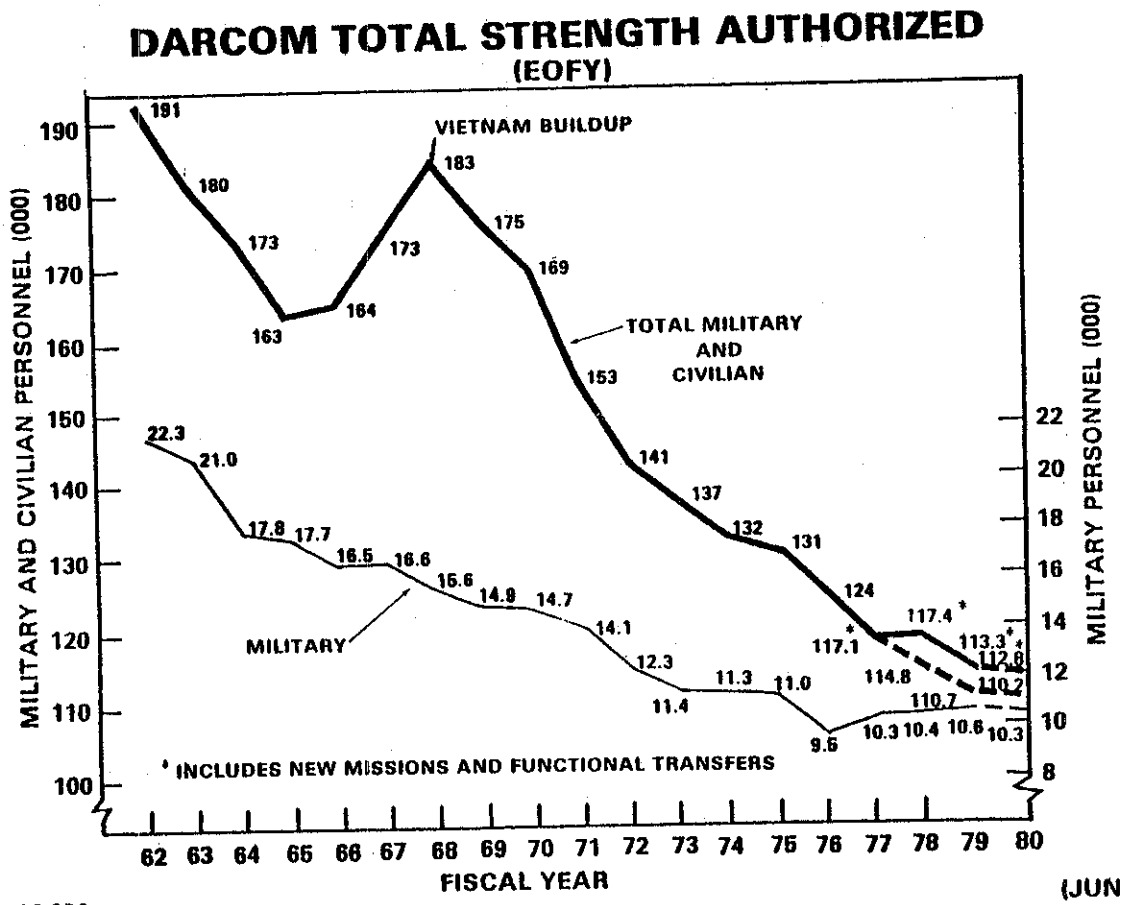

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Figure 3

Increased Workload

(U) In the recent past, increases to the DARCOM workload have been the direct result of the increase in Army divisions from 13 to 16 and a significant increase in mechanization. Changes in doctrine which tied DARCOM closer to the combat divisions in the European theater and the added depots workload at Mainz and Ober Ramstadt have had significant impact. An example was the recent assumption by DARCOM of the theater calibration/TMDE repair mission. Though DARCOM sometimes was given spaces to account for new missions, associated high graded personnel were authorized because of high grade ceilings. Other new missions were wholly absorbed. One example was the Army Battlefield Automation Interoperability System Engineering Management Plan. With this, and others, DARCOM recognized that it would probably have to continue to receive new work less the spaces, dollars, and high grades to do the job; and accordingly kicked off a study which was expected to ensure that DARCOM's scarce resources were being properly applied to optimize DARCOM's support efforts popularly known as the DARCOM Baseline Requirement. This study established manpower requirements for both peace time and war time. Although the validity of the requirements had been recognized at the highest levels of the Army and Defense secretariats, the reduction of the civilian work force continued at DARCOM. Consequently, DARCOM instituted its RESHAPE (Resources, Self-Help, Affordability Planning Effort) Program. This program had as its aim to determine and implement ways of accomplishing the DARCOM missions most effectively with resources available.

(U) The decline in manpower had also been accompanied by a continuing reduction in CONUS logistics facilities. This combined erosion of depot, arsenal, and ammunition plant capacity and manpower was posing a serious threat to DARCOM's ability to perform its mission in support of mobilization and sustainability. (See Figure 4).

(U) Moreover, changes in logistics doctrine and combat service support during the 1970s resulted in an altered DARCOM mission. DARCOM now directly supports the corps, thus becoming an integral part of the Army in the field, the communications zone. Wholesale logistics support is no longer shore to shore in CONUS. DARCOM's emerging role has meant greater resource requirements. Also the predicted complexion of a NATO war has changed. Division ammunition consumption planning factors have increased two- to six-fold since 1966. The wholesale logistician must now procure ammunitions and other materiel to sustain an anticipated greater intensity of combat.

RESHAPE

(U) The original DARCOM Manpower Baseline Requirement study published in August 1978 [3] identified a manpower level of 137,151 people to adequately perform the DARCOM mission. An updated study was scheduled to

[3] See FY 1978 Annual Historical Review, HQ DARCOM, Chapter I.

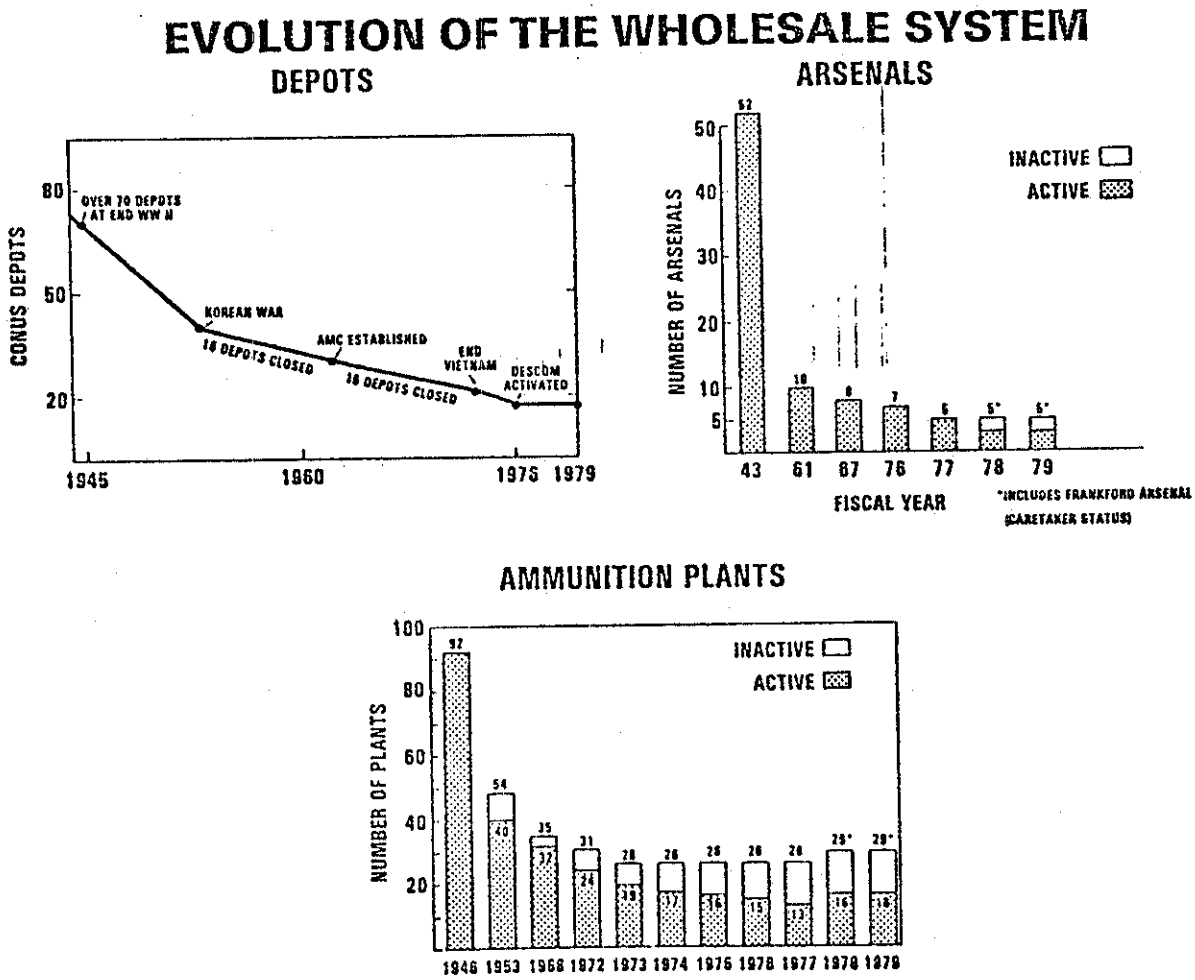
EVOLUTION OF THE WHOLESALE SYSTEM
DEPOTS
CONUS DEPOTS
80
50
20
OVER 70 DEPOTS AT END WW II
KOREAN WAR
16 DEPOTS CLOSED
AMC ESTABLISHED
18 DEPOTS CLOSED
END VIETNAM
DESCOM ACTIVATED
1945
1960
1975 1979
ARSENALS
NUMBER OF ARSENALS
50
40
30
20
10
5
52
10
8
7
6
5*
5*
INACTIVE
ACTIVE
43 61 67 76 77 78 79
FISCAL YEAR
*INCLUDES FRANKFORD ARSENAL (CARETAKER STATUS)
AMMUNITION PLANTS
NUMBER OF PLANTS
100
80
60
40
20
92
54
40
35
32
31
24
28
33
26
27
25
16
26
15
26
13
29*
16
29*
16
1946 1953 1968 1972 1973 1974 1975 1976 1977 1978 1979

Figure 4

come out during fiscal year 1981, which would justify a 142,000 manpower level based upon increased requirements since 1978. As a follow-on to the Baseline Study, a series of initiatives were developed aimed at increasing the productivity of the available DARCOM workforce. Captured under the broad title, RESHAPE the initiatives were developed by a flexible team composed (21 August 1979) of selected functional representatives from HQ,DARCOM and the major subordinate commands and activities, plus representation from the Army Materiel Systems Analysis Activity and the Army Logistics Management Center. All was led by a DCGMR task group. The RESHAPE initiatives recommended: (1) maximize the use of overhire to achieve additional manyears of work, (2) employ overtime as a means of increasing productivity and manyears of effort, (3) develop an aggressive capitol investment program, (4) support development and proofing of pilot initiatives such as profit sharing, (5) take action in cooperation with DA, TRADOC, and other Arny users to cap the workload generated by proliferation of new weapons systems, modifications to fielded systems, and the attendant increase in new line items managed, (6) determine whether productivity may be improved by shifting certain overload to direct labor, (7) determine optimum staffing level in project manager offices and (8) conduct a rigorous, disciplined and rational assessment of the DARCOM organizations and the way business is done so that the workload/workforce gap may be reduced. RESHAPE implementation plans were to be submitted to HQ, DARCOM by 30 June 1980 so that a consolidated DARCOM implementation plan could be compiled and distributed. Execution was expected to take place over a four to five year period.[4]

(U) In RESHAPE, DARCOM wished to come to grips with expanding materiel requirements and the associated workload. It was foreseen that by 1985, more than 400 more systems would be introduced into the inventory as the result of materiel modernization and new materiel techniques and capabilities developing in response to the Soviet threat. Yet the continuing restraints in resources, particularly those to operate, maintain, and support fielded systems made it imperative that DARCOM critically examine the workload to be imposed on the field as well as on the wholesale system. Inquiry during RESHAPE was to include quantitative growth in requirements, as well as qualitative issues such as marginal return in investment priorities, and judgments regarding retention of items in the system. RESHAPE initiatives were also expecting to find ways to increase productivity at a time when productivity was declining throughout the private economy. This would explore the areas of performance standards, benefits of working overtime, substitution of technology, and capitol investment for manpower, plus productivity incentives for the DARCOM work force. DARCOM even expected to explore the feasibility of profit sharing incentives at its depots and arsenals to increase productivity.

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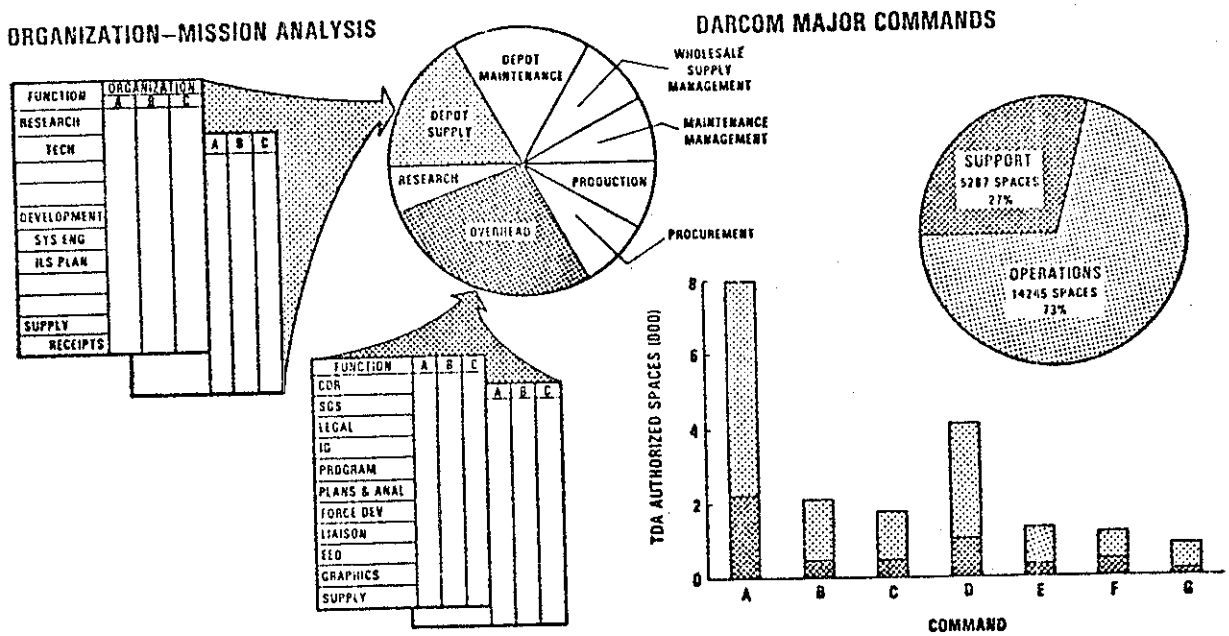
[4] RESHAPE Concept Plan, December 1980 in Archives, Historical Office.

DARCOM MISSION ORGANIZATION



• STRATIFY ORGANIZATIONS AND ACTIVITIES BY MISSION AND FUNCTION

• STATISTICAL ANALYSIS

• AREA SUBJECT TO INQUIRY:
  • RELATIONSHIPS WITHIN AND BETWEEN COMMANDS

Figure 5

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(U) In RESHAPE, DARCOM planned to subject its entire organization to rigorous scrutiny. On the left of Figure 5, what DARCOM does and who does it are shown. The right side of the figure is a statistical analysis of the relationships within and between commands. RESHAPE planned to look at how DARCOM was accomplishing its mission. For example, in the area of Project Management, all 56 of DARCOM's Project Manager Offices (PMO), those offices formed specifically to bring weapons systems into being, were to be subjected to an analysis and comparison to a recently developed PMO staffing model in order to assure the optimization of resources. Each DARCOM program element was to be subjected to similar analyses under the RESHAPE implementation. Efficiencies identified in the RESHAPE analyses would be applied within mission areas and organizations to improve performance. A further goal of RESHAPE was to be the identification of functions and systems to be reduced, eliminated or deferred. In the end, DARCOM hoped to reveal and express the relationship between DARCOM performance and Army readiness and sustainability.

Accomplishments

Materiel Management

(U) In the area of materiel management, DARCOM reversed the negative upward trend in backorders outstanding, which had persisted since 1976. This was a direct result of the improved stock availability position which had been in a two-year decline. Customer support improved considerably. The percent of on-time requisitions processing increased from 74 percent to 91 percent, which was a level that had not been reached during the previous five-year period. (See figures 6 through 9).

Expansion of DSS and ALOC

(U) During FY 1979, through use of the Direct Support System (DSS) and the Air Line of Communications (ALOC), support to the Army was improved. Field units benefited through an expanded and more timely distribution of supplies. An ALOC-Korean test which had been underway since the previous December concluded in November 1979. During this test, order/ship time to Korea was decreased by more than 50 percent. Further, DSS had also been expanded to include most Army Reserve units and during the summer of 1979 a DSS for Army National Guard in Maryland and Tennessee was initiated. When this expansion of DSS to Army Reserve and Army National Guard Units is completed, the total Army would be benefiting under the Army Standard Distribution System which would greatly enhance mobilization capabilities for war and other contingencies.

Improved Support of New Item Deployment

(U) During FY 1979 DARCOM provisioning policies were reviewed and clarified. Recommendations regarding provisioning were accepted by DOD which looked to greater efficiency and effectiveness. In turn, the process

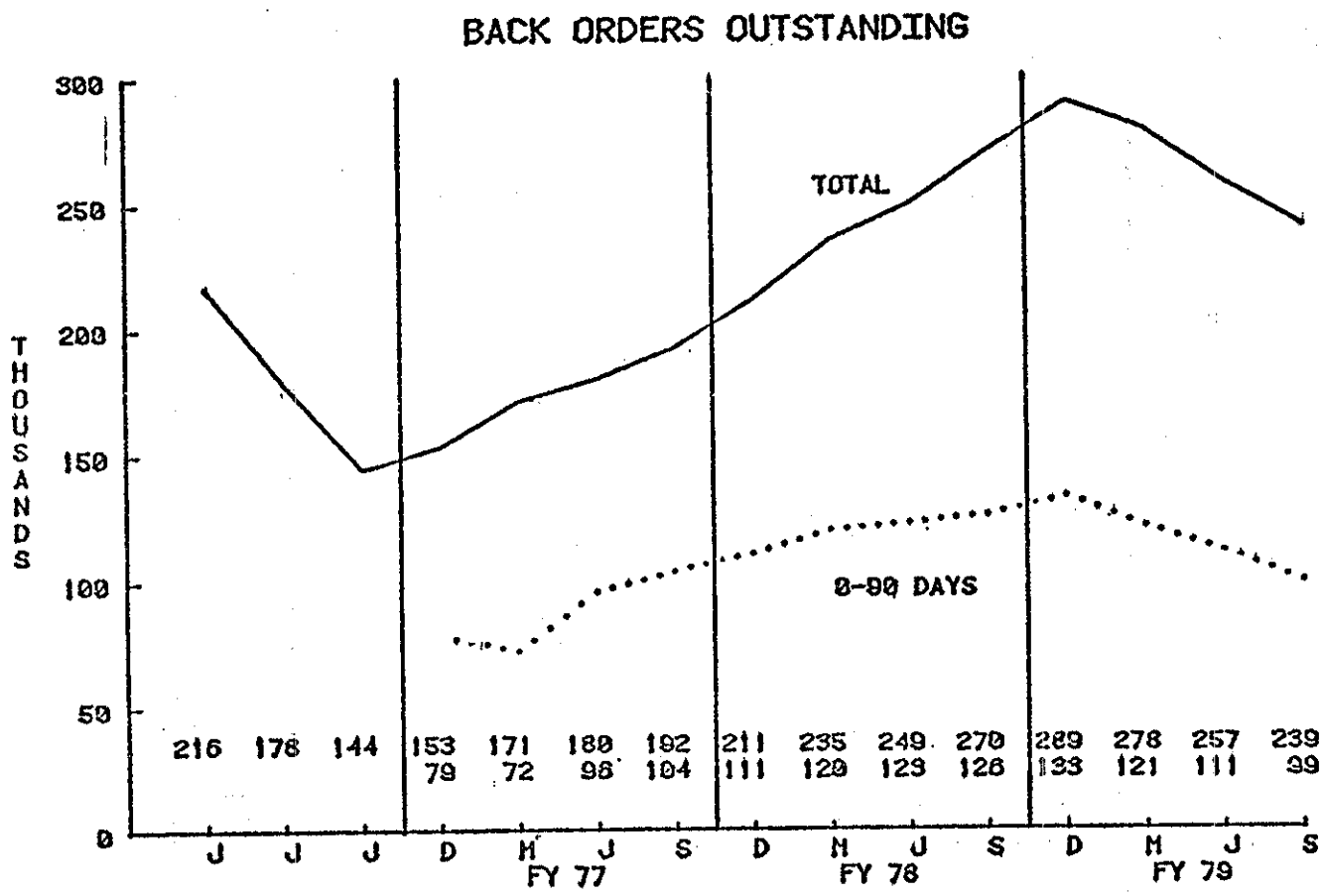

BACK ORDERS OUTSTANDING
THOUSANDS
300
250
200
150
100
50
0
TOTAL
0-90 DAYS
216 176 144 153 171 180 192 211 235 249 270 289 278 257 239
79 72 98 104 111 120 123 126 133 121 111 99
J J J D M J S D M J S D M J S
FY 77
FY 78
FY 79

Figure 6

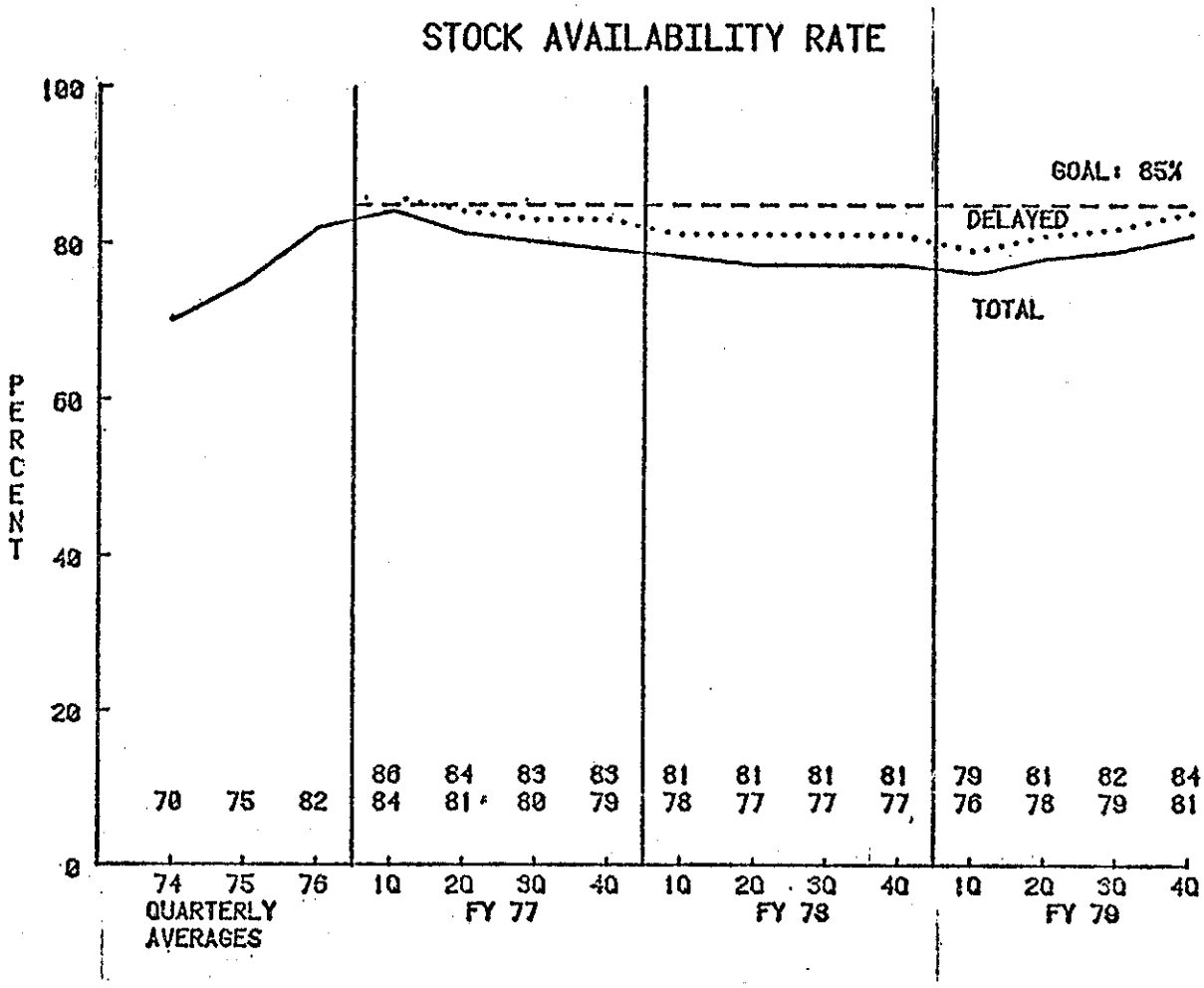

STOCK AVAILABILITY RATE
100
80
60
40
20
0
PERCENT
GOAL: 85%
DELAYED
TOTAL
70 75 82
86 84 83 83
84 81 80 79
81 81 81 81
78 77 77 77
79 81 82 84
76 78 79 81
74 75 76
QUARTERLY AVERAGES
1Q 2Q 3Q 4Q
FY 77
1Q 2Q 3Q 4Q
FY 78
1Q 2Q 3Q 4Q
FY 79

Figure 7

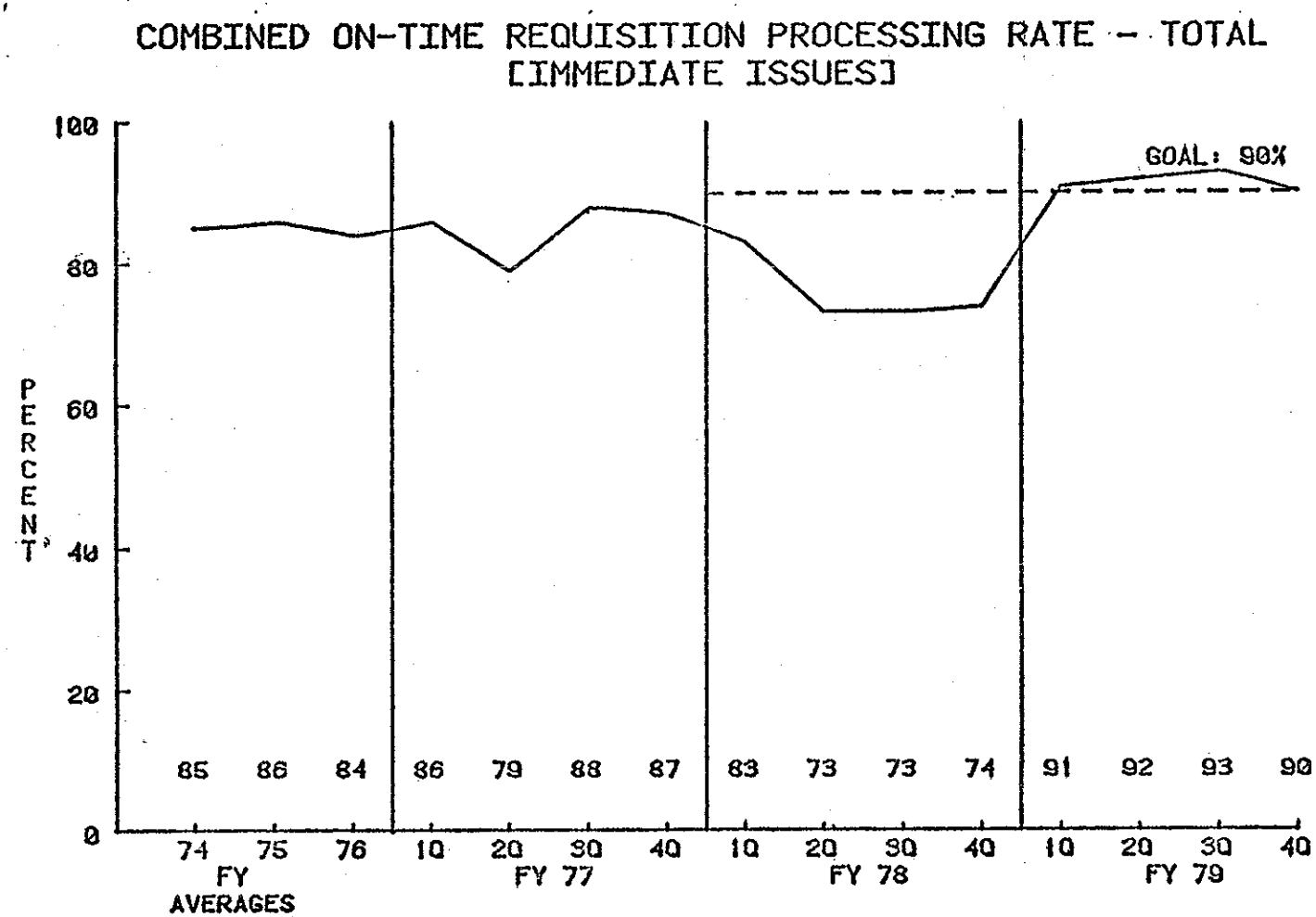

COMBINED ON-TIME REQUISITION PROCESSING RATE - TOTAL
[IMMEDIATE ISSUES]
PERCENT
100
80
60
40
20
0
GOAL: 90%
85 86 84 86 79 88 87 83 73 73 74 91 92 93 90
74 75 76 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q
FY AVERAGES
FY 77
FY 78
FY 79

Figure 8

COMBINED MATERIEL RELEASE DENIAL RATE

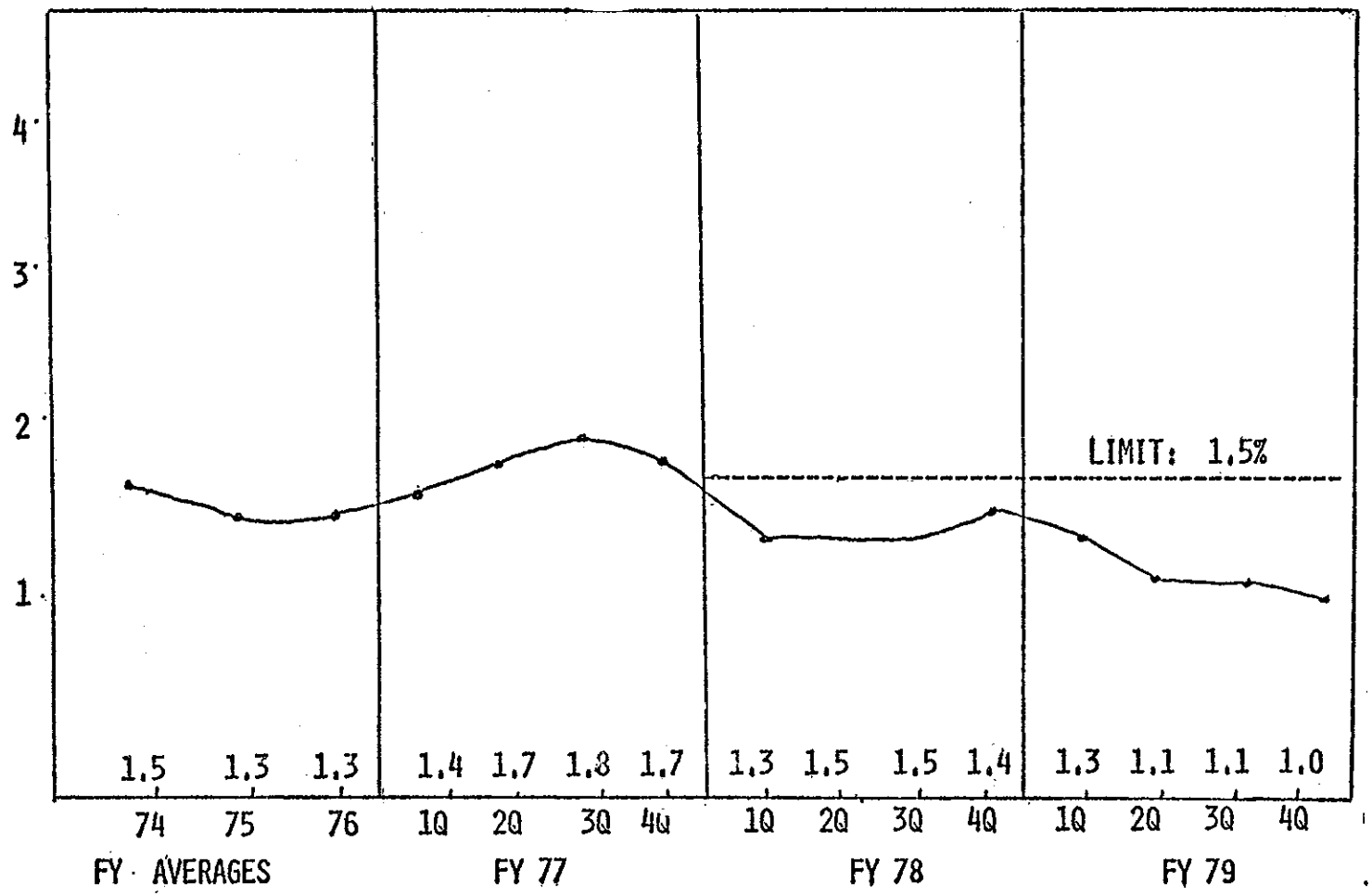


Figure 9

of detailed reviews of individual weapons systems such as XM1, FVS, and M111A2 as they approached deployment proved extremely beneficial in the acquisition process. Overall, improved planning between HQ, DARCOM, the project managers, and the materiel readiness commands was a notable achievement in DARCOM management of the provisioning process during FY 1979.

Skill Performance Aids Program (SPAS)

(U) The SPAS was established as an Army program in December 1978 with an objective of increasing equipment maintenance and training effectiveness through an integrated development and use of improved technical manuals and extension training materials. The Commanding General of DARCOM was made the principal Army program manager of SPAS. Program policy was established in June of 1979, and policies required to meet DARCOM responsibilities were implemented. By year-end, CY 1979, SPAS had already been applied to several fielded weapons systems and to all applicable weapons systems in development. Most notable of the developmental systems placed under SPAS were the XM1 Tank and the XM2/XM3 Fighting Vehicle System.

Care of Supplies in Storage

(U) The COSIS Program has had only limited funding support by DA. In fact, it was totally unfunded in FY 1981, an unacceptable condition for the DARCOM commander. However, DARCOM had consistently provided support within available funds and P7S (supply) priorities from other programs. Without adequate funding, deficiencies cited by the Army Audit Agency in 1973 and by the General Accounting Office in 1978 [5] were expected to continue to exist and worsen. The continuously unfunded COSIS program had increased the risk of deteriorating ammunition and weapons in storage, not meeting intended combat readiness roles.[6]

DARCOM COSIS PROGRAM
($ Millions)

FY	COSIS Requirement	DA Guidance	Actual DARCOM Expenditure
1974	$29.7	$18.6	$18.6
1975	20.7	14.7	14.7
1976	18.1	13.2	13.2
1977	19.4	7.6	12.7
1978	49.8	1.6	12.0
1979	49.9	8.0	12.5
1980	45.7	8.2	8.2 Est.
1981	43.7	0	0

5 AAA Report of Army's COSIS Program, MW 74-64, 13 May 1974.

6 GAO Ltr Report, 13 Jun 78, Management of Army's COSIS Program.

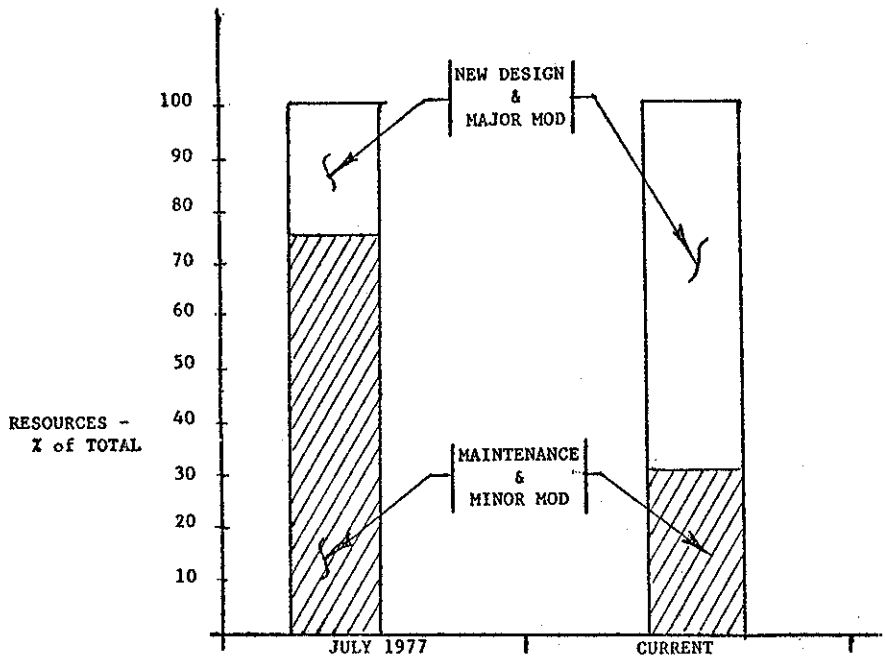
Procurement Work Measurement System

(U) During FY 1979, the Procurement and Production Directorate was developing an automated work measurement system to be based upon engineered standards to be known as the Procurement Automated Manpower Utilization and Projection System (PAMUPS). PAMUPS planned to draw work measurement data from two mini-computer based programs under development, known as the Procurement Data and Document System (PADDS), and the Acquisition Planning and Tracking System (APATS). PADDS and APATS were designed to automate the preparation of procurement work plans and the preparation of solicitations and contracts. PAMUPS was seen as a significant enhancement of the procurement and production program since it required no additional contract specialist input to operate the system. Implementation of the PAMUPS was expected in April 1981.

DARCOM ADP Support

(U) In July 1977, DARCOM began a program of intensive management of the automated wholesale logistics systems: the Commodity Command Standard System (CCSS). This effort was designed to give stability to the logistics system, to provide the users of the system with greater control over changes to the system, and to improve the overall quality of the system change process. At the beginning, the central design activity, ALMSA (Army Logistics Management Systems Activity), charged with the responsibility for design and programming of the system, was dedicating 70 to 80 percent of its resources to systems maintenance and minor changes. During FY 1979, these resources were redirected so that by year-end 70 percent were expended on new design and major modification projects allowing for greater stability to the system and a continuing assist to the subordinate commands in meeting increased workloads within available resources. This was accomplished as a result of direction and guidance of DARCOM Logistics Systems Review Committee (LSRC) composed of HQ DARCOM functional directors and the commanders of the DARCOM Readiness Commands. Continued self-analysis of ADP management was expected to identify additional areas for improvement.

DARCOM ADP SUPPORT



ALMSA RESOURCE APPLICATION

Figure 10

DARCOM ADP for the 1980s

(U) During FY 1979, DARCOM published its blueprint for information processing in the 1980s. It covered the major data processing thrust critical to continued effective support of the DARCOM logistics mission. The architecture thrust was to assure that ADP hardware would be available to permit meeting challenges of the 1980s; extending computing power to the individual DARCOM offices; automation of technical information and drawings for weapons system development and acquisition through implementation of the digital technical data system; and providing ADP direct support of day-to-day functional operations through distributive processing. DARCOM's entire operation, being dependent upon automated support, had to increase productivity of its work force to handle the increased workloads through employing advanced automated support. The ADP blueprint was received as the vehicle permitting ascent to the higher productivity level. DARCOM's expertise in ADP is well recognized within the Army. For example, US Army Europe requested extension of selected portions of DARCOM's Standard Depot System (SDS) to the Miesau Army Depot and DARCOM has agreed in principle to participate with the Army Computer Systems Command in the redesign and development of the Army-wide Standard Financial System.

P7 Maintenance Program Productivity Gains

(U) DARCOM productivity gains in the depot maintenance process resulted in reductions in the rate of increase of the DARCOM backlog of unserviceable equipment requiring maintenance and permitted the application of saved man-hours to other overhaul programs. As a result of increased productivity on the overhaul of M48A3/M48A5 tanks, M113/M113A1 Armored Personnel Carriers, and M60A1 tanks. Approximately 121,000 man-hours and $8.8 million were saved during the year which were applied to other depot maintenance programs.

Manufacturing Methods and Technology Program

(U) The objective of the Manufacturing Methods and Technology (MMT) Program has been to develop or improve manufacturing processes, techniques, and materials to assure timely, reliable, and economical production of materiel. Three types of projects have evolved from the program. Those that develop the most efficient processes for newly developed commodities slated for initial production; those that reduce costs of on-going production; and those that solve specific problems in areas such as safety, pollution abatement, quality, energy, or second source of supply. The following chart shows the known or potential dollar savings from 273 completed MMT projects which netted a $486 million savings from a $201 million investment. Specific identification of return on investment lags

by approximately two years, thus projects shown in each category were initiated in FY 1976 or earlier. MMT funding for FY 1979 was $713 million and was projected to average $185 million per year for 5 years.

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM

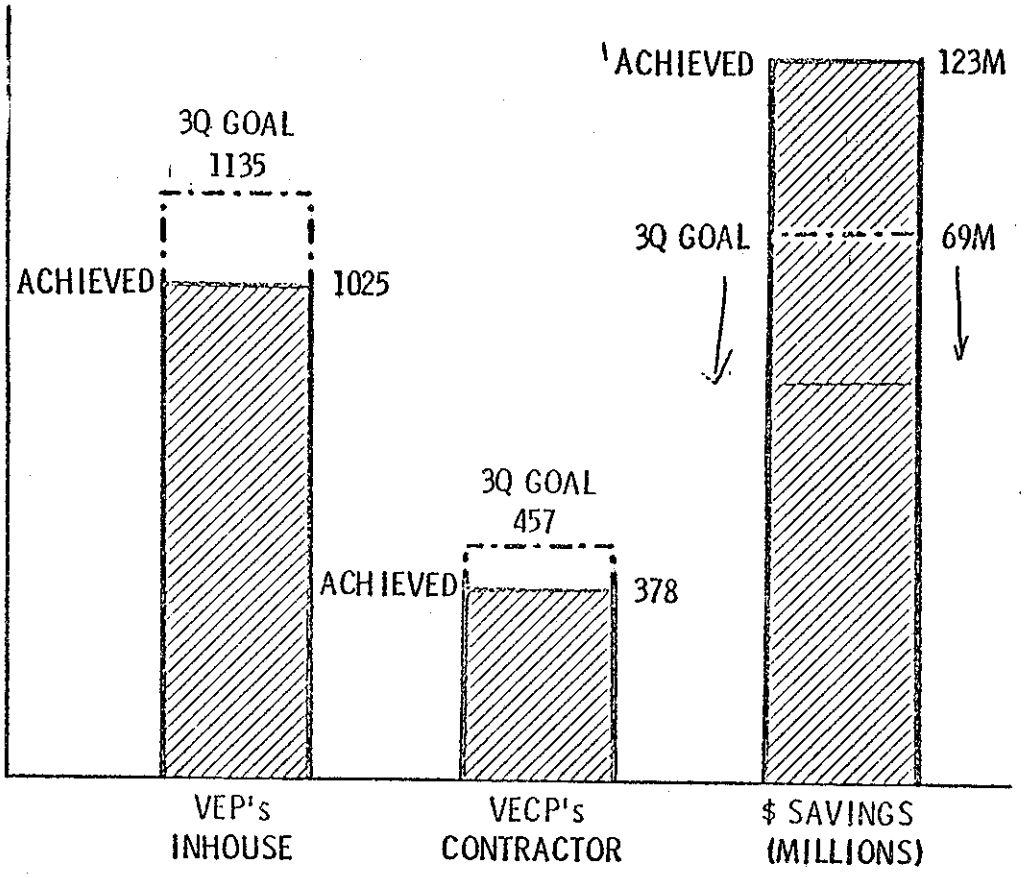
TYPE OF PROJECT	NO. OF PROJECTS	PROJECT COST	IMPLEMENTATION COST*	DOLLAR SAVINGS*
ON-GOING PRODUCTION	78	$39M	$57M	$226M
INITIAL PRODUCTION (POTENTIAL SAVINGS WHERE QUANTIFIABLE)	100	31	0	248
SAFETY, POLLUTION ABATEMENT, QUALITY, ENERGY OR SECOND SOURCE	95	50	24	12
TOTAL	273	120	$81M	$486M

* FY 79 DOLLARS

Manufacturing Methods and Technology Value Engineering Proposals and Savings

(U) The objective of the Value Engineering (VE) Program has been to eliminate "gold plating" from hardware, production processes or series acquired by DARCOM. All subordinate commands, depots, and project managers are required to conduct value engineering both in-house and through their contractors. The number of new VE proposals (in-house) and VE change proposals (contractor) received, and the savings reported for the first three quarters of FY 1979 exceeded prior year accomplishments. Total savings in FY 1979 were $176 million, the best in Federal Government. FY 1979 was expected to exceed all FY 1978 records. See chart that follows.

MANUFACTURING METHODS AND TECHNOLOGY
VALUE ENGINEERING PROPOSALS AND SAVINGS



Acquisition/Adaptation of Commercial Products

(U) The objective of the MACI (Military Adaptation of Commercial Items) has been to adapt commercial items to meet military requirements thus eliminating research and development costs and affording opportunities for obtaining commercial logistics support of fielded equipment. The program has ranged from $6.4 million in FY 1972 to $16.1 million in FY 1979.

Funding for the next five years was planned at approximately $16 million per year. The XM915 line haul tractor was adopted for military use through a MACI project and was procured in FY 1979. A topographical support system for making maps in the field was procured in FY 1979 under the pilot DOD-ADCP (Acquisition and Distribution of Commercial Products) Program, a program for non-development item acquisition.

Program/Project/Product Managed Items Realigned-Reduced

(U) During calendar year 1979 there was a reduction of the number of Program/Project/Product Management Offices from 65 to 56. The following changes were expected to result in more effective management of the overall DARCOM mission.

Total number, 1 January 1979	65
ESTABLISHED:	3
1. PM, Advanced Scout Helicopter	
2. PM, Remotely Piloted Vehicle	
3. PM, Test Measurement and Diagnostic Systems	
MERGED:	-4
1. PM, M60 Production/PM, M60 Development into PM, M60 tanks	
2. HAWK/KUWAIT-JORDAN into PM, HAWK Weapon System	
3. PM, Firefinder & PM, REMBASS (Remotely Monitored Battlefield Sensor Systems) into PM, Firefinder/REMBASS	
4. PM, HELLFIRE and PM, GLD into PM, HELLFIRE/GLD (Ground Laser Designators)	
TERMINATED:	-5
1. PM, Airborne Warning Control	
2. PM, Army Container Oriented Distribution System	
3. PM, Iranian Aircraft Program	
4. PM, Selected Ammunition	
5. PM, M110E2	
IN PROCESS OF TERMINATION	-3
1. PM, 2.75" Rocket	
2. PM, High Energy Laser System	
3. PM, Munitions Production Base Modernization and Expansion	
Total on 1 January 1980	56

Advanced International Military Rationalization, Standardization, and Interoperability Program

(U) The HQ, DARCOM Office of International Research and Development, through effective management techniques, attained a major milestone in advancing international military Rationalization, Standardization and Interoperability programs with the revision of AR 34-1. The result was significant in that the revised regulation established firm controls of United States commitments to the working groups, panels and committees of NATO and other allied nations. In the regulation, specific and detailed responsibilities were assigned to DA components. Follow-on implementation and execution was expected to achieve, in conjunction with US allies, a more effective defense capability.

Calibration Support Mission

(U) The Vice Chief of Staff Army approved a DARCOM study recommendation to combine A and C level calibration and repair of test measuring and diagnostic equipment (TMDE) into a single world-wide organization operated by DARCOM. The program involved phased assumption of the mission as follows: Phase I - USAREUR - 1 October 1979; Phase II - Pacific 1 October 1980; Phase III - CONUS 1 October 1981-1982. Preparation for assumption of the mission went smoothly and DARCOM took over operation and control of all TMDE calibration and repair assets in Europe, except for Italy, prior to 1 October 1979. On 1 October 1979, the US Army TMDE Support Agency, Europe was activated. DARCOM was allocated 478 military and civilian spaces and approximately $2.77 million to accomplish the mission. Planning for Phase II was on target at the end of calendar year 1979.

Toxic Chemical Munition Count Savings

(U) An item-by-item count of the toxic chemical munitions which was to have been conducted over a five-year period at a cost of $26 million, was rescheduled to be done in three years at a cost of $16 million. The savings resulted from a DARCOM innovation which applied the use of X-rays to verify the presence of munitions thus eliminating the need to have each chemical item physically unpacked, counted, and then replaced.

Joint Service Guidance

(U) DARCOM was very active during FY 1979 in the development and dissemination of Joint Service Guidance for use by the military departments, Defense Logistics Agency, and the Defense Industry relative to cost/schedule management of non-major contracts. This was true cost related to the Defense Industry, regarding the application of Cost/Schedule Control Systems Criteria (C/SCSC) to production. Such guidance was issued on 1 November 1978. Correspondingly, HQ, DARCOM prepared and disseminated guidance to all major subordinate commanders, project managers,

corporate laboratory directors, the commandant of the Army Logistics Management Center, and the director of the Army Management Engineering Training Activity. This guidance was issued 9 April 1979 and required emphasis on engineering cost control in all aspects of materiel acquisition as well as the appropriate use of C/SCSC and C/SSR. Also, renewed emphasis was placed upon the use of guidance contained in DARCOM-R 715-2, Cost/Schedule Control and Information Systems for use in the acquisition process. These actions have had significant impact upon the procurement acquisition process within DARCOM and the Army. On site management reviews of contractor plants-- twenty reviews conducted in FY 1979--have been made to assure effective application of the guidance to major Army contracts.

Energy Consumption

(U) DARCOM reduced total energy consumption by some 28 percent primarily through low or no cost conservation means. The President's emergency building temperature and hot water restrictions program was another such low cost conservation initiative that was implemented throughout the command. There remain few such cheap areas for energy conservation to implement. However, two programs have proven to hold promise for future energy conservation. They are: Energy Engineer Analysis Program (EEAP) and the Coal Conversion Program. The EEAP projected that by the end of FY 1980, 32 of DARCOM's largest energy consuming installations would have energy conservation and consumption studies underway, the purpose of which would be to produce energy savings by revealing feasible energy conservation projects, to include consolidating facilities or floor space.

(U) The DARCOM coal conversion program aimed at the reduction of oil consumption by 75 percent and the elimination of natural gas for facilities operations by the year 2000. The program called for major conversions of 23 DARCOM installations by FY 1995 at a cost of (FY 1979) $561 million. One of the first conversions scheduled was the Red River Army Depot, the Army's energy showcase installation. Red River, together with the Lone Star Army Ammunition Plant were planned to be models for numerous energy initiatives for Army display and training.

DARCOM Pollution Abatement Military Construction Program (MCA)

(U) Looking at DARCOM MCA projects over several fiscal years, it was readily observed that DARCOM had spent an average total of 41 percent of military construction appropriation dollars on pollution abatement projects. (See chart below) Because DARCOM had the Army's largest category of polluters under its blanket, the industrial base, it had to apportion a high percentage of its construction dollars for pollution abatement projects. This was at the expense of sorely needed mission, safety,

DARCOM POLLUTION ABATEMENT
MILITARY CONSTRUCTION PROGRAM
(MCA)

FY	DA MCA ($M)	DARCOM MCA ($M)	DARCOM ENVIRONMENTAL PROJECT COST ($M)	DARCOM ENVIRON. % OF DARCOM MCA	DARCOM ENVIRON. % OF ARMY MCA
1970	373	31	6.5	21	2
1971	565	36.2	9.8	27	2
1972	461	73.7	52	71	11
1973	625	74.7	43	58	7
1974	679	53.2	10	19	1.5
1975	659	44.9	3.6	8	0.5
1976	812	57.5	26	45	3
1977	626	63.7	38	60	6
1978	619	106.6	3	3	0.5
1979	762	111.6	50	45	6.5
1980	722	141	59.5	42	8.2
1981	1055	159.6	86.8	54	8.2
1982	940	204.8	88	43	9.5
TOTALS	8898	1158.5	476.2	41	5.3

security and quality of life projects. Since FY 1978, pollution abatement projects have been recognized as and handled as a separate category. Besides MCA, other funds were being spent on pollution abatement within the command. (See chart below). Note that DARCOM took the lead early, and by 1977 had spent over $300 million. Projected through FY 1985, DARCOM was to have spent close to $1 billion to comply with environmental laws.

POLLUTION ABATEMENT FUNDING SUMMARY
(000,000)

FUNDING CATEGORIES	PRIOR YEARS	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
Design/Construction (MCA PAA, OMA, AIF)	285.3	31.7	81.9	137.8	90.2	89.6	2.1		
MFG Methods/Tech (PAA)	27.5	1.0	3.6	1.9	2.8	1.5	1.5	1.5	1.5
Research & Development (ROTE)	10.4	2.4	3.1	3.4	3.4	3.6	5.7	6.3	6.3
Installations Restoration (OMA)	15.7	10.4	17.4	14.7	15.3	13.8	15.1	15.9	15.9
Environ Management (OMA)	2.1	3.2	6.6	6.6	6.0	5.5	5.5	5.5	5.5
TOTAL (Cumulative)	341.	390	502	667	784	898	928	958	987

Equal Employment/Affirmative Action Programs

(U) Women in the DARCOM work force had increased from 25.8 percent to 28.5 percent during the period from 30 September 1977 through 30 June 1979. Minorities during this period remained constant at 15 percent. During FY 1979, DARCOM achieved 6 of 8 goals for women and 2 of 7 goals for minorities. The greatest shortfall was in the promotion to GS-13 and above categories where none of the goals were met for women or minorities. In the wage grade area, all goals were met for both women and minorities. (See chart below). The representation of women in the GS-9 through GS-12 categories increased during the 3-year period 1977-1979 and goals were exceeded in these categories. Whereas, the representation of minorities in the GS-9 category has decreased while the representation of minorities in the GS 11-12 categories increased during this period, but goals were not met in either of these categories. The wage grade posture for both minorities and women reflected excellent progress in relation to established goals. Trends were up and all goals established were met.

GOAL ATTAINMENT FOR WOMEN AND MINORITIES

(As of 30 Jun 79)

	WOMEN		MINORITY	
	GOAL (%)	ATTAINMENT (%)	GOAL (%)	ATTAINMENT (%)
IN TOTAL WORK FORCE	26.4	28.5	16.1	14.9
GS-9	25.8	26.8	14.1	13.1
GS 11-12	12.6	13.0	9.4	9.2
GS 13-14	4.5	3.0	6.1	5.5
GS 15-17	2,3	0.62	4.7	3.2
WG Positions	6.6	7.0	None Established	21.5
WG Supv.	0.4	0.79	15.5	15.5
WL and Above	0.7	0.86	12.7	13.9

Problems

(U) While DARCOM had major accomplishments during FY 1979 and earlier, there had also been several problems, some of which remained unsolved, which were impacting on the DARCOM mission. These were of great concern to GEN Guthrie, the DARCOM Commander.

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Delayed Release of OMA-AFP Funds

(U) Each fiscal year DARCOM has been required to submit an OMA obligation plan to Headquarters, DA/OSD that reflected an orderly execution of DARCOM OMA missions within DA guidance. These plans have been subjected to major changes and shifts in emphasis on financing activities throughout each year as a result of late releases and receipt of funds. This practice has unnecessarily complicated execution of approved programs. DA has continuously approved programs for execution and then delayed issuing the necessary funds for execution. At the beginning of FY 1979 DA approved a direct OMA program of $2.223 billion and requested a monthly obligation reflecting this total level be submitted to them by December 1978.

(U) Included in the approved program was $119 million for pay raises ($73 million), camouflage screens ($17 million), first destination transportation ($25 million) and bachelor housing furnishings ($41 million). However, the initial Fund Authorization Document (FAD) from DA in November, which provided the obligation authority to execute the OMA programs, totaled $2.105 billion, and DARCOM did not have the funds to finance the $119 million in authorized over-programming for pay raises and other deferrals. Later DA authorized another program net increase of $10 million for pay of people and the initial plan was updated to a revised total of $2.233 in February. During this period, DARCOM was short by $126 million to finance approved programs totaling $2.233 billion. This disparity between approved programs and funding continued throughout the first half of the fiscal year. Financing of all approved programs did not occur until August 1979.

(U) DARCOM closed out FY 1979 with an approved annual funding program of $2.227 billion on the FAD. This was a net $6 million less than the approved program in the February obligation plan and was due to DA withdrawals of $9 million in P7M price increase, $3 million in P2 camouflage and $3 million in P81 training, offset by an increase in OMA P7S of $9 million for depot operating for single managers, for ammunition ($2 million), toxic chemical inventory ($ 4 million), rewarehousing of ammunition ($2 million), and industrial preparedness operations ($1 million). The delay in releasing OMA-AFD funds results in: disruption to the normal execution of plans coordinated with 44 DARCOM commands and installations; continued reprogramming and deferral of activities to out months in order to finance non-deferrable costs; continued realignment of funds to preclude fund deficiency/statutory violations; and requirements for providing detailed deviation analyses to Headquarters, DA for not obligating as planned.

Army Management System (AMS) - Planning, Programming, Budget System Disconnect (PP-BS)

(U) Because the AMS structure has been force oriented, there has been no viable method or procedure for capturing costs applicable to the fielding and operation of weapons systems. No OMA program requires capturing costs to fielding or operating a weapons system. The FY 1982-1986 Army Guidance required each Major Army Command to accumulate and report costs incurred to field and operate B5 weapons systems. Neither the AMS nor the Five-Year Defense Program (FYDP) (both force oriented) was organized to allocate or account by weapons systems, yet, DARCOM must allocate a percentage of daily activity against each system. This method is not exact or based upon empirical data. Yet Headquarters, DA uses the data to increase or decrease actual DARCOM resource allocations. For example, during FY 1981-1985 Program Development, the difference between OMA resources provided and actual requirements was $92 million. A subsequent plus of $45 million was provided. DA had not developed a methodology of determining or allocating what part of daily activity at logistics activities are applicable to each of the 135 weapons systems. DARCOM programs/budgets,and spends in accordance with the AMS, thus has had no method to capture costs by system. It was thought that this problem would require changes to the AMS structure to assure that cost data could be collected in such manner as to permit accumulation of costs applicable to weapons systems fielding and operation. DARCOM so advised DA.

Updating Sets, Kits, and Outfits (SKO)

(U) An Army-wide initiative to re-establish property accountability surfaced problems in the Central Management and funding of items to update sets, kits, and outfits (SKOs) DARCOM was tasked by HQDA in December 1977 to develop a program that involved central funding of items required to update SKOs. DARCOM submitted a plan in January 1979 which indicated a requirement for 127 additional spaces for implementation. HQDA requested implementation of the program within existing space authorizations. Sufficient spaces are not available to implement the plan. A revised program was submitted to HODA outlining a preferred and an alternate program. The preferred method called for DARCOM to update the SROs and for HQDA to bulk fund the major subordinate commands. Users would submit funded requisitions citing appropriate funds to obtain the required items. The alternative provided for the update of the Procurement Appropriation Army funded SKOs on a non-reimbursable basis. The alternative proposal required 55 additional spaces as well as dollar resources for implementation. Both proposals were being staffed at HQDA at the end calendar year 1979.

People Programs

(U) In regard to what he liked to call people programs, General Guthrie believed that DARCOM had achieved a great measure of success, but believed that there was a great deal more to be done. The new Civil Service Reform Act (CSRA) passed in 1978, offered great opportunities and challenge for the improvement of the management of DARCOM in the commander's view. This was also true of the redesigned Officer Evaluation Report (OER). In the view of General Guthrie, both of these offered the command manager the opportunity to focus the proper degree of attention to the people side of the house, to take a new look at the DARCOM mission goals and objectives and tie individual performance to the measurable organizational output. The DARCOM Commander believed that DARCOM needed to lead in fostering understanding about and stress proper implementation of both CSRA and OER. General Guthrie was firm about the need for continuing the provision of the best possible training for DARCOM's scarce people resources. In that regard, the DARCOM Commander had recently authorized the opening of a Learning Resource Center so that many more people could be trained, and more efficiently, allowing people to grow and productivity to grow.

(U) DARCOM also reestablished the Upward Mobility Program that compelled managers to design for each individual a meaningful development plan allowing for personal growth. Also, DARCOM continued to place emphasis upon the affirmative action and Equal Employment Opportunity Program.

Trends *

Security Assistance Program

(U) The FY 1979 obligations were on target as of 30 September 1979, and consistent with the funding constraints imposed by DOD. USASAC's FMS (Foreign Military Sales) annual funding requirement for FY 1979 was $18.5 million. The DOD funding constraints lowered USASAC's funding to $16.9 million,a reduction of $1.6 million.

(U) The FY 1980 annual funding program projected USASAC's operating costs of $21.1 million, plus $675 thousand for ROID's (Report of Item Discrepancy) processing. Total projection for FY 1980 was $21.8 million. The Defense Security Assistance Agency (DSAA completed the review of the Army budget submission and approved an FY 1980 funding level of $78.8 million for FMS administration expenses. This was a 20 percent reduction in the requested budget. Interim funding was provided to USASAC amounting to $3.6 million. USASAC's projected fund requirements for the first quarter was $4.2 million. Action was taken to obtain the additional $.6 million from DA. With the funding constraint imposed during FY 1980, USASAC's operation would be reduced to an austere level.

* Material in the Trends portion of this chapter has been extracted from the 4th Quarter FY 1979 CPIR, distributed by the Review and Analysis Division, HQ DARCOM Comptroller Office, 30 Nov 1979.

(U) Beginning with FY 1980, USASAC would assume responsibility for receiving and processing all Army FMS ROIDS. This would result in additional funding requirements for ROIDS valued at $100.00 or less. Previously, funding for ROIDs in this category was accomplished by SAAC located at Denver, Colorado.

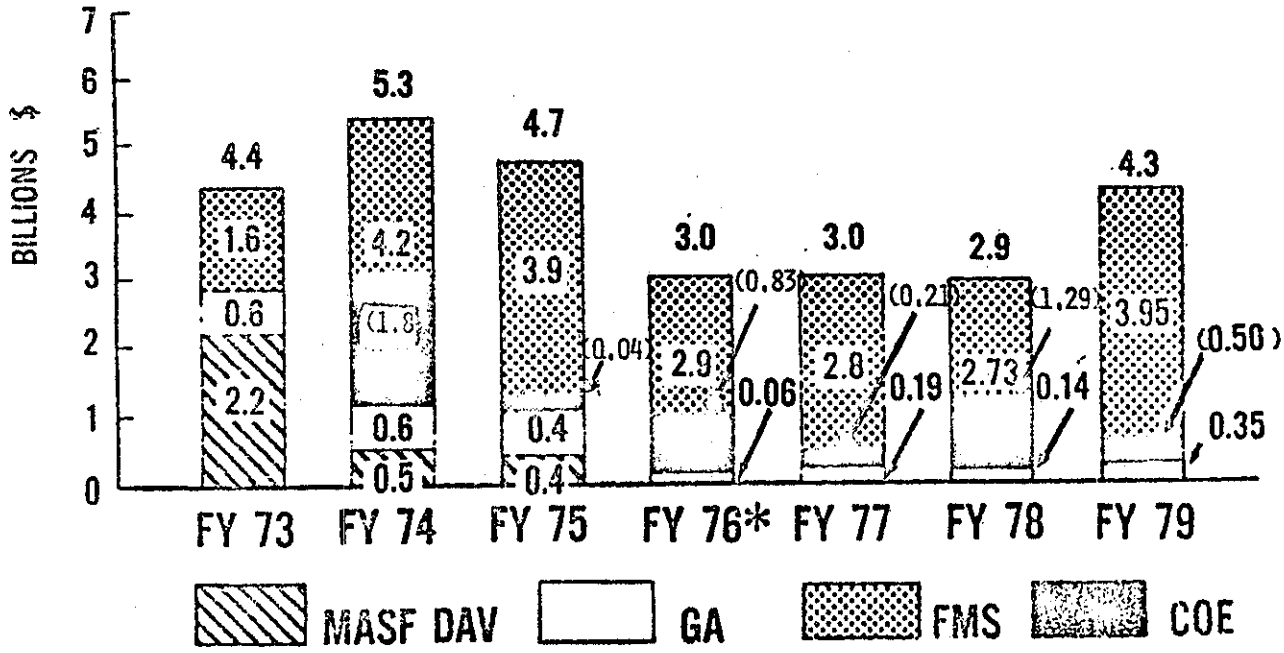
(U) The house recommended a reduction to the DOD appropriations Bill for FY 1980 by $65 million on the basis that DOD was railing to collect reimbursement from foreign governments on Foreign Military Sales by not charging them for a share of the contract administration services performed by DOD personnel. DARCOM's proportionate reduction was approximately $6 million, according to an estimate by the DARCOM Comptroller. An adjustment in the FY 1980 FMS budget was not made, since at the time the budget was formulated, Congress was in conference on the appropriateion. The Congressional action/recommendation was after the budget was formulated. Further action would be contingent upon DSAA guidance.

SECURITY ASSISTANCE

30 SEP 79

NEW BUSINESS CUMULATIVE

*INCLUDES FY 7T



(U) New business in the amount of $4.3 billion was experienced through the end of the fiscal year 1979. At the end of 3d quarter, the figure stood at $1.6 million. A significant portion of the new business was attributed to the acceptance of a Saudi Arabia National Guard Modernization program case for $1.2 billion and several cases for Israel amounting to $.6 billion. FMS cases for the Corps of Engineers Construction Program account for $.5 billion of the new business. FMS business was still booming, as illustrated in the preceding figure.

(U) Other countries that had large implementations for the 4th quarter, FY 1979 were as follows:

Germany	$29.8 million
Jordan	27.1 million
Korea	20.5 million
Saudi Arabia (Army)	78.1 million
Saudi Arabia (COE)	412.0 million
Switzerland	47.4 million
Thailand	17.6 million
Turkey	10.0 million
Taiwan	19.4 million
	$661.9 million

(U) Efforts to reduce the number of high priority requisitions submitted by Security Assistance customers resulted in a reduction from 31 percent as of the end of FY 1978 to 14.5 percent to the end of FY 1979. High priority requisitions appeared to have leveled off at approximately 16 percent which was considered successful. (See Figure 11)

(U) Figure 12 indicates the open Military Assistance Program (MAP) Grant Aid as of the end of FY 1979, broken into three categories. Line 1 reflects the open value for current recipient countries (Spain, Portugal, Greece, Philippines, and Jordan). Line 2 reflects the open value for the countries of Indonesia and Thailand which were terminated in FY 1978. There were about $39.3 million in undelivered program for these countries and delivery was to be made by 30 September 1981. Line 3 reflects the open program for those countries terminated during FY 1977. There was about $66.9 million in open program of which approximately $33.7 million was open for supply. The remainder of $33.2 million represents open billing. Looking at FY 1977 terminated countries in more detail.

(U) Figure 13 reflects the status of requisitions for countries terminated in FY 1977. The 1st, 2d, 3rd quarter and particularly the 37 requisitions reflected under the 4Q80 forecast were being closely managed to insure delivery by 30 September 1980. The 74 requisitions listed under the column headed "other" represented 47 requisitions which were unforecast and 27 which were forecast for delivery subsequent to the 30 September 1980 cut-off date.

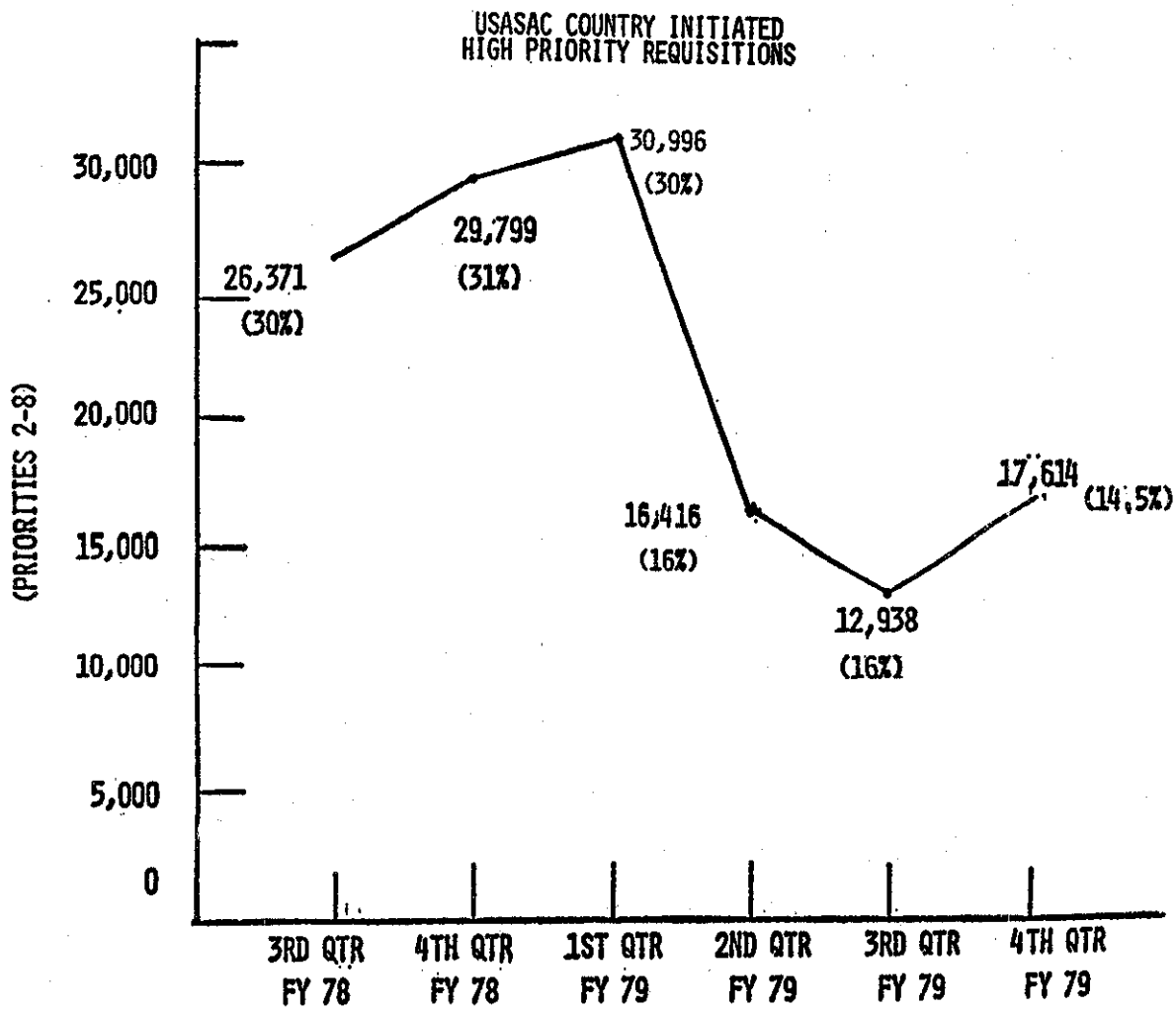

USASAC COUNTRY INITIATED
HIGH PRIORITY REQUISITIONS
(PRIORITIES 2-8)
30,000
25,000
20,000
15,000
10,000
5,000
0
26,371
(30%)
29,799
(31%)
30,996
(30%)
16,416
(16%)
12,938
(16%)
17,614
(14.5%)
3RD QTR
FY 78
4TH QTR
FY 78
1ST QTR
FY 79
2ND QTR
FY 79
3RD QTR
FY 79
4TH QTR
FY 79

Figure 11

MAP GRANT AID PROGRAM SUMMARY
OPEN/UNBILLED VALUE
(MILLIONS)

COUNTRY CATEGORIES	77 & PRIOR	78	79	TOTAL
1. CURRENT RECIPIENT COUNTRIES	78.9	57.4	68.7	205.0
2. COUNTRIES TERMINATED FY 78	28.5	10.8	0	39.3
3. COUNTRIES TERMINATED FY 77 & PRIOR	66.9	0	0	66.9
TOTAL	174.3	68.2	68.7	311.2

Figure 12

GRANT AID
STATUS OF UNDELIVERED PROGRAM
(FY 77 TERMINATED COUNTRIES)

			FORECAST				
MRC	NO.RQNS.	$ VALUE	1Q80	2Q80	3Q80	4Q80	OTHER*
ARRCOM	200	9,025,767	109	24	32	12	23
CERCOM	310	15,857,608	162	48	43	7	50
MICOM	43	631,322	32	10	--	1	--
TARCOM	385	4,860,671	219	144	8	14	--
TSARCOM	53	3,923,302	42	3	4	3	1
TOTAL	991	34,298,670	564	229	87	37	74

*FORECAST BEYOND TERMINATION DATE OR UNFORECAST

Figure 13

Readiness

(U) Prepositioning of Materiel Configured to Unit Sets (POMCUS). The goal of having 100 percent of the units in the current POMCUS Force at C-1 in equipment on hand (EOH) by 30 September 1979 was not met.

(U) Some of the systematic reasons for failing to meet POMCUS goals were as follows:

(U) Certain marginal estimates of projected equipment availability contributed to some of the units not achieving C-1. Based upon best estimate, equipment was projected as being in country by a certain date, when in fact it was only available for release. Requirements for QA (Quality Assurance) inspections, preservation and packing, and transportation would then affect the actual delivery date of the equipment. The bottom line was that timing was off on some items.

(U) Requisition reconciliation problems affected the delivery of the equipment. The theater Army Materiel Management Center (TAMMC) failed to reconcile all POMCUS requisitions and as a result, requisitions for certain items were cancelled automatically when some equipment had already been released for shipment. The determination of what had been cancelled and the requirement to resubmit new requisitions further eroded lead time.

(U) There were slippages in the USAREUR tarp program due to higher washout rates than expected. This increased the demands upon the wholesale system for items which (in some cases) were not available to begin with: 5-ton cargo trucks were a prime example.

(U) The late requisitioning of Army stock funded (ASF) items contributed to the nonavailability of many items, particularly for CERCOM. The Combat Equipment Group Europe (CEGE) was not provided P-2 funds with which to requisition ASF shortages until April 1979. Therefore, most of the POMCUS ASF items were not requisitioned until May. On the other hand, early requisitions by other claimants such as FORSCOM for these same items depleted much of the available stock.

(U) Force Status and Customer Assistance. Major combat units of WESTCOM (25th Inf. Div.) and Eighth Army (2nd Inf. Div.) continued to accomplish assigned Authorized Level of Organization (ALO) for both Equipment on Hand (EOH) and Equipment Status (ES). FORSCOM and Europe trends were not that good. For example, FORSCOM major combat units achievement of their assigned ALO for equipment on hand remained constant at 50 percent for the 3d and 4th quarters, FY 1979. Divisional fire support and support battalions which failed to accomplish their assigned REDCON (Readiness Condition) were the problem. A variety of equipment shortages were impacting, such as personnel carriers, VULCAN ADA system SP M163, Howitzer 155mm SP M109, communication equipment, and recovery vehicles M88A1.

(U) Half of FORSCOM major combat units failed to achieve their assigned ALO in equipment status. NORS (Not Operational Ready-Supply) requirements for major components for the TOW carrier, Howitzer M109, Howitzer M110 were the primary problems causing unit degradation.

(U) The FORSCOM nondivisional combat support/service support units reporting continued to reflect an improvement in the achievement of equipment on hand. Forklifts, cranes and trucks were the primary shortages.

(U) On ES, 119 combat support/service support units in FORSCOM failed to achieve their REDCON. Transportation companies (wheeled vehicles), CS and engineer companies were the bulk of failing units. The primary contributing factor was excessive backlog in organizational and direct support shops. The second major contributing factor was repair parts which had shown some improvement during the final quarter, FY 1979.

(U) USAREUR had one major combat unit down in EOH, the 3d BDE 2d armor. Shortages of communications equipment (VRC 46s and PRC 77s) and semi-trailers continued to bring the unit posture to C4. However, at the close of FY 1979, all ten major combat units in USAREUR achieved their assigned ALO for equipment status (ES). An existing maintenance backlog had been eliminated.

(U) (U) Combat support and combat service support units in USAREUR that achieved their assigned REDCON in EOH included 258 units of 289 reporting. Major contributing factors causing the readiness degradation were communication and engineering equipment shortages. USAREUR combat support/service support units in ES category dropped by 2 percent to 87 percent. Causes for readiness degradation continued to be NORS requisitions for M880 series vehicles. This problem was expected to be overcome within approximately 90 days.

Supply Effectiveness

(U) Requisitions Received. In the 4th quarter, total requisition volume declined by 51,000 from the third quarter, which was the DARCOM peak quarter for the second year in a row. Requisitions for stocked items, those items for which DARCOM should have depot stock, declined by 45,000 from that third quarter peak. Still, requisitions for stocked items represented 92 percent of total. This end of the fiscal year decline in volume was normal. In October, the volume was back to 79 monthly average. In FY 1979, total requisitions amounted to 3,451,000

(U) In the 4th quarter, all NICPs (National Inventory Control Points) had declines in volume, with TARCOM having the largest decline (7 percent). For FY 1979, all NICPs declined from FY 1978 volumes except TARCOM which increased about 40,000 (3 percent). The TARCOM increase was primarily due to National Guard and Reserve, and to Europe. The high priority requisition list for October 1979 was as follows:

TARCOM	153,429	+ 17,793
ARRCOM	46,080	- 11,344
TSARCOM	52,151	+ 6,944
CERCOM	30,194	- 3,873
MICOM	12,664	- 4,106

(U) Distribution Effectiveness. 4th quarter FY 1979 distribution effectiveness, a measurement of DARCOM shipping to customers from the designated area-oriented depots, declined by 4 percent to 77 percent. This was caused by an error in computer programming--changes made in May to accommodate the nongeographic customer address code concept. This error resulted in requisitions from major units located in Kentucky, primarily Ft. Knox and Ft. Campbell, being supported from New Cumberland instead of Red River; and Michigan and Wisconsin units being supported from New Cumberland instead of Red River. Full correction of this error was expected by the end of the 1st quarter FY 1980. In October 1979, distribution effectiveness was up to 79 percent. The 4th quarter loss did not effect shipments to Europe which hend at 82 percent in September and improved to 35 percent in October 1979.

(U) Europe ALOC-OST. DARCOM and DLA Order and Ship Time (OST) to Europe via ALOC generally improved during the 4th quarter, FY 1979 and was in the mid 20s. GSA involvement in ALOC in terms of lines shipped was relatively small, and consequently no conclusive trend could be determined.

(U) The overall Army DSS (Direct Support System) OST to Europe increased during the 4th quarter. The increase was attributable to increases in time spent handling materiel after it was received in Europe. This problem was addressed during the recent DA IPR of DSS/ALOC Europe with corrective action undertaken.

(U) OST ALOC - Korea. Order and Ship Time to Korea via ALOC continued to improve in the 4th quarter FY 1979 for both DARCOM (standing at 24 days) and DLA, while GSA performance deteriorated slightly. As with Europe, GSA involvement with ALOC is relatively small. The improvement in OST to Korea was primarily the result of the emphasis that Korea commanders placed on on-time processing of materiel received.

(U) OST to Korea, exclusive of ALOC, also improved in the 4th quarter FY 1979 (standing at 58 days). Again the increased emphasis in Korea was prime reason for the reduction. In January 1979, the ALOC OST to Korea had been 31 days and OST exclusive of ALOC stood at 76 days. Substantial improvements had been made in both areas.[7]

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7 See HQ DARCOM CPIR, Div of Readiness, 4th quarter, FY 1979, in Archives of HQ DARCOM Historical Office, (Charts 16 and 16A).

(U) Stock Availability. Overall stock availability rose to 81 percent in the 4th quarter, FY 1979. This was the highest availability since the 1st quarter of FY 1977. The steady improvement during the last three quarters was generally driven by increased receipts and stabilizing demands, with a subsequent improved stockage position at most Materiel Readiness Commands (MRCs). The FY 1979 overall stock availability was 78 percent, which was 1 percent above the FY 1978 average. Delayed stock availability rose 2 percent in 4th quarter, FY 1979, again due to improving receipts. The FY 1979 average was 82 percent (1 percent above FY 1978). In October, availability continued at 81 percent and delayed availability stayed at 84 percent.

(U) Stock Availability - NICPs. TARCOM stock availability increased by 3 percent to 82 percent in the 4th quarter, FY 1979. TARCOM's delayed stock availability also rose 2 percent and reached 84 percent. ARRCOM stock availability also increased by 3 percent to 80 percent, and by 2 percent to 83 percent in delayed availability. ARRCOM and TARCOM attribute the improvement to increased receipts of materiel and to intensive management. TSARCOM stock availability remained at 84 percent, and delayed stock availability rose 1 percent to 88 percent. TSARCOM analysis indicated that performance on 8 short supply items prevented them from reaching the 85 percent goal. CERCOM stock availability declined 1 percent to 78 percent in the 4th quarter, while delayed stock availability declined 2 percent to 82 percent. CERCOM stated that the emphasis on obligations caused a reduction in follow-ups of procurement and a subsequent slow-down in receipts, which adversely affected availability. MICOM stock availability jumped 6 percent to 76 percent for the 4th quarter, FY 1979, and delayed availability rose 3 percent to 81 percent. MICOM attributed most of the gain to increased intensive management of high volume items.

(U) Stock Availability Rate - NORS. NORS stock availability improved 2 percent to 77 percent in the 4th quarter, FY 1979, but continued to lag behind total stock availability. This lag was due to the fact that most of DARCOM's NORS requisitions were received on items that were already in poor stockage positions. In October, NORS stock availability remained at 77 percent.

(U) Weapons System Stock Availability. Stock availability of peculiar parts for some of DARCOM's major weapon systems are shown in the tabulations that follow. These indicate the relative support that DARCOM was providing to selected, key weapon systems. The reasons for changes in availability were the same as those stated for overall availability, unless otherwise noted. As a category, aircraft availability was down 1 percent to 83 percent. As a result of the system increases in VULCAN, M109, and M29, the artillery category was up 6 percent to 80 percent. Communication-electronics was up 2 percent, as both the radar and radio showed increases. In the missile category, all systems except the Pershing increased in availability. Overall, the missiles category showed a 7 percent gain. For tracked vehicles, all weapon systems showed gains in availability and the tracked vehicles category gained 5 percent. For wheeled vehicles availability was up from 80 to 81 percent. A 6 percent gain for the GAMAGOAT was partially offset by a 2 percent decline for M123 trucks.

WEAPON SYSTEM STOCK AVAILABILITY RATES

COMMODITY GROUP	SYSTEM	FY 1978 % 1ST QTR	2D QTR	3D QTR	4TH QTR	FY 1979 % 1ST QTR	2D QTR	3D QTR	4TH QTR
AIRCRAFT	AH-1 COBRA	83	81	83	91	91	89	89	84
	CH-47 CHINOOK	87	87	87	87	86	85	85	84
	UH-1 IROQUOIS	87	84	85	81	84	82	83	83
	TOTAL	86	85	86	83	85	83	84	83
ARTILLERY	M102 HOWITZER	86	83	77	74	77	75	81	81
	M109 HOWITZER	78	80	75	73	76	80	78	82
	M29 MORTAR	76	74	73	76	75	79	81	88
	M163 GUN (VULCAN)	73	64	76	61	59	57	60	70
	TOTAL	76	75	75	70	72	73	74	80
COMM-ELECTR	AN/PPS 4-5 RADAR	67	74	71	73	74	73	70	80
	AN/GRC 106 RADIO	70	73	70	65	61	70	70	72
	TOTAL	69	73	70	68	67	71	72	74

SOURCE: MILSTEP

Figure 14

WEAPON SYSTEM STOCK AVAILABILITY RATES

COMMODITY GROUP	SYSTEM	FY 1978 % 1ST QTR	2D QTR	3D QTR	4TH QTR	FY 1979 % 1ST QTR	2D QTR	3D QTR	4TH QTR
MISSILES	CHAPARRAL	83	78	81	87	87	87	86	91
	HAWK	67	71	61	58	48	62	55	64
	HERCULES	84	86	83	85	82	80	79	84
	LANCE	84	81	87	80	83	83	82	68
	PERSHING	71	74	73	77	81	81	70	77
	TOW	70	69	73	74	77	71	65	72
	TOTAL	74	75	71	70	65	70	67	74
TRACKED VEHICLES	M60 TANKS	73	70	67	67	61	65	67	73
	M551 AGAAV	76	74	73	84	85	89	83	80
	M88 REC VEH.	85	78	77	75	71	68	65	76
	M578 REC VEH.	62	67	65	69	69	64	65	76
	M-113 APC	67	77	72	70	61	68	70	74
	TOTAL	73	73	70	70	64	68	69	74
WHEELED VEHICLES	1/4 & 1/2 TON VEH	84	83	84	83	77	77	81	81
	GAMA GOAT	65	67	63	65	69	75	77	83
	M35 TRUCKS	75	71	79	79	73	80	78	73
	M123 TRUCKS	85	84	85	85	79	80	77	75
	TOTAL	79	78	80	79	75	78	80	81

Figure 15

(U) On-Time Processing. The combined on-time processing rate represented the percent of those requisitions filled that were processed by the NICP and the depot within the UMMIPS time standards. On-time processing, which was 93 percent in the 3d quarter, dropped to 90 percent in the 4th quarter, due primarily to reduced depot performance. DARCOM did, however, perform at target level. In October 1979, performance declined one point to 89 percent.

(U) On-time processing of NORS requisitions through the NICP and depot was up 1 percent to 88 percent in the 4th quarter, FY 1979. This was primarily attributable to improved NICP processing times. It should be noted that as a result of out FY 1980 planning, the target for this indicator was reduced to 90 percent in recognition of DARCOM's constantly reducing resources. Depot on-time processing drives most of the combined trend. DESCOM made some personnel reductions and reduced their overtime spending by 55 percent in the last 6 months of FY 1979. These actions caused the decline from 94 percent to 92 percent; however the depots were still above the targeted level.

(U) Depot on-time processing of NORS requisitions declined 1 percent to 91 percent in the 4th quarter, FY 1979, primarily as a result of DESCOM resource adjustments. This goal was also reduced to 90 percent due to reduction in overtime.

(U) Backorders. During the 4th quarter, FY 1979, backorders were reduced by 18,000. This represented a 9 percent reduction, and both old and new backorders showed reductions. With the exception of CERCOM, which increased 12 percent,all NICPs either reduced backorders or held their 3d quarter level during the 4th quarter. TARCOM was down 9 percent, ARRCOM by 9 percent, TSARCOM remained at their 3d quarter level, and MICOM reduced their backorders by 18 percent. Increased receipts of certain high-volume items was the primary driver for the reductions. And, at MICOM, a successful program of challenging large quantity requisitions contributed significantly. The CERCOM increase was principally due to several items experiencing unexpected demand surges, in the routine-managed systems.

(U) In October, TARCOM backorders remained unchanged, ARRCOM, TSARCOM, and CERCOM increased, while MICOM again reduced their backorders. At ARRCOM, the increase was due to slow receipts of small arms items. At CERCOM, the increase in backorders was attributed to continuing difficulties in procurement and lagging receipts of materiel on high demand items. With a 15 percent increase in TSARCOM demands from September to October, and a decline of .7 percent stock availability, the TSARCOM increase was actually less than might be expected.

Summary--Supply Effectiveness

(U) In summary, stocked requisitions were down 6 percent, while stock availability improved 2 percent and backorder levels were reduced 7 percent. Requisitions were processed at the DARCOM target of 90 percent on-time, distribution effectiveness declined 4 percent, due to a computer programming error, and OST, overall, showed some gains, particularly Europe and Korea ALOC.

(U) Release of Materiel for Issue, 244 Items were forecast for release during FY 1979. A total of 173 releases were approved of which 46 were conditional; 69 were not in the original forecast. There was a marked improvement in the forecast/release rates. In FY 1978, the number of items released was 45 percent of the forecast, in FY 1979 it was 71 percent. The percentage of Conditional Releases was up slightly from 24 percent in 1978 to 27 percent in FY 1979. The FY 1980 forecast was 304 items.

(U) Customer Complaints. On 1 September 1979, a computerized customer complaint system was implemented at DESCOM depots. Essentially, the system replaced the old manual logging technique which was time consuming and difficult to maintain with any degree of accuracy. This new system was expected to improve the accuracy and on the spot availability of customer complaint data in the future. During the 4th quarter, fewer complaints were received than for any preceding quarter during the past two fiscal years. For FY 1979 overall, there was a six percent reduction in complaints received as compared with the FY 1978 total. The DARCOM response time for resolving customer complaints continued to improve. The average quarterly backlog during FY 1978 was approximately 1,200 complaints. For FY 1979, DARCOM succeeded in reducing this backlog to approximately one-third of the FY 1978 average (325). In addition, the backlog carry-over to FY 1980 (325 complaints) was the lowest during the past two fiscal years.

(U) The principal causes of complaints continued to be deficiencies which were attributable to stock selection errors. When combined, shortages, overages, and wrong materiel deficiencies accounted for over 50 percent of all complaints received. As the result of joint Quality Assurance and Supply efforts, significant progress was made in reducing shortages and overage complaints. As compared with FY 1978 quantities, these two types of deficiencies were reduced by approximately one-third. While there was a slight increase (451 to 480) in the number of condition-related complaints received for FY 1979, it was not considered alarming as DARCOM was well within the goal of two complaints per thousand. Following is a rundown of the FY 1978 totals for comparison:

	FY 1978	FY 1978
Carryover	498	325
Received	8380	7866
Resolved	9200	8039
Complaints/100 Lines Shipped	1.7	1.4

(U) During FY 1979 $449,000 was spent for actual test firing of conventional ammunition at TECOM as part of ASRP. Fifty lots of ammunition were tested; 52 lots scheduled for testing in FY 1979 had been reprogrammed for testing during 1st quarter FY 1980. Higher priority workload (production acceptance testing) at the proving grounds and personnel shortages at JPG were the reasons for program shortfall. Average cost per lot of ammunition was higher in FY 1978 because of the testing of ICM rounds.

Procurement and Production

(U) Plant Equipment Package (PEP) Voids. The DARCOM objective was to obtain optimum mobilization readiness of the industrial base by eliminating PEP voids. A void is Industrial Plant Equipment (IPE) required for production, but missing from the PEP. The chart below displays the percentage of the required equipment on hand as of the end of FY 1979. MICOM PEP 832 was established to support the 2.75" rocket. During a MOB Requirement Review, it was determined that the PEP no longer met the criteria for retention. Action was taken on 6 September 1979 for its discontinuance and 37 pieces of IPE were declared excess.

PROCUREMENT & PRODUCTION

INDUSTRIAL BASE

PERFORMANCE - 4TH QUARTER, FY 1979

ELIMINATE PLANT EQUIPMENT PACKAGE VOIDS

	COMMAND	REQUIRED IPE	IPE ON HAND	TARGET/PERFORMANCE	
4TH QTR	ARRCOM AMMO	40,118	38,819	93.9%	96.7%
	WPNS	4,231	3,999	93.5%	94.5%
	CERCOM	66	66	100 %	100 %
	MICOM	0	0	100 %	N/A
	TARCOM	6,096	5,673	92.5%	93.1%
	TSARCOM	2,247	2,179	95.9%	97.0%
	DARCOM	52,758	50,736	95.9%	96.2%

HDBK INDC.3

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(U) FY 1977 Production Base Support (PBS) Facility Projects Closed Out. The DARCOM objective was to distribute and obligate funds in a timely and effective manner, and the programmed task was to close out Production Base Support facility projects in a timely manner. The chart below shows the percentage of PBS, Provision of Industrial Facilities (PIF), projects that were scheduled to be closed out in FY 1979 and the achievements of the Commands to date. The projects included in this category were all those approved and funded in FY 1977. Project close-outs were emphasized to encourage the timely obligation and expenditure of funds so that any funds that were left over would become available for obligation in other areas of need.

(U) Although the Associate Director for Industrial Base requested all Commands to submit justification for projects that could not be closed out by the end of the fiscal year, only 28 of 69 open projects had been justified. Typical problems causing the continuation of work on the projects were: delays in construction, delays caused by failure of equipment to meet specifications, and delays caused by contract litigation. Because ARRCOM managed 69 percent of DARCOM's projects, its performance impacted heavily upon DARCOM's overall performance. Although ARRCOM had directed the ammunition plants to close out or rejustify projects, most projects remained open without justification.

PROCUREMENT AND PRODUCTION

SCHEDULED (FY 77) PROVISION OF INDUSTRIAL FACILITIES

PROJECTS CLOSED-OUT IN 4TH QUARTER, FY 79

SCHEDULED COMMAND	TOTAL SCHEDULED PROJECTS	TOTAL CLOSED-OUT OR JUSTIFIED	3RD QTR TARGET/PERFORMANCE		4TH QTR TARGET/PERFORMANCE	
ARRCOM (AMMO)	43	13	42%	0%	70%	30%
ARRCOM (WPNS)	11	9	55%	0%	82%	82%
CERCOM	6	5	33%	83%	100%	83%
ERADCOM (HDL)	1	0	0%	0%	100%	0%
MICOM	6	6	50%	50%	100%	100%
TARCOM	3	3	0%	0%	100%	100%
TECOM	6	2	50%	17%	67%	33%
TSARCOM	3	3	0	0	33%	100%
DARCOM TOTAL	79	41	41%	12%	78%	52%

(U) Overage PBS Facility Projects Closed Out. The programmed task was to eliminate backlog of over age PBS facility projects. The tabulation below shows the percentage of over age PBS, Provision of Industrial Facilities (PIF), projects targeted for close-out in FY 1979 and the performance of the Commands to date as of the end of FY 1979. Over age projects were those projects approved and funded in FY 1977T and prior years that should have been closed out before FY 1979. In order for a project to be closed out, all the physical and financial work needed to be completed. Project close-outs were emphasized to encourage the execution of projects for which funds had been obtained before additional funds were requested, and to quickly correct those deficiencies that PIF projects were to remedy. Again, because ARRCOM's ammunition projects constituted the majority of DARCOM's projects, the poor performance in this area brought down the DARCOM average. In spite of ARRCOM's direction to close out or justify projects, the ammunition plants had not responded well. Since June 1979 when the Associate Director for Industrial Base directed that all over age projects be justified or closed out 51 justifications had been submitted with 117 remaining that still required justification.

PROCUREMENT AND PRODUCTION

OVER AGE PROVISION OF INDUSTRIAL FACILITIES

PROJECTS CLOSED OUT 4TH QUARTER, FY 79

OVER AGE COMMAND	TOTAL OVER AGE PROJECTS	TOTAL CLOSED OUT OR JUSTIFIED	3RD QTR TARGET/PERFORMANCE		4TH QTR TARGET/PERFORMANCE	
ARRCOM (AMMO)	180	73	73%	19%	82%	41%
ARRCOM (WPNS)	16	14	69%	38%	88%	88%
CERCOM	5	2	100%	40%	100%	40%
ERADCOM (HDL)	1	0	100%	0%	100%	0%
MICOM	7	7	100%	71%	100%	100%
TARCOM	10	8	70%	30%	90%	80%
TECOM	6	4	67%	50%	100%	67%
TSARCOM	2	2	0%	0%	50%	100%
DARCOM TOTAL	227	110	73%	24%	84%	48%

(U) Industrial Preparedness Planning List (IPPL) Items. The DARCOM objective was to plan for and identify resources for transition to war and sustain logistics support. The table below shows the percentage of Priority 1 Industrial Preparedness Planning List (IPPL) items with completed planning agreements which met the item's mobilization requirement. Two Commands, ARRCOM (Ammunition and Weapons) and CERCOM did not meet the target goal of 100 percent. ARRCOM-Ammo has 434 planning agreements remaining to be processed. Of the 434 items, 56 were in process, 36 were scheduled for X-facilities and planned producers had not been located for the balance of 332 as of the end of FY 1979. ARRCOM was continuing to search for planned producers; however, in the area of ammunition, ARRCOM indicated a goal of 100 percent was unrealistic. ARRCOM-Weapons had not identified planned producers for 18 items. They were experiencing production capacity shortfall. Technical Data Packages had been released to contractors in search of additional capacity.

(U) CERCOM had planned in process on six items. The remaining 10 items had been downgraded to Priority 2. The problem at CERCOM was people. The CERCOM IG Report in 1978 stated personnel needed for IPP should be 55. Authorized for CERCOM at that time were 27. Since then, eight additional spaces were cut. Of the 19 remaining, only eight were action officers, and only part of those could be devoted to planning agreements.

(U) TSARCOM had eight FY 1979 planning agreements in process with Sikorsky Aircraft at the close of the fiscal year. No further action was to be taken on these items as Sikorsky was now devoting their effort to the FY 1980 IPPL items received.

PROCUREMENT AND PRODUCTION

INDUSTRIAL BASE

PERFORMANCE - 4TH QUARTER, FY 1979

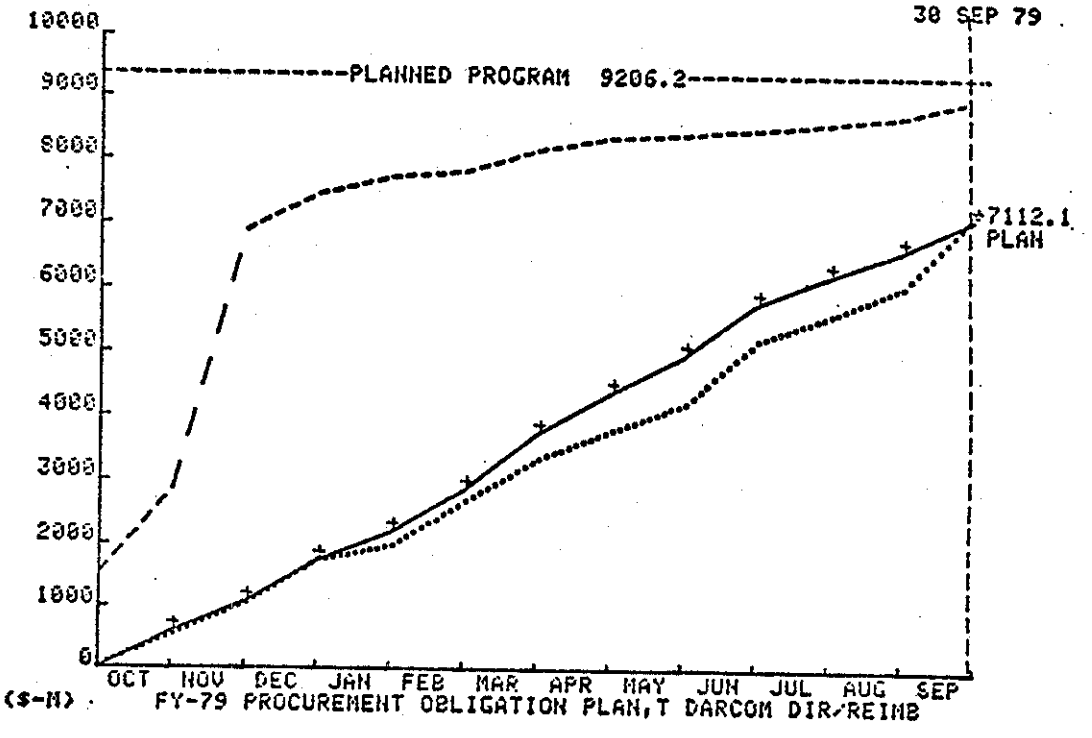
PERCENTAGE OF PRIORITY 1 IPPL ITEMS WITH COMPLETED PLANNING AGREEMENTS

COMMAND		IPPL ITEMS	COMP ITEMS	3 QTR PERCENTAGE TARGET	3 QTR PERCENTAGE PERFORMANCE	4 QTR PERCENTAGE TARGET	4 QTR PERCENTAGE PERFORMANCE
ARRCOM	AMMO	960	526	90%	47%	100%	64%
	WPNS	63	45	90%	71%	100%	71%
CERCOM		75	59	91%	79%	100%	92%
MIRCOM		26	26	90%	100%	100%	100%
TARCOM		49	49	90%	100%	100%	100%
TSARCOM		33	25	89%	76%	100%	76%
TOTAL DARCOM		1206	730	90%	54%	100%	61%

(U) FY 1979 Procurement Obligation Plan - Total DARCOM Direct/Reimbursable. The figure below shows the procurement appropriation obligation plan for FY 1979 for both direct Army and reimbursable programs. The procurement appropriation covers major items, secondary items, production base support, MM&T and PIP. The planned program of $9,206.2 million, included the total DA released values at $8,157.5 million less prior year obligations, plus OSD/DA deferred values and FY 1979 supplemental, $58.5 million.

(U) The year-end goal of $7,112.1 million represented the cumulative value of planned obligations, less deobligations, submitted to and accepted by DA. Actual obligations of $7,154.9 million represented 100.6 percent of the DARCOM commitment to DA.

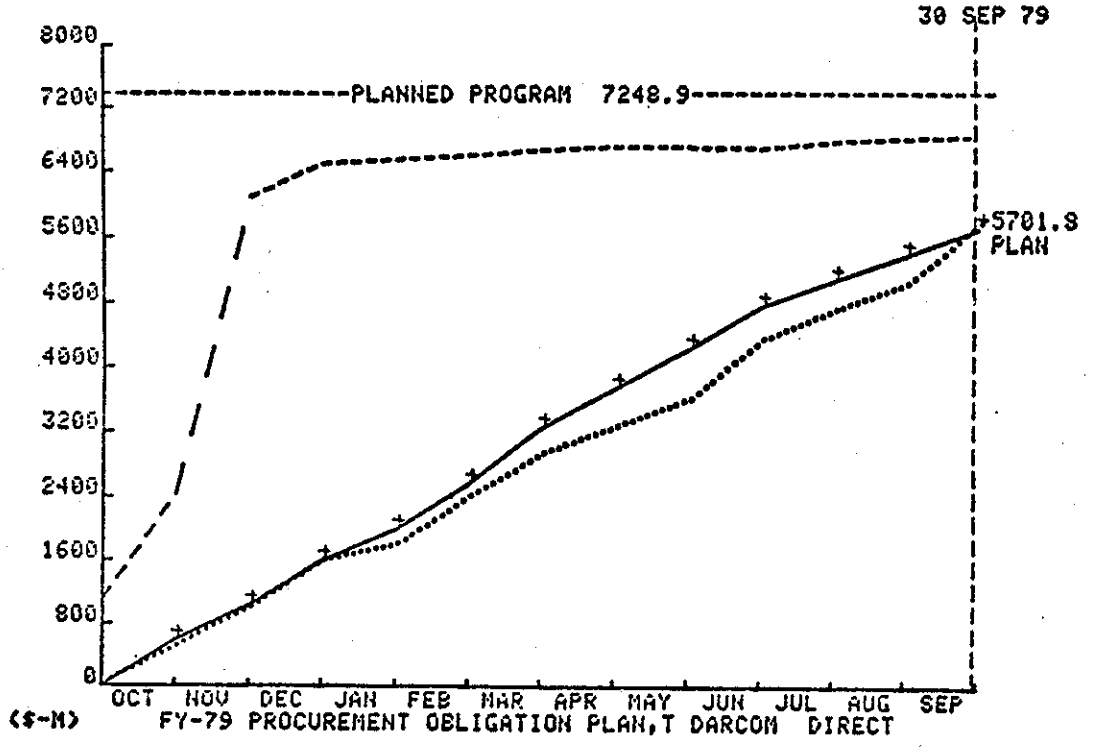
PROCUREMENT AND PRODUCTION
FY 79 PROCUREMENT OBLIGATION PLAN
TOTAL DARCOM DIRECT/REIMBURSABLE



RELEASES---$9017.9 GOAL+++$7112.1 OBLIGATIONS...$7154.9 8.6%

(U) Procurement and Production, FY 1979 Procurement Obligation Plan, Direct Army. The year-end performance for direct Army against a goal of $5,701.8 million is shown below. Actual performance was $5,730.0 million or 100.5 percent of DARCOM commitment to DA.

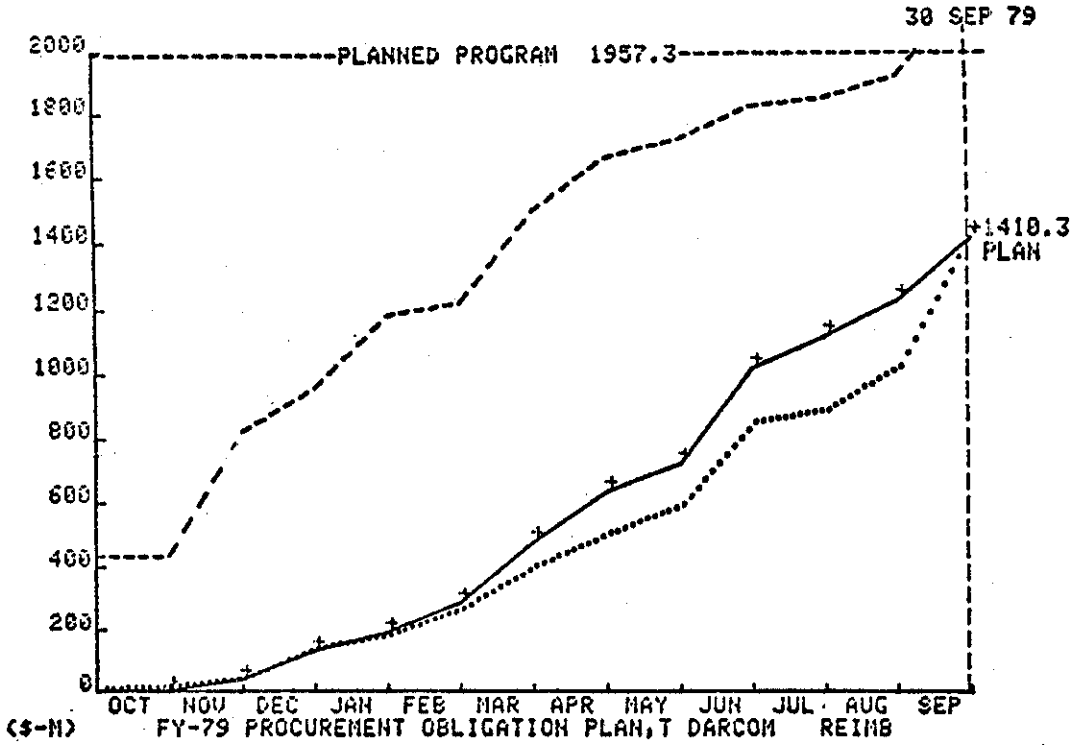
PROCUREMENT AND PRODUCTION
FY 79 PROCUREMENT OBLIGATION PLAN
DIRECT ARMY



RELEASES---$6834.6 GOAL+++$5701.8 OBLIGATIONS...$5730.0 0.5%

(U) The figure below reflects the overall status of the reimbursable program against the year-end goal of $1,410.3 million. Actual performance was $1,424.9 million or 101.0 percent of DARCOM commitment to DA.

PROCUREMENT AND PRODUCTION
FY 79 PROCUREMENT OBLIGATION PLAN
REIMBURSABLE



ORDERS---$2183.3 GOAL+++$1410.3 OBLIGATIONS...$1424.9 1.0%

(U) Should Cost Program. The Commands completed three studies against a 4th quarter goal of two studies. One study, MIRADCOM, was in contract negotiations and was to be completed during 1st quarter FY 1980. This brought the total of completed studies for FY 1979 to 10 or a 77 percent achievement against the FY 1979 goal of 13 Should Cost Studies. ARRCOM was the only command that did not achieve its goal of two studies for FY 1979. Requirements and Resources were identified as the contributing factors for not meeting their goal.

(U) The table below shows the accomplishments of the Should Cost evaluated over $1 billion in proposed contractor cost with total negotiated savings of $190.6 million which is 18.5 percent. This compared favorably with FY 1978 where Should Cost netted savings of 20 percent. The cost to conduct these studies averaged less than $118,000 per study; slightly down from FY 1978's average of $165,000 per study.

PRODUCTION & PROCUREMENT DIRECTORATE

FY 79
Should Cost Program
Accomplishments

PRIOR YEAR	GOAL	ACHIEVED NO.	ACHIEVED PERCENT	PROPOSED COST	NEGOTIATED COST	TOTAL SAVINGS	SC SAVINGS	COST OF STUDY W/SALARY
FY 78	12	6	50%	$601M	$480M	$121M	$84M	$989,000
CURRENT YEAR								
FY 79								
o Thru 3rd Qtr	11	7	64%	$750.1M	$595.0M	$155.1M	$100.4M	$987,000
o 4th Qtr	2	3	150%	$284.1M	$248.6M	$35.5M	$25.8M	$192,620
o TOTAL	13	10	77%	$1034.2M	$843.6M	$190.6M	$126.2M	$1,179,620

(U) Small Business Awards. DARCOM's small business (SB) performance for FY 1979 was 16.9 percent compared with 17.0 percent for FY 1978. The shortfall of $52.4 million when taken into consideration with the inflation factor reflected an even greater decrease in small business contracting for the fiscal year. All procuring activities except for the readiness commands exceeded their FY 1979 goals. See table below.

FY 79 AWARDS TO SMALL BUSINESS FIRMS

BUSINESS DOLLARS (MILLIONS)

INSTALLATIONS	TARGETS 1st QTR	2nd QTR	3rd QTR	4th QTR	ACHIEVED 4th QTR
READINESS COMMANDS	152.5	442.8	877.2	1,218.4	1,049.4
ARRCOM	36.9	147.8	306.8	426.1	357.2
CERCOM	9.3	65.5	133.0	184.7	131.5
MIRCOM	29.6	50.1	80.2	111.3	100.5
TARCOM	27.5	112.6	250.4	347.9	323.3
TSARCOM	49.1	66.8	106.8	148.4	136.9
R&D COMMANDS	43.8	85.9	131.3	181.1	290.0
ARRADCOM	10.1	20.6	32.9	45.7	88.9
AVRADCOM	3.8	4.3	4.9	5.6	5.8
CORADCOM	6.8	9.5	15.2	21.1	41.8
ERADCOM	6.2	15.9	25.5	35.4	61.1
MERADCOM	2.9	15.5	24.8	34.4	46.0
MIRADCOM	12.1	15.7	19.4	26.9	28.7
NARADCOM	0.5	1.6	4.0	5.5	5.7
TARADCOM	1.41	2.9	4.7	6.4	12.0
OTHER	31.8	65.1	104.1	144.6	152.2
TOTAL DARCOM	228.0	593.8	1,112.6	1,544.0	1,491.6

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(U) FY 1979 Small Business Awards Via Set-Asides. As a result of TARCOM's and TARADCOM's outstanding performance in this area, as illustrated in table below, TARCOM's $33 million and TARADCOM's $5.2 million above assigned goals permitted DARCOM to exceed its overall assigned goal by $21.3 million. The Research and Development Commands were to be required to increase their efforts for the coming fiscal year to meet pending legislation, if passed by Congress, that would require a set-aside of 2 percent of R&D money for small business.

FY 79 AWARDS TO SMALL BUSINESS VIA SET-ASIDES

BUSINESS DOLLARS (MILLIONS)

INSTALLATIONS	TARGETS 1st QTR	2nd QTR	3rd QTR	4th QTR	ACHIEVED 4th QTR
READINESS COMMANDS	49.8	132.3	230.1	368.7	398.2
ARRCOM	9.8	40.2	75.6	113.1	104.7
CERCOM	2.1	12.8	22.6	41.6	57.7
MIRCOM	11.9	20.3	30.7	44.5	45.1
TARCOM	9.5	34.4	71.1	119.2	152.2
TSARCOM	16.6	24.5	30.2	50.2	38.5
R&D COMMANDS	9.5	17.4	29.4	43.2	34.5
ARRADCOM	2.8	4.9	8.2	12.4	10.5
AVRADCOM	0.8	0.9	1.0	1.1	2.7
CORADCOM	2.3	3.6	6.0	6.9	4.1
ERADCOM	2.0	3.7	6.7	11.6	1.2
MERADCOM	0.6	2.7	4.6	6.8	6.0
MIRADCOM	0.6	0.8	1.0	1.3	1.3
NARADCOM	0.1	0.4	0.6	1.1	1.6
TARADCOM	0.4	0.6	1.3	1.9	7.1
OTHER	10.5	20.6	34.1	50.2	50.6
TOTAL DARCOM	69.9	170.3	293.6	462.0	483.3

(U) FY 1979 Direct Awards to Minority/Disadvantaged Business Firms. While DARCOM did not meet its goal for direct awards to minority business firms by $5 million, as illustrated in the table below, due to the fact that procurements were competitive, continuing efforts were being made to identify minority firms to insure that they would be given an opportunity to bid on all competitive solicitations. DARCOM's combined total awards to minority business was expected to far exceed the assigned goals for FY 1979.

FY 79 DIRECT AWARDS TO MINORITY/DISADVANTAGED BUSINESS FIRMS

BUSINESS DOLLARS (MILLIONS)

INSTALLATIONS	TARGETS 1st QTR	2nd QTR	3rd QTR	4th QTR	ACHIEVED 4th QTR
READINESS COMMANDS	3.42	10.26	15.51	22.80	14.97
ARRCOM	0.83	2.50	3.78	5.56	2.55
CERCOM	0.98	2.95	4.46	6.56	3.71
MIRCOM	0.53	1.60	2.42	3.56	5.21
TARCOM	0.53	1.60	2.42	3.56	2.48
TSARCOM	0.53	1.60	2.42	3.56	1.02
R&D COMMANDS	0.47	1.40	2.11	3.10	3.89
ARRADCOM	0.15	0.45	0.68	1.00	2.21
AVRADCOM	0.02	0.05	0.07	0.10	.00
CORADCOM	0.08	0.23	0.34	0.50	.84
ERADCOM	0.08	0.23	0.34	0.50	.26
MERADCOM	0.08	0.23	0.34	0.50	.23
MIRADCOM	0.05	0.14	0.20	0.30	.23
NARADCOM	0.02	0.05	0.07	0.10	.12
TARADCOM	0.02	0.05	0.07	0.10	.00
OTHER	0.35	0.98	1.44	2.10	4.06
TOTAL DARCOM	4.24	12.64	19.05	28.00	22.92

(U) Letter Contracts. At the end of FY 1979, there were 113 undefined letter contracts having a total value of $594.3 million. This amounted to an increase of $123.3 million over the end of the previous quarter. During the last quarter, 51 letter contracts were definitized while 91 were entered into. Of the 113 letter contracts, 8 were 6 months and older for a total of $172.0 million. This was an increase of $161.0 million over 3rd quarter FY 1979.

(U) Price Competition Awards. Price competition has not been the preferred method for Research and Development Commands. Targets were not met because most awards were either made in the design, technical, or other competition phase or are a follow-on after the basic award. See table below for command statistics.

DIRECTORATE FOR PROCUREMENT AND PRODUCTION

PRICE COMPETITION ($ Millions)

	FY 78 Baseline	3rd Qtr Target	Achieved	4th Qtr Target	Achieved
ARRCOM	27.5	27.5	27.1	27.5	25.1
ARRADCOM	13.0	15.0	9.0	15.0	12.3
TSARCOM	19.0	16.2	15.6	19.5	20.2
AVRADCOM	25.0	3.1	42.3	3.1	38.7
CORADCOM	-	30.0	4.4	39.0	8.2
CERCOM	-	22.3	59.9	25.0	55.1
ERADCOM	-	16.0	20.1	21.0	20.9
MIRCOM	23.0	10.4	12.7	10.4	13.8
MIRADCOM	0.2	2.0	0.3	2.0	.5
TARCOM	34.0	28.0	47.0	32.1	48.0
TARADCOM	2.0	1.5	1.9	1.5	1.7
TECOM	30.0	23.5	26.6	23.5	32.8
MERADCOM	2.0	8.0	4.7	12.2	3.5
NARADCOM	33.0	24.0	21.0	30.0	27.9
EMRA	6.0	7.0	23.7	7.0	30.0
OTHER	42.0	40.0	46.2	56.0	48.8
DARCOM	22.8	20.0	23.2	22.7	23.7

(U) Sole Source Procurement. Performance information is cumulative for sole source procurements on the chart below. The ARRADCOM target was not met because three systems XM1, FVS, and TOW account for 84 percent of the sole source dollars on over $10 thousand category and a $2 million sole source contract was let with Brunswick Corporation for tactical shelters.

DIRECTORATE FOR PROCUREMENT AND PRODUCTION

SOLE SOURCE ($ Millions)

	2nd Qtr Target	Achieved	3rd Qtr Target	Achieved	4th Qtr Target	Achieved
ARRCOM	72.0	72.0	72.0	72.8	72.0	74.9
ARRADCOM	75.0	63.0	75.0	73.2	75.0	68.9
TSARCOM	78.0	87.0	78.0	84.1	78.0	79.6
AVRADCOM	43.0	78.0	43.0	34.7	43.0	35.6
CORADCOM	80.0	78.0	80.0	81.9	80.0	77.9
CERCOM	53.0	55.0	53.0	36.2	53.0	39.5
ERADCOM	72.0	72.0	72.0	60.9	72.0	63.7
MIRCOM	78.0	88.0	78.0	87.0	78.0	85.2
MIRADCOM	86.0	91.0	86.0	93.3	86.0	92.8
TARCOM	53.0	58.0	53.0	52.9	53.0	51.8
TARADCOM	69.0	93.0	69.0	95.5	69.0	96.2
TECOM	50.0	56.0	50.0	54.9	50.0	46.8
MERADCOM	75.0	70.0	75.0	75.4	75.0	80.4
NARADCOM	52.0	62.0	52.0	73.3	52.0	62.7
EMRA	83.0	64.0	83.0	61.5	83.0	56.9
OTHER	47.0	52.0	47.0	49.6	47.0	48.1
DARCOM	66.0	76.0	66.0	70.1	66.0	69.6

(U) Volume and Value of Procurement. The table below shows the actual FY 1979 volume of procurement actions performed under and over $10,000 and their total value in millions as compared with the same time frame in FY 1978. (All totals are cumulative through the 4th quarter.)

DIRECTORATE FOR PROCUREMENT AND PRODUCTION

VOLUME AND DOLLAR VALUE OF PROCUREMENTS

4TH QTR FY 78 VS 4TH QTR FY 79

DARCOM

	ACTIONS $10,000 & UNDER		ACTIONS OVER $10,000		TOTAL ACTIONS	
	NUMBER	VALUE*	NUMBER	VALUE*	NUMBER	VALUE*
FY 78	415,291	287,110	27,555	9,154,128	442,846	9,441,238
FY 79	468,980	330,178	30,490	9,698,412	499,470	10,028,590

*DOLLAR VALUE IN MILLIONS

Manpower Summary - FY 1979

(U) Civilian Program. The official DA ceiling for end FY 1979 was 103,822 which included 1,224 overhire spaces. These overhire spaces were made up of 750 depot maintenance spaces and 474 other spaces (most of which were for Foreign Military Sales.)

(U) At the end of September 1979, DARCOM had 103,794 employees on-board, or only 28 below the DA ceiling. DARCOM was able to establish a good track record in FY 1979 by using almost 100 percent of available ceiling through monitoring on-board strengths toward year end and adjusting subordinate command targets. This was done by reviewing the 31 August 1979 strength report, and dispatching new strength targets to the commands via message 18 September 1979. Through fine-tuning of a 15 September 1979 flash report. DARCOM was able to further adjust targets for some commands by telephone, which resulted in maximum fill of authorized spaces. DARCOM planned to continue judicious use of overhire authority. At year's end 517 were authorized which included 159 overhire spaces brought up from FY 1979.

(U) P7S Program Summary. During the 4th quarter, FY 1979, there were no significant changes of P7S to DARCOM's authorization to the field. Actual strength on 30 September was 35,988--which was 245 below end FY 1979 authorization of 36,233, which included DA overhire authority of 312). Although DARCOM no longer had DA overhire authority, its P7S authorization for FY 1980 was an increase of 411 spaces over FY 1979 which consisted of an increase of 2,068 for mission functions and a decrease of 1,668 for contracting out.

(U) P7M Program Summary. During the 4th quarter, FY 1979, there was a reduction in the on-board strength from 22,882 to 22,462--or 200 below the authorization plus overhire authority (22,662). In FY 1980, the 7M picture changed significantly. DARCOM was no longer provided overhires from DA, but DA did authorize an increase in the maintenance program. The P7M increases of 1,226 in FY 1980 over our FY 1979 program included conversion of 750 overhires to authorized spaces and a "true increase" of 476.

(U) RDT&E Program Summary. At end FY 1979, DARCOM's RDT&E authorization to the field was 19,968 which included 80 DA overhires. Our actual strength at the end of September was 20,093--an overstrength of 125.

(U) The FY 1980 authorization was 22,226. The increase was due to the transfer of an estimated 2,300 AIF base operations and PEMA spaces to RDT&E non-AIF at TECOM. The transfer of the BIO-MED Lab spaces to the Surgeon General was also reflected in the FY 1980 figure. During FY 1980 DARCOM expected a reduction of 216 RDT&E spaces due to contracting out.

HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

5001 EISENHOWER AVE., ALEXANDRIA, VA 22333

STAFF DIRECTORY

COMMANDER'S PERSONAL STAFF — DRCCG

XO	LTC L. K. MORASKI	10E08	49625	DRCCG
Admin Off	CWO H. GILMORE	10E08	49626	DRCCG
Secretary	MISS D. MONTA	10E08	49626	DRCCG

COMMANDING GENERAL

COMMANDING GENERAL	GEN JOHN R. GUTHRIE	10E08	49625	DRCCG
Deputy CG for Materiel Readiness	LTG E. J. D'AMBROSIO	10S06	49700	DRCDMR
Deputy CG for Materiel Development	LTG R. J. BAER	10N06	49705	DRCDMD
Deputy CG for Resource Management	MG R. L. BERGQUIST	10E20	49640	DRCDRM
Chief of Staff	BG(P) R. L. MOORE	10E14	49638	DRCCS
Deputy Chief of Staff	COL L. A. HERGENROEDER	10S60	49644	DRCDCS
Command Sergeant Major	CSM H. W. SHEDD	10S48	48257	DRCCSM

SECRETARY OF THE GENERAL STAFF — DRCGS

Secy General Staff	COL L. A. HERGENROEDER	10S60	49644	DRCGS
Dep Secy Gen Staff	MAJ W. W. WINSLOW	10S60	49645	DRCGS
Asst Secy Gen Staff	MAJ L. A. LEASSEAR	10S54	49659	DRCGS
Asst Secy Gen Staff	CPT J. MILLER, SR.	10S54	49646	DRCGS
Asst Secy Gen Staff	MAJ D. M. SMITH	10C55	49419	DRCGS
Asst Secy Gen Staff	MAJ J. J. BIKUS	10S54	49646	DRCGS
Chief, Protocol Office	MRS. H. L. SALPINI	10S50	49669	DRCGS-P
Administrative Officer	MR. C. W. LELAND, JR.	10S55	49662	DRCGS-A

DEPUTY CG FOR MATERIEL READINESS — DRCDMR

DCG for MR	LTG E. J. D'AMBROSIO	10S06	49700	DRCDMR
Asst Deputy for MR	MR. J. F. MACLIN	10S06	49701	DRCDMR
Executive Officer	COL W. B. McGRATH	10S06	49702	DRCDMR
Coordinator	LTC D. G. FITZGERALD	10S10	48896	DRCDMR-TG
PM Coordinator	MR. R. P. O'BRIEN	10W18	49406	DRCDMR-TG
Task Group	LTC R. M. REYNOLDS	10S10	48896	DRCDMR-TG
Staff Chemical Off	COL G. A. CARRUTH	10W18	48194	DRCDMR-TG-C
SA/US ARNG	COL J. O. KEELING	10S10	48895	DRCSA-NG
SA/USA Reserve	COL G. H. CHASE	10S10	48895	DRCSA-AR
SA/Nuclear Surety	MR. R. L. MILLER	10W18	49554	DRCSA-NS
SA/Chemical Surety	Vacant	10W18	49610	DRCSA-CS

DIRECTOR FOR SECURITY ASSISTANCE — DRCDS

Director	MG T. H. BRAIN	5E22	48380	DRCDS
Deputy Director	MR. R. E. BEAN	5E22	48383	DRCDS

HQ US ARMY SECURITY ASSISTANCE CENTER — DRSAC

Commander	MG T. H. BRAIN	5E22	48380	DRSAC
Deputy for Plans & Mgt	MR. R. E. BEAN	5E22	48383	DRSAC-M
Chief of Staff	COL R. C. BUSH	5E22	48384	DRSAC-S
Mgt Control Ofc	MR. A. M. GUELCHER (Act)	5E11	49739	DRSAC-SC
Mgt Spt Ofc	MR. E. J. COLEMAN	5E18	48385	DRSAC-SO
Directorate for Financial Mgt	MR. R. E. HAAG (Act)	5S53	48390	DRSAC-MF
Directorate for Plan & Systems Analysis	MR. F. F. BROTT	5N16	49895	DRSAC-MS
Directorate for Program Mgt	COL S. E. HOLTOM	5S56	48395	DRSAC-MP
Directorate for Mideast Africa & Americas	COL D. M. BELL	5S44	48405	DRSAC-MM
Directorate for Europe	COL G. D. JONES	5S54	48399	DRSAC-ME
Directorate for Asia Pacific	COL C. M. MARSHALL	5S22	48451	DRSAC-MA

DIRECTORATE FOR MATERIEL MGT — DRCMM

Director	BG E. A. VULEY, JR.	8S06	48175	DRCMM
Deputy Director	MR. M. I. HINSON	8S06	48007	DRCMM
Executive Off	LTC J. M. GRAY	8S06	48007	DRCMM
Admin Ofc	MR. W. L. STEPHENS	8W17	49266	DRCMM-A
Assoc Dir for Requirements & Resources	MR. E. GREINER	8W22	48041	DRCMM-R
Assoc Dir for Supply & Distribution	COL O. C. GRUMMT	8S08	49271	DRCMM-S
Assoc Dir for Evaluation	MR. G. C. COX, JR.	8N08	49785	DRCMM-E
Assoc Dir for Maintenance	COL E. A. VIERECK	8S28	48786	DRCMM-M
Programs & Project Ofc	COL W. M. BURKE, JR.	8S44	49487	DRCMM-L
Word Processing Center	MRS. L. L. PIERPOINT	8S43	48953	DRCMM-WPC
Maint Interservice Spt Mgt Ofc	MR. G. A. KRONE	8S44	49396	DRCMM-MI

DIRECTORATE FOR READINESS — DRCRE

Director	VACANT	5N58	49718	DRCRE
Deputy Director	MR. H. J. BUKOWSKI	5N58	49719	DRCRE
Executive Officer	COL P. D. HAUN	5N58	49720	DRCRE
Proj Off for TMDE	LTC L. R. MURRAY	5E08	49731	DRCRE-T
Admin Officer	MS. E. R. PLUMMER	5N56	49473	DRCRE-A
Associate Director for Integrated Logistics Support	COL E. DOLFI (Act)	5N42	49759	DRCRE-I
Associate Director for Force Status & Customer Assistance	COL E. F. MASON	5N26	49884	DRCRE-F
Associate Director for Equip Improvement	MR. D. J. HAMERNIK	5N54	49750	DRCRE-E

DIRECTORATE FOR PROCUREMENT & PRODUCTION — DRCPP

Director	MG J. W. SHARP	9E06	48159	DRCPP
Deputy Director	MR. G. E. DAUSMAN	9E06	48167	DRCPP
Executive Officer	MAJ P. C. GILL	9E06	48169	DRCPP
Plans & Admin Office	MR. R. E. POSPICHEL	9E19	48170	DRCPP-A
Assoc Dir for Cost Performance Reporting	COL R. E. FRYE, JR.	9S36	48319	DRCPP-K
Assoc Dir for Industrial Base	COL C. W. McDOWELL, JR.	9E22	48189	DRCPP-I
Assoc Dir for Procurement	MR. W. L. CLEMONS	9N56	48262	DRCPP-S
Assoc Dir for Procurement Mgt Review	MR. V. O. EWELL	9S46	48178	DRCPP-R
Assoc Dir for Programs	COL C. R. J. ROGERS	9S48	48339	DRCPP-P
Special Asst for Small Business	MR. J. W. SHEPARD	9N13	48185	DRCPP-Z

DIRECTORATE FOR PLANS, DOCTRINE & SYS — DRCPS

Director	COL E. HONOR	9S28	48229	DRCPS
Deputy Director	MR. L. W. HOCHHEIMER	9S28	48747	DRCPS
Executive Officer	LTC E. L. WALKER	9S28	48691	DRCPS
Admin Office	MS. B. BISE	9S22	48748	DRCPS
Assoc Director for Plans & Doctrine	COL R. W. GRUEN	9S37	48334	DRCPS-P
Assoc Director for Systems	COL N. W. FLEMING	9S12	48245	DRCPS-S

DEPUTY CG FOR RESOURCE MGT — DRCDRM

DCG for RM	MG R. L. BERGQUIST	10E20	49640	DRCDRM
Executive Officer	LTC W. S. FLYNN	10E14	49641	DRCDRM

OFFICE OF THE COMPTROLLER — DRCCP

Comptroller	BG A. J. CADE	3N58	49131	DRCCP
Deputy Compt	MR. A. T. WALKER	3N58	49129	DRCCP
Sp Asst for Fin Mgt	MR. B. R. GILLILAND	3N58	49129	DRCCP
Executive Off	LTC T. K. HIGHTOWER	3N58	49130	DRCCP
Administrative Ofc	MRS. L. S. BROWN	3N57	49120	DRCCP-A
Cost Anal Div	MR. R. R. McGREGOR	3S34	49080	DRCCP-E
Fin & Acct Div	COL W. E. DYSON	3N54	49231	DRCCP-F
Internal Review & Audit Compliance Ofc	MR. J. K. CHURCH	3S26	49020	DRCCP-I
Mgt Review & Anal Div	MR. W. A. CHAVET	3N06	49170	DRCCP-S
Resources & Programs Division	COL J. O. HEGDAHL	3E10	49039	DRCCP-B

DIRECTORATE FOR PERS, TNG & FORCE DEV — DRCPT

Director	VACANT	2E14	48195	DRCPT
Deputy Director	MR. W. S. CHARIN	2E14	48195	DRCPT
Executive Off	MAJ B. J. McHUGH	2E14	48195	DRCPT
Plans & Admin Ofc	MR. C. W. ROHRER	2E18	48421	DRCPT-A
Civ Pers Div	MR. G. N. KELLETT	2W20	49167	DRCPT-C
Force Dev Div	MR. G. E. TAGTMEYER	2E08	48215	DRCPT-S
Mil Pers Div	LTC(P) H. DYSON	2S56	49325	DRCPT-M
Equal Oppor Ofc	MAJ R. RATHER, JR.	2S55	49138	DRCPT-R
Alcohol & Drug Abuse Ofc	MR. D. HELBIG	2N38	49716	DRCPT-H

STAFF SUPPORT ACTIVITIES

HQ CIV Pers Ofc	MRS. E. W. MANIFOLD	2S32	49427	DRXMM-CO
HQ Mpr Ofc	MR. P. R. ZEKAN	2N46	48974	DRXMM-SM
HQ Mil Pers Ofc	MAJ J. P. COPPENS	2C45	49333	DRXMM-MR
HQ Equal Oppor Ofc	1LT R. E. BLAKELY	1W07	49477	DRXMM-RR
HQ Alcohol & Drug Abuse Ofc	MR. D. HELBIG	2N38	49716	DRXMM-AD
Organizational Effectiveness Ofc	LTC R. POWELL	2S40	49837	DRXMM-OE

DIRECTORATE FOR PLANS & ANALYSIS — DRCPA

Director	COL G. T. FEILKE	4N24	48676	DRCPA
Deputy Director	MR. D. J. SHEARIN	4N24	48676	DRCPA
Executive Off	CPT P. L. CAPESTANY (Act)	4W06	48122	DRCPA
Environmental Quality Ofc	DR. D. K. EMIG	4N16	48191	DRCPA-E
Mil Plans & Opns Div	COL R. E. HEDGCOCK	4S27	49426	DRCPA-M
Mission & Org Div	MR. R. G. SILVEY	4S18	48849	DRCPA-O
Program, Plans & Policies Div	MR. W. C. KREMANN	4S25	48854	DRCPA-P
Sys Anal Div	COL J. A. DONNAN	4N08	48037	DRCPA-S

DIRECTORATE FOR INSTALLATIONS & SERVICES — DRCIS

Director	COL W. G. WOLFE	5W12	49041	DRCIS
Deputy Director	MR. J. W. BOUCHER	5W12	49041	DRCIS
Plans & Programs Ofc	MR. J. D. HARTSOE	5W18	49026	DRCIS-P
Engineer Div	COL A. F. LAWRENCE, JR.	5N06	49390	DRCIS-E
Services Div	MR. L. H. SANDWEN	5S06	49389	DRCIS-S
Housing Mgt Div	MR. W. H. McDONALD	5W20	49282	DRCIS-H

OFFICE OF THE COMMAND COUNSEL — DRCGC

Command Counsel	MR. F. X. McKENNA	7E06	48046	DRCGC
The Deputy Command Counsel	MR. B. M. BLAIR	7E06	48046	DRCGC-P
Deputy Command Counsel/Command Staff Judge Advocate	COL R. S. HAWLEY	7N56	48049	DRCGC-S
Executive Off	MR. J. K. GAISER	7E06	48046	DRCGC-A
Adversary Proceedings Div	MR. R. I. BARDAVID	7N48	48052	DRCGC-B
Mil Law/Legal Svc Div	COL R. S. HAWLEY	7N56	48049	DRCGC-S
Patent Law Div	MR. N. EDELBERG	7E06	48031	DRCGC-L
Procurement Law Div	MR. B. M. BLAIR	7E06	48046	DRCGC-P
Plans & Operations Ofc	MR. J. K. GAISER	7E06	48046	DRCGC-A

DIRECTORATE FOR MGT INFO SYSTEMS — DRCMS

Director	MR. J. C. GILBERT	4E16	48626	DRCMS
Deputy Director	MR. J. A. ARNTSON	4E16	48627	DRCMS
Executive Off	LTC C. O. WALTERS	4E16	48627	DRCMS
Administrative Off	MR. L. L. JOHNSTON	4E13	48310	DRCMS-A
Mat Acq Sys Div	MRS. C. G. MORRIS	4E08	48946	DRCMS-I
Mat Rdn Sys Div	MR. J. E. SMITH	4N52	49140	DRCMS-E
Rseources Div	MR. J. CIANFLONE	4E22	49480	DRCMS-T

OFFICE OF THE CHAPLAIN — DRCCH

Staff Chaplain	COL D. L. WILSON	10S29	49432	DRCCH
Chaplain	LTC R. S. BEZANSON, JR.	10S29	49432	DRCCH
Chaplain	MAJ J. B. SMITH	10S29	49432	DRCCH

OFFICE OF THE SURGEON — DRCSG

Surgeon	COL R. T. CUTTING, M.D.	10S24	49470	DRCSG
Occupational Medicine	COL B. H. KAPLAN, M.D.	10S24	49470	DRCSG-O
Environmental Quality	LTC J. E. HERNDON, JR.	10S24	49470	DRCSG-S
Medical Entomologist	LTC C. S. BULGER	10S24	49470	DRCSG-E
Industrial Hygienist	MR. C. J. JORDAN	10S24	49470	DRCSG-I

PUBLIC AFFAIRS OFFICE — DRCIN

Chief, Public Affairs	COL C. A. HAMMAKER, JR.	10S35	48010	DRCIN
Public Affairs Officer, Industry Relations	MR. J. J. FOLEY	10S35	48010	DRCIN
Comd Info	MS. E. P. HANCE	10S35	48019	DRCIN-CI
Public Info	MR. J. W. PENTON, JR.	10S35	48012	DRCIN-PI
Community Relations & Special Projects	MR. G. E. FANT	10S35	48013	DRCIN-CRSP

SECURITY OFFICE — DRCSS

Chief	COL B. T. WHITE	10N34	49454	DRCSS
Executive Officer	LTC L. J. LOOMIS	10N34	49455	DRCSS
Sec Spt Acty	LTC B. BILLINGS FT. GILLEM	AV 797 5620		DRXPX-O
Physical Security	MAJ W. M. SYMONDS	10N44	49714	DRCSS
Intelligence	MR. R. E. ENGLISH	10N34	49455	DRCSS

SAFETY OFFICE — DRCSF

Chief	MR. W. G. QUEEN	10N36	49475	DRCSF
Aviation	LTC A. J. HALL	10N36	49475	DRCSF-A
Health Physics	MR. D. N. TARAS	10N41	49340	DRCSF-P
Prog Evaluation	MR. J. D. LLOYD	10N41	49340	DRCSF-S
Rsch & Eng	MR. L. L. MOTHERSBAUGH	10N36	49475	DRCSF-E

SPECIAL ASSISTANTS — DRCSA

Joint Activities	COL C. HENNE, JR.	10S18	49695	DRCSA-JS
Technical Relations	MR. H. HANDLER	10E14	49630	DRCSA-H
Congress Affairs	MR. C. R. SMITH	10S32	48263	DRCSA-C

OFFICE OF THE INSPECTOR GENERAL & DARCOM IG ACTIVITY — DRCIG / DRXIG

Inspector General	COL R. D. DESCOTEAU	1S12	48070	DRCIG

DARCOM INSPECTOR GENERAL ACTIVITY

Chief	COL R. D. DESCOTEAU	1S12	48070	DRXIG
Coordination & Control Division	MR. R. V. MURPHY	1S15	48072	DRXIG-X
Administrative Officer	MS. A. E. ARRINGTON	1S14	48079	DRXIG-X
Investigations Division	COL G. B. CALHOUN	1S08	48064	DRXIG-V
Eastern Inspection Division	COL L. W. WRIGHT	1S24	48084	DRXIG-E
Western Inspection Division	COL C. B. HADEN	Autovon 693 3441	48084	DRXIG-W

HISTORICAL OFFICE — DRCHO

Chief	DR. D. BIRDSELL	5S10	49177	DRCHO
Annual Historical Reports/Unit Histories	MR. M. G. MARKEN, SR.	5S10	48173	DRCHO
Historical Monographs/Studies	MR. C. W. LYNCH	5S10	48173	DRCHO
Special Studies/Historical Services	MR. A. A. PUTIGNANO (Act)	5S10	48173	DRCHO
Historical Sources	MR. M. F. COPPOLA	5S10	49177	DRCHO

DIRECTOR OF COMM ELECTRONICS & US ARMY COMM COMMAND-DARCOM — DRCCE / CCNC

Director	COL H. S. CHRISTENSEN	3S10	49050	DRCCE
Commander	COL H. S. CHRISTENSEN	3S10	49050	CCNC-C
Deputy Commander	COL J. D. MITCHELL	3S10	49055	CCNC-DC
SGT Major	SGM J. HEININGE	3S10	49056	CCNC-SM
Operations Div	MR. A. SCHWARTZ	3S19	49073	DRCCE-O
Plans Div	MR. J. E. GOTTFRIED	3S06	49063	DRCCE-P
Resources Div	MR. A. E. PAIGE	3S14	49071	DRCCE-R

USA DARCOM SERVICE SUPPORT ACTIVITY — DRXAM

Director	LTC R. T. BOYLE, JR.	1E14	48134	DRXAM
Deputy Director	MR. L. F. KORTUM	1E14	48134	DRXAM
Admin Svc Div	LTC G. J. HAROLD	1E10	48139	DRXAM-A
Mail Management Br	MR. J. W. HENDERSON	G2C08	48341	DRXAM-AM
Printing & Publications Br	MR. H. S. JOHNSON	1E10	48141	DRXAM-AB
Records Administration Br	MR. E. M. THORNE, JR.	1E06	49141	DRXAM-AR
Audio-Visual Presentations Div	MR. B. W. ADKINS	1C13	48481	DRXAM-P
General Services Div	2LT S. D. POST	1S52	49005	DRXAM-G
Space & Sup	MR. S. R. LINKE	1S58	49095	DRXAM-GA
Equip Mgr	MR. J. BALDWIN	1S58	49094	DRXAM-GA
Travel	MR. J. H. BARGET	1S52	49006	DRXAM-GT
HQ Budget & Prog Ofc	MR. V. L. GUILER	1E18	48129	DRXAM-B
HQ Security Ofc	MRS. B. E. MILLER	1E22	49066	DRXAM-S
Staff C-E Off	MR. C. W. CALL (Act)	G3C20	48989	DRXAM-CE
Staff Librarian	MS. I. O. OMDAHL	7S35	48087	DRXAM-L
HQ Tech Library	MR. J. FRAGALE, JR.	7S35	48152	DRXAM-TL

DIRECTORATE FOR QUALITY ASSURANCE — DRCQA

Director	MR. S. J. LORBER	4W22	48929	DRCQA
Executive Assist	MS. R. E. SMITH	4W22	48929	DRCQA
Product Quality Div	MR. R. F. TINER	4W20	48899	DRCQA-P
Reliability & Sys Assessment Div	MR. A. NORDSTROM	4S06	48912	DRCQA-E

EQUAL EMPLOYMENT OPPORTUNITY OFFICE — DRCEE

DARCOM Equal Employment Opportunity Off	MR. G. L. JONES	10S15	49690	DRCEE
DARCOM Fed Women's Prog Coordinator	MS. R. M. GNADT	10S15	49690	DRCEE
DARCOM Hispanic Empl Prog Coordinator	MR. F. ROSARIO	10S15	49690	DRCEE

HQ EQUAL EMPLOYMENT OPPOR OFC — DRCEE-H

HQ Equal Employment Opportunity Officer	MR. M. W. FRANCIOLI	7S44	49836	DRCEE-H
HQ Federal Women's Program Coordinator	MS. E. D. MANGANA-SWAN	7S44	49836	DRCEE-H

DEPUTY CG FOR MAT DEVELOPMENT — DRCDMD

DCG for MD	LTG R. J. BAER	10N06	49705	DRCDMD
Asst Deputy for MD	MR. J. D. BLANCHARD	10N06	49709	DRCDMD
Asst Deputy/Science & Technology	MR. N. L. KLEIN	10N06	49560	DRCDMD-ST
Asst Deputy/Int'l R&D	MR. B. R. DUNETZ	10N12	48252	DRCDMD
Executive Off	LTC A. D. RODGERS	10N06	49711	DRCDMD
SA for Minor Prog	MR. J. STOLARICK	10N12	49559	DRCDMD-MP
Task Group	MAJ A. GRAVATT (Act)	10W12	48657	DRCDMD-TG
Admin Group	MS. T. SHIFFLETT	10W12	48692	DRCDMD

DIRECTORATE FOR DEVELOPMENT & ENG — DRCDE

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Deputy Director	DR. R. L. HALEY	8E08	49493	DRCDE
Executive Officer	COL J. F. BLEECKER	8E08	49494	DRCDE-X
Prog Spt Ofc	MR. G. F. SCORTIA	8N55	48537	DRCDE-A
Specs, Stds & Engr	MR. J. KICAK (Act)	8N14	49828	DRCDE-E
Foreign S & T	COL J. G. MIKULA (Act)	8N47	48853	DRCDE-F
Ind Ln Ofc	MR. J. W. CRELLIN	8S57	48978	DRCDE-L
Tri-Svc Ind Info Ctr	Army/Navy/ A/F	8S56	48948	DRCDE-LO
Army RDA Mag	MR. V. L. NAISAWALD	8N23	49586	DRCDE-LN
Prog & Bud	MR. R. D. GREENE	8E14	49849	DRCDE-P
Sys Eval & Test	MR. J. A. LOCKERD	8N22	49811	DRCDE-R
Sys Dev	MR. E. M. SEDLAK	8N54	49850	DRCDE-D
Development Managers:				
Air Defense	COL T. A. CRAWFORD	8N36	49872	DRCDE-DA
Cmd & Control	COL R. H. ELLIOTT, JR.	8N28	48392	DRCDE-DE
Field Artillery	LTC R. A. FADEL	8N48	49871	DRCDE-DF
Sol/Tng D/Spt Sys	COL E. A. THOMPSON	8N36	48605	DRCDE-DG
Aviation	COL E. R. SHORE	8N32	48118	DRCDE-DH
Tac Comp SFTWR	VACANCY	8N32	49819	DRCDE-DK
Spec Mun	MR. C. RUBEN	8N48	48753	DRCDE-DM
Armor/Infantry	COL A. F. COLLINS	8N42	48620	DRCDE-DW
Sig Int/EW	LTC A. R. MADSEN	8N24	48118	DRCDE-DX

DIRECTORATE FOR BATTLEFIELD SYSTEMS INTEGRATION — DRCBSI

Director	BG S. SHERIDAN (13 Nov 78)	4S26	49112	DRCBSI
Deputy Director	VACANT	4S26	47517	DRCBSI
Associate Dir for Tech Opns	VACANT	4S26	49165	DRCBSI
Executive Officer	MAJ J. R. POWER	4S26	47518	DRCBSI-X
Systems Directors:				
Air Defense	LTC(P) B. R. HUGGINS	4S26	49165	DRCBSI-AD
Armor	VACANT	4S26	49132	DRCBSI-A
Artillery	LTC W. W. BREEN	4S26	49165	DRCBSI-AR
Aviation	COL J. L. TOW	4S26	49132	DRCBSI-AV
Cbt Spt/Nuc	COL J. E. McDONNELL	4S26	49154	DRCBSI-CN
Cmd, Cntl & Comm	COL J. R. HAY	4S26	49132	DRCBSI-C
Infantry	COL C. J. GEARIN	4S26	49116	DRCBSI-I
Logistics	VACANT	4S26	49187	DRCBSI-L
Mil Intel	COL R. W. WILMOT	4S26	49132	DRCBSI-MI
Technical Office:				
OP Rsch Anal	DR. G. ANDERSEN	4S26	49144	DRCBSI-OR
Sys Eng	MR. F. FAIRCHILD	4S26	48279	DRCBSI-SE
OP Rsch Anal (Cost)	MR. R. VERBEKE	4S26	49165	DRCBSI-OR/C
Elec Eng	MR. A. GIAMBALVO	4S26	49165	DRCBSI-EE

OFFICE OF PROJECT MANAGEMENT — DRCPM

Chief	COL L. M. EEK, JR.	10N18	49571	DRCPM
Asst Chief	MR. R. L. MICHELLON	10N18	49570	DRCPM
Admin Off	MR. P. PAIGE	10N19	48220	DRCPM
Project Officers				
PM TNG	VACANCY	10N19	49572	DRCPM
PM CHARTERS	MR. P. N. GARNER (Act)	10N19	49572	DRCPM
MGT INT	LTC M. P. WALLS	10N33	48372	DRCPM
MGT INT	MR. J. H. DAVIDSON	10N33	48372	DRCPM
RECAP/DAPR/LOGCAP	MR. C. W. LETSEN (Act)	10N33	48372	DRCPM
ARRCOM, ARADCOM, CORADCOM, CERCOM	MR. T. MEADE	10N25	49579	DRCPM
ARRCOM, ARADCOM	MRS. M. MAREK	10W13	49581	DRCPM
AVRADCOM, TSARCOM, ERADCOM	MR. N. VAILLANT	10N25	48671	DRCPM
TARCOM, TARADCOM	MR. H. C. MELVIN	10W13	48671	DRCPM
MIRCOM, MIRACOM	MR. G. B. LEVVY	10W13	48671	DRCPM
MIRCOM, MIRADCOM, SAR	MR. F. O. ANGEL	10W13	48671	DRCPM

OFC OF INTERNATIONAL R&D — DRCIRD

Chief	COL R. J. CUTHBERTSON	9W14	48367	DRCIRD
Asst Chief	R. C. COOK	9W14	48367	DRCIRD
Plans & Programs	LTC H. W. LEISNER	9W15	48555	DRCIRD
DEA/Sci Engr Progs	MR. W. A. SILBERT	9W14	48367	DRCIRD
INT'L R&D	MR. J. G. WASKO	9W14	48367	DRCIRD
NATO; TTCP; ASCC; CENTO	MR. M. Y. HARVEY	9W14	48367	DRCIRD
	MR. A. A. BERMAN	9W14	48367	DRCIRD
	MR. P. J. PFEIFFER	9W14	48367	DRCIRD
CO-OP R&D, Dev Shar; MOU	MR. R. J. FACEY	9W14	48367	DRCIRD
ABCA; TEAL	LTC J. M. LOWE	9W14	48367	DRCIRD
	MS. L. JONES	9W14	48367	DRCIRD
Loans; Travel	MS. D. WHITLEY	9W14	48367	DRCIRD

OFFICE OF PRODUCT IMPROVEMENT — DRCPI

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Tech Mgt Div	MR. R. ODELL	3W14	49203	DRCPI
Program Control & Budget Div	MR. S. RICHEY	3W14	49200	DRCPI

OFFICE OF MANUFACTURING TECHNOLOGY — DRCMT

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Electronics	MR. F. MICHEL	9N08	48298	DRCMT
Materials	MR. L. CROAN	9N08	48284	DRCMT
MM&T/MACI	MR. E. GARDNER	9N08	48284	DRCMT
Prod Engr	MR. P. CHERNOFF	9N08	48284	DRCMT
PESO	MR. R. DELMAR/ MR. J. DONNELLY	9N08	48288	DRCMT
Tech Transfer	MR. G. SCHUCK	9N08	48284	DRCMT
Value Engr	MR. H. MLODOZENIEC	9N08	48288	DRCMT

OFC OF LAB & DEV CENTER MGT — DRCLDC

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ARRADCOM	MR. T. SHIRATA	10N30	47676	DRCLDC
MERADCOM/TARADCOM	(Vacancy)	10N24	49561	DRCLDC
ARO	DR. G. BUSHEY	10N24	49565	DRCLDC
ERADCOM/CORADCOM/MIRADCOM	MR. J. BENDER	10N24	49561	DRCLDC
NARADCOM/AMMRC	MR. R. ZENTNER	10N30	48059	DRCLDC
AVRADCOM/HEL	MR. J. LINDWARM	10N24	49566	DRCLDC
Facil & Equip	MR. C. CLIFFORD	10N24	49562	DRCLDC
Personnel	MR. M. SYKES	10N24	49562	DRCLDC

LIAISON

TO HEADQUARTERS, DARCOM

*United Kingdom	LTC G. J. QUIRKE	10S44	49675	BLNO
*Canada	LTC J. C. BEREZOWSKI	10S44	49679	CLNO
*Germany	COL H. ROTHE	10S38	49684	GELNO
Marine Corps	MAJ M. R. JANAY	10S44	49676	DRCGS-F
TRADOC/Logistics Center	LTC H. M. HAMMER	10S44	49678	DRCGS-L
TSARCOM, Aviation Officer	COL D. B. KING	AVN	698-5473	DRSTS-X
DESCOM	MR. E. G. KILPATRICK	10W16	49620	DRCGS-D
FSTC	MR. J. A. BURT	8N55	48538	DRXST-WLO

*DARCOM Point of Contact for all Documents and Visits is Security Office, DARCOM Security Support Activity, Atlanta, GA, Autovon 797-5543/44

FROM HEADQUARTERS, DARCOM TO

Hq, AF Systems Command*	MR. J. H. PROCTOR	981-5181	DRXFA(SDOA)
US Navy Weapons Center*	LTC R. F. BOYD	245-3544	
Kirtland AFB*	COL J. A. BERRIER	964-4822	DRCFO
DARCOM Liaison Office TCATA/Ft. Hood, TX.	LTC D. BURLESON	737-1228	DRXFS
DARCOM RDT&E Liaison Office, HQ, TRADOC	LTC D. SANDERS	680-3637	

*FOR MAILING ADDRESS, MISSION INFO, ETC., CALL OR VISIT DRCDE-A, TEL EXT 48537, ROOM 8N55 5001 EISENHOWER AVE., ALEXANDRIA, VA 22333.

MISCELLANEOUS NUMBERS

STAFF DUTY OFFICER	G2C60	49223	
AMBULANCE			
(During Duty Hours, Call the Clinic)	1S51	43296	
(After Duty Hours, Call the Guard)	Lobby	9-557-1144	
DOD BLDG ADMINISTRATOR	1S34	48099	OSA
DARCOM OPERATIONS CENTER	G2C60	48660	
LSSA HQ SUPPORT DIVISION	4N26	48686	DRXLS-LH
DARCOM PERS SPT ACTV	2E18	48499	DRXMM-P
CIVILIAN EMPLOYEE HEALTH SVC (Clinic)	1S51	48296	
CLASSIFIED MAIL CENTER	G2W07	49585	DRXAM-AMC
COMMAND CONFERENCE ROOM	10N48	48988	DRXAM-PA
CONFERENCE ROOM SCHEDULING	1S17	48485	DRXAM-PA
CREDIT UNION/DARCOM	7C22	48311	
DRIVERS SERVICE	G2W12	48091	DRXAM-GD
DSSW, ALEXANDRIA, VA	7N28	48878	
GRAPHICS FACILITY	1C22	48491	DRXAM-PG
GUARD OFFICE	Lobby	9-557-1144	
LOCATOR SERVICE (MIL PERS)	2C45	49339	DRXMM-MR
LOCATOR SERVICE (CIV PERS)	2C33	49491	DRXMM-CO
PHOTOGRAPHIC FACILITY	1C44	48489	DRXAM-PP
PRINTING & DUPLICATING	G2C37	49603	DRXAM-ABP
PUBLICATIONS SECTION	1E06	48149	DRXAM-ABE
PUBLICATIONS STOCK ROOM	G3C21	49663/4	DRXAM-ABS
RECEPTIONIST	Lobby	49191	
RESERVATIONS & TICKETS (OFFICIAL)	1S38	48108	USASCAF
SPECIAL SECURITY OFFICE (SSO)	G2C63	48986	MISG-DRC
TELECOMMUNICATIONS CENTER (Msg.	G3C24	49009	CCNC-BHA-OT
TELECOMMUNICATIONS CENTER (DATAFAX)		48601/2	
TELEPHONE Service Control Off (Mr. Ford)	G3W18	49001	CCNC-BHA-ST
TOP SECRET REPOSITORY	G2W09	49590	DRXAM-AMT
UNCLASSIFIED MAIL CENTER	G2C16	49594	DRXAM-AMU
USA EQUIP AUTHORIZATIONS REV ACTV	9C32	49292	DRXEA-C
DARCOM REPORTS MANAGEMENT OFFICE	4S51	49322	DRXLS-LB
FORMS MANAGEMENT OFFICER	1N58	49141	DRXAM-AR

PROGRAM/PROJECT/PRODUCT MANAGERS

Army Container Oriented Distribution System (ACODS)	COL W. H. DANZEISEN, JR., PM	9W22	48799	DRCPM-CS
	MR. C. H. SCHIPP, Deputy PM	9W22	48800	DRCPM-CS
Mobile Electric Power (MEP)	COL A. G. ROWE, PM	Ft. Belvoir AVN	354-3031	DRCPM-MEP
	MR. R. A. STANGE, Deputy PM	Ft. Belvoir	664-1147	DRCPM-MEP-D
Advanced Attack Helicopter (AAH)	LTC B. G. JONES, Chief	7N45	48939	DRCPM-AAH-WFO
Munitions Production Base Modernization & Expansion (MPBME)	MR. V. J. GORMAN, Chief	9S08	49361	DRCPM-PBM-LN1
Remotely Monitored Battlefield Sensor Systems (REMBASS)	MAJ D. TURNER, Chief	Ft. Belvoir	534-5702	DRCPM-RBS
PATRIOT	COL J. L. KENNEDY, Chief	10N54	48886	DRCPM-MDW
SANG Modernization Program	LTC R. L. DUPWE, Chief	9N18	49126	DRCPM-NGW
Satellite Communication (SATCOM)	MAJ T. N. THOMAS, Chief	7N45	48940	DRCPM-SC-W
US ROLAND	LTC W. C. HARDWICK, Chief	10N54	48240	DRCPM-ROL-W
XM-1 Tank System	LTC P. M. McVEY	1S07	48504	DRCPM-GCM-WF
Nuclear Munitions	MR. E. L. BACOT	1S07	48565	DRCPM-NUC-W
Fighting Vehicle Systems (FVS)	MR. J. SARAPULSKI, Chief	3S23	49079	DRCPM-FVS-W

AUTOVON 284 + XXXX
COMMERCIAL 202-274-XXXX
CABLE ADDRESS CDRDRC ALEX VA

STAFF DUTY OFFICER
AUTOVON 284-9223
COMMERCIAL 202-274-9223
OPERATIONS CENTER: Administrative: 274-8586/7
Emergency: 274-8660

1 OCTOBER 1978

THIS IS NOT AN OFFICIAL ORGANIZATIONAL CHART

HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

5001 EISENHOWER AVE., ALEXANDRIA, VA 22333

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  - MR. C. H. SCHIPP, Deputy PM — 9W22 48800 DRCPM-CS
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  - MR. R. A. STANGE, Deputy PM — Ft. Belvoir 664-1147 DRCPM-MEP-D
- Advanced Attack Helicopter (AAH)
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  - MR. V. J. GORMAN, Chief — 9S08 49361 DRCPM-PBM-LN1
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- PATRIOT
  - COL J. L. KENNEDY, Chief — 10N54 48886 DRCPM-MDW
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  - LTC P. M. McVEY — 1S07 48565 DRCPM-GCM-WF
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- (After Duty Hours, Call the Guard) — Lobby 9-557-1144
- OSD BLDG ADMINISTRATOR — 1S34 48099 OSD
- DARCOM OPERATIONS CENTER — G2C60 48660
- LSSA HQ SUPPORT DIVISION — 4N26 48686 DRXLS-LH
- DARCOM PERS SPT ACTV — 2E18 48499 DRXMM-P
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- TELEPHONE Service Control Off (Mr. Ford) — G3W18 49001 CCNC-BHA-ST
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  - Ind Sol/Tng Dev/Spt — COL E. A. THOMPSON — 8N42 48605 DRCDE-DG/DS
  - Aviation — COL E. R. SHORE — 8N32 48392 DRCDE-DH
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- RSI Coordinator — MR. R. B. MAYO — 9W14 48367 DRCIRD
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JANUARY 1979

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HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

5001 EISENHOWER AVE., ALEXANDRIA, VA 22333

STAFF DIRECTORY

OCTOBER 1979

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Deputy CG for Materiel Readiness	LTG H. F. HARDIN, JR.	10S06	49700	DRCDMR
Deputy CG for Resource Management	MG R. L. BERGQUIST	10E20	49640	DRCDRM
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Deputy Chief of Staff	COL L. A. HERGENROEDER	10S60	49644	DRCDCS

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Asst Deputy/Science & Technology	Vacant	10N06	49560	DRCDMD-ST
Asst Deputy/Int'l RD&S	MR. B. R. DUNETZ	10N12	48252	DRCDMD
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Task Group	MAJ A. GRAVATT (Act)	10W12	48657	DRCDMD-TG
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HQ Mil Pers Ofc	CPT S. M. NEALE	2C45	49333	DRXMM-MR
HQ Equal Oppor Ofc	CPT R. E. BLAKELY	1W07	49478	DRXMM-RR
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Installations & Services Activity	COL J. G. McNALL, Rock Island, IL	AV 793-5018		DRCIS-RI

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AMBULANCE			
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(After Duty Hours, Call the Guard)	Lobby	9-557-1144	
OSD BLDG ADMINISTRATOR	1S34	48099	OSD
DARCOM OPERATIONS CENTER	G2C60	48586	DRCOC
LSSA HQ SUPPORT DIVISION	4N26	48686	DRXLS-LH
DARCOM PERS SPT ACTV	2E18	48499	DRXMM-P
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COMMUNICATIONS ELECTRONICS Sys Div	G1C02	48515	CORADCOM
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DRIVERS SERVICE	G1S01	48091	DRXAM-GD
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GRAPHICS FACILITY	1C22	48491	DRXAM-PG
GUARD OFFICE	Lobby	9-557-1144	
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LOCATOR SERVICE (CIV PERS)	2C33	49491	DRXMM-CO
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PUBLICATIONS SECTION	1E06	48149	DRXAM-ABE
PUBLICATIONS STOCK ROOM	G3C21	49663/4	DRXAM-ABS
RECEPTIONIST	Lobby	49191	
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TELECOMMUNICATIONS CENTER (DATAFAX)		48601/2	
TELEPHONE Service Control Off:	G3W18	49000	CCNC-BHA
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UNCLASSIFIED MAIL CENTER	G2C16	49594	DRXAM-AMU
USA EQUIP AUTHORIZATIONS REV ACTV	9C32	49292	DRXEA-C
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FORMS MANAGEMENT OFFICER	1E06	48151	DRXAM-ABE
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Command Counsel	MR. F. X. McKENNA	7E06	48046	DRCGC
The Deputy Command Counsel	MR. B. M. BLAIR	7E06	48046	DRCGC-P
Deputy Command Counsel/Command Staff Judge Advocate	COL B. H. RADOSH	7N56	48049	DRCGC-S
Executive Off	MR. J. K. GAISER	7E06	48046	DRCGC-A
Adversary Proceedings Div	MR. R. I. BARDAVID	7N48	48080	DRCGC-B
Mil Law/Legal Svc Div	COL B. H. RADOSH	7N56	48049	DRCGC-S
Patent Law Div	MR. N. EDELBERG	7E06	48031	DRCGC-L
Procurement Law Div	MR. B. M. BLAIR	7E06	48046	DRCGC-P
Plans & Operations Ofc	MR. J. K. GAISER	7E06	48046	DRCGC-A

DIRECTORATE FOR MGT INFO SYSTEMS — DRCMS

Director	MR. J. C. GILBERT	4E16	48626	DRCMS
Deputy Director	MR. J. A. ARNTSON	4E16	48626	DRCMS
Executive Off	LTC C. O. WALTERS	4E16	48626	DRCMS
Administrative Off	MR. L. L. JOHNSTON	4E13	48310	DRCMS-A
Mat Dev Sys Div	MRS. C. G. MORRIS	4E08	48946	DRCMS-I
Mat Rdn Sys Div	MR. J. E. SMITH	4N52	49140	DRCMS-E
Resources Div	MR. J. CIANFLONE	4E22	49480	DRCMS-T

OFFICE OF THE CHAPLAIN — DRCCH

Staff Chaplain	COL D. L. WILSON	10S29	49432	DRCCH
Chaplain	LTC R. S. BEZANSON, JR.	10S29	49432	DRCCH
Chaplain	MAJ J. B. SMITH	10S29	49432	DRCCH

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Surgeon	COL R. T. CUTTING, M.D.	10S24	49470	DRCSG
Occupational Medicine	MAJ R. J. CHLOUPEK, M.D.	10S24	49470	DRCSG-O
Environmental Quality	LTC R. M. CLEARWATER	10S24	49470	DRCSG-S
Medical Physics	LTC J. H. BELL	10S24	49470	DRCSG-R
Medical Entomologist	MAJ C. W. JOHNSON	10S24	49470	DRCSG-E
Industrial Hygienist	MR. C. J. JORDAN	10S24	49470	DRCSG-I

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Public Affairs Officer/Industry Relations	MR. J. J. FOLEY	10S35	48010	DRCIN
Comd Info	MR. E. DUGGAN	10S35	48019	DRCIN-CI
Public Info	MR. J. W. PENTON, JR.	10S35	48012	DRCIN-PI
Community Relations & Special Projects	MS. E. P. HANCE	10S35	48013	DRCIN-CRSP

SECURITY OFFICE — DRCSS

Chief	COL B. T. WHITE	10N34	49454	DRCSS
Physical Security	MAJ W. M. SYMONDS	10N44	49714	DRCSS
Intelligence	MR. R. B. KUTCH	10N34	49454	DRCSS
Scty Spt Acty	LTC R. JOHNSON, Ft. Gillem	AV 797-5620		DRXPX

SAFETY OFFICE — DRCSF

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Aviation	LTC H. L. HUFF	10N36	49475	DRCSF-A
Engineering	MR. P. J. RUTLEDGE	10N41	49340	DRCSF-E
Health Physics	MR. D. N. TARAS	10N41	49340	DRCSF-P
Occupational Safety & Health	MR. L. L. MOTHERSBAUGH	10N36	49475	DRCSF-S

SPECIAL ASSISTANTS — DRCSA

Joint Activities	COL C. HENNE, JR.	10S18	49695	DRCSA-JS
Technical Relations	MR. H. HANDLER	10E14	49630	DRCSA-H
Congress Affairs	MR. C. R. SMITH	10S32	48263	DRCSA-C

AVIATION OFFICE — DRSTS-X

Chief	COL D. H. SMITH, St. Louis, MO	AV 693-0624

NUCLEAR-CHEMICAL OFFICE — DRCNC

Chief	COL G. A. CARRUTH	10W18	49610	DRCNC

PROGRAM/PROJECT/PRODUCT MANAGERS

BETA	DR. P. C. DICKINSON	Adelphi AVN 290-3280	AVN 290-3280 BETA-PD
BLACK HAWK	LTC C. A. WEAVER, JR.	7N45 48939	DRCPM-BH-APM/SP
Mobile Electric Power (MEP)	COL A. G. ROWE, PM	Ft. Belvoir AVN 354-3031	DRCPM-MEP
	MR. R. A. STANGE, Deputy PM	Ft. Belvoir 664-1147	DRCPM-MEP-D
Advanced Attack Helicopter (AAH)	LTC B. G. JONES, Chief	7N45 48039	DRCPM-AAH-WFO
Munitions Production Base Modernization & Expansion (MPBME)	MR. V. J. GORMAN, Chief	9S08 49361	DRCPM-PBM-F01
Nuclear Munitions	MR. E. L. BACOT	1S07 274-8504	DRCPM-NUC-W
PATRIOT	COL J. L. KENNEDY, Chief	10N54 48886	DRCPM-MDW
SANG Modernization Program	LTC R. L. DUPWE, Chief	9N18 49126	DRCPM-NGW
Satellite Communication (SATCOM)	Vacant	7N45 48940	DRCPM-SC-W
US ROLAND	LTC W. C. HARDWICK, Chief	10N54 48240	DRCPM-ROL-W
XM1 Tank	LTC W. R. RITTENHOUSE	1S07 48565	DRCPM-GCM-WF
Fighting Vehicle Systems (FVS)	MR. J. SARAPULSKI, Chief	3S23 49079	DRCPM-FVS-W

OFFICE OF THE INSPECTOR GENERAL & DARCOM IG ACTIVITY — DRCIG / DRXIG

Inspector General	COL R. D. DESCOTEAU	1S12	48070	DRCIG

DARCOM INSPECTOR GENERAL ACTIVITY

Chief	COL R. D. DESCOTEAU	1S12	48070	DRXIG
Coordination & Control Division	MR. R. V. MURPHY	1S14	48072	DRXIG-X
Administrative Officer	MS. W. K. BEASTON	1S14	48079	DRXIG-X
Investigations Division	COL G. B. CALHOUN	1S08	48064	DRXIG-V
Eastern Inspection Division	COL E. A. OPSTAD	1S24	48084	DRXIG-E
Western Inspection Division	COL J. E. ALEXANDER	Autovon 693-3441		DRXIG-W

HISTORICAL OFFICE — DRCHO

Chief	DR. D. BIRDSELL	G1W18	48191	DRCHO
Annual Historical Reports/Unit Histories	MR. M. G. MARKEN	G1W18	48192	DRCHO
Historical Monographs/Studies	MR. C. W. LYNCH	G1W18	48192	DRCHO
Special Studies/Historical Services	MR. A. A. PUTIGNANO (Act)	G1W18	48192	DRCHO
Historical Sources	MR. M. F. COPPOLA	G1W18	48191	DRCHO

DIRECTOR OF COMM ELECTRONICS & US ARMY COMM COMMAND-DARCOM — DRCCE / CCNC

Director	COL E. E. TABOR	3S10	49050	DRCCE
Commander	COL E. E. TABOR	3S10	49050	CCNC-C
Deputy Commander	COL H. F. EADS	3S10	49055	CCNC-DC
SGT Major	SGM J. HEININGE	3S10	49056	CCNC-SM
Operations Div	MR. A. SCHWARTZ	3S19	49073	DRCCE-O
Plans Div	MR. J. E. GOTTFRIED	3S06	49063	DRCCE-P
Resources Div	MR. A. E. PAIGE	3S14	49071	DRCCE-R
Admin Off	MRS. M. CARROLL	3S14	49071	DRCCE-R

USA DARCOM SERVICE SUPPORT ACTIVITY — DRXAM

Director	LTC R. T. BOYLE, JR.	1E14	48134	DRXAM
Deputy Director	MR. L. F. KORTUM	1E14	48134	DRXAM
Admin Svc Div	LTC M. A. ALLSHOUSE	1E10	48139	DRXAM-A
Mail Management Br	MR. J. W. HENDERSON	G2C08	48341	DRXAM-AM
Printing & Publications Br	MR. H. S. JOHNSON	1E10	48141	DRXAM-AB
Administrative Management Br	MR. E. M. THORNE, JR.	1E06	49141	DRXAM-AR
Audio-Visual Presentations Div	MR. B. W. ADKINS	1C13	48481	DRXAM-P
General Services Div	1LT S. D. POST	1S52	49005	DRXAM-G
Space & Sup	MR. S. R. LINKE	1S58	49095	DRXAM-GA
Equip Mgr	MRS. R. ELSER	1S58	49095	DRXAM-GA
Travel	MR. J. H. BARGET	1S52	49006	DRXAM-GT
HQ Budget & Prog Ofc	MR. V. L. GUILER	1E18	48128	DRXAM-B
HQ Security Ofc	MRS. B. E. MILLER	1E22	49066	DRXAM-S
Staff C-E Off	MAJ R. THORNTON	GC320	48061	DRXAM-CE
Staff Librarian	MS. I. O. OMDAHL	7S35	48087	DRXAM-L
HQ Tech Library	MR. J. FRAGALE, JR.	7S35	48152	DRXAM-TL

DIRECTORATE FOR PRODUCT ASSURANCE — DRCQA

Director	MR. S. J. LORBER	4W22	48929	DRCQA
Executive Assist	MR. R. E. SMITH	4W22	48929	DRCQA
Product Quality Div	MR. R. F. TINER	4W20	48899	DRCQA-P
Engineering Div.	MR. A. H. NORDSTROM	4S06	48912	DRCQA-E
System Assessment Div.	LTC J. T. KLAUSNER	4W22	48925	DRCQA-S

EQUAL EMPLOYMENT OPPORTUNITY OFFICE — DRCEE

DARCOM Equal Employment Opportunity Off	MR. G. L. JONES	10S15	49690	DRCEE
DARCOM Fed Women's Prog Mgr.	MS. A. G. TROUGHTON	10S15	49690	DRCEE
DARCOM Hispanic Emp Prog Mgr	Vacant	10S15	49690	DRCEE

HQ EQUAL EMPLOYMENT OPPOR OFC — DRCEE-H

HQ Equal Employment Opportunity Officer	MR. M. W. FRANCIOLI	7S44	49836	DRCEE-H
HQ Federal Women's Program Manager	MS. C. PAGE	7S44	48021	DRCEE-H
HQ Hispanic Emp Prog Mgr	MS. C. L. STROUD	7S44	49836	DRCEE-H

HQ CIVILIAN PERSONNEL OFFICE — DRCCO

Civilian Personnel Officer	Vacant	2S32	49427	DRCCO-Z
Management-Employee Relations	MR. B. H. FLEMING	2S36	49106	DRCCO-ML
Position & Pay Management	MR. D. SHEEHAN	2S25	49495	DRCCO-PC
Recruitment & Placement	MR. R. L. LOWELL	2S24	49446	DRCCO-RP
Technical Services	MS N. D. HALBERT	2C33	49491	DRCCO-TS
Training & Development	MR. R. F. SFORZA (Act)	2W18	49412	DRCCO-TD

AUTOVON 284 + XXXX
COMMERCIAL 202-274-XXXX
CABLE ADDRESS CDRDRC ALEX VA

STAFF DUTY OFFICER
AUTOVON 284-9223
COMMERCIAL 202-274-9223
OPERATIONS CENTER: Administrative: 274-8586/7
Emergency: 274-8660

DIRECTORATE FOR DEVELOPMENT & ENG — DRCDE

Director	MG S. R. SHERIDAN	8E08	49490	DRCDE
Deputy Director	DR. R. L. HALEY	8E08	49493	DRCDE
Executive Officer	COL J. TEDESCHI	8E08	49493	DRCDE-X
Prog Spt Ofc	MR. G. F. SCORTIA	8N55	48537	DRCDE-A
Word Processing Center	MRS. D. MAHON	8N41	48832	DRCDE-AW
Ind Ln Ofc	MR. J. W. CRELLIN	8S57	48978	DRCDE-L
Tri-Svc Ind Info Ctr Receptionist	Army/Navy/A/F	8S56	48948	DRCDE-LO
Army RDA Mag	MR. V. L. NAISAWALD	8N23	49586	DRCDE-LN
Foreign S & T	MR. B. G. PALES	8N47	48853	DRCDE-F
Prog & Bud	MR. R. D. GREENE	8E14	49849	DRCDE-P
Sys Eval & Test	MR. J. A. LOCKERD	8N22	49815	DRCDE-R
Net Assessment	COL G. L. STONE	8N31	49651	DRCDE-RR
Testing	LTC W. L. JONES	8N22	49811	DRCDE-RT
Specs, Stds & Eng	MR. J. KICAK	8N14	49828	DRCDE-RE
Battlefield Auto Mgt	COL J. SHILLINGSBURG	8N28	48117	DRCDE-C
Systems Dev	MR. E. M. SEDLAK	8N54	49850	DRCDE-D
Air Defense	COL T. A. CRAWFORD	8N36	48604	DRCDE-DA
Cmd & Control	COL R. H. ELLIOTT, JR.	8N28	48392	DRCDE-DE
Field Artillery	COL R. A. FADEL	8N48	49870	DRCDE-DF
Ind Sol/Tng Dev/Spt	COL E. A. THOMPSON	8N42	48605	DRCDE-DG/DS
Aviation	COL E. R. SHORE	8N32	48392	DRCDE-DH
Spec Mun	MR. C. RUBEN	8N48	49870	DRCDE-DM
Armor/Infantry	COL A. F. COLLINS	8N42	49870	DRCDE-DW
Sig Int/EW	COL A. R. MADSEN	8N42	48118	DRCDE-DX

DIRECTORATE FOR BATTLEFIELD SYSTEMS INTEGRATION — DRCBSI

Director	MG J. H. PATTERSON	4S30	49112	DRCBSI
Deputy Director	COL J. L. TOW	4S30	49144	DRCBSI
Associate Dir for Tech Opns	Vacant	4S30	49165	DRCBSI
Executive Officer	MAJ J. R. POWER, JR.	4S30	47518	DRCBSI
Admin Off	MRS. M. T. GILLELAND	4S30	48279	DRCBSI
Systems Directors:				
Air Defense	COL B. R. HUGGINS	4S30	48279	DRCBSI-AD
Armor	COL J. J. TEDESCO	4S30	49132	DRCBSI-A
Artillery	COL F. J. BURKE	4S30	49132	DRCBSI-AR
Aviation	COL J. L. TOW	4S30	49147	DRCBSI-AV
Cbt Spt/Nuc	COL J. R. C. ROOP	4S30	49187	DRCBSI-CN
Cmd, Cntl & Comm	COL J. R. HAY	4S30	49166	DRCBSI-C
Infantry	COL G. M. SIBBLES	4S30	48279	DRCBSI-I
Logistics	COL H. BOONE	4S30	49187	DRCBSI-L
Mil Intel	COL L. HARRIS	4S30	49166	DRCBSI-MI
Technical Office:				
OP Rsch Anal	DR. G. R. ANDERSEN	4S30	49147	DRCBSI-OR
Sys Eng	MR. F. W. FAIRCHILD	4S30	49165	DRCBSI-SE
OP Rsch Anal (Cost)	MR. R. VERBEKE	4S30	49147	DRSBSI-OR/C
Elec Eng	MR. A. V. GIAMBALVO	4S30	49165	DRCBSI-EE

OFFICE OF PROJECT MANAGEMENT — DRCPM

Chief	COL L. M. EEK, JR.	10N18	49570	DRCPM
Asst Chief	MR. R. L. MICHELLON	10N18	49571	DRCPM
Admin Off	Vacant	10N18	48220	DRCPM
Project Officers				
PM TNG	MAJ R. M. OTT	10N19	49572	DRCPM
PM CHARTERS	MR. P. N. GARNER	10N19	49572	DRCPM
MGT INT	LTC R. A. LOHR	10N33	48372	DRCPM
MGT INT	LTC J. D. LEIDERTIZ	10N33	48372	DRCPM
MGT INT	MAJ R. C. WILLIAMS	10N33	48372	DRCPM
MGT INT	MAJ D. E. SULLIVAN	10N25	49580	DRCPM
MGT INT	MR. J. H. DAVIDSON	10N33	48372	DRCPM
RECAP/DAPR/LOGCAP	MR. C. W. LETSEN	10N33	48372	DRCPM
ARRCOM, ARADCOM	MR. T. H. MEADE	10N25	49579	DRCPM
	MRS. M. MAREK	10W13	48671	DRCPM
AVRADCOM, TSARCOM	MR. N. A. VAILLANT	10N25	49579	DRCPM
CERCOM/CORADCOM/ERADCOM	MR. E. B. HOLLEY	10N25	49581	DRCPM
TARCOM, TARADCOM	MR. H. C. MELVIN	10W13	48671	DRCPM
	MR. W. F. ABBA	10W13	48671	DRCPM
MICOM	MR. G. B. LEVY	10W13	48671	DRCPM
MICOM, SAR	MR. F. O. ANGEL	10W13	48671	DRCPM

OFFICE OF INTERNATIONAL R&D — DRCIRD

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Asst Chief	MR. R. C. COOK	9W14	48367	DRCIRD-X
Plans and Programs	MR. R. B. MAYO	10S11	49467	DRCIRD-P
Bilateral Talks	LTC S. J. ZAGALAK	9W14	48367	DRCIRD-B
COOP R&D, MOU	MR. R. J. FACEY	9W14	48367	DRCIRD-C
DEA/Sci Eng Progs	MR. W. A. SILBERT	9W14	48367	DRCIRD-D
International Progs	MR. M. Y. HARVEY	9W15	48554	DRCIRD-I

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Chief	COL G. F. BYRNES	3W14	49200	DRCPI
Tech Mgt Div	MR. R. ODELL	3W14	49203	DRCPI
Program Control & Budget Div	MR. S. RICHEY	3W14	49200	DRCPI

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Munitions	MR. J. L. BAER	9N08	48288	DRCMT
Electronics	MR. F. J. MICHEL	9N08	48298	DRCMT
Wpns & Matls	MR. L. S. CROAN	9N08	48284	DRCMT
Vehicles/MACI/ADCP	MR. E. E. GARDNER	9N08	48284	DRCMT
OMA Prod Engr	MR. P. CHERNOFF	9N08	48289	DRCMT
APESO	MR. R. DELMAR	9N08	48289	DRCMT
	MR. R. SPANGENBERG	9N08	48289	DRCMT
Aviation & Msls	MR. G. SCHUCK	9N08	48285	DRCMT
Value Engr	MR. H. MLODOZENIEC	9N08	48288	DRCMT

OFC OF LAB DEV COMMAND MGT — DRCLDC

Chief	MR. J. LINDWARM (Act)	10N24	49566	DRCLDC
ARRADCOM	MR. T. SHIRATA	10N30	47676	DRCLDC
ARO/ILIR	DR. G. BUSHEY	10N24	49561	DRCLDC
ERADCOM/CORADCOM/MIRADCOM	MR. J. BENDER	10N24	49561	DRCLDC
MERADCOM/NARADCOM/AMMRC	MR. R. ZENTNER	10N30	48059	DRCLDC
AVRADCOCM/TARADCOM/HEL/PM TRADE	MR. J. LINDWARM	10N24	49566	DRCLDC
Facil & Equip	MR. C. CLIFFORD	10N24	49565	DRCLDC
Personnel	MR. M. SYKES	10N24	49562	DRCLDC

LIAISON

TO HEADQUARTERS, DARCOM

*United Kingdom	LTC M. H. CAREY	10S44	49675	BLNO
*Canada	LTC J. C. BEREZOWSKI	10S44	49679	CLNO
*Germany	COL H. ROTHE	10S38	49684	GELNO
Marine Corps	MAJ M. R. JANAY	10S44	49676	DRCGS-F
TRADOC/Logistics Center	LTC W. E. WHITE	10S44	49678	DRCGS-L
ARRCOM Washington Field Office	COL R. J. HUDAK, Chief		49840/9450	
DESCOM	MR. E. G. KILPATRICK	10W16	49620	DRCGS-D
FSTC	MR. J. A. BURT	8N55	48538	DRXST-WLO
INSCOM:	LTC H. W. AREHEART	9S08	49362	IAFM-LND

*DARCOM Point of Contact for all Documents and Visits is Security Office, DARCOM Security Support Activity, Atlanta, GA, Autovon 797-5543/44

FROM HEADQUARTERS, DARCOM TO

Hq, AF Systems Command*	MR. J. H. PROCTOR	981-5181	DRXFA(SDOA)
US Navy Weapons Center*	LTC R. F. BOYD	245-3544	
Kirtland AFB*	COL J. A. BERRIER	964-4822	DRCFO
DARCOM Liaison Office TCATA/Ft. Hood, TX.	LTC D. BURLESON	737-1228	DRXFS
DARCOM RDT&E Liaison Office, HQ, TRADOC	LTC D. SANDERS	680-3637	

*FOR MAILING ADDRESS, MISSION INFO, ETC., CALL OR VISIT DRCDE-A, TEL EXT 48537, ROOM 8N55 5001 EISENHOWER AVE., ALEXANDRIA, VA 22333.

DARCOM FIELD ELEMENTS

MATERIEL READINESS

* US ARMY ARMAMENT MATERIEL READINESS COMMAND, ROCK ISLAND, IL (ARRCOM)

MG W. E. EICHER

Units/Activities

*US Army Watervliet Arsenal
*US Army Rock Island Arsenal
*US Army Pine Bluff Arsenal
*US Army Rocky Mountain Arsenal
US Army Frankford Caretaker Activity
US Army Frankford Asenal Caretaker Activity
US Army DARCOM Ammunition Center
Central Ammo Mgt Ofc Pacific (CAMO—PAC)
US Army Fld Svcs Activity/ARRCOM
Joint Convl Ammo Prog Coord Group (JCAP-CG)
US Army Tech Escort Unit
Crane Army Ammo Activity
Hawthorne Army Ammo Plant
Mississippi Army Ammo Plant
McAlester Army Ammo Plant

(25) GOCO Ammo Plants

Alabama, Childersburg, AL
Cornhusker, Grand Island, NB
Holston, Kingsport, TN
Indiana, Charleston, IN
Iowa, Middletown, IA
Kansas, Parsons, KS
Lake City, Independence, MO
Lone Star, Texarkana, TX
Louisiana, Shreveport, LA
Milan, Milan, TN
Radford, Radford, VA
Badger, Baraboo, WI
Longhorn, Marshall, TX
Sunflower, Lawrence, KS
Joliet, Joliet, IL
St. Louis, St. Louis, MO
Gateway, St. Louis, MO
Twin Cities, New Brighton, MN
Ravenna, Ravenna, OH
Riverbank, Riverbank, CA
Volunteer, Chattanooga, TN
Scranton, Scranton, PA
Hays, Pittsburgh, PA
Newport, Newport, IN
Phosphate Dev Wks, Muscle Shoals, AL

Zip Code 61299
Area Code 309
Telephone 794-5111
Autovon 793-5111

* US ARMY COMMUNICATIONS & ELECTRONICS MATERIEL READINESS COMMAND, FT. MONMOUTH, NJ (CERCOM)

MG J. K. STONER, JR.

Units/Activities

US Army HQ & Field Services Support Acty CERCOM
US Army TV-AUDIO Support Activity
US Army Comm Security Logistics Activity
US Army 241st MP Co.
US Army 389th United States Army Band
US Army Electronic Mat Readiness Acty (EMRA)

Zip Code 07703
Area Code 201
Telephone 532-1515
Autovon 992-1515

* US ARMY MISSILE MATERIEL READINESS COMMAND, REDSTONE ARSENAL, AL (MIRCOM)

MG L. RACHMELER

Units/Activities

Redstone Arsenal Support Activity (RASA)
US Army Metrology and Calibration Center
Contractor Equipment Records Center
US Army Field Service Activity/MIRCOM
291st MP Co
95th Svc Co/Calib

Zip Code 35809
Area Code 205
Telephone 876-2101
Autovon 746-2101

* US ARMY TANK-AUTOMOTIVE MATERIEL READINESS COMMAND, WARREN, MI (TARCOM)

MG H. F. HARDIN, JR.

Units/Activities

US Army Modification Ctr, Lima, OH
US Army Field Service Activity/TARCOM
US Army TARCOM Support Actv Selfridge, MI
HQ & Instl Spt Actv/TARCOM

Zip Code 48090
Area Code 313
Telephone 573-1131
Autovon 273-1132

* US ARMY TROOP SUPPORT AND AVIATION MATERIEL READINESS COMMAND, ST. LOUIS, MO (TSARCOM)

MG R. H. THOMPSON

Units/Activities

US Army Support Activity, Phila., PA
US Army Gen Mat & Petrl Activity (GMPA)
US Army St. Louis Area Support Center
US Army Field Svc Activity
Saginaw Army Aircraft Plant
Stradford Army Engine Plant
US Army Admin and Instl Support Activity
US Army Charleston Storage Activity, Charleston, SC

Zip Code 63120
Area Code 314
Telephone 263-2201
Autovon 693-2201

OTHER ELEMENTS

US ARMY DEPOT SYSTEM COMMAND, CHAMBERSBURG, PA (DESCOM)

BG J. S. WELCH

Units/Activities

*Anniston Army Depot, Anniston, AL
*Corpus Christi Army Depot, Corpus Christi, TX
*Letterkenny Army Depot, Chambersburg, PA
Savanna Army Depot Activity, Savanna, IL
*Mainz Army Depot, Mainz, Germany
Ober Ramstadt Army Depot Activity, Ober Ramstadt, Germany
*New Cumberland Army Depot, New Cumberland, PA
*Red River Army Depot, Texarkana, TX
Lexington-Blue Grass Army Depot Activity, Lexington, KY
*Sacramento Army Depot, Sacramento, CA
*Seneca Army Depot, Romulus, NY
*Sharpe Army Depot, Lathrop, CA
*Sierra Army Depot, Herlong, CA
*Tobyhanna Army Depot, Tobyhanna, PA
*Tooele Army Depot, Tooele, UT
Navajo Army Depot Activity, Flagstaff, AZ
Pueblo Army Depot Activity, Pueblo, CO
Umatilla Army Depot Activity, Hermiston, OR
Fort Wingate Army Depot Activity, Gallup, NM

Zip Code 17201
Area Code 717
Telephone 263-7151
Autovon 242-7151

US ARMY SECURITY ASSISTANCE CENTER, ALEXANDRIA, VA (USASAC)

MG T. H. BRAIN

Units/Activities

None

Zip Code 22333
Area Code 202
Telephone 274-8383
Autovon 284-8380

US ARMY TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD (TECOM)

MG J. R. Curry

Units/Activities

*US Army Aberdeen Proving Ground, MD
*US Army Dugway Proving Ground, UT
*US Army Yuma Proving Ground, AZ
US Army YPG Dev Trng & Test Det
*US Army Jefferson Proving Ground, IN
US Army Electronics Proving Ground
US Army EDG Digital Systems Test Co.
US Army Cold Regions Test Center
US Army Tropic Test Center
US Army Aircraft Development Test Actv
*White Sands Missile Range
523rd MP Co
259th MP Co
65th MP Plt
White Sands Missile Range Troop Comd

Zip Code 21005
Area Code 301
Telephone 278-4374
Autovon 283-4374

SEPARATE UNITS AND ACTIVITIES UNDER HEADQUARTERS, DARCOM

	Autovon
US Army Central TMDE Activity, Lexington, KY 40511	745-3206
US Army DARCOM Automated Log Mgt Sys Activity, St. Louis, MO 63101	268-6044
US Army DARCOM Augm Element, US Army Comm Sys Agcy, Ft. Monmouth, NJ 07703	992-5105
US Army DARCOM Catalog Data Activity, New Cumberland, PA 17070	977-6600
US Army DARCOM Field Ofc, Hq AF Sys Cmd. USAF, Andrews AFB, Washington, DC 20334	858-5181
US Army DARCOM Field Safety Activity, Charleston, IN 47111	366-7415
US Army DARCOM Inspector General Activity, Alexandria, VA 22333	284-8072
US Army DARCOM Installations and Services Activity, Rock Island, IL 61201	793-5018
US Army DARCOM Liaison Ofc/TCATA Ft. Hood, TX 76544	737-1228
US Army DARCOM Log Control Activity, Presidio of San Francisco, CA 94129	586-5701
US Army DARCOM Log Systems Spt Activity, Chambersburg, PA 17201	242-6389
US Army DARCOM Materiel Readiness Support Activity, Lexington, KY 40511	745-4237
US Army DARCOM Personnel Spt Activity, Alexandria, VA 22333	284-8195
US Army DARCOM QA Field Activity, Lexington, KY 40507	745-3449
US Army DARCOM Service Support Acty, Alexandria, VA 22333	284-8134
US Army DARCOM Security Support Activity, Forest Park, GA 30050	797-5621
US Army DARCOM Surety Field Activity, Dover, NJ 07801	880-5196
US Army Equip Auth Rev Activity, Alexandria, VA 22333	284-9292
US Army Federal Acquisition Regulation Work Gp, Rosslyn, VA 22209	226-5016
US Army Foreign Science and Technology Center, Charlottesville, VA 22901	274-7110
US Army Human Engr Lab, Aberdeen PG, MD 21005	283-3883
US Army Industrial Base Engr Activity, Rock Island Arsenal, IL 61201	793-5010
US Army LAO-Europe, APO NY 09403	879-6328
US Army LAO-FORSCOM, Ft. McPherson, GA 30330	588-3423
US Army LAO-Korea, APO SF 96301	438-2715
US Army LAO-TRADCC, Ft. Monroe, VA 23651	680-3637
US Army Log Mgt Center, Ft. Lee, VA 23801	687-4424
US Army Mgt Engr Trng Activity, Rock Island, IL 61201	793-6043
*US Army Materiel & Mechanics Resch Center, Watertown, MA 02172	955-3275
US Army Mat Sys Anal Activity, Aberdeen PG, MD 21005	283-2432
*US Army Research Ofc, Research Triangle Park, Durham, NC 27709	935-3331
US Army Research & Stdzn Gp/Europe, Box 65, London, England, APO New York 09510	
US Army Register of DARCOM Career Interns, Alexandria, VA 22333	284-8501
US Army Satellite Comm Agency, Ft. Monmouth, NJ 07703	992-1228
US Army Science & Technology Center-Far East, APO SF 06328	
US Army Scientific & Technology Information Team-Europe, APO NY 09710	
US Army Space Program Ofc, Alexandria, VA 22333	284-8774
US Army Standardization Gp/Australia, Canberra, Australia, APO San Francisco 96404	
US Army Standardization Gp/Canada, Ottawa 4 Canada	672-5737
US Army Ofc Test Dir Joint Svcs Electro-Optical Guided Weapons Countermeasures Test Program, White Sands Missile Range, NM 88002	258-1134
US Army Toxic & Hazardous Materials Agcy, Aberdeen PG, MD 21010	584-2466
Battlefield Exploitation & Target Acquisition (BETA) Joint Project Ofc, Adelphi, MD 20783	290-3280
Joint Mil Packaging Tng Center, Aberdeen PG, MD 21005	283-4451

RESEARCH & DEVELOPMENT

* US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND, DOVER, NJ (ARRADCOM)

MG B. L. LEWIS

Units/Activities

Ballistic Research Laboratory
*Chemical Systems Laboratory
ARRADCOM Picatinny Arsenal Support Activity

Zip Code 07801
Area Code 201
Telephone 328-3200
Autovon 880-3200

* US ARMY AVIATION RESEARCH AND DEVELOPMENT COMMAND, ST. LOUIS, MO (AVRADCOM)

MG S. C. STEVENS

Units/Activities

US Army Plants Rep Ofc, Hughes Helicopter — Summa Corp.
US Army Avn Engr Flight Activity
US Army Plant Rep Ofc, Bell Helicopter — Textron
*US Army Air Mobility R&D Lab
US Army Plant Rep Ofc, Boeing-Vertol Co.
US Army Research & Technology Labs
US Army Avionics R&D Activity

Zip Code 63166
Area Code 314
Telephone 268-2201
Autovon 698-2201

* US ARMY COMMUNICATIONS RESEARCH AND DEVELOPMENT COMMAND, FT. MONMOUTH, NJ (CORADCOM)

MG H. DICKINSON

Units/Activities

US Army Test Unit CORADCOM Field Ofcs.
US Army CORADCOM Test Facility
US Army Tactical Computer Systems Center (CENTACS)
US Army Communications Systems Center (CENCOMS)
US Army Battlefield Systems Engrg & Integration Ctr (CSEI)

Zip Code 07703
Area Code 201
Telephone 532-4612
Autovon 992-4612

* US ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND, ADELPHI, MD (ERADCOM)

MG C. D. DANIEL, JR.

Units/Activities

US Army ERADCOM Technical Support Activity
US Army ERADCOM Flight Test Activity
US Army Signal Warfare Lab
*Harry Diamond Lab
US Army Combat Survivability & Target Acquisition Lab
US Army Electronic Warfare Lab
US Army Atmospheric Science Lab
US Army Electronic Technical & Devices Lab
US Army Night Vision & Electro-Optics Lab

Zip Code 20783
Area Code 202
Telephone 394-1600
Autovon 290-1600

* US ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND, FT. BELVOIR, VA (MERADCOM)

COL B. C. HUGHES

Units/Activities

None

Zip Code 22060
Area Code 703
Telephone 664-4996
Autovon 354-4996

* US ARMY MISSILE RESEARCH AND DEVELOPMENT COMMAND, REDSTONE ARSENAL, AL (MIRADCOM)

BG(P) F. P. RAGANO

Units/Activities

US Army Missle Intelligence Agency

Zip Code 35809
Area Code 205
Telephone 876-7128
Autovon 746-7128

* US ARMY NATICK RESEARCH AND DEVELOPMENT COMMAND, NATICK, MA (NARADCOM)

COL H. F. PENNEY

Units/Activities

None

Zip Code 01760
Area Code 617
Telephone 653-1000 Ext. 2206
Autovon 955-2001

* US ARMY TANK-AUTOMOTIVE RESEARCH AND DEVELOPMENT COMMAND, WARREN, MI (TARADCOM)

MG O. C. DECKER, JR.

Units/Activities

None

Zip Code 48090
Area Code 313
Telephone 573-2144
Autovon 273-2144

PROGRAM/PROJECT/PRODUCT MANAGERS

			Autovon
Advanced Attack Helicopter (AAH)	BG E. M. Browne	St. Louis, MO	698-2927
Aircraft Survivability Equipment (ASE)	COL J. L. Keaton	St. Louis, MO	698-3961
Amphibians and Watercraft (AWC)	COL J. J. Vargo, Jr.	St. Louis, MO	693-2361
Armor Training Devices	LTC J. K. Cooksey	Orlando, FL	791-4392
Armored Combat Vehicle Technology (ACVT)	LTC R. L. Catron	Warren, MI	273-1360
Army Container Oriented Distribution System (ACODS)	COL W. H. Danzeisen, Jr.	Alexandria, VA	284-8799
Army Tactical Communications Systems (ATACS)	COL W. V. Paul, Jr.	Ft. Monmouth, NJ	995-2109
Army Tactical Data Systems (ARTADS)	BG D. R. Lasher	Ft. Monmouth, NJ	995-4146
Automatic Test Support Systems (ATSS)	LTC R. H. Ammerman	Ft. Monmouth, NJ	992-1759
BLACK HAWK	COL R. D. Kenyon	St. Louis, MO	698-3831
Cannon Artillery Weapons Systems (CAWS)	COL R. E. Philipp	Dover, NJ	880-2572
CH-47 Modernization Program	COL J. M. Hesson	St. Louis, MO	698-3984
Chapparral/FAAR	COL H. E. Stubbs	Redstone Ars., AL	746-6130
COBRA	COL J. W. Pershing	St. Louis, MO	698-2331
Commercial Const & Selected Material Handling Equip	LTC R. F. Vachon	Warren, MI	369-2758
Control and Analysis Centers	COL T. D. Sargent	Warrenton, VA	249-6471
COPPERHEAD (CLGP)	LTC R. A. Nulk	Dover, NJ	880-2122
DCS (Army) Communications Systems	BG E. Paige, Jr.	Ft. Monmouth, NJ	992-5101
Division Air Defense (DIVAD) Gun	COL L. S. Marrella	Dover, NJ	880-2271
FAMECE and UET	COL R. H. Benfer	Ft. Belvoir, VA	354-1116
Fighting Vehicle Armament	LTC(P) W. R. Sowers	Warren, MI	273-2632
Fighting Vehicle Systems	BG P. L. Bolte	Warren, MI	273-1630
FIREFINDER	COL T. F. Cameron	Ft. Monmouth, NJ	996-5324
General Support Rocket System	COL B. P. Masters	Redstone Ars., AL	746-1195
Ground Laser Designators	COL B. J. Pellegrini	Redstone Ars., AL	746-4462
HAWK	COL H. C. Whittaker	Redstone Ars., AL	746-5609
Heavy Equipment Transporter (HET)	LTC J. M. Durham	Warren, MI	369-2637
HELLFIRE	COL R. J. Feist	Redstone Ars., AL	746-1117
High Energy Laser System	COL D. H. Lueders	Redstone Ars., AL	746-2382
Improved Tow Vehicle	COL C. C. Adsit	Warren, MI	273-2069
Iranian Aircraft Program (IAP)	COL J. D. O'Donohue	St. Louis, MO	698-3741
KUWAIT/JORDAN Missile Systems	COL M. J. Hatchett	Redstone Ars, AL	746-3196
LANCE	COL H. C. Jelinek	Redstone Ars., AL	746-6144
Missile Minder/Air Defense Tactical Systems (ADTDS)	COL E. Fox	Redstone Ars., AL	742-3440
M-60 Tank Program	COL R. H. Sawyer	Warren, MI	273-2720
M110E2 8" HOWITZER	LTC N. R. Hurst	Rock Island, IL	793-4308
M113/M113A1 Family of Vehicle Readiness	COL R. A. Bulter	Warren, MI	369-2477
Mobile Electric Power	COL A. G. Rowe	Springfield, VA	354-1147
Multi-Service Communications Systems	COL A. F. Albright	Ft. Monmouth, NJ	995-2249
Munitions Production Base Modernization & Expansion	COL H. V. Dutchyshyn	Dover, NJ	880-3207
Navigation Control Systems (NAVCON)	COL L. White	Ft. Monmouth, NJ	992-4240
Nuclear Munitions	COL J. H. Sloan	Dover, NJ	880-5342
PATRIOT Air Defense Msl Sys	MG O. D. Street, III	Redstone Ars., AL	742-3240
PERSHING	COL L. H. Hunt	Redstone Ars., AL	746-1165
Position Location Reporting Sys (PLRS/TIDS)	COL R. D. Morgan	Ft. Monmouth, NJ	992-4251
Remotely Monitored Battlefield Sensor Systems (REMBASS)	COL L. C. Friedersdorff	Ft. Monmouth, NJ	992-4541
2.75 Rocket System	Mr. J. J. Harrity (Act)	Redstone Ars., AL	746-1117
SATCOM	COL C. F. Lindberg	Ft. Monmouth, NJ	992-5305
Saudi Arabian National Guard (SANG) Modernization	BG J. W. Hudachek	APO NY, NY 09038	
Selected Ammunition	COL C. Jones, Jr.	Dover, NJ	880-3230
Signal Intelligence/Electronic Warfare (SIGINT/EW)	COL W. D. Clingempeel	Ft. Monmouth, NJ	992-5344
Single Channel Ground and Airborne Radio Subsystem (SINCGARS)	COL J. E. Wyatt	Ft. Monmouth, NJ	995-4141
Smoke/Obscurants (SMOKE)	COL H. R. Shelton	Aberdeen PG, MD	283-2804
Special Electronic Mission Aircraft (SEMA)	COL W. B. Crowell	St. Louis, MO	698-6181
Stand-Off Target Acquisition/Attack System (SOTAS)	COL A. M. Cianciola	Ft. Monmouth, NJ	996-5165
STINGER	COL V. P. DeFatta	Redstone Ars., AL	746-6191
TACFIRE	COL J. M. Bunyard	Ft. Monmouth, NJ	992-5206
Tactical Operations System (TOS)	LTC(P) A. B. Salisbury (Act)	Ft. Monmouth, NJ	992-2356
Target Acquisition Designation System (TADS/PNVS)	COL C. A. Patnode, Jr.	St. Louis, MO	698-3995
30mm Ammunition	LTC(P) D. J. Delany	Dover, NJ	880-3168
TOW/DRAGON	COL N. S. Williamson III	Redstone Ars., AL	746-7194
Training Devices (TRADE)	COL B. Pogoloff	Orlando, FL	791-5292
US Roland	BG J. O. Lax, Jr.	Redstone Ars., AL	746-4225
VIPER/Advanced Heavy Antitank Missile Sys (AHAMS)	COL C. M. Matthews	Redstone Ars., AL	746-4266
XM-1 Tank System	MG D. M. Babers	Warren, MI	273-2284

*Procurement Offices Also Located Here

DARCOM MISSIONS

TO PERFORM ASSIGNED MATERIEL FUNCTIONS OF THE DEPARTMENT OF THE ARMY including Research and Development; Product Improvement; Human Factors Engineering; Test and Evaluation; Procurement and Production; Product Assurance; New Equipment Training; Scientific and Technical Intelligence Production; International Logistics Programs — and Storage, Distribution, Transportation, Maintenance, Demilitarization, and Disposal for the continental United States wholesale supply and maintenance systems as well as for systems overseas.

TO DEVELOP AND PROVIDE MANAGERIAL AND RELATED LOGISTICS MANAGEMENT services to the United States Army and other United States and foreign customers in response to objectives and specific requirements established by Headquarters, Department of the Army.

TO COMMAND SUCH SUBORDINATE COMMANDS, INSTALLATIONS, AND ACTIVITIES as may be assigned by Headquarters, Department of the Army — to include planning, programming, coordinating, and supervising the use of resources for the accomplishment of DARCOM's basic and support missions, functions, and responsibilities.

TO PROVIDE WORLDWIDE TECHNICAL AND PROFESSIONAL GUIDANCE AND ASSISTANCE to customers in the planning and conduct of Logistics Support Activities for Army materiel.

DARCOM GOALS

THE READINESS GOAL

Prepare the Total Army for rapid transition to combat, fully capable of performing its wartime mission.

THE HUMAN GOAL

Provide the Total Army with highly effective and morally responsible military and civilian personnel capable of performing reliably in war; insure equal opportunity for all members; provide quality of life support for our soldiers and their families and require from them reciprocal dedication to service.

THE MATERIEL GOAL

Develop, procure, store, issue, field, and maintain a balanced war-fighting and sustaining capability.

THE STRATEGIC DEPLOYMENT GOAL

Improve Army deployment capability to move forces as scheduled in order to increase early availability of combat power.

THE FUTURE DEVELOPMENT GOAL

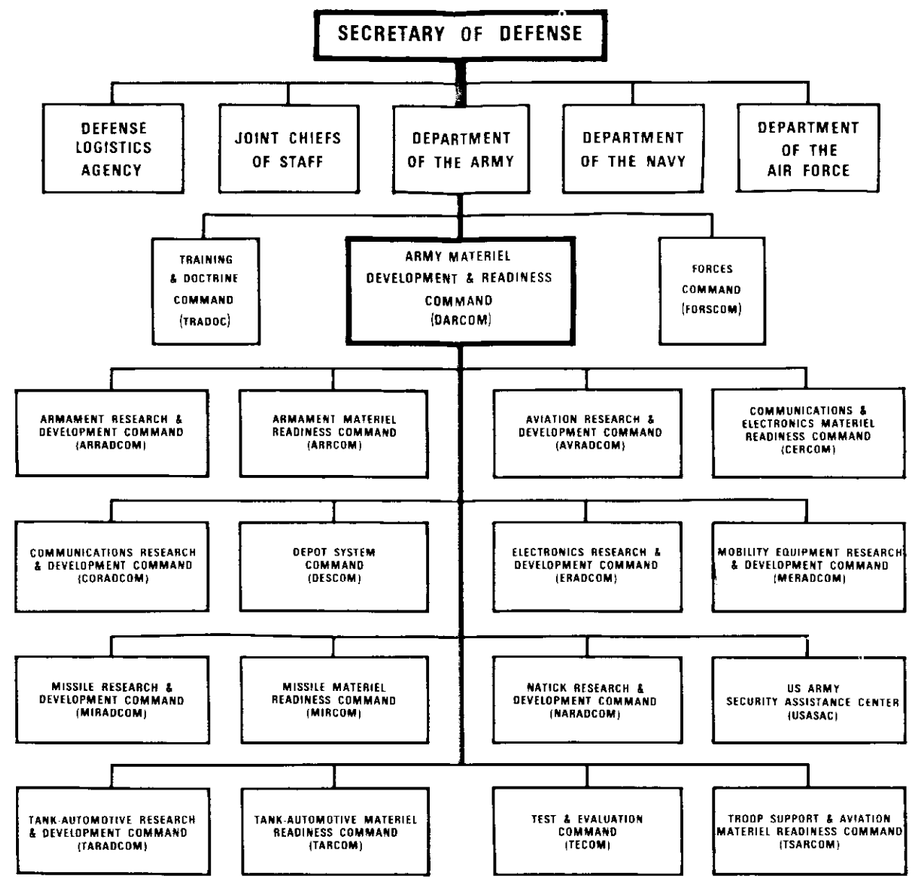
Improve Army equipment and concepts to exploit new technology.

THE MANAGEMENT GOAL

Manage and utilize existing and programed resources more effectively. Strengthen the Army's resource justification process.

A GUIDE* to

UNITED STATES ARMY MATERIEL DEVELOPMENT & READINESS COMMAND ORGANIZATION AND MISSIONS



HEADQUARTERS
UNITED STATES ARMY MATERIEL
DEVELOPMENT & READINESS COMMAND
5001 EISENHOWER AVENUE
ALEXANDRIA, VA 22333
CABLE ADDRESS - CDRDRC ALEX VA
AUTOVON 284 XXXX

Suggested changes, deletions, corrections or additions should be forwarded on DA Form 2028 to HQ, DARCOM, ATTN: DRCIN, 5001 Eisenhower Avenue, Alexandria, VA 22333

JANUARY 1979

*NOT OFFICIAL ORGANIZATION CHARTS

DARCOM HEADQUARTERS STAFF

COMMAND GROUP

COMMANDING GENERAL	GEN JOHN R. GUTHRIE	10-E-08 274-9625
DEPUTY CG FOR MATERIEL READINESS	LTG E. J. D'AMBROSIO	10-S-06 274-9700
DEPUTY CG FOR MATERIEL DEVELOPMENT	LTG R. J. BAER	10-N-06 274-9705
DEPUTY CG FOR RESOURCE MANAGEMENT	MG R. L. BERGQUIST	10-E-14 274-9640
CHIEF OF STAFF	BG(P) R. L. MOORE	10-E-14 274-9638
DEPUTY CHIEF OF STAFF & SECY OF THE GENERAL STAFF	COL L. A. HERGENROEDER	10-S-60 274-9644
COMMAND SERGEANT MAJOR	CSM H. W. SHEDD	10-S-48 274-8257

OFFICE OF THE DEPUTY CG FOR MATERIEL READINESS

Asst Deputy/Materiel Readiness	Mr. J. F. Moclin	274-9701
Executive Officer	COL W. B. McGrath	274-9702
PM Coordinator	Vacant	274-9406
Task Group	LTC R. M. Reynolds	274-8893
Staff Chemical Officer	COL G. A. Carruth	274-8194
SR Adv/US ARNG	COL J. O. Keeling	274-8893
SR Adv/USA Reserve	COL G. H. Chase	274-8895
Sp Asst/Nuclear Surety	Mr. R. L. Miller	274-9554
Sp Asst/Chemical Surety	Vacant	274-9610
Coordinator	LTC D. G. Fitzgerald	274-8896

DIRECTOR FOR SECURITY ASSISTANCE

MG T. H. Brain — 274-8380

DIRECTORATE FOR MATERIEL MANAGEMENT

BG E. A. VULEY, JR. — 274-8175

DIRECTORATE FOR MATERIEL READINESS

Vacant — 274-9718

DIRECTORATE FOR PROCUREMENT & PRODUCTION

MG J. W. Sharp — 274-8159

DIRECTORATE FOR PLANS, DOCTRINES & SYSTEMS

COL E. Honor — 274-8229

LIAISON

TO HEADQUARTERS, DARCOM			FROM HEADQUARTERS, DARCOM TO			
*United Kingdom	LTC G. J. Quirke	274-9675	*HQ, AF Systems Command	Mr. J. H. Proctor	481-5181	AUTOVON
*Canada	LTC J. C. Berezowski	274-9679	*US Navy Weapons Center	LTC R. F. Boyd	245-3544	
*Germany	COL H. Rothe	274-9684	*Kirtland AFB	COL J. A. Barrier	964-4822	
Marine Corps	MAJ M. R. Jonay	274-9676	DARCOM Liaison Office TCATA/Ft Hood, TX	LTC D. Burleson	737-1228	
TSARCOM, Avn Officer	COL D. B. King	Avn 698-5473	DARCOM RDT&E Liaison Office HQ, TRADOC	LTC D. Sanders	680-3637	
TRADOC/Log Center	LTC H. M. Hammer	274-9678				
DESCOM	Mr. E. G. Kilpatrick	274-9620				
FSTC	Mr. J. A. Burt	274-8538				

*DARCOM point of contact for all documents and visits is Security Office, DARCOM Support Activity, Atlanta, GA — Autovon 797-5543/44

*For mailing address, mission info, etc., call or visit DRCDE-A, 274-8537 Room 8N55, 5001 Eisenhower Ave., Alexandria, VA 22333

OFFICE OF THE DEPUTY CG FOR RESOURCE MGT

Executive Officer LTC W. S. Flynn — 274-9641

OFFICE OF COMPTROLLER

MG E. J. Delaune — 274-9131

DIRECTORATE FOR PERSONNEL, TRAINING & FORCE DEVELOPMENT

Mr. W. S. Chorin (Act) — 274-8195

DIRECTORATE FOR PLANS & ANALYSIS

COL G. T. Feilke — 274-8122

DIRECTORATE FOR INSTALLATIONS & SERVICES

COL W. G. Wolfe — 274-9041

DIRECTOR OF COMMUNICATIONS/ELECTRONICS & US ARMY COMMUNICATIONS COMMAND — DARCOM

COL H. S. Christensen — 274-9050

DIRECTORATE FOR MANAGEMENT INFORMATION SYSTEMS

Mr. J. C. Gilbert — 274-8626

DIRECTORATE FOR QUALITY ASSURANCE

Mr. S. J. Lorber — 274-8929

OFFICE OF THE CHAPLAIN

COL D. L. Wilson — 274-9432

OFFICE OF THE COMMAND COUNSEL

Mr. F. X. McKenna — 274-8046

EQUAL EMPLOYMENT OPPORTUNITY OFFICE

Mr. G. L. Jones — 274-9690

HISTORICAL OFFICE

Dr. D. Birdsall — 274-9177

OFFICE OF THE INSPECTOR GENERAL

COL R. D. Descoteau — 274-8070

PUBLIC AFFAIRS OFFICE

COL Charles A. Hammaker, Jr. — 274-8010

SAFETY OFFICE

Mr. L. L. Motherbaugh (Act) — 274-9475

SECURITY OFFICE

COL B. T. White — 274-9454

SERVICE SUPPORT ACTIVITY

LTC R. T. Boyle, Jr. — 274-8134

OFFICE OF THE SURGEON

COL R. T. Cuthing, MD — 274-9470

SPECIAL ASSISTANTS

Congressional Affairs	Mr. C. R. Smith	274-8243
Joint Activities	COL C. Hanne, Jr.	274-9693
Technical Relations	Mr. H. Handler	274-9630

OFFICE OF PRODUCT IMPROVEMENT

COL L. A. Gimple — 274-9200

OFFICE OF LABORATORY & DEVELOPMENT COMMAND MANAGEMENT

Mr. J. Lindwarm — 274-9566

OFFICE OF THE DEPUTY CG FOR MATERIEL DEVELOPMENT

Asst Deputy/Materiel Development	Mr. J. D. Blanchard	274-9709
Asst Deputy/Science & Technology	Mr. N. L. Klein	274-9560
Asst Deputy/Int'l R&D	Mr. B. R. Dunetz	274-8252
Executive Officer	LTC A. D. Rodgers	274-9711
Sp Asst for Minor Programs	Mr. J. Stolarick	274-9559
Task Group	MAJ A. Gravatt (Act)	274-8657

DIRECTORATE FOR DEVELOPMENT & ENGINEERING

MG Robert J. Lunn — 274-9490

DIRECTORATE FOR BATTLEFIELD SYSTEMS INTEGRATION

BG S. R. Sheridan — 274-9112

DARCOM FIELD ELEMENTS

OTHER ELEMENTS

US ARMY DEPOT SYSTEM COMMAND, CHAMBERSBURG, PA (DESCOM)

MG J. S. WELCH

Units/Activities
*Anniston Army Depot, Anniston, AL
*Corpus Christi Army Depot, Corpus Christi, TX
*Letterkenny Army Depot, Chambersburg, PA
Savanna Army Depot Activity, Savanna, IL
*Mainz Army Depot, Mainz, Germany
Ober Ramstadt Army Depot Activity, Ober Ramstadt, Germany
*New Cumberland Army Depot, New Cumberland, PA
*Red River Army Depot, Texarkana, TX
Lexington-Blue Grass Army Depot Activity, Lexington, KY
*Sacramento Army Depot, Sacramento, CA
*Seneca Army Depot, Romulus, NY
*Sharpe Army Depot, Lathrop, CA
*Sierra Army Depot, Herlong, CA
*Tobyhanna Army Depot, Tobyhanna, PA
*Tooele Army Depot, Tooele, UT
Navajo Army Depot Activity, Flagstaff, AZ
Pueblo Army Depot Activity, Pueblo, CO
Umatilla Army Depot Activity, Hermiston, OR
Fort Wingate Army Depot Activity, Gallup, NM

Zip Code 17201
Area Code 717
Telephone 263-7151
Autovon 242-7151

* US ARMY MISSILE COMMAND, REDSTONE ARSENAL, AL (MICOM)

MG L. RACHMELER

Units/Activities
Redstone Arsenal Support Activity (RASA), AL
US Army Metrology and Calibration Center, AL
Contractor Equipment Records Center, AL
US Army Field Service Activity/MIRCOM, AL
US Army Missile Intelligence Agency, AL
291st MP Co, AL
95th Svc Co/Calib, AL

Zip Code 35809
Area Code 205
Telephone 876-2101
Autovon 746-2101

US ARMY SECURITY ASSISTANCE CENTER. ALEXANDRIA, VA (USASAC)

MG J. R. CLELAND, JR.

Units/Activities
None

Zip Code 22333
Area Code 202
Telephone 274-8383
Autovon 284-8380

US ARMY TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD (TECOM)

MG J. R. CURRY

Units/Activities
*US Army Aberdeen Proving Ground, MD
*US Army Dugway Proving Ground, UT
*US Army Yuma Proving Ground, AZ
US Army YPG Dev Trng & Test Det, AZ
*US Army Jefferson Proving Ground, IN
US Army Electronics Proving Ground, AZ
US Army EDG Digital Systems Test Co.
US Army Cold Regions Test Center, AL
US Army Tropic Test Center, PANAMA
US Army Aviation Development Test Actv, AL
*White Sands Missile Range, NM
523rd MP Co, MO
259th MP Co, NM
65th MP Plt, UT
White Sands Missile Range Troop Comd, NM

Zip Code 21005
Area Code 301
Telephone 278-4374
Autovon 283-4374

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US Army Central TMDE Activity, Lexington, KY 40511	745-3206
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US Army DARCOM Field Ofc, Hq AF Sys Cmd, USAF, Andrews AFB, Washington, DC 20334	858-5181
US Army DARCOM Field Safety Activity, Charleston, IN 47111	366-7415
US Army DARCOM Inspector General Activity, Alexandria, VA 22333	284-8072
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US Army DARCOM Liaison Ofc/TCATA Ft. Hood, TX 76544	737-1228
US Army DARCOM Log Control Activity, Presidio of San Francisco, CA 94129	586-5701
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US Army Federal Acquisition Regulation Work Gp, Rosslyn, VA 22209	226-5016
US Army Foreign Science and Technology Center, Charlottesville, VA 22901	274-7110
US Army Human Engr Lab, Aberdeen PG, MD 21005	283-3883
US Army Industrial Base Engr Activity, Rock Island Arsenal, IL 61201	793-5010
US Army LAO-ACC, Ft. Huachuca, AZ 85613	879-6328
US Army LAO-Europe, APO NY 09403	HM 8888
US Army LAO-FORSCOM, Ft. McPherson, GA 30330	588-3423
US Army LAO-Pacific, Ft. Shafter, HI 96858	438-2715
US Army LAO-Korea, APO SF 96301	Yongson 3873
US Army LAO-NGB, Room 2E425, Washington, DC 20310	225-4478
US Army LAO-TRADOC, Ft. Monroe, VA 23651	680-3637
US Army Log Mgt Center, Ft. Lee, VA 23801	687-4424
US Army Mgt Engr Trng Activity, Rock Island, IL 61201	793-6043
*US Army Materials & Mechanics Resch Center, Watertown, MA 02172	955-3275
US Army Mat Sys Anal Activity, Aberdeen PG, MD 21005	283-2432
*US Army Research Ofc, Research Triangle Park, Durham, NC 27709	935-3331
US Army Research & Stdzn Gp/Europe, Box 65, London, England, FPO, New York 09510	
US Army Register of DARCOM Career Interns, Alexandria, VA 22333	284-8501
US Army Science & Technology Center-Far East, APO SF 06328	
US Army Scientific & Technology Information Team-Europe, APO NY 09757	
US Army Space Program Ofc, Alexandria, VA 22333	284-8774
US Army Standardization Gp/Australia, Canberra, Australia, APO San Francisco 96404	
US Army Standardization Gp/Canada, Ottawa 4 Canada	672-5737
US Army Ofc Test Dir Joint Svcs Electro-Optical Guided Weapons Countermeasures Test Program, White Sands Missile Range, NM 88002	258-1134
US Army Toxic & Hazardous Materials Agcy, Aberdeen PG, MD 21010	584-2466
Battlefield Exploitation & Target Acquisition (BETA) Joint Project Ofc, Adelphi, MD 20783	290-3280
Joint Mil Packaging Tng Center, Aberdeen PG, MD 21005	283-4451

RESEARCH & DEVELOPMENT

* US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND, DOVER, NJ (ARRADCOM)

MG A. H. LIGHT, JR.

Units/Activities
US Army Ballistic Research Laboratory, MD
*US Army Chemical Systems Laboratory, MD
ARRADCOM Picatinny Arsenal Support Activity, NJ

Zip Code 07801
Area Code 201
Telephone 328-3200
Autovon 880-3200

* US ARMY AVIATION RESEARCH AND DEVELOPMENT COMMAND, ST. LOUIS, MO (AVRADCOM)

MG S. C. STEVENS

Units/Activities
US Army Plants Rep Ofc, Hughes Helicopter — Summa Corp., CA
US Army Avn Engr Flight Activity, NJ
US Army Plant Rep Ofc, Bell Helicopter — Textron, TX
US Army Plant Rep Ofc, Boeing-Vertol Co., PA
*US Army Research & Technology Labs, CA
US Army Avionics R&D Activity, NJ

Zip Code 63166
Area Code 314
Telephone 268-2201
Autovon 698-2201

* US ARMY COMMUNICATIONS RESEARCH AND DEVELOPMENT COMMAND, FT. MONMOUTH, NJ (CORADCOM)

BG(P) E. PAIGE, JR.

Units/Activities
US Army Test Unit, NJ
US Army Satellite Comm Agcy, NJ
US Army CORADCOM Field Ofcs, NJ
US Army CORADCOM Test Facility, TX
US Army Tactical Computer Systems Center (CENTACS), NJ
US Army Communications Systems Center (CENCOMS), NJ
US Army Battlefield Systems Engrg & Integration Ctr (CSEI), NJ

Zip Code 07703
Area Code 201
Telephone 544-2153
Autovon 995-2153

* US ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND, ADELPHI, MD (ERADCOM)

BG A. N. STUBBLEBINE

Units/Activities
US Army ERADCOM Technical Support Activity, NJ
US Army ERADCOM Flight Test Activity, NJ
US Army Signal Warfare Lab, VA
*Harry Diamond Lab, MD
US Army Combat Survivability & Target Acquisition Lab, NJ
US Army Electronic Warfare Lab, NJ
US Army Atmospheric Science Lab, NM
US Army Electronic Technical & Devices Lab, NJ
US Army Night Vision & Electro-Optics Lab, VA

Zip Code 20783
Area Code 202
Telephone 394-1600
Autovon 290-1600

* US ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND, FT. BELVOIR, VA (MERADCOM)

COL A. F. DORRIS

Units/Activities
None

Zip Code 22060
Area Code 703
Telephone 664-4996
Autovon 354-4996

* US ARMY NATICK RESEARCH AND DEVELOPMENT COMMAND, NATICK, MA (NARADCOM)

COL R. J. CUTHBERTSON

Units/Activities
None

Zip Code 01760
Area Code 617
Telephone 653-1000 Ext. 2206
Autovon 955-2206

*. US ARMY TANK-AUTOMOTIVE RESEARCH AND DEVELOPMENT COMMAND, WARREN, MI (TARADCOM)

BG A. H. ANDERSON

Units/Activities
None

Zip Code 48090
Area Code 313
Telephone 573-2144
Autovon 273-2144

MATERIEL READINESS

* US ARMY ARMAMENT MATERIEL READINESS COMMAND, ROCK ISLAND, IL (ARRCOM)

MG W. E. EICHER

Units/Activities
*US Army Watervliet Arsenal, NY
*US Army Rock Island Arsenal, IL
*US Army Pine Bluff Arsenal, AR
*US Army Rocky Mountain Arsenal, CO
US Army Frankford Arsenal Caretaker Acty, PA
US Army Defense Ammo Ctry & School, IL
US Army Central Ammo Mgt Ofc Pacific (CAMO—PAC), HI
US Army Fld Svcs Activity/ARRCOM, IL
US Army Tech Escort Unit, MD
Crane Army Ammo Activity, IN
Hawthorne Army Ammo Plant, NY
Mississippi Army Ammo Plant, MS
McAlester Army Ammo Plant, OK

(25) GOCO Ammo Plants
Alabama, Childersburg, AL
Cornhusker, Grand Island, NB
Holston, Kingsport, TN
Indiana, Charleston, IN
Iowa, Middletown, IA
Kansas, Parsons, KS
Lake City, Independence, MO
Lone Star, Texarkana, TX
Louisiana, Shreveport, LA
Milan, Milan, TN
Radford, Radford, VA
Badger, Baraboo, Wi
Longhorn, Marshall, TX
Sunflower, Lawrence, KS
Joliet, Joliet, IL
St. Louis, St. Louis, MO
Gateway, St. Louis, MO
Twin Cities, New Brighton, MN
Ravenna, Ravenna, OH
Riverbank, Riverbank, CA
Volunteer, Chattanooga, TN
Scranton, Scranton, PA
Hays, Pittsburgh, PA
Newport, Newport, IN
Phosphate Dev Wks, Muscle Shoals, AL

Zip Code 61299
Area Code 309
Telephone 794-5111
Autovon 793-5111

* US ARMY COMMUNICATIONS & ELECTRONICS MATERIEL READINESS COMMAND, FT. MONMOUTH, NJ (CERCOM)

MG J. K. STONER, JR.

Units/Activities
US Army Fld Services Acty, NJ
US Army HQ & Instl Support Acty CERCOM, NJ
US Army TV-AUDIO Support Activity, CA
US Army Comm Security Logistics Activity, AZ
US Army 241st MP Co., NJ
US Army 389th United States Army Band, NJ
US Army Electronic Mat Readiness Acty (EMRA), VA

Zip Code 07703
Area Code 201
Telephone 532-1515
Autovon 992-1515

* US ARMY TANK-AUTOMOTIVE MATERIEL READINESS COMMAND, WARREN, MI (TARCOM)

MG O. C. DECKER, JR.

Units/Activities
US Army Modification Ctr, Lima, OH
US Army Field Service Activity/TARCOM, MI
US Army TARCOM Support Actv Selfridge, MI
HQ & Instl Spt Actv/TARCOM, MI

Zip Code 48090
Area Code 313
Telephone 573-1131
Autovon 273-1132

* US ARMY TROOP SUPPORT AND AVIATION MATERIEL READINESS COMMAND, ST. LOUIS, MO (TSARCOM)

MG R. H. THOMPSON

Units/Activities
US Army Support Activity, Phila., PA
US Army Gen Mat & Petrl Activity (GMPA), PA
US Army St. Louis Area Support Center, IL
US Army Field Svc Activity, TSARCOM, MO
US Army Admin and Instl Support Activity, TSARCOM, MO
US Army Charleston Storage Activity, Charleston, SC

Zip Code 63120
Area Code 314
Telephone 263-2201
Autovon 693-2201

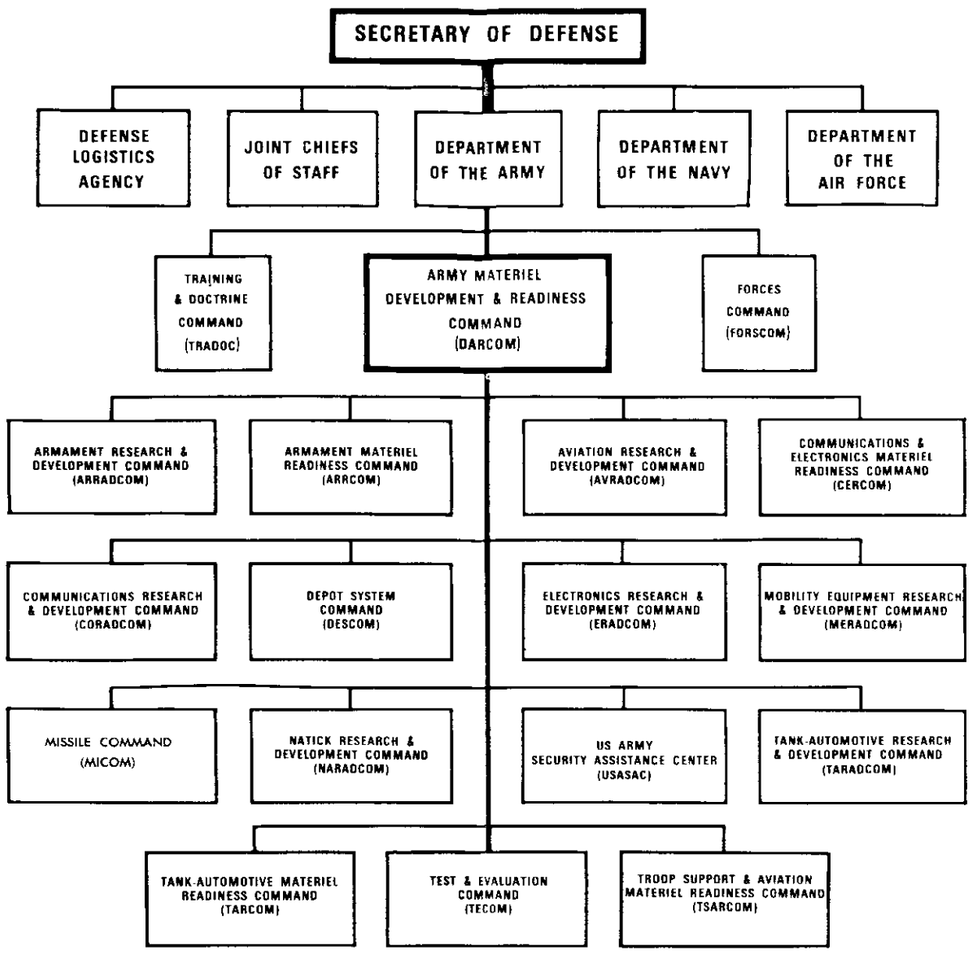
PROGRAM/PROJECT/PRODUCT MANAGERS

			Autovon
Advanced Attack Helicopter (AAH)	BG Edward M. Browne	St. Louis, MO	693-1911
Advanced Scout Helicopter (ASH)	COL Ivar W. Rundgren	St. Louis, MO	693-0730
Aircraft Survivability Equipment (ASE)	COL Daniel J. DeLany	St. Louis, MO	693-1460
Armor Training Devices (ARD)	LTC James K. Cooksey	Orlando, FL	791-4779
Armored Combat Vehicle Technology (ACVT)	LTC James B. Welsh	Warren, MI	273-1360
Army Tactical Communications Systems (ATACS)	COL Glen L. Rhoades	Ft. Monmouth, NJ	995-2109
Army Tactical Data Systems (ARTADS)	Vacant	Ft. Monmouth, NJ	995-4146
BLACK HAWK	COL(P) Charles F. Drenz	St. Louis, MO	693-1800
Cannon Artillery Weapons Systems (CAWS)	COL Ronald E. Philipp	Dover, NJ	880-2572
CH-47 Modernization Program	COL(P) James M. Hesson	St. Louis, MO	693-1411
Chaparral/FAAR	COL Harold E. Stubbs	Redstone Ars, AL	746-6130
COBRA	COL Jay W. Pershing	St. Louis, MO	693-0935
Commercial Const & Special Material Handling Equipment (CCE/SMHE)	LTC Raymond F. Vachon	Warren, MI	273-2003
Control and Analysis Centers (CAC)	COL Terrence D. Sargent	Warrenton, VA	249-6471
COPPERHEAD (CLGP)	LTC Frederick T. Mullens	Dover, NJ	880-2122
DCS (Army) Communications Systems	BG Donald R. Lasher	Ft. Monmouth, NJ	992-5960
Division Air Defense (DIVAD) Gun	COL Charles C. Adsit	Dover, NJ	880-2271
FAMECE/UET	COL Richard H. Benfer	Ft. Belvoir, VA	354-1116
Fighting Vehicle Armament (FVA)	COL William R. Sowers	Warren, MI	273-2632
Fighting Vehicle Systems (FVS)	BG Philip L. Bolte'	Warren, MI	273-1630
FIREFINDER/REMBASS	COL Thomas F. Cameron	Ft. Monmouth, NJ	996-5324
General Support Rocket System (GSRS)	COL Carl R. Steimle	Redstone Ars, AL	746-1195
HAWK	COL(P) H. C. Whittaker	Redstone Ars, AL	746-5609
Heavy Equipment Transporter Systems (HET)	LTC James M. Durham	Warren, MI	273-2202
HELLFIRE/Ground Laser Designators	COL(P) B. J. Pellegrini	Redstone Ars, AL	746-1117
High Energy Laser System (HELS)	COL Dirk H. Lueders	Redstone Ars, AL	746-2382
Improved TOW Vehicle (ITV)	COL James A. Chernault	Warren, MI	273-2069
LANCE	COL Howard C. Jelinek	Redstone Ars, AL	746-6144
M60 Tanks	COL Paul C. Bayruns	Warren, MI	273-2720
M113/M113A1 Family of Vehicles	LTC James A. Logan	Warren, MI	273-2709
Missile Minder/Air Defense Tactical Data Systems (ADTDS)	COL David L. Wyatt	Redstone Ars, AL	742-3440
Mobile Electric Power (MEP)	COL Alvin G. Rowe	Springfield, VA	354-1147
Multi-Service Communications Systems (MSCS)	COL Donald J. Callahan	Ft. Monmouth, NJ	995-2249
Navigation Control Systems (NAVCON)	COL LeRoy White	Ft. Monmouth, NJ	992-4240
Nuclear Munitions	COL William P. Farmer	Dover, NJ	880-5342
PATRIOT	MG Oliver D. Street, III	Redstone Ars, AL	742-3240
PERSHING	COL William Fiorentino	Redstone Ars, AL	746-1165
Position Location Reporting System/Tactical Information Dis Sys (PLRS/TIDS)	COL Robert D. Morgan	Ft. Monmouth, NJ	992-4251
Satellite Communications (SATCOM)	COL Charles F. Lindberg	Ft. Monmouth, NJ	992-5305
*Saudi Arabian National Guard (SANG)	BG Gerald T. Bartlett	APO NY 09038	
Single Channel Ground and Airborne Radio Subsystem (SINCGARS)	COL Aaron E. Wilkins	Ft. Monmouth, NJ	995-4141
SMOKE/Obscurants	COL Samuel L. Eure	Aberdeen PG, MD	283-2804
Special Electronic Mission Aircraft (SEMA)	COL S. C. Berdux, Jr.	St. Louis, MO	693-0973
Stand-off Target Acquisition/Attack System (SOTAS)	COL Wayne B. Davis	Ft. Monmouth, NJ	996-5165
STINGER	COL(P) Phillip H. Mason	Redstone Ars, AL	746-6191
Tactical Airborne Remotely Piloted Vehicle/Drone System (RPV)	COL G. F. Christensen	St. Louis, MO	693-1301
Tactical Fire Direction System/Field Artillery Tactical Data Sys (TACFIRE/FATDS)	COL Harold E. Luck	Ft. Monmouth, NJ	995-4864
Tactical Operations Systems/Operations and Intelligence Tactical Data Sys (TOS/OITDS)	COL Alan B. Salisbury	Ft. Monmouth, NJ	995-2363
Tank Main Armament System (TMAS)	COL Peter B. Kenyon	Dover, NJ	880-5307
Target Acquisition Designation System/Pilot Night Vision System (TADS/PNVS)	COL C. A. Patnode, Jr.	St. Louis, MO	693-1992
30mm Ammunition		Dover, NJ	880-3612
Test Measurement & Diagnostic System (TMDS)	LTC Robert H. Ammerman	Ft. Monmouth, NJ	992-1759
TOW-DRAGON	COL N. S. Williamson, III	Redstone Ars, AL	746-7194
Training Devices (TRADE)	COL Boris Pogoloff	Orlando, FL	791-5292
US ROLAND	BG Joseph O. Lax, Jr.	Redstone Ars, AL	746-4225
VIPER	COL(P) C. M. Matthews	Redstone Ars, AL	746-4266
*XM1 Tank System	MG Donald M. Babers	Warren, MI	273-2284

*Procurement Offices Also Located Here

A GUIDE* to

UNITED STATES ARMY MATERIEL DEVELOPMENT & READINESS COMMAND ORGANIZATION AND MISSIONS



DARCOM MISSIONS

TO PERFORM ASSIGNED MATERIEL FUNCTIONS OF THE DEPARTMENT OF THE ARMY including Research and Development; Product Improvement; Human Factors Engineering; Test and Evaluation; Procurement and Production; Product Assurance; New Equipment Training; Scientific and Technical Intelligence Production; International Logistics Programs — and Storage, Distribution, Transportation, Maintenance, Demilitarization, and Disposal for the continental United States wholesale supply and maintenance systems as well as for systems overseas.

TO DEVELOP AND PROVIDE MANAGERIAL AND RELATED LOGISTICS MANAGEMENT services to the United States Army and other United States and foreign customers in response to objectives and specific requirements established by Headquarters, Department of the Army.

TO COMMAND SUCH SUBORDINATE COMMANDS, INSTALLATIONS, AND ACTIVITIES as may be assigned by Headquarters, Department of the Army — to include planning, programming, coordinating, and supervising the use of resources for the accomplishment of DARCOM's basic and support missions, functions, and responsibilities.

TO PROVIDE WORLDWIDE TECHNICAL AND PROFESSIONAL GUIDANCE AND ASSISTANCE to customers in the planning and conduct of Logistics Support Activities for Army materiel.

DARCOM GOALS

THE READINESS GOAL

Prepare the Total Army for rapid transition to combat, fully capable of performing its wartime mission.

THE HUMAN GOAL

Provide the Total Army with highly effective and morally responsible military and civilian personnel capable of performing reliably in war; insure equal opportunity for all members; provide quality of life support for our soldiers and their families and require from them reciprocal dedication to service.

THE MATERIEL GOAL

Develop, procure, store, issue, field, and maintain a balanced war-fighting and sustaining capability.

THE STRATEGIC DEPLOYMENT GOAL

Improve Army deployment capability to move forces as scheduled in order to increase early availability of combat power.

THE FUTURE DEVELOPMENT GOAL

Improve Army equipment and concepts to exploit new technology.

THE MANAGEMENT GOAL

Manage and utilize existing and programed resources more effectively. Strengthen the Army's resource justification process.

HEADQUARTERS
UNITED STATES ARMY MATERIEL
DEVELOPMENT & READINESS COMMAND
5001 EISENHOWER AVENUE
ALEXANDRIA, VA 22333
CABLE ADDRESS - CDRDRC ALEX VA
AUTOVON 284 XXXX

Suggested changes, deletions, corrections or additions should be forwarded on DA Form 2028 to HQ, DARCOM, ATTN: DRCIN, 5001 Eisenhower Avenue, Alexandria, VA 22333

OCTOBER 1979

*NOT OFFICIAL ORGANIZATION CHARTS

DARCOM HEADQUARTERS STAFF

COMMAND GROUP

COMMANDING GENERAL	GEN JOHN R. GUTHRIE	10-E-08	274-9625
DEPUTY CG FOR MATERIEL DEVELOPMENT	LTG R. J. BAER	10-N-06	274-9705
DEPUTY CG FOR MATERIEL READINESS	LTG H. F. HARDIN, JR.	10-S-06	274-9700
DEPUTY CG FOR RESOURCE MANAGEMENT	MG R. L. BERGQUIST	10-E-14	274-9640
CHIEF OF STAFF	MG R. L. MOORE	10-E-14	274-9638
DEPUTY CHIEF OF STAFF & SECY OF THE GENERAL STAFF	COL L. A. HERGENROEDER	10-S-60	274-9644
EXECUTIVE OFFICER TO CG	COL G. R. WETZEL	10-E-08	274-9625
COMMAND SERGEANT MAJOR	CSM H. W. SHEDD	10-S-48	274-8257

OFFICE OF THE DEPUTY CG FOR MATERIEL DEVELOPMENT

Asst Deputy/Materiel Development	Mr. J. D. Blanchard	274-9709
Asst Deputy/Science & Technology	Vacant	274-9560
Asst Deputy/Int'l R&D	Mr. B. R. Dunetz	274-8252
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Task Group	MAJ A. Gravatt (Act)	274-8657
Admin Group	Ms. T. Shiffler	274-8692

DIRECTORATE FOR DEVELOPMENT & ENGINEERING
MG S. R. Sheridan — 274-9490

DIRECTORATE FOR BATTLEFIELD SYSTEMS INTEGRATION
MG J. H. Patterson — 274-9112

OFFICE OF PROJECT MANAGEMENT
COL L. M. Eak, Jr. — 274-9571

OFFICE OF INTERNATIONAL RESEARCH & DEVELOPMENT
COL H. G. Glock — 274-8367

OFFICE OF MANUFACTURING TECHNOLOGY
Mr. D. L. Griffin — 274-8298

OFFICE OF PRODUCT IMPROVEMENT
COL G. F. Byrnes — 274-9200

OFFICE OF LABORATORY & DEVELOPMENT COMMAND MANAGEMENT
Mr. J. Lindwarm (Act) — 274-9566

SPECIAL ASSISTANTS

Congressional Affairs	Mr. C. R. Smith	274-8263
Joint Activities	COL C. Henne, Jr.	274-9695
Technical Relations	Mr. H. Handler	274-9630

LIAISON

TO HEADQUARTERS, DARCOM			FROM HEADQUARTERS, DARCOM TO			AUTOVON
ARRCOM	COL R. J. Hudak	274-9840	*HQ, AF Systems Command	Mr. J. H. Proctor		481-5181
*United Kingdom	LTC M. H. Carey, REME	274-9675	*US Navy Weapons Center	LTC R. F. Boyd		243-3544
*Canada	LTC J. C. Berezowski	274-9679	*Kirtland AFB	COL J. A. Berrier		964-4822
*Germany	COL H. Rohe	274-9684	DARCOM Liaison Office	LTC D. Burleson		737-1228
Marine Corps	MAJ M. R. Janoy	274-9676	TCATA/Ft Hood, TX			
TRADOC/Log Center	LTC W. E. White	274-9678	DARCOM RDT&E Liaison Office	LTC D. Sanders		680-3637
DESCOM	Mr. E. G. Kilpatrick	274-9620	HQ, TRADOC			
FSTC	Mr. J. A. Burt	274-8538				
INSCOM	LTC H. W. Arehart	274-9454				

*DARCOM point of contact for all documents and visits is Security Office, DARCOM Security Support Activity, Atlanta, GA — Autovon 797-5543/44

*For mailing address, mission info, etc., call or visit DRCDE-A, 274-8537 Room BN55, 5001 Eisenhower Ave., Alexandria, VA 22333

OFFICE OF THE DEPUTY CG FOR RESOURCE MGT
Executive Officer COL W. S. Flynn — 274-9641

OFFICE OF THE COMPTROLLER
MG E. J. Delaune, Jr. — 274-9131

DIRECTORATE FOR PERSONNEL, TRAINING & FORCE DEVELOPMENT
BG W. H. Schneider — 274-8195

DIRECTORATE FOR PLANS & ANALYSIS
COL H. L. Harrison — 274-8122

DIRECTORATE FOR INSTALLATIONS & SERVICES
COL James E. Hays — 274-9041

DIRECTOR OF COMMUNICATIONS/ELECTRONICS & US ARMY COMMUNICATIONS COMMAND — DARCOM
COL E. E. Tabor — 274-9050

DIRECTORATE FOR MANAGEMENT INFORMATION SYSTEMS
Mr. J. C. Gilbert — 274-8626

DIRECTORATE FOR PRODUCT ASSURANCE
Mr. S. J. Lorber — 274-8929

AVIATION OFFICE
COL D. H. Smith — Avn 693-0624

OFFICE OF THE CHAPLAIN
COL D. L. Wilson — 274-9432

OFFICE OF THE COMMAND COUNSEL
Mr. F. X. McKenna — 274-8046

EQUAL EMPLOYMENT OPPORTUNITY OFFICE
Mr. G. L. Jones — 274-9690

HISTORICAL OFFICE
Dr. D. Birdsell — 274-8191

OFFICE OF THE INSPECTOR GENERAL
COL R. D. Desloteau — 274-8070

NUCLEAR-CHEMICAL OFFICE
COL G. A. Carruth — 274-9610

PUBLIC AFFAIRS OFFICE
COL Charles A. Hammaker, Jr. — 274-8010

SAFETY OFFICE
Mr. J. L. Crawford — 274-9475

SECURITY OFFICE
COL B. T. White — 274-9454

SERVICE SUPPORT ACTIVITY
LTC R. T. Boyle, Jr. — 274-8134

OFFICE OF THE SURGEON
COL R. T. Cutting, MD — 274-9470

OFFICE OF THE DEPUTY CG FOR MATERIEL READINESS

Asst Deputy/Materiel Readiness	Mr. J. F. Maclin	274-9701
Executive Officer	COL W. B. McGrath	274-9702
PM Coordinator	Mr. J. D. Kelly	274-9406
Task Group	LTC R. N. Grove	274-8895
SR AAV/US ARNG	COL J. O. Keeling	274-8895
SR AAV/USA Reserve	COL J. F. Leahy	274-8895
Coordinator	LTC D. G. Fitzgerald	274-8896

DIRECTOR FOR SECURITY ASSISTANCE
MG J. R. Cleland, Jr. — 274-8380

DIRECTORATE FOR MATERIEL MANAGEMENT
MG P. M. Roddy — 274-8175

DIRECTORATE FOR READINESS
MG G. S. Patton — 274-9718

DIRECTORATE FOR PLANS, DOCTRINE & SYSTEMS
COL F. E. Elam — 274-8229

DIRECTORATE FOR PROCUREMENT & PRODUCTION
MG J. W. Sharp — 274-8159

DIRECTORATE FOR MATERIEL MANAGEMENT
MG P. M. Roddy — 274-8175

GLOSSARY

AAH	Advanced Attack Helicpoter
ABS	Automated Field Bakery System
ACR	Armored Cavalry Regiment
ACT	Advance Concept Team
ADP	Automatic Data Processing
AEFA	Aviation Engineering Flight Activity
ALMSA	Automated Logistics Management Systems Agency
AMARC	Army Materiel Acquisition Review Committee
AMETA	Army Management Engineering Training Agency
AMS	Automated Maintenance System
AMSAA	Army Material Systems Analysis Activity
AMSDL	Acquisition Management System and Data Requirement Control List
APARS	Army Procurement Appropriation Accounting - Reporting System
APG	Aberdeen Proving Ground
ARNG	Army National Guard
ARO	Army Research Office
ARRCOM	US Army Armament Materiel Readiness Command
ASARC	Army Systems Acquisition Review Council
ATEMS	Automatic Test Equipment Missile Systems
ATSS	Automatic Test Support System
AUTODIN	Automatic Digital Network
AVRADCOM	US Army Aviation Research and Development Command
BCS	Battery Computer System
BOIP	Basis of Issue Plan
BRL	Ballistics Research Laboratories
BSI	Battlefield Systems Integration
CCAD	Corpus Christi Army Depot
CCP	Consolidation and Container Point
CIVPERSINS	Civilian Personnel Management Information System
COA	Comptroller of the Army
COA	Current Operating Allowance
COCO	Contractor Owned - Contractor Operated
COE	Corps of Engineers
CORADCOM	US Army Communications Research and Development Command
CPIR	Command Performance Indicator Review
CSA	Chief of Staff of the Army
CWE	Construction Work Estimate
DACOM	Data Communications
DAPR	DA Program Reports

DATP	
DBMS	Data Base Management System
DCG	Deputy Commanding General
DCGMD	Deputy Commanding General for Materiel Development
DCGMR	Deputy Commanding General for Materiel Readiness
DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Operations
DCSRDA	Deputy Chief of Staff for Research, Development and Acquisition
D&E	Development & Engineering
DESCOM	US Army Depot System Command
DID	Data Item Descriptions
DIVAD	Division Air Defense
DODAC	Department of Defense Ammunition Code
DOE	Department of Energy
DRCDE	Directorate for Development and Engineering
DRCLDC	Office of Lab Development Command Management
DSARC	Defense Systems Acquisition Review Council
DSP	Defense Standardization Program
DTC	Design To Cost
DT/OT	Development Testing/Operational Testing
ED	Engineering Development
EEO	Equal Employment Office
EMC	Electromagnetic Compatibility Measurement System
EW	Electronic Warfare
FAAR	Forward Area Alerting Radar
FAO	Finance and Accounting Office
FMC	Food Machinery Corporation
FMS	Foreign Military Sales
FSED	Full Scale Engineering Development
FVS	Fighting Vehicle Systems
GAO	General Accounting Office
GBL	Government Bill of Lading
GE	Germany
GEMSS	Ground Emplaced Mine Scattering System
GIDEP	Government/Industry Data Exchange Program
GOCO	Government Owned-Contractor Operated
GOGO	Government Owned-Government Operated
HAC	Haighes Aircraft Corporation
HEI	High Explosive Incendiary
HMMWV	High Mobility Multi-Purpose Wheeled Vehicle

IFV/CFV	Infantry Fighting Vehicle/Command Fighting Vehicle
IOC	Initial Operational Capability
IPB	Intelligence Preparation of the Battlefield
IPR	In Process Review
IRD	International Research & Development
JINTACCS	Joint Interoperability of Tactical Command and Control System
LACV-30	Lighter, Air Cushion Vehicle-30 Tons
LEAD	Letterkenny Army Depot
LOGCAP	Logistics Assessment Program
LRIP	Low Rate Initial Production
LSA	Logistics Support Analysis
LSAAP	Lone Star Army Ammunition Plant
LSAR	Logistics Support Analysis Record
MAA	Mission Area Analysis
MACOM	Major Army Commands
MARS	Military Affiliate Radio System
MARDIS	Modernized Army Research & Development Information System
MBT	Main Battle Tank
MCA	Military Construction, Army
MDW	Military District of Washington
MENS	Mission Element Needs Statement
MERADCOM	Mobility Equipment Research & Development Command
METS	Mechanized Export Traffic System
MFR	Memorandum for Record
MICOM	US Army Missile Command
MICVS	Mechanized Infantry Combat Vehicles System
MILES	Multiple Integrated Lasar Equipment System
MILPERCEN	US Army Military Personnel Center
MILSTRIP	Military Standard Requisition and Issue Procedures
MIRADCOM	US Army Missile Research and Development Command
MOU	Memorandum of Understanding
MWO	Modification Work Order
NARADCOM	US Army Natick Research and Development Command
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological & Chemical
NICP	National Inventory Control Point
OAP	Outline Acquisition Plan
OMA	Operations & Maintenance, Army
OPREL	Operational Relationships

OSD	Office of the Secretary of Defense
OTEA	Operational Test & Evaluation Agency
PA, A	Procurement Appropriation, Army
PEP	Producibility Engineering & Planning
PI	Product Improvement
PIP	Product Improvement Program
PM NUC	Project Manager, Nuclear Munitions
PMO	Project Manager Office
POM	Program Objective Memorandum
PT&FD	Personnel, Training, & Force Development
QQPRI	Qualitative & Quantitative Personnel Requirements Information
RAM-D	Reliability, Availability, Maintainability, and Durability
RECAP	Review & Command Assessment of Projects
RFP	Request for Proposal
RMA	Rocky Mountain Arsenal
RRAD	Red River Army Depot
RSI	Rationalization, Standardization, Interoperability
SAAC	Security Assistance Accounting Center
SAR	Selected Acquisition Report
SETAF	Southern European Task Force
SHORAD	Short-Range Air Defense
SLUFAE	Surface Launched Unit Fuel Air Explosive
STANAG	Standardization Agreement
STINFO	Scientific & Technical Information
SYSCHAR	Systems Characteristics
TAADS	The Army Authorization Documents System
TACAIR	Tactical Air
TACFIRE	Tactical Fire Direction System
TADS	Target Acquisition Designation System
TARADCOM	US Army Tank Automotive Research & Development Command
TARCOM	US Army Tank-Automotive Materiel Readiness Command
TDP	Technical Development Plan
TEAD	Tooele Army Depot
TECOM	US Army Test & Evaluation Command
TOW	Tube Launched, Optically Tracked, Wire Guided
TRADOC	US Army Training and Doctrine Command
TSARCOM	US Army Troop Support and Aviation Materiel Readiness Command

TSG	Army PIP for the Surgeon General
UNITE	Uninitiated Introduction to Engineering
USAARMC	US Army Armor Center
USAFAC	US Army Finance & Accounting Center
USAIS	US Army Intelligence School
USASAC	US Army Security Assistance Center
USG	US Government
VECP	Value Engineering Change Proposals
VEESS	Vehicle Engine Exhaust Smoke System
WSMR	White Sands Missile Range
WVA	Watervliet Arsenal
YPG	Yuma Proving Ground

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