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and
Readiness Command

Annual Historical Review

Fiscal Year 1980

Classified by:
Chief of Staff, DARCOM

Declassified on:
1 October 1986

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Headquarters
US Army Materiel
Development and
Readiness Command
Alexandria, VA 22333

[redacted]

U. S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

ANNUAL HISTORICAL REVIEW

FISCAL YEAR 1980
(RCS-CSHIS-6 (R3))

Prepared by

Historical Office

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

30 April 1982

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DECLASSIFY ON: 1 October 1986

FOREWORD

This Annual Historical Review, prepared in accordance with the provisions of AR 870-5, covers the eighteenth 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.

Fiscal year 1980 continued reorganization planning which was begun in the previous fiscal year. The Resource Self-Help Affordability Planning Effort (RESHAPE) study team report, made in February 1980 to provide a five-year improvement plan to meet the shortfall in base line manpower requirements for peacetime workloads was reviewed and revised during the year, obtaining Army level approval at the end of the fiscal year.

As the result of RESHAPE, the Headquarters Directorate for Battlefield Systems Integration, established in August 1975, was dissolved in September 1980 and its functions transferred to AMSAA. Further command changes saw the US Army Tank-Automotive Command (TACOM) established as of 1 October 1980 through the consolidation of TARCOM and TARADCOM.

Army logistics readiness continued to be the focus of DARCOM's efforts during the fiscal year which stemmed from requirements for Army force modernization. Command efforts to ensure available fiscal and personnel resources to field and support more than 400 new or project-improved systems are discussed within the text.

The preparation of the history continued to be a team effort. The project director was George J. Stansfield, who planned the history and also wrote Chapters I - Command Management; Chapter VI - Materiel Readiness; and Chapter VII - Highlights and Trends. Don E. McLeod prepared Chapter II - Resources Management; Chapter III - Materiel Development; and Chapter IV - Project Management. Major Howard K. Butler, TSARCOM Command Historian, prepared Chapter V - Project Management: Equipment and Management Systems. The manuscript was edited, typed and proof read by Mrs. Guyanne Parker and Ms Dianne M. Alexander.

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Commander, DARCOM
May 1977 - August 1981

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Deputy Commanding General
for Materiel Development
8 August 1980 -

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

MG R.L. Bergquist
Deputy Commanding General
for Resources & Management
15 March 1978 -

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

MG W.H. Schneider
Chief of Staff
July 1980-August 1982

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

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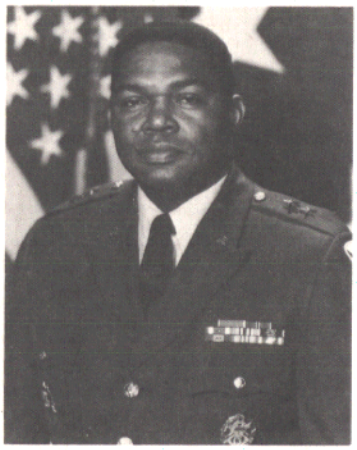
Director of Development
and Engineering
October 1980 -

MG T.F. Healy
Commander, US Army
Security Assistance Ctr.
Director of
Security Assistance
September 1980 -

MG B.F. Register, Jr.
Director of
Materiel Management
January 1980 -



BG A.H. Holmes, Jr.
Director of Readiness
October 1980 -

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

MG R.L. Herriford
Director of Procurement
and Production
June 1980 -

BG H. Doctor, Jr.
Director of Personnel,
Training and Force
Development
May 1980 -

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

BG J.F. McCall
Comptroller
August 1980 -

MG J.H. Patterson
Director of Battlefield
Systems
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COL F.E. Elam
Director of Plans,
Doctrine and Systems
30 August 1979-

U.S. ARMY MATERIEL DEVELOPMENT
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CHAPTER I

COMMAND MANAGEMENT

Army/DARCOM Readiness Posture

Introduction

(U) In 1980, force readiness continued as the Army's primary objective. America's ability to man, equip, and train forces and to mobilize, deploy, and sustain these forces to accomplish assigned missions was hampered by "significant deficiencies." In order to increase force readiness, "optimum effective use of all available assets" were required.[1]

(U) The Fiscal Year 1980 Army Budget was designed to improve the combat readiness of both forward deployed and early deploying forces to include near terms materiel and logistic readiness.[2] In February 1980, the Army Chief of Staff, General Edward C. Meyer, issued a white paper reinforcing these objectives and indicated that "To improve the return on investment, the Army is developing a comprehensive acquisition plan which prioritizes resources for those systems which enhance force capability by the greatest amount."[3]

(U) Another major influence was the impact of the Division 86 Study sponsored by General Donn A. Starry, Commander, US Army Training and Doctrine Command (TRADOC), which was expected to change the ROAD configuration of Army armored and mechanized divisions to new, heavy divisions. This new division organization was expected to be suited to "employing new fighting doctrine," as well as a "whole new generation of weapons scheduled to enter the inventory by the mid-1980's . . . the target date for the restructured division was put at 1986, the end year for which good estimates of the Warsaw Pact threat were available."[4]

(U) One critical area, that of the ammunition resupply ground weapons systems, was to be rearmed by armored combat logistics support vehicles under the Division 86 Study.[5] In turn, this was to be assisted by the new Standard Army Ammunition System (SAAS) incorporated into the Standard Army Logistics System (SALS) as a subsystem at echelons below the DARCOM wholesale level.[6]

---

1 "Logistically Speaking-Posture of the Army," Army Logistician, May-June 1979, p. 8.
2 Ibid., p. 11.
3 "Army Chief of Staff Issues 'White Paper,'" Army Logistician, July-August 1980, p. 6.
4 Robert P. Smith, "Division '86 Logistics," Army Logistician, November-December 1980, p. 2.
5 Ibid.
6 Captain Benjamin Dy, "Corps Automated Ammunition Management System," Army Logistician, May-June 1980, p. 35-37.

(U) These systems were also affected by the continuing shift to shorter supply lines creating "less flexibility, less resiliency in case of unanticipated events" and which also reflected the blurring of the line between "wholsale and retail" logistics; General Guthrie concluded that, "To maintain the pace, to maintain and even increase Army force readiness, is one of the major materiel tasks of the next 5 years."[7]

(U) As background for activities during 1980, General Moore, DARCOM Chief of Staff, in replying to Major General Alan A. Nord's request for views and suggestions on consolidating the Army Materiel distribution system, had pointed out, "In summary, Army logistics has been in an almost continuous state of reorganization and turmoil throughout the 1970's . . . Therefore, we strongly recommend that no new potential realignment initiatives be considered in the near future that DARCOM may attempt to gain stability."[8]

Management By Goals And Objectives

(U) Within the major objectives previously indicated, Army Logistics goals were set in the Readiness sustainability. Modernization, energy, management, and security assistance areas, based upon the concept that logistic policy/doctrine in retail, wholesale, host nation, and contractor support areas supported the tactical doctrine.[9]

(U) In turn, DARCOM goals were established in the areas of readiness, people, materiel, strategic mobility, future development, management, and security assistance to support these Army goals.[10]

(U) In January 1980, the following DARCOM priorities were established.[11]

a. Provide DARCOM managerial and technical capability to insure development and readiness support to Army units.

b. Support DARCOM logistics and procurement requirements having a direct and immediate impact on the near-term readiness capability of Army units.

---

7 General John R. Guthrie, "Supporting the Army in the Eighties," Army Logistician, September-October 1979, p. 24.

8 Ltr, DRCPA-R to Major General Nord, Signed Major General Robert L. Moore, 5 December 1979.

9 "Army Logistics Goals," Army Logistician, March-April 1980, back cover.

10 DARCOM Program Plan; FY 1981 DARCOM-wide Tasks, 25 November 1980, p. 3.

11 DF, DRCCP-BP, Signed Colonel L. A. Hergenroeder, Deputy Chief of Staff, 8 January 1980, subj: Prioritization of Resources.

c. Support DARCOM materiel development and systems acquisition requirements having a direct (but not immediate) impact on the near-term readiness capability of Army units.

d. Maintain schedule of mid-term modernization programs to support high-priority user, joint service, and international materiel development requirements.

e. Support DARCOM workload/programs to maintain a viable readiness wholesale logistics base.

f. Support the DARCOM technology base and the materiel development facilities needed to maintain a viable long-term modernization capability.

g. Support other assigned logistical operations for the field Army, security assistance to allied/friendly countries, and other DOD programs.

(U) An example of improving Army industry business relations during 1980 was the successful Atlanta VI conference, 13-15 February 1980, sponsored by the American Defense Preparedness Association (ADPA) and the National Security Industrial Association. Its theme was the discussion of three vital, and now critical, timely issues: upgrading the industrial preparedness base, improving the quality and reliability of modern weapons systems, and finding ways to improve the overall acquisition, procurement, and contracting function. A new sense of urgency was expressed by the contingent from DARCOM, headed by General Guthrie, General Meyer, Army Chief of Staff, and General Starry of TRADOC, in addresses and workshops conducted during the session.[12]

Utilization of Resources - RESHAPE

(U) During 1980, the DARCOM command leadership was again faced with the problem of the expansion of DARCOM's workload to assist fielding of over 400 new systems without a corresponding increase in personnel.[13]

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[12] "Atlanta VI; A New Sense of Urgency," Army Research and Development Magazine, March-April 1980, p. 1-4, 9.

[13] PARR, FY 1982-1986, 1980, p. 1-2.

(U) To begin with, DARCOM requirements identified, as follows, in the fiscal year 1982-1986 PARR Command Statement remained unchanged[14]:

	FY 1980	FY 1981	PARR	Basic	Total
Total OMA ($m)	$2,489.1	$2,686.0	$2,959.5	$3,040.9	$3,995.9
Civilian ES Total	102708	103560	103813	103840	125418
Military ES Total	10745	10478	10434	10580	11661

(U) The PARR basic level showed an increase of about $27 million, which was the result of extensive funding for Force Modernization (a $143 million increase) offset by a loss of $116 million in other programs. This was primarily due to the application of Decision Package Set (DPS) reductions for President Carter's Budget. It would appear that Force Modernization was being financed, although reduced support to the fielded Army continued trends identified in the 1978 DARCOM Baseline Study. Over the past five years procurement appropriations had increased 95 percent from $3.650 billion to $7.123 billion (FY 1980 dollars). RDTE had grown from $1.820 billion to $2.300 billion (FY 1980 dollars); a 37 percent increase. OMA, during the same period, increased only 19 percent. A major effort to meet the DARCOM baseline manpower requirement of 137,157 positions, without increased manpower authorizations, required that approximately 25,000 equivalent manyears of improvements be generated over the five year period, fiscal year 1981-1985.[15]

(U) On 21 August 1979, a study team was established for this purpose and came up with the Resource Self-Help Affordability Planning Effort (RESHAPE) as a five year productivity improvement plan designed to provide a way to meet this indicated shortfall in the DARCOM baseline manpower requirement for peacetime workloads.[16]

(U) DARCOM inprocess reviews were made 27 November and 28 December 1979. The concept was approved 7 February 1980, sent to major subordinate commands 19 February 1980, and implementation plans submitted in June 1980.[17]

(U) These MACOM plans were reviewed in August 1980 and senior managers at Headquarters were also asked to "see if there were logical and feasible ways in which the Headquarters could better execute its role."[18]

(U) The reviewed RESHAPE plan was briefed to General Meyer, Army Chief of Staff, and the Army Staff Council on 3 September 1980. The concept, implementation plan, and requirements were accepted at this time.[19]

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14 Ibid.
15 "FY 83-87 Program Development Increment Package Summary Page," PARR FY 1983-1987, Vol II, p. 9.
16 RESHAPE, 12 Feb 80 (corrected through 1 May 80), v.p.
17 RESHAPE, Chart II-13.
18 Memorandum For All DARCOM Employees, DRCGS, Signed General John R. Guthrie, 6 Aug 80, subj: RESHAPE II.
19 PARR FY 1983-1987, p. 9.

(U) The initiatives addressed in RESHAPE included overhire up to a year end ceiling, use of overtime, streamlining of organizations, and increased capital investment as major thrusts. The use of overhire was to be emphasized in order to increase man-year use from available manpower and to reduce the loss resulting from normal lags in replacing vacant positions. It was expected that about 2,000 man-years of productivity would have been achieved from a program of carefully managed overhires based upon the fiscal year 1979 experience, when the command ended the year at 99.77 of its authorized strength.[20]

(U) Overtime was managed in terms of cost effectiveness to achieve workload requirements. It provided an alternative to the hiring of new workers, with their attendant added overhead costs. It was expected that use of overtime would produce another 3,000 man-years of effort within the arbitrary 1 percent overtime ceiling. As an example, maintenance of engine shop cleaning vats at Anniston Army Depot saved $35 for every $1 invested in overtime.[21]

(U) Streamlining of organizations addressed the area of increasing the percentage of total manpower used in a direct labor effort. This effort was to be coupled with the reduction of overhead strengths, optimizing the size of project managers staffs, and improving workload and performance measurement. The RESHAPE study indicated that 37 percent of the command's strength was in overhead. The RESHAPE goal had been to convert some of that overhead to produce 8,000 direct labor man-years. Review of the workload of the project management offices was based on a model which took into account 47 variables that contributed to it. During the past eight years, Project Managers had been employing a growing share of DARCOM people; rising from 1.6 percent in fiscal year 1972 to 3.2 percent in fiscal year 1980.[22]

(U) The system to measure improvements in productivity, called DARCOM resource utilization measurement system (DRUMS), was expected to eventually measure efforts of 90 percent of the workforce. It would monitor labor equipment, energy, materiel, and dollars use and measure work accomplished in supply, maintenance, procurement, production quality assurance, engineering, research and development, testing energy conservation, and administration.[23]

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20 Donnan, Colonel Joseph A., "Reshaping DARCOM's Future," Army Logistician, Sep-Oct 80, p. 2-3.

21 RESHAPE, May 1980, Chart V-10A (p. 75A), Donnon, op. cit., p. 3.

22 RESHAPE, Chart VIII-5, p. 159, 159A.

23 Donnon, op. cit., p. 5.

(U) Another management measurement source continued to be the Command Performance Indicator Review (CPIR) which had been instituted by General Guthrie after his assuming command in fiscal year 1978. These quarterly reviews of performance in each staff area provided a framework for resource relationships, identification of problem and succcess areas, a forum for exchange of information, a vehicle to transmit guidance and direction to Headquarters staff and subordinate elements, and a means for performance evaluation of the Headquarter's 33 directors and office chiefs, and overall command performance.[24]

(U) Capital investment over the next four years was to be another means through which an estimated 4500 man-years of productivity were expected to be achieved. New production equipment, rehabilitation of older plant equipment, machine tools, depot and laboratory buildings and equipment, and communications and automation were the key areas in which plans were being made. Manager and employee incentives, including those based on the Civil Service Reform Act, were also expected to create another 6500 man-years of effort "Profit Sharing" by depots or activities also being considered as an additional stimulus to completing projects at less than the original cost estimate.[25]

Relationship With Defense Logistic Agency

(U) Another major command concern in 1980 was the Deputy Secretary of Defense's proposal to transfer management of consumable items to the Defense Logistics Agency. General Guthrie indicated that "the principal impact of this proposal is a degradation of the readiness and sustainability of the US Army" since the Defense Logistics Agency "has no engineering capability," "does not maintain visability on the end item/weapon system within the Army," and "cannot go to the depot production line or maintenance shop and pull consumables to meet critical readiness requirements-the Army can," among key critical elements.[26] While no further action took place during the remainder of the fiscal and election year, the draft Deputy Secretary of Defense memorandum announcing a decision to transfer such management was reconsidered early in 1981 by the new Republican administration.

Personnel Developments

(U) Headquarters DARCOM saw several developments in regard to senior military and civilian personnel during fiscal year 1980. The most important was the appointment of Major General Robert J. Lunn,

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[24] Delaune, MG Elton J. Jr., "Managing DARCOM," Army Logistician, May-Jun 1980, p. 3.

[25] Donnan, op. cit., p. 3-4.

[26] Ltr, DRCMM-SP, To General Edward C. Meyer, Chief of Staff, USA, Signed General John R. Guthrie, Commanding, DARCOM.

former Assistant Deputy Chief of Staff for Research, Development and Acquisition, HQDA, as Deputy Commanding General for Materiel Development, on 8 August 1980, as the successor to Lieutenant General Robert J. Baer, who retired in June 1980. General Lunn was promoted to Lieutenant General on 10 September 1980.[27] The title for the Deputy Commanding General for Resource Management, Major General Berquist, was Changed to Deputy Commanding General for Resources and Management on 26 March 1980.[28]

(U) Effective 13 November 1979, the Headquarters Equal Employment Office and Equal Opportunity Office of DARCOM were combined into the Headquarters Equal Opportunity Office, with Mr. Mario W. Francioli as Chief.[29] On 28 January 1980, Brigadier General Benjamin F. Register became Director, Materiel Management.[30] On 4 June 1980, Colonel Taras Nowosiwky became Command Surgeon.[31]

(U) In order to support the Army Rapid Deployment Force (RDF), whose mission involved "the capability to respond to non-NATO contingencies in Korea, the Persian Gulf, the Middle East, or elsewhere as US global interests are challenged, or in support of our friends and allies," a Rapid Deployment Force (RDF) Task Force was established at Headquarters DARCOM on 14 April 1980. Colonel Fred E. Elam, Director, Plans, Doctrines and Systems, became Director of the Task Force whose mission was to accelerate planning and coordination of DARCOM logistical support for the RDF under the overall mission of the Rapid Deployment Joint Task Force.[32]

(U) On 31 May 1980, the assignments of Major General Robert L. Moore, Chief of Staff, HQ DARCOM, to become Command General, MICOM; Major General Jere W. Sharp from Director, Procurement and Production, HQ DARCOM, to DCSLOG, HQDA; Major General Robert L. Herriford from Assistant DCSLOG, HQDA to replace him; Brigadier General Henry Doctor, Jr., from Assistant Division Commander, 24th Infantry Division to Director, Personnel, Training and Force Development, HQ DARCOM, and

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27 "Lunn Named DC for Materiel Development," Army Research Development, and Acquisition Magazine, Sep-Oct 80, p. 42.

28 DF, DRCGS, To: Distribution, From: Chief of Staff, 26 Mar 80, subj: Title of DARCOM Deputy Commanding General.

29 DF, DRCGS, To: Distribution, From: Chief of Staff, 13 Nov 79, subj: Headquarters Equal Employment Opportunity/Equal Opportunity Realignment.

30 DF, DRCGS, To: Distribution, From: DRCDCS, 18 Jan 80, subj: Designation of Director Materiel Management.

31 DF, DRCGS, To: Distribution, From: Deputy Chief of Staff, 23 May 80, subj: Designation of Command Surgeon.

32 "Rapid Deployment Task Force Established," Interchange, HQ DARCOM, Alexandria, VA, 9 May 80, Annual Historical Review, Plans, Doctrines, and Systems Directorate, HQ DARCOM, FY 1980.

Brigadier General William H. Schneider from Director, Personnel, Training and Force Development, HQ DARCOM to Chief of Staff, HQ DARCOM, were announced. In addition to MICOM, Major DARCOM Commands, CERCOM, White Sands Missile Range, and TSARCOM were to receive new Commanding Generals as of June 1980.[33] In August 1980, Brigadier General James F. McCall was designated Comptroller, HQ DARCOM, replacing Major General Elton J. DeLaune, Jr., who became Director, Army Budget.[34] In September 1980, Major General Thomas F. Healey became Director, Security Assistance and Commanding General DRSAC on 2 September.[35] Mr. Anthony C. Hall became Chief, Civilian Personnel on 8 September.[36]

(U) On 9 September 1980, Mr. John D. Blanchard, Principal Assistant Deputy for Materiel Development and Dr. Robert S. Wiseman, Assistant Deputy for Science and Technology, received the Distinguished Executive Award from President Carter, which was the highest award given under the new Senior Executive Service. They were two of the three Army executives to receive the award among 10 Department of Defense recipients.[37]

Battlefield Systems Integration

(U) The Directorate for Battlefield Systems Integration had been established at HQ DARCOM in August 1975 to provide "a continuing overview of Army Systems development to insure that gaps in combat capabilities" were filled, that new systems were "compatible with those they will join on the battlefield," and that the overall materiel development effort achieved "a significant gain in the effectiveness of the fighting force."[38]

(U) Major General James H. Patterson became Director on 31 July 1979, and headed a staff of 10 Colonel Deputy/Systems Directors and four GS-15 technical personnel. The full scope of the assigned mission could not have been accomplished, however, with the programed $3.0 million budget.[39] The problem of continuing withdrawal of financial authorization began in fiscal year 1980 and continued for both the fiscal year 1981 and fiscal year 1982 budgets, based on actions in Congress and the Army Staff, which ended by its deletion, in entirety, from the Army Budget.[40]

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33 Command Information News, HQ DARCOM Factsheet #3, 2 Jun 80.

34 Annual Report of Major Activities FY 80 Comptroller, HQ DARCOM, p. 21.

35 DF, DRCGS, To: Distribution, From: DRCDCS, 29 Aug 80, subj: Designation of Commanding General DRSAC and Director.

36 DF, DRCDCS, To: Distribution, From: Deputy Chief of Staff, 5 Sep 80, subj: Designation of Chief, Civilian Personnel Office.

37 "DARCOM Executives Honored by President," Command Information News, DARNEWS 4, 11 Sep 80.

38 Appendix A to FY 1980 Historical Summary, "Battlefield Systems Integration FY 1977 to FY 1980," p. 1.

39 FY 1980 Historical Summary Directorate for Battlefield Systems Integration, p. 1.

40 Ibid., p. 16.

(U) By May 1980, it was clear that RESHAPE II, focused on HQ DARCOM, would also directly affect impact upon the Directorate. On 31 July 1980, Major General Patterson retired and "was not replaced by a General Officer." In September 1980, the final consideration of the Directorate's fate was made, resulting in the BSI Directorate being dissolved on 26 September 1980 and its functions transferred to AMSAA.[42] During its existence the Directorate had made many significant contributions to a more effective, modern, and integrated fighting force.[43]

Establishment of US Army Tank-Automotive Command (TACOM)

(U) DARCOM announced, on 20 June 1980, the activation of the US Army Tank-Automotive Command (TACOM), effective 1 October 1980, at Detroit Arsenal, Warren, Michigan. It was formed through consolidation of the US Tank-Automotive Materiel Readiness Command (TARCOM) and the US Tank Automotive Research and Development Command (TARADCOM), both colocated at Detroit Arsenal, Warren, Michigan.

(U) Implementation of the consolidation was phased over a twelve-month period. No reductions in force were contemplated and total employment remained at levels of the prior organizations.[44] The new commander was Major General Oscar C. Decker, Jr.[45] The consolidation also coincided with the relocation of some personnel from the Michigan Army Missile Plant to the Detroit Arsenal installation. This action was based upon the ceding of the plant to the state of Michigan which, in exchange, would construct new office buildings at the arsenal.[46]

(U) TARCOM would henceforth serve as a single manager for research development, and materiel readiness of Army tank and automotive systems, and reflected the re-combining trend previously made by establishing MICOM.[47] The consolidation was expected to reduce indirect overhead costs and to permit better use of logistic and engineering talent. Increased productivity was also expected, based on greater flexibility in allocation of resources and a better employee to supervisor ratio.[48]

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42 HQ DARCOM Permanent Order No. 74-1, 1 Oct 80.

43 See Chapter III, "Materiel Development."

44 Message, DRCDMR, "Establishment of US Tank-Automotive Command (TACOM)," 18 Jun 80, Interchange, HQ DARCOM, Vol. II, No. 1, 20 Jun 80, p. 1.

45 DF, DRCGS, To: Distribution, subj: US Army Tank-Automotive Command (TACOM) Assumption of Command.

46 HQ DARCOM Permanent Order 73-1, 29 Sep 80; US Army Tank-Automotive Command. Historical Overview: The Great Real Estate Exchange ..., Warren, MI, 1980.

47 Message, op. cit., p. 3.

48 Message, Ibid., p. 3, 6, 7.

The consolidation was expected to facilitate the transition from development to production and operation of tanks, armored vehicles, trucks, and trailers and to improve management of the increased workloads on the command anticipated to be experienced during the next five years.[49]

Rationalization, Standardization, and Interoperability (RSI)

(U) As Army Vice Chief of Staff, General John W. Vessey, Jr., indicated: "Interoperability is our goal in the near term with standardization a longer term deal," reflecting the continuing emphasis placed on RSI during the fiscal year 1980.[50] DARCOM's participation was based upon working with the Department of the Army International Rationalization Office (DAIRO) and under AR 34-1, "United States Army Participation in International Military Rationalization/Standardization/ Interoperability (RSI) Programs," revised 15 October 1979, effective 15 November 1979; and AR 34-2, "Standardization; Rationalization, Standardization and Interoperability Policy," 15 May 1979; revised 15 December 1980, effective 15 January 1981.

(U) The basic thrust of the DARCOM readiness RSI Program was to fully support the Army priorities which included the task of evaluating fielded systems to determine "where product improvements can economically achieve interoperability."[51]

(U) At Headquarters DARCOM, the term "standardization" was added to the title of the Office of International Research and Development, 18 March 1980, and the office continued its responsibility for staff supervision of the US Army Standardization Group in the United Kingdom, Canada, Germany, and Australia.[52]

The XXII Tactics Equipment and Logistics (TEAL)

(U) A meeting of the ABCA countries was hosted by the United Kingdom and took place at the staff college at Camberly from 14 through 18 April 1980. The United States delegation was headed by General Guthrie with representation from the Department of the Army and TRADOC. The ABCA countries agreed to establish a new Quadripartite Working Group (QWG) designated as Collaborative Training and concurrently a

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49 Message, Ibid., p. 3, 4.

50 "Responses by GEN John W. Vessey, Jr., Vice Chief of Staff, US Army," Army Research, Development and Acquisition Magazine, Jul-Aug 80, p. 5.

51 Ltr, DRCPI, Signed by Lieutenant General Harold F. Hardin, Jr., 6 Dec 79, subj: Readiness-Rationalization, Standardization, Interoperability (RSI) Initiatives in the Area of Hardware Interoperability, p. 1.

52 Army R, D, and A, July-August 1980, p. 8; and see separate articles.

review of all existing QWGs. The following ABCA priorities to enhance interoperability were affirmed: (1) Command, control, and communications systems; (2) Cross-servicing interchangeability; (3) Ammunition interchangeability; (4) Battlefield surveillance, target, designation/acquisition systems; and (5) Standardization/interoperability of components and spare parts.[53]

German/United States Army Staff Talks

(FOUO) During fiscal year 1980, the series of talks between German and American army staffs continued at several levels in order to improve combined force effectiveness through Rationalization, Standardization, and Interoperability (RSI). The program's objectives continued to be to enhance the capability of the German and American combat units to operate side by side in Europe by "(1) developing combined tactical concepts; (2) defining equipment needs; (3) conducting evaluation; (4) testing inoperability; and (5) increasing cooperation on materiel, logistics, and training."[54] Concepts developed in the staff talks continued to be ratified personally by the German and American Army's chiefs of staff.

(FOUO) The American delegation, at the September 1979 meeting, was headed by General Donn A. Starry, Commander, Headquarters TRADOC, with the Headquarters DARCOM representation led by Lieutenant General Robert J. Baer, Deputy Commanding General for Materiel Development.[55] The steering committee's report approached long term goals and reaffirmed that the two key concepts were c^3 and armor forces of the 90's.[56] The staffs received status reports on fourteen major projects.[57] As a result, specific requirements were identified and assigned to individuals in the areas of concepts, war gaming (scenarios), analyses, Military Equipment Characteristics Document (MECD), materiel candidates, and interoperability testing, training, and logistics candidates, special subjects and support for the future staff talks.[58]

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53 US Army RDS Group (UK), AHR for FY 1980, p. 2.

54 Memorandum, ATCD-IAPD, Signed BG J. W. Woodmansee, Jr., GSA, DCOS for Combat Development, USA, 15 Oct 79, subj: Results/Requirements from GE/US Army Staff Talks, 4-7 Sep 79, Munich, Germany.

55 "US Attendee List for GE/US Staff Talks, Munich, 3-7 Sep," Ibid., p. 56.

56 "Coordination Draft, Annex A," Ibid., p. 33.

57 "Coordination Draft," Ibid., p. 28-31.

58 "Memorandum For Record: Requirements ...," Ibid., p. 8-26.

(FOUO) The delegation heads directed that the steering committee focus on the following priorities: Concept for command control, concept for Armor Combat Forces for the 1990's, interoperability demonstration goals for TACFIRE/ADLER, and TOS/HEROS and Barrier/Counter Barrier as a non-major item theme.[59]

(FOUO) The Second German/United States Expert's conference on NBC-Defense Equipment met at the Chemical Systems Laboratory, US Army Armament Research and Development Command, Aberdeen Proving Ground, Maryland, from 23 to 26 October 1979. The conference reviewed the status of action relative to previously identified individual items of NBC equipment, aspects of possible cooperation and new candidates for possible cooperation.[60]

(FOUO) The Third Non-Major Item Working Group, German/United States Staff Talks met at NARADCOM, Natick, Massachusetts, from 10 to 12 December 1979. The Group "reviewed and approved the status of selected candidates" for further talks, the "concept of a systematic approach to bilateral cooperation," the report "of the NBC experts working group, approved "three MECDS for signature," and approved plans to establish "three expert working groups: Barrier/Counter Barrier, camouflage concealment and SMOKE, and configuration control."[61] The first German/United States Experts Meeting on Barrier/Counter Barrier Equipment was held at the US Army Mobility Equipment Research and Development Command, Fort Belvoir, Virginia, 5-11 February 1980. The meeting reviewed the 1977 United States/German concept paper, mobility/countermobility; surveyed equipment in development or fielded; identified and recommended candidates for cooperation to the NMI Delegation heads; and identified items which might be suitable for joint development, and eventually reach the MECD stage.[62]

(FOUO) On 15 January 1980, a preparatory meeting for members of the US Steering Committee was held at Fort Monroe, Virginia, followed by the GE Steering Committee meeting held in Bonn, Germany, 11-14 February 1980. In turn, a preparatory conference was held at Fort Monroe, Virginia, 18-19 March 1980, prior to the GE/US Army Staff Talks held 21-24 April at Fort Rucker, Alabama.[63] The steering committee was given similar and changed priorities; concept for command

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59 Memorandum, ATCD-IAPD, subj: Results/Requirements ..., op. cit., p. 1 (2).

60 Minutes of the Second US/GE Expert's Conference on NBC-Defense Equipment, 26 Oct 79, P. 1 (Incl 8 to #61). (FOUO)

61 Ltr, DRCIRD-B, subj: Minutes: Third Non-Major Item Working Group GE/US Staff Talks, 17 Dec 79, Signed Bryant R. Dunetz. (FOUO)

62 Memorandum, DRDME-UY, subj: Minutes of First GE/US Experts Meeting; Barrier/Counter Barrier, 13 Feb 80, Signed COL Richard H. Benfer., p. 1.

63 GE/US Army Staff Talks Results/Requirements from Staff Talks, 4-7 Sep 79, 15 Oct 79, p. 2.

Control, concept for Armor Combat Forces for the 1990's and Land Battle of the 1990's, plans to focus German and United States capabilities against the 2d Echelon, and regarding Interoperability demonstration goals for TACFIRE/ADLER and C^2 systems.[64]

(FOUO) General Starry again headed the US Delegation and Lieutenant General Baer, again, was Chief of the DARCOM representatives.[65] A new list of taskings which resulted from the talks was distributed[66] as was a Summary of Results achieved.[67]

(FOUO) The Fourth Non-Major Item Working Group, GE/US Staff Talks was held at Bad Reichenhall, Germany from 9 through 12 June 1980. The meeting accomplished the following: Review and approval of the status of selected candidates for consideration, approval of a MECD on stimulant agent for training, approval of the minutes and report of ad hoc Expert Group on Combat Engineer Equipment which met 19 to 23 May 1980 at the Engineer School in Munich. Establishment of a new expert working group on SMOKE camouflage and concealment; and approval of a proposal for a future experts working group to consider Military Operations in Built-Up Areas (MOBA).[68]

(FOUO) The GE/US Steering Committee met 15-17 September 1980 at Fort Monroe, Virginia and planned the topics to be discussed at the upcoming GE/US Staff Talks to be held at Bremen, Germany from 8 through 12 December 1980.[69]

Product Assurance

(U) The organization of this headquarters directorate remained relatively stable during fiscal year 1980. The Director, Mr. S. J. Lorber, The Executive Assistant, Ms. R. E. Smith, and the Chief, Product Quality Division, Mr. R. F. Tiner continued throughout the year. The only significant change was the separation of the former Reliability and Systems Assessment Division, under Mr. A. Nordstrom, during the third quarter fiscal year 1979, into the Engineering Division under Mr. Nordstrom and the System Assesment Division under Mr. R. DuBois.

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64 German/United States Army Staff Talks, Results/Requirements from Fort Rucker Staff Talks, 21-24 April 1980, 22 May 80, p. 1. (FOUO)

65 Ibid., Incl 9, "US Attendees." (FOUO)

66 Ibid., Incl 1, Memorandum For Record, subj: Requirements from GE/US Army Staff Talks, 21-24 April 1980, Fort Rucker, Alabama, 22 May 80, Signed Brigadier General J. W. Woodmansee, Jr.

67 Ibid., Incl 2, Memorandum For Record, subj: Results/Summary of GE/US Army Staff Talks, 21-24 April 1980, Fort Rucker, Alabama, Signed Brigadier General J. W. Woodmansee, Jr., P. 1-11.

68 Ltr, DRCIRD-B, subj: Minutes Fourth Non-Major Item Working Group GE/US Talks, 13 August 1980, Signed COL Howard G. Glock; Annex I "Final Report of Combat Engineer Equipment Expert Group," p. 1-26.

69 Minutes, GE/US Steering Committee, 15-17 September 1980, Ft. Monroe, VA, v.p. (FOUO)

Major Activities

System Assessment

(U) A 5-year assessment schedule was published in DARCOM Circular 702-2 so that advance planning for assessments could be effected. Advance planning would permit better data collection, allow time for users to accumulate better system information, and allow more participation by LAOs and FMTs. A goal had been established for all system proponents to meet 75% of their forecast dates for materiel release. This goal had increased emphasis on meeting release dates and had raised a question as to whether the releasing commands were placing more emphasis on meeting the release goal, than in assuring that no shortcuts were taken in the materiel release process. DARCOM reviewed fielded materiel that had been conditionally released to determine if conditional releases were causing problems in the field. A system for tracking conditional releases was also being implemented. The tracking system would require periodic reports from the MSCs to assure expeditious removal of the conditions and issuance of a full release.

Army Reliability and Maintainability

(U) DOD published a directive on Reliability and Maintainability (R&M) (DODD 5000.40) that established policies and responsibilities for defense systems, subsystems, and equipment. It implemented the principles set forth in DODD 5000.1 and DODD 5000.2 for major systems, and for items not designated as major systems, during all phases of the life cycle.

(U) A major effort had been the preparation of the Army regulation implementing DODD 5000.40. Several revisions of AR 702-3, Army Materiel System, Reliability, Availability, and Maintainability (RAM), were distributed to the Major Army Commands and throughout DARCOM for comments. The resulting revised draft regulation was then forwarded to HQDA for staffing and publication. A revised RAM Design Practices Guide was also contracted for and expanded to two full volumes.

Army Quality Engineering

(U) The Quality Assurance Provisions (QAP) Regulation (DARCOM-R 702-10) was completed and transmitted for implementation in May 1979. This regulation defined the format, content and requirements for QAPs; established the organization responsibilities for preparing, changing, and improving QAPs; emphasized the requirement for a coordinated effort from project engineers, quality engineers, maintenance engineers, and safety engineers, to establish and maintain QAPs; 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. A survey of the R&D commands to determine the degree of regulation implementation was initiated in 1980.

(U) The Quality Assurance Provisions (QAPs) Handbook was completed early in fiscal year 1980. The purpose of this handbook was to provide management and technical guidance to the elements responsible for assuring the quality of Army weapon systems. The Quality Assurance Concept addressed the reasons for Quality Assurance and the functions and activities of Quality Assurance as it related to system maturity and the operation aspects necessary for a successful Quality Assurance Program. The Quality Assurance Provisions in Army Documentation addressed more specifically how to accomplish the Quality Assurance objectives and responsibilities. The primary thrust was toward the development of satisfactory Quality Assurance Provisions (QAPs) which was a significant portion of a successful Quality Assurance program. Narrative and examples were structured with the objective of showing "how" to prepare and maintain QAPs while providing an understanding of the total quality concepts.

(U) Quality Readiness Reviews (QRRs), an analysis of the documentation and procedures used to insure a product of acceptable quality, were accomplished on four items during fiscal year 1980. The QRR provided the development command or product manager 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 QRR addressed all areas leading to the acceptance of the system and sub-system components. In particular, the review was conducted so as to assure that the system/product design performance characteristics had been properly and thoroughly characterized in the Technical Data Package, that the quality assurance provisions and acceptance tests were properly designed to relate to all performance characteristics, and that the First Article test, Comparison test, Quality Conformance Acceptance inspections, Interchangeability test, and Surveillance tests would demonstrate the acceptability of the product. The findings of the review were developed so that the recommendations could be incorporated into the Technical Data Package with minimal delay and cost. These findings had supporting data and rationale to demonstrate how their incorporation into TDP could result in a product of acceptable quality.

(U) Quality Engineering initiated review of Acquisition Plans (APs) to determine adequacy of proposed Product Assurance activities. During the 3rd quarter of fiscal year 1980, 10 APs were reviewed and inadequacies noted on eight of the plans. The primary problem areas were reliability, maintainability, and quality assurance planning. Action was taken in each case to correct identified deficiencies prior to the approval of the respective plans.

(U) In September 1980, the Joint Logistics Commanders directed that a Nondestructive Inspection Joint Technical Coordinating Group (NDI-JTCG) be established to provide continuing emphasis on improvement of NDI capabilities, coordinate joint efforts of service NDI programs, and resolve major problems affecting efficient NDI program

operations. The first meeting of the NDI-JTCG was held in November 1980. The Air Force Logistics Command chaired the group for the first year. The following subgroups were established and service assignments made: Army - NDI Specifications and Standards subgroup, NDI Life Cycle Guide subgroup; Navy - Impediments to NDI subgroup, NDI Procurement Activities subgroup; Air Force - NDI Technology subgroup, NDI Personnel Management subgroup.

(U) Under the Materials Testing Technology (MTT) Program, a fourth technical working group (TWG), electronic/software, joined the nondestructive testing, chemical and mechnical groups in 1980. These TWGs consisted of technical experts in their respective fields who reviewed each MTT project submission and made specific evaluations and recommendations for project approval or rejection. The MTT operational guidelines which described procedures and responsibilities for identifying, preparing and proposing MTT projects and the MTT committee guidelines which described the responsibilities and operations of the MTT committee were published in 1980.

(U) The first Quality Assurance Provisions Engineering (QAPE) Course was conducted at AMETA in April 1980. The purpose was to provide the student with a working knowledge of quality assurance provisions and to provide practice in their development and preparation. Topics in the program of instruction included the identification of product characteristics, types and forms of requirements documents, analysis of material requirements, software quality assurance, nondestructive testing overview, depot maintenance work requirements, and storage serviceability standards. The course was designed for personnel engaged in developing technical quality assurance provisions, or reviewing, or evaluating the provisions developed by contractors or other organizations.

RSI Standardization

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

(U) The group responsibility was to identify and recommend to Armies, means of establishing common or compatible proofing, inspections, and quality assurance procedures, techniques, terms, and definitions to enable ABCA Armies to recognize others' methods and responsibilities and to accept each other's standards. The organizational structure and method of operation of QWG/PIQA differed from that of all other QWGs, except QWG/ES. That is, both of these QWGs worked on a project system, with project officers appointed to each project within each Army. QWG/PIQA project officers 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 developed QSTAGs to the final draft stage, with the project officer of the Custodian Army leading in project development. The QWG's 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) The 8th QWG/PIQA met at St. Hubert, Canada, from 20 to 25 January 1980 and was attended by all Principal Members, together with sufficient project officers from all countries. The output of this meeting was outstanding due to the attendance of a sufficient number of qualified project officers, seven separate working group meetings of project officers who were able to resolve technical problems. Ten projects were closed and seven new projects initiated at this QWG. Significant progress had been made since 7 QWG/PIQA identifying ABCA Quality Assurance Concepts during the materiel life cycle. Agreement was reached on a standard QA approach to the procurement phase. In addition, an initial study report was prepared on the development and In-Service phases of Quality Assurance. The meeting made 53 recommendations comprising: Two relating to a directive from TEAL XX based on QWG/PIQA work on a Quality Assurance Concept; thirty-seven relating to QSTAGs; eleven relating to information exchange which may lead to standardization action; and two which related to the next meeting.

(U) While all Armies continued to commit sufficient resources to meet assigned project objectives, the limited resources available to the QWG continued to hamper the accomplishment of standardization of Quality Assurance practices in other additional areas.

(U) Materiel deterioration prevention and control was of vital importance to the US Army and in particular, DARCOM. It continued to be a major problem that degraded Army Readiness. The Product Assurance Directorate was assigned the responsibility to establish an Army-wide program.

(U) As a result, DARCOM-R 702-24, "Materiel Deterioration Prevention and Control," dated 16 October 1979, was written, staffed with the MSCs/PMs/Activities and DARCOM Headquarters, revised, including appropriate comments, and published. Included in the regulation, appendix A, was a model scope of work that could be placed in the Invitation for Bids or the Request for Proposals, and may be included in contracts in order to assure that the contractor established and maintained a Materiel Deterioration Prevention and Control (MADPAC) Program. The model can be tailored as necessary to fit the particular contract or situation.

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

(U) It did not specify where the Deterioration Prevention Action Office (DPAO) should be placed within the commands/PMs/activities, but the people within this office would be experienced in failure analysis, deterioration failures and material finishes. It was anticipated that the product assurance personnel would have considerable interest and interface with the program due to their background, experience and knowledge.

(U) A meeting of the MADPAC Central Steering Committee was held at Headquarters DARCOM on 28-29 May 1980. Attendees actively participated in discussions and presented briefings of what their command/activity was doing or proposed to do to implement the MADPAC program. Particular emphasis was placed on management structure and responsibilities, identification of problem areas, review and development of specifications and standards to resolve problem areas, and dissemination of deterioration and deterioration control information.

(U) As a result of a visit to Hawaii by Lieutenant General H. F. Hardin, Jr., the need for a comprehensive assessment of rustproofing needs was highlighted. In August of 1980, a letter was forwarded to TACOM requesting a review and evaluation of contract requirements for major acquisitions to identify any additional actions to assure that materiel deterioration/corrosion would not be a problem for new systems. TACOM had taken specific actions, i.e.: A rustproofing drawing was developed for each vehicle showing application of rustproofing compound to all sheet metal areas; insured use of MIL-C-0046164A, General Requirements for Rustproofing on all vehicles, both new and rebuilt; began long range and R&D efforts to design a rust-free vehicle; planned use of suitable coated steels; and encouraged use of a design handbook to prevent corrosion.

(U) Joint DARCOM/NMC/AFLC/AFSC Commanders Panel on Corrosion Prevention and Control. Corrosion prevention and control was of vital importance to the armed forces and continued to be a major problem that adversely impacted on materiel readiness. The application of proven corrosion prevention techniques during equipment design and manufacture was an economic necessity. It was also essential that more cost-effective techniques be developed for detection and treatment of corrosion in fielded systems.

(U) The Joint Logistics Commanders Panel on Corrosion Prevention and Control was established to develop and implement a long-range, definitive-action program to take advantage of joint opportunities in

this area. Significant savings in manpower and funds, along with improved operational readiness, can be realized from these efforts. The purpose of the panel was to: Provide continuing emphasis on improvement of corrosion prevention/control efforts in the Joint Logistics Commands and throughout the services, and to promote awareness in the services of the importance of corrosion prevention and control considerations during weapon system development and proper preventive procedures at each stage of every system's life cycle.

(U) The Panel on Corrosion Prevention and Control consisted of one principal member and one alternate principal member from each JLC command. In addition, the Marine Corps was invited to designate a representative to participate on this panel. Functional assistance, including other representatives and advisors as required, would be obtained by the principal members from their respective commands. The panel developed a study plan which was approved by the Secretariate in April 1980. The plan outlined the necessary tasks, resource requirements, and milestone dates to accomplish the panel mission. Sufficient priorities and resources were to be allotted to this panel to allow timely accomplishment of it's responsibilities. The main panel established four subpanels to assist in the completion of tasks assigned to the main panel. They were: Subpanel 1 - Technology; Subpanel 2 - Data Collection and Lessons Learned; Subpanel 3 - Publications; and Subpanel 4 - Depot and User Training.

DARCOM Supply and Maintenance Quality Assurance Program

(U) DESCOM Quality Assurance Directorate Operations. DESCOM achieved full staffing of 15 people in the Quality Assurance Directorate on 1 January 1980 as scheduled. The Directorate was staffed to support Supply, Maintenance and Ammunition Surveillance Quality Assurance, Metrology and Calibration, Photodosimetry and data feedback and analysis. Immediate actions were undertaken to begin determining the status of the various projects and establishing priorities for accomplishment. Of importance was the coordination with the Readiness Commands and setting up methods of interface and communication. The Director personally visited the Depots to make them aware of DESCOM Quality Assurance Programs and to solicit support in striving to achieve goals and objectives.

(U) DESCOM/DARCOM Quality Managers Conference. New Cumberland Army Depot (NCAD) hosted the first DESCOM/DARCOM QA Managers Conference in January 1981. The conference theme was "Partners in Progress" and was an excellent forum for the respective Depot and Readiness Command QA Directors to communicate face-to-face on mutual problems and concerns. Mr. S. J. Lorber, Director for Product Assurance, Headquarters DARCOM, gave the keynote address and stressed the importance of satisfying the soldier. He further reminded the attendees that they must recognize and fulfill their total responsibilities for quality assurance. He urged each Director to explore new avenues to accomplish its work and to let other Depots know about these new

techniques so as to improve the overall DESCOM/DARCOM performance. A number of subjects were presented which provoked thought and resulted in good communication among the group.

(U) DARCOM Quality Assurance Field Activity (QAFA). The QAFA continued to support Headquarters, DARCOM-QA in any task or project necessary to the assigned missions. Significant achievements were made toward recruitment of minorities and females into the QAFA staff. An average of 35 percent of the QAFA workforce (QA Specialists) was made up of minorities and females for fiscal year 1980. QAFA had a long term goal (5 years) of achieving a 50 percent minority and female staff of QA Specialists.

(U) Certification Program For Quality Assurance Personnel. Ninety percent of the total depot quality workforce became certified; this was a 9 percent increase over the fiscal year 1979 performance. Six depots were over 90 percent (Anniston, Letterkenny, Sacramento, Seneca, Sierra and Tooele). Sierra was 100 percent certified. In conjunction with the personnel elements, the Depots required new employees to participate in the certification program and to take the examination within six months after being hired.

(U) Depot Testing Realignment. DESCOM made good progress toward assessment of the testing operations of each Depot. The purpose was to determine if test requirements were properly documented and that the maintenance and quality assurance responsibilities were clearly denoted in the work instructions. While some depots made realignments, others such as Sacramento and Tobyhanna experienced problems where consoles were used by technicians for diagnostics as well as for determining acceptance. DESCOM had milestoned the overall task for final completion by the end of fiscal year 1981.

(U) Semi-Annual Updates of Depot Quality Programs. As a follow-up to the DA/DARCOM Steering Group Reviews made during fiscal year 1976 through fiscal year 1979, the Deputy for Logistics ASA (IL&FM) requested that a review be made at Anniston in May 1980. Headquarters DARCOM-QA presented a brief overview of actions to date, followed by a DESCOM presentation on initiatives underway for improvements in maintenance and Supply Quality Assurance. Anniston presented a rundown of major maintenance overhaul programs and highlighted those improvements incorporated as a result of the previous DA/DARCOM reviews.

DARCOM Ammunition Surveillance Program

(U) Quality Assurance Specialist (Ammunition Surveillance) (QASAS) Career Program. The Commanding General, DARCOM, was responsible for providing QASAS to various Department of Defense installations, activities and commands engaged in the receipt, storage, maintenance, issue, use and disposal of ammunition and explosives. QASAS was assigned to worldwide positions under a mandatory rotational system.

There was a sharp reduction in fiscal year 1980 versus fiscal year 1979 in the number of vacant positions in the career program from 62 to 23. This reduction was due to a continued intensive intern recruitment and training program. During the year, the total number of authorized spaces increased by 49 from 473 to 522. The trend toward program growth was projected to continue based on new requirements in USAREUR and at ARRCOM. To meet these new requirements, recruitment and training by the US Army Defense Ammunition Center and School at Savanna, Illinois would continue at a high level for fiscal year 1981 and beyond.

(U) Progress was made on several subprograms of the Ammunition Stockpile Reliability Program (ASRP) during fiscal year 1980, they were:

(1) The Basic Load Ammunition Program continued during fiscal year 1980. This program was designed to determine the functional serviceability of ammunition which had been subjected to uploading/downloading for extended periods of time. The fiscal year 1980 results for uploaded 105mm and 152mm tank ammunition were satisfactory. This program was scheduled to continue.

(2) The Toxic Chemical Agent Sampling Program was scheduled to be completed during fiscal year 1980 but forecast completion slipped to 1st quarter 1982 due to transfer of the mobile chemical laboratory to Johnson Island; new safety requirements for one-ton containers; and safety issues at Pueblo and Anniston Army Depots. Test results indicated that chemical agents were serviceable with the only appreciable degradation noted in certain lots of GB agent.

(3) The Ammunition Stockpile Reliability Program Initiatives taken during fiscal year 1980 included the following: Analysis of surveillance inspections resulted in increased intervals and 12 percent reduction in cyclic inspection requirements; the adoption of "skip-lot" inspection method for new receipts, resulted in manhour savings; the plan to conduct open-air testing of live agent loaded munitions was developed; and use of other range facilities to conduct tests in support of ASRP was achieved.

(4) In regard to Chemical Protective Clothing, DA DCSLOG approved development and conduct of a stockpile surveillance program for chemical suits. Samples were withdrawn from USAREUR and satisfactory progress was made in developing the standards and methods for the conduct of the program.

US Army Metrology and Calibration System

(U) In regard to the US Army Test, Measurement and Diagnostic Equipment (TMDE) Activity (USACTA), Lexington, Kentucky, the Commander, Colonel Kenneth L. Shore, retired on 30 December 1979. Major Robert E. Whaley served as Acting Commander until the assignment of Colonel James D. Rider on 19 August 1980. In March 1980, DARCOM proposed the establishment of a single manager for TMDE. The proposal indicated three alternative locations for this single manager: USACTA, CERCOM, and MICOM. While each organization submitted a bid; no decision had been made by the end of the fiscal year, which, in time, caused personnel shortages at USACTA.[70]

Conversion to the Metric System of Measurement

(U) DOD Directive 4120.18. A revision to this directive was published 28 January 1980. The revision did not appreciably alter the previously established DOD policy, but did assign responsibility to the Under Secretary of Defense for Research and Engineering for establishing a DOD Metrication Steering Group (MSG) to plan and coordinate the DOD's conversion to the metric system and to serve as an advisor to DOD components. Heads of DOD components were assigned responsibility to designate primary and alternate persons to serve on the MSG.

(U) AR 700-1. A revision to AR 700-1 was prepared and coordinated with Major Army Commands. The planned revision did not appreciably change existing policy but clarified some aspects of the policy and would place more emphasis on planning for metric conversion.

(U) DOD Metric Seminars and Workshop. A metric seminar for upper levels of DOD management was conducted 12 June 1980. Planning and administrative arrangements were accomplished during the fourth quarter fiscal year 1980 for a DOD seminar and workshop for mid-level DOD managers to be held during the first quarter fiscal year 1981.

Implementation of the US Army TMDE Support Concept

(U) Planning for implementation of the improved TMDE support concept in the Pacific was accomplished during fiscal year 1980 and operational control was transferred to the Army Metrology and Calibration Center (AMCC) during the last two quarters in preparation for assumption of the mission on 1 October 1980. The US Army TMDE Support Activity, Pacific (USATSAPAC) was activated as a MICOM activity reporting to AMCC.

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[70] USACTA, Annual Historical Review FY 80, p. 3.

(U) Planning for implementation of the improved concept in CONUS began on 1 October 1979 and continued through the fiscal year in preparation for assumption of operational control during the 2d and 3d quarters, fiscal year 1981 and mission assumption on 1 October 1981 by AMCC. This action applied only to FORSCOM, TRADOC and Area Support Activities.

(U) Effective 1 October 1980, the management of Test, Measurement, and Diagnostic Equipment (TMDE) Calibration Activity was transferred from the Directorate for Quality Assurance, Letterkenny Army Depot, to the Metrology and Calibration Center, US Army Missile Command (MICOM), Redstone Arsenal, Alabama. The change in management of 69 civilian spaces and 1 military space was ordered by Headquarters, DARCOM in order to consolidate calibration functions within the continental United States; and resulted from a DA Army Concept Study, "Improved Army-Wide TMDE Calibration and Repair Operations."[71]

Test Equipment Logistics Information Source (TELIS)

(U) As the impact of TMDE on logistical support of materiel grew more pronounced, the requirement for a standard information source to support and control the DA TMDE program became evident. In June 1978, DARCOM delegated authority to USACTA to investigate the feasibility of a standard TMDE system and, if feasible, to implement the system. In October 1979, this feasibility study was completed and issued indicating that TELIS was needed and would provide a valuable management tool for review and control of the TMDE program. It would also provide technical and logistics information and would be extensively used for equipment selection and standardization. Implementation of TELIS began in the third quarter of fiscal year 1980.[72] Logistical data on TMDE was compiled and was stored in a central TMDE master file.

Nuclear Chemical Affairs

(U) The Nuclear Chemical Office expanded during fiscal year 1980 as the result of the 1979 change to the TDA. The Chief continued to be Colonel G. A. Carruth, and Mr. R. Miller continued to be responsible for Nuclear Affairs, and LTC S. L. Worlund for Chemical Affairs. By the end of the year, additional support saw LTC J. Stevens responsible for Nuclear/Chemical Affairs and LTC J. Pittman for Chemical Affairs, aided by a new administrative assistant position. The overall shortage of qualified munitions and chemical officers, however, was also a matter of concern during this year.[73]

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71 Letterkenny Army Depot AHR 1979-80, p. 1, 23.

72 ACTCH Annual Historical Review FY 1980, Incl I, "TELIS Feasibility Study," October 1979, p. 1-2.

73 Ltr, DRCPT-MO, To MG William E. Eicher, ARRCOM, 24 Apr 80, Signed LTG Harold F. Hardin.

(U) On 10 January 1980, the summary test results for the Drill and Transfer Systems (DATS) Phase I was forwarded to the Department of the Army. DATS is a transportable capability for demilitarization of small quantities of leaking munitions. The Phase I objective was to evaluate the overall effectiveness of the system prior to the conduct of operations at other storage sites than Dugway Proving Ground (DPG). Here, Phase I was conducted which resulted in the safe drilling and draining of 60 munitions without major incident. Phase II was expected to begin following approval of final sites and receipt of concurrence from the Department of Health and Human Services about April 1981.

(U) In a significant movement approximately 20,000 chemical agent identification kits were shipped from 15 separate locations to Rocky Mountain Arsenal (RMA) by 17 June 1980. Here they would be stored until they were demilitarized in a facility being modified for the purpose. The total cost of the move was $2,059,268 which was accomplished with only one accident. On 22 May 1980, a helicopter transporting the kits crashed at Crane Army Ammunition Activity with no release of chemical agents or serious injury to the six occupants. The response of the chemical/accident/incident control element to this crash was considered outstanding.

(U) As a result of the 1979 Army Commanders Conference, General John R. Guthrie indicated his concern to General Meyer over the conditions of chemical munitions stored on Johnson Island and indicated that "a total systems review of the management of our chemical stock and associated facilities would be conducted" with Johnson Island receiving first priority. In June 1980, a comprehensive study of the problems at Johnson Island and other chemical storage sites was completed. Colonel John Mason, USATHAMA, was the study team chairman and representatives from Headquarters, Department of the Army, WESTCOM, ARRCOM, DESCOM, and Field Activity Safety made contributions.[74] On 20 June, the findings and recommendations for Johnson Island were forwarded to Headquarters, Department of the Army, and for the other sites on 29 September 1980.

Management Information System

(U) The office organization remained relatively stable during fiscal year 1980. The Director, J. C. Gilbert, the Executive officer, LTC C. O. Walters, the Chiefs of Materiel Readiness Systems Division, Mr. J. E. Smith and the Resources Division, Mr. J. Cianflone continued. The Deputy Director, Mr. J. A. Arntsen, retired in February 1980, and was succeeded by Mr. J. A. Saum on 7 July 1980; while the Chief of the Materiel Development Systems Division, Mrs. C. G. Morris, retired in September 1980.

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[74] Ltr, DRCNC, To Chief of Staff, USA, 9 Jan 80, Signed General John R. Guthrie, Commanding, DARCOM.

(U) The major plan for the development of the systems was described, in detail, in the review for fiscal year 1979 as the "Blueprint for DARCOM Information Processing in the 1980's." The Blueprint consisted of several individual thrusts which progressed separately at their own pace, but which would ultimately complement each other. As component parts of the Blueprint, all of the thrusts were important, but their intrinsic value to the advancement of DARCOM's productivity vary: some would result in great improvement of performance in actions which had been performed for many years, while others opened the door to areas which were beyond reach under the older technology. Improvement could be measured easily in the first type by comparison of the old and new performance. The second type of measurements were not as clear cut. Expected improvement could be hypothesized with some accuracy, but could only be proven by experience.

(U) Basically, the reasons for adopting such an aggressive program were these: DARCOM's computers were early, third generation equipment with much less capability than up-to-date equipment; the equipment was "saturated," with no capacity to absorb additional workload; there was inadequate capacity to handle a mobilization surge in workload; there was no opportunity to use new techniques because of the obsolescence of the equipment; the productivity of the workforce had to be increased to compensate for a constantly increasing workload and constantly reducing staff; and DARCOM could not afford to "not take advantage of" the more powerful capabilities offered by state-of-the-art equipment and techniques.

(U) The Architecture thrust concentrated on the use of modern, state-of-the-art equipment and technology. The major goals were to provide adequate and reliable capability, gain "machine independence," protect DARCOM's large investment in application software and peripheral equipment, make our application programs "transportable" to any equipment, and put DARCOM in the position of being able to continue to move ahead as further advances in technology took place.

(U) Fiscal year 1980 was an epochal year in the Architecture thrust since the equipment base to support the DARCOM Architecture thrust was largely acquired during this fiscal year. Thirty-six minicomputers of various brand names, each having equivalent or greater power than the IBM 360-65, were delivered; with another eighteen to be delivered in fiscal year 1981. Each of these machines occupied a small fraction of the space occupied by a 360-65 and consumed far less electricity and air conditioning. These minicomputers had an IBM compatible instruction set so that much of the existing operating system, executive and application software and peripheral base could be retained and given extended life. Four high-speed local buses, marketed under the trade name of Hyperchannel, were ordered and would be delivered in fiscal year 1981. This would allow prototype coupling of selected groups of these minicomputers into local computer networks, which was one of the main thrusts of the Architecture. Until these minicomputers could be networked, they were being operated in a

stand-alone configuration. This gave DARCOM installations much needed computational power for continued new application development and a mobilization capacity that was formerly completely lacking. Executive software necessary for operating several of the minicomputers in a network environment proceeded approximately on schedule in this fiscal year. An evolutionary implementation schedule was in place and was being tracked continuously by management. The two central development sites, ALMSA (Automated Logistics Management Systems Activity) and LSSA (Logistic Systems Support Activity), were cooperatively developing the software or accepting responsibility for contractor development that had been staffed and jointly approved. The Architecture Thrust was on track and should have DARCOM in an extremely enviable computational posture by the targeted date of 1985.

(U) The Distributed Functional Processing (DFP) thrust had the objective of bringing computer power closer to the users by giving them a dedicated computer capacity which could be used through terminals to store and access information. The potential for increased productivity and increased accuracy was high, as reflected in the prototype DFP application PADDS (Procurement Automated Data Documentation System), where a 400% increase in productivity of contract specialists was forecast along with an annual savings of $8 million.

(U) The PADDS hardware was installed in fiscal year 1980 and PADDS applications were released for functional familiarization in fiscal year 1980 while extensive prototype testing was being conducted at MICOM. Other functional areas which appeared to be candidates for DFP were being evaluated to forecast the potential productivity increase to be gained. Productivity increase would be the prime factor in determining the priority for development of additional DFP applications.

(U) The Narrative Processing thrust had the prime objective of providing automated support for many of the functions which were performed in an office. It covered the managerial level, the professional level, the technical level, and the administrative/clerical level - all the components of an office. It was important to understand that automated support had been provided office staffs for many years in the form of computer print-outs. This type of support saved countless hours of effort and improved accuracy by a large factor. It would continue to be provided wherever it was not replaced by the new capability to access data or information by terminal. In addition, new capabilities such as text composition and editing, message handling, and calendar, to name a few, were made available to the staff. Here again, some of the benefits were easily identified while others were more difficult because of the dramatic change between the old way of doing business and the new. Interconnectivity was one of the special features which promised a quantum jump in efficiency, not only through teleconferencing but at a single location as well.

(U) Some aspects of the Narrative Processing thrust had been in active use by the command for several years on a test basis, to determine their value. By 2d quarter fiscal year 1980, there were 866 users on the network and over 1200 users by the end of fiscal year 1980. In addition to having been a year marked by growth, fiscal year 1980 was the year dedicated to formalization of the program, providing for the transition from the initial "test" environment to a structured approach. An Implementation Plan was completed in June 1980 and a Narrative Description was completed in August. The equipment for the prototype operation at the headquarters was installed in September.

(U) The subject of security was a cardinal element of the Blueprint. It had long been recognized that DARCOM was totally dependent on automated systems to maintain operations and accomplish its mission. It had also long been recognized that automated systems were very vulnerable to external and internal influence, as well as to acts of God. This was a classic example of an instance where a relatively new technology brought with it a whole new problem.

(U) The Office of The Assistant Chief of Staff for Intelligence (ACSI), Headquarters DA, by letter, tasked DARCOM to conduct an experimental testing of National Bureau of Standards (NBS) approved data encryption standards (DES) hardware. This tasking required that DARCOM conduct a preliminary screening of all DES hardware manufactured and select two or more vendors' equipment for testing. DARCOM selected three vendors' equipment and directed four DARCOM installations to test the selected equipment. The installations and equipment selected were as follows:

Installation	Location	DES Equipment
USA ALMSA	St. Louis, MO	Racal Milgo
USA MICOM	Redstone Ars, AL	IBM 3845/3846
USA DESCOM	Chambersburg, PA	Motorola Infoguard & DES 1100 DSM
LSSA HQ Support Div	HQ, DARCOM	Motorola Infoguard & DES 1100 DSM

(U) The DES hardware would be subjected to full operational testing in two modes of usage: (1) The encryption of data at a transmitting point of a line connecting a terminal to a CPU and decryption of that data at the receiving point on the line; and (2) Stored data would be encrypted when it was recorded on a storage medium, a magnetic disc, and decrypted when it was read back from the storage medium.

(U) Validation equipment would be used to determine if encryption occurred at the proper time and place on the line. Software utilities would be used to dump encrypted data files. Operational procedures would be established and tested to assure protection for generated keys and related devices. Emanation certification of the DES would be considered if those services could be obtained.

(U) At the conclusion of the test, DARCOM would provide HQDA (ACSI) a comprehensive test report evaluating the devices of all vendors, including recommendations. These reports and recommendations would assist ACSI in establishing an Army policy on the usefulness of DES.

(U) The fiscal year 1980 status on the testing was that MICOM had accepted delivery of all equipment and had initiated installation and testing actions, ALMSA DES equipment was scheduled for delivery in the 2d quarter fiscal year 1981, and acquisition of the Motorola equipment was being held in abeyance pending receipt of acquisition funds.

(U) The DARCOM Digital Technical Data Automation Thrust had been designed to take advantage of emerging advances in state-of-the-art technologies in the areas of interactive graphics display systems; high speed laser scanner digitizers for the conversion of drawings presently stored on 35mm film, aperture card format, into digital data; mass store memories; high resolution microfilm graphics plotters; and digital data communications.

(U) During 1980, the pilot facility installation using the interactive graphics display systems for design, development and creation of new drawings as well as for the revision of existing drawings, had experienced an increase in use by the engineering/drafting community to the extent that additional system capability was required. A high resolution microfilm graphics plotter was acquired and placed in operation. With this, the pilot facility had the capability of creating new drawings via interactive graphics terminals, storing the data in digital form and preparing microfilm aperture cards for tech data packages directly from the stored digital data representation of the drawing content. Additionally, a 4800 bps dial-up communication link was established with a remote facility. The ability to transfer drawing information in digital form via communication lines and recreate the drawing into its pictorial form at the other end to meet user requirements was demonstrated. The high speed laser scanner digitizer had been under development during the year 1980. Recent progress indicated an expected delivery to the Government in 1981.

(U) It is important to note that while the thrusts of the Blueprint were moving ahead, support of operations by DARCOM's standard automated systems had not only not suffered but had improved. The Commodity Command Standard System, the Standard Depot System, TEAM-UP (the TECOM system), and Army and Defense systems performed more efficiently wherever additional capability had been made available. In addition, DARCOM standard systems had been developed for areas which had not previously been automated.

(U) One of the more important new applications was EXCAP (EXercise CAPability), which provided the capability to support mobilization exercises. The conduct of exercises was an important aspect of readiness which previously had to be handled off-line. EXCAP permitted the processing of uniquely coded exercise documents through the standard CCSS Item Accounting application. A front-end converter changed the exercise Document Identifier Code (DIC) to a real world DIC which was then processed through special exercise files identical in structure to CCSS files, which used CCSS logic. Output products were in standard CCSS format but were identified as exercise material.

(U) Output transactions were then processed through a back-end converter to change them back to exercise-unique DICs and transmitted via DAAS to the appropriate depot or customer. The depot EXCAP system processed the Shipment Planning and Movement (SPAM) cards and shipment planning worksheets, all identified as exercise documents. Transportation then re-input the updated SPAM cards to produce the Materiel Release Confirmation and Shipment Status documents and transmitted them via DAAS.

(U) The Logistic Control Activity (LCA) received images of all the exercise traffic for insertion in their EXLIF (EXercise Logistics Intelligence File) just as in the real world. When the Military Traffic Management Command was participating in the exercise, MILSTAMP documents were also prepared. The system was prototyped 16-23 August 1980, surfacing several minor problems which were resolved. It was then scheduled to be used in support of MOBEX 80.

(U) The standard Technical Data/Configuration Management System (TD/CMS) had been installed at four commands prior to fiscal year 1980. In fiscal year 1980, action was initiated to install it at TSARCOM and supplement it with a data base at MERADCOM for use by TSARCOM and AVRADCOM. Fiscal year 1980 also saw the adoption of TD/CMS by the Marine Corps Logistics Base, Albany, Georgia, and the Naval Surface Weapons Center, Dahlgren, Virginia, which spoke well for the DARCOM system.

(U) The TARCOM system which automated the initiation of Procurement Work Directives (PWDs), created output of Technical Data Package Lists (TDPLs), and merged them with PWDs, was incorporated into CCSS for use by all commands. Automation of the Product Improvement Management Information (PRIMI) Report would serve the Headquarters Product Improvement Office, using a System 2000 Data Base Management System at the Northeast Computer Center. Phase I of PRIMI began 16 January 1980; and ARRCOM served as the central design agency for the system.

(U) ALMSA initiated analysis and programing of a refinement and expansion of the Common Test Data Collection System known as CTDCS-II. ALMSA provided documentation and testing and MICOM furnished additional data elements for collecting future test data for the MLRS missile system. Prototype plans to run CTDCS-II under the System 2000 Data Base Management System on IBM configurations at WSMR were on schedule.

(U) The Logistic Systems Review Committee (LSRC) continued to provide intensive top management support of the standard system program in fiscal year 1980. Under LSRC guidance, systems which would realize over $13 million of savings annually were installed during the year through the use of the Master Plans/Work Plans approach. Under this approach, the LSRC set the priority for major new system development and for modification, maintenance, and minor new systems. The priorities were established based on profit (or savings) opportunities, regulatory requirements, and management needs, in relation to the availability of personnel resources. Fielding of three major new systems in CCSS would generate over $9.3 million; and modification, maintenance, and minor new systems would generate $3.7 million of savings. The three major systems were: Modification Work Order/Record Status (MODWORS); Phase I of the Materiel Deficiency/Recommendation System (MDRS); and the Demand Based Redistribution System (DBRS). The forecasted savings were based on analyses by the functional users.

(U) In summary, fiscal year 1980 was a banner year for DARCOM in the Management Information Systems area. The Command not only kept its position at the leading edge of this environment, but moved on into the cutting edge in certain aspects. Fortunately, many of the advances DARCOM had made and will make could be used by the other services and they had been anxious to take advantage of them. As a result, the Defense Department, as a whole, has benefited from DARCOM's achievements.

Communications-Electronics

(U) The USACC-DARCOM Commander, Colonel E. E. Tabor, had a dual responsibility as both Director, Communications-Electronics Directorate on the DARCOM staff and over USACC, an intermediate command which reported to the 7th Signal Command at Fort Ritchie, Maryland. This dual role concept was also enjoyed by each of the 50 USACC-DARCOM units located at 32 DARCOM installations within CONUS. These communications were varied in equipment mix and in on-site configuration, but were designed to provide world-wide telephone service, data and message transmission and receipt, on-base radio for a variety of uses, and the control of air traffic at active airfields within DARCOM.

(U) During fiscal year 1980, considerable progress was made in devising means to insure efficient and reliable communications despite restraints imposed by austere funding which were reflected, in part, by the awards made to members of the command. Progress in supporting Department of the Army directions to reduce manpower was accomplished, first, by the use of standards for manning communications centers

involving expected use of mobilization authorization for additional spaces under stress conditions. Another area was in the lengthening of the cycle of maintenance to be offset by the establishment of roving mobile maintenance teams and planning to use contractor assistance.

(U) For fiscal year 1980, HQ USACC-DARCOM and its supporting units received $34 million in O and MA funds, an increase of .07 percent over the fiscal year 1979 budget. In the area of dollar cost savings, action was started in the fiscal year, to be completed at the end of fiscal year 1981, to interconnect 27 DARCOM locations with the Federal Telephone System (FTS) owned and operated by General Services Administration (GSA) with anticipated savings of more than one-half million dollars. Leasing of manpower and money in the face of increased Defense appropriations was based upon the Army's effort to improve its tactical capability with supporting organizations being squeezed to increase the combat capability and the increasing costs of doing business, reflecting inflation.

Potential Difficulties

(U) Such evidences of progress in 1980 as reductions in resources were, at the same time, harbingers of problems. The establishment of manning standards for the operation of telecommunications centers was based on average workload over a reasonable time sample. The standards of themselves, did not anticipate peak loading, changes in installation, hours of operation, or crises of any magnitude. The simplistic solution was to authorize overhire or overtime; however, neither prerogative was available to the local commander without coordination with a higher headquarters. A reasonable alternative was essential to continuity.

(U) The reduced maintenance program was in its infancy and could not be applauded nor condemned at this stage. Careful records were being maintained and at the first sign of degradation intimating system failure, action to correct the situation would be taken. After one year, a full analysis would be made and adjustments, if necessary, would be instituted. On the brighter side, reduced maintenance may indeed be a partial solution to manpower shortages. The somewhat gloomy reaction at this time was based on the recognition that the reduced maintenance was being applied, in the main, to already obsolete systems possibly hastening their demise.

(U) The interconnection with the FTS should have indeed reduced toll (long distance telephone) costs, yet it introduced certain less than satisfactory conditions. Dialing into FTS from DARCOM installations at once lost the ability to account for calls or costs. GSA would bill USACC for its share of FTS usage which USACC would have to accept without the ability to verify. Further, GSA would operate the switchboards that served the cities called. Their responsiveness was

GSA controlled and less than satisfactory service would become a matter of negotiation rather than direction. Neither of the above possibilities was significant as compared to the potential savings involved; both situations were anticipated and means of dealing with the matter were being developed.

(U) Even cost avoidance had its grey side. While the dollars were significant, the loss of the improvements planned meant less than the best. While the elimination of frills was a constant need, the inability to truly modernize certainly neither kept pace with industry, nor with the state-of-the-art. Still, in austere times, corners must be cut and, in that regard, the cost avoidance could narrowly be considered progress.

(U) Perhaps the primary problem inherent in the DARCOM communications community was that engendered by the very austerity in which we must survive. Obsolescence was replete among the telephone facilities at DARCOM installations as it was throughout the Army. Most of the facilities were of World War II vintage, ranging from 30 to 40 years old. Fortunately, equipment manufactured during that era was built to last, and it has. Unfortunately, even the best built equipment wears out in time. Since 1976, projects (requirements) have been validated and programmed for installation; however, apparently because of the high dollar costs involved and because of emphasis on other than base communications, they have not been funded. Some small progress had been made in obtaining funds for Dover, Aberdeen, and Letterkenny; however, of high priority, but not funded, were the facilities at Rock Island and Anniston, which were critical installations and had been so identified in a Guthrie to Grombacher letter of 7 October 1979. Other projects which were highly important to the readiness of DARCOM but remained unfunded were those for equipment at Army airfields and radio equipment for on-base systems.

USA DARCOM Catalog Data Activity

(U) By the end of fiscal year 1980, this activity at New Cumberland Army Depot, Pennsylvania, in support of DARCOM requirements, was preparing for conversion to Distributed Data Processing using its own IBM 4341 computer. A major cost savings was accomplished by the substitution of microfiche for a hardcopy version of the Department of the Army Supply Bulletin SB 700-20, Army Adopted/Other Items Selected for Authorization/List of Reportable Items, following its last publication in September 1979.[75] The activity was also tasked to chair a Hazardous Materials Task Group and a group study in the problem of discrepancies in the Total Army Equipment Distribution Program and Continuing Balance System-Expanded.[76]

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[75] USA DARCOM Catalog Data Activity Annual Historical Review, 29 Nov 63-30 Sep 80, p. 7.

[76] Ibid.

Equal Opportunity

(U) During fiscal year 1980, the command Office of Equal Opportunity continued, under the directorship of Mr. G. L. Jones, to implement the Equal Employment Opportunity Commission's (EEOC) requirements to provide Equal Employment Opportunities (EEO) in Federal employment without discrimination because of race, color, religion, sex, national origin, age or physical/mental handicap.

(U) A US Army Materiel Development and Readiness Command (DARCOM) Equal Employment Opportunity/Equal Opportunity/Civilian Personnel Offices (EEO/EO/CPO) Conference was held in New Orleans, Louisiana, 16-20 November 1980, attended by EEO Officers, EO Officers and Non-Commissioned Officers, Hispanic Employment Program Managers (HEPM's), Federal Women's Program Managers (FWPM's), CPO's, and management officials, as well as guest speakers from Headquarters Department of the Army. Major General Moore (former DARCOM Chief of Staff and Commanding General, MICOM) opened the session with the keynote address. General J. R. Guthrie delivered the banquet address. As a result of the conference many excellent ideas and recommendations were to be incorporated in the DARCOM Affirmative Action Plan.

(U) Affirmative Action Planning. A letter was forwarded from the Commanding General, DARCOM to the Secretary of the Army on 16 October 1980, concerning the EEOC's method of computing under-representation. It was felt that the civilian labor force data that the EEOC used resulted in unrealistic goal setting and lack of achievement.

(U) Complaints Processing. A total of 247 formal complaints were filed throughout the command during fiscal year 1980. Of the complaints filed in fiscal year 1980, a total of 73 were closed with a finding of discrimination in 2 or 2.7 percent of the cases.

(U) Work Force. The total work force continued on a downward trend from 30 September 1979 to 30 September 1980. There was a decrease in the lower grades (GS/WG 05-09) of 2,097. The middle grades of 1,492, the high grades of 520, and the super grades of 14. In spite of this decline in the total work force, women continued to gain in all areas. Minorities gained in the high and super grades, but did not do as well in the other categories. Minority employees dropped by 873 in the middle grades (2.3 percent decline) and by 419 in the lower grades (percent remained constant at 19.5).

Special Emphasis Programs

(U) Hispanic Employment Program. The command Hispanic Employment Program Manager (HEPM) visited various DARCOM installations. During these visits, his efforts concentrated on on-site advice with the HEPM and HEP committees. The Command HEPM tried to direct their efforts toward bringing awareness to Hispanic employees of opportunities in

various DARCOM intern programs. The number of Hispanics in all pay plans at the end of fiscal year 1980 totaled 5,157 or 5.0 percent of the total work force. This total increased by 162 from the number in the work force at the end of the previous fiscal year. The percentage also increased by .2 percent. The number of Hispanics decreased in the wage grade positions by 328, but increased in percentage from 8.6 to 9.0. In all other grade categories there was some improvement of Hispanic representation. The Command HEPM continued to serve as a resource person to 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 13 Hispanic Engineers for employment in DARCOM.

(U) Federal Women's Program. The trend for women as part of the DARCOM work force had increased over the past several years both in numbers and percentages. By the end of fiscal year 1980, DARCOM's goal had been met and exceeded, goal 29.0 percent; accomplishment 29.8 percent (30,952). Of particular significance was the gain of a woman into the senior executive service, a first for DARCOM. She was assigned to ARRCOM, Rock Island, Illinois. The following depicted the status of women as of the end of 4th quarter fiscal year 1980. In July 1980, General Guthrie was awarded the OSD Distinguished EEO Award and the Federally Employed Women (FEW) Distinguished Service Award for his support and success in improving the lot of women in the Federal Government.

Military Equal Opportunity Program

(U) Realignment. The realignment of the command military and civilian equal opportunity programs were finalized in November 1979. Revision of the DARCOM Supplement 1 to AR 600-21 improved the accuracy of promotion statistics and administrative discharges. The selection criteria for part-time equal opportunity staff members was standardized.

(U) Program Guidance. DARCOM experienced a severe shortage of Equal Opportunity Staff Officers. By the end of fiscal year 1980, there were only three Equal Opportunity Staff Officers assigned to DARCOM. Change 1 to DARCOM Supplement 1 to AR 600-21, Equal Opportunity Program in the Army was published, 4 January 1980, which instituted the standard race and ethnic designators.

(U) Staff Assistance Visits. Staff assistance in fiscal year 1980 was oriented toward those DARCOM activities who had full-time and part-time equal opportunity staffs. Staff visits to each activity were made by a Defense Race Relations Institute (DRRI) trained headquarters staff member. The staff conducted staff visits to 100 percent of the major subordinate commands and 50 percent of the Army depots. The significance of the visits was to assist and inspect the management of the Equal Opportunity Program.

EQUAL EMPLOYMENT OPPORTUNITY COMPLAINTS

1 OCTOBER 1979 - 30 SEPTEMBER 1980

		No. Closed	
	No. Filed	No Discrimination	Discrimination
Race/color	115	29	1
Religion	1	1	0
Age	39	13	1
Sex			
Female	22	7	0
Male	7	1	0
National Origin	18	10	0
Handicap	42	9	0
Other (Reprisal, Harassment, etc.)	3	1	0
	247	71	2
		73	

PROGRAM STATISTICS

	30 Sep 79			30 Sep 80		
	Total	Minority	Females	Total	Minority	Females
Lower Grades (GS/WG 05-09)	42,611 (100%)	8,303 (19.5%)	14,604 (34.3%)	40,514 (100%)	7,884 (19.5%)	15,402 (38%)
Middle Grades (GS/WG 10-12)	32,204 (100%)	3,712 (11.5%)	2,862 (8.9%)	30,712 (100%)	2,839 (9.2%)	3,220 (10.5%)
High Grades (GS 13-15 and WS 13-19)	11,196 (100%)	606 (5.4%)	290 (2.6%)	10,676 (100%)	614 (5.8%)	341 (3.2%)
*Super Grades (GS 16-18)	114 (100%)	1 (0.87%)	0	100 (100%)	3 (3%)	1 (1%)

*SES (including PL 313 and GS-16)

CHAPTER II

RESOURCES MANAGEMENT

Office of the Comptroller

Introduction

(U) During FY 1980 the Office of the Comptroller improved performance in its mission areas through the establishment and pursuit of 16 major objectives. Some of the significant accomplishments included:

a. The accounting and payroll services for HQ DARCOM were transferred from the Military District of Washington (MDW) to Aberdeen Proving Ground (APG) Maryland.

b. DARCOM obligated 99.9 percent of the available OMA funds which exceeded FY 1979 performance in both direct and reimbursable programs.

c. The quality rating average of positions prepared for external audits was 91.5 percent, an increase of 1.5 percent over FY 1979.

d. Major emphasis was placed on review and validation of weapons systems cost estimates.

e. The US Army Integrated Methods and Standards Activity (IMSA) was activated at Redstone Arsenal, Alabama, on 1 October 1979 and became operational in March 1980.

(U) Major improvements included actions to automate aspects of financial management to encompass finance and accounting, fund control, budgeting and resource management; decentralization of the referral lists within DARCOM for the Comptroller Career Programs; introduction of the Computer Based Message System (Electronic Mail); and continued development of the Command Performance Indicator Review (CPIR).

(U) As the fiscal year drew to a close, special attention was focused on year end certifications; reevaluating missions, goals and objectives; reaffirming the Comptroller's support of affirmative action in Equal Employment Opportunity; and enhancing the automation of budget, reporting, and other financial processes to improve planning and management.

(U) Comptroller Career Program. During FY 1980 the activities of the Comptroller Career Program Office included developing and evaluating skills, knowledge, abilities, and personal characteristics (SKAP) screening panels; managing the DARCOM Comptroller Intern Program; providing advice and consultation for all Comptroller personnel; developing

program goals and planning; and administering the DARCOM Comptroller command training program, as well as serving as training coordinator for 250 HQ DARCOM Comptroller employees.

(U) Resources and Programs Division. The FY 1982-1986 Program Analysis and Resource Review (PARR) was submitted to HQDA in January 1980; the Program and Budget Estimate (PABE) was submitted to HQDA in March 1980; and the Command Operating Budget (COB) was submitted to HQDA in July 1980. The OMA funding levels for FY 1981 and FY 1982, as portrayed in each submission, are shown below:

	$ in Millions	
	FY 1981	FY 1982
PARR	2,887.6	2,959.5
PABE	2,686.0	3,040.9
COB	2,682.5	3,021.3

(U) Intensive monitoring was undertaken during 4th Quarter of FY 1980 to fully utilize available OMA resources. As a result of intensive management and cooperation among HQ DARCOM, commands/installations, and HQDA, DARCOM obligated 99.9 percent of $2.5 billion direct funds available. FY 1980 performance exceeded FY 1979 performance in both direct and reimbursable programs.

(U) The FY 1981-1982 DARCOM COB detailed DA prescribed resource levels with some minor reprogramming adjustment. The FY 1981 COB level of funding for OMA was only $3.5 million less than the PABE level, but it was $205.1 million less than the FY 1981 program in the PARR submission, largely due to reduction of Decision Package Set (DPS). The FY 1982 program at the COB submission was $3,021.3 million. Although the FY 1982 level shows considerable program growth over the FY 1981 level, the FY 1982 program was still required to go through the DPS cycle.

(U) Cost Analysis Division. Major emphasis was placed on review and validation of weapon system cost estimates, including Logistics Command Assessment of Projects (LOGCAPs), Review and Command Assessment of Projects (RECAPs), Department of the Army Program Reports (DAPRs), Independent Parametric Cost Estimates (IPCEs), and Baseline Cost Estimates (BCEs). Input or support was provided for the FY 1983 Military Construction Army (MCA) Program, the Tactical Wheeled Vehicle Fleet Study, the BLACK HAWK Depot Maintenance Study, the Cost Growth Special Task Force, the Weapon System Resource Summary and the updating of the Deobligation Forecast Model. In addition, a Project Master Plan was prepared detailing the development efforts required to implement the Operating and Support Cost Management Information System (O&SCMIS).

(U) Finance and Accounting Office. The Finance and Accounting Division's major emphasis during FY 1980 was directed toward enhancing the finance and accounting framework to effect a more efficient utilization of resources. This major effort was evidenced under the following topical actions: VIZ; International Logistics Resource Management Review (ILRMR); Program and Fund Control System (PFCS); Transfer of Accounting and Rayroll Services for MDW to Aberdeen Proving Ground (APG); the Army Customer Order Control System (ACOCS); Commodity Command Standard System (CCSS); HQ DARCOM Fund Distribution System; Program and Funds Control System (PFCS); Redesign of Standard Army Installation Accounting and Financial Reporting System (STANFINS Redesign); and Centralized FMS Accounting and Disbursing Test.

(U) Internal Review and Audit Compliance Office. During FY 1980 this office published the fourth DARCOM report on actions taken to detect fraud and eliminate waste. It represented a compilation of data obtained from HQ DARCOM and DARCOM subordinate commands; timely and quality command responses to extenral audit organizations; the issurance of two audit guides to field elements during the fiscal year; the first of planned quarterly meetings between General Accounting Office and DARCOM; and real time audit applications which assisted in identifying system deficiencies before they develop into problem areas.

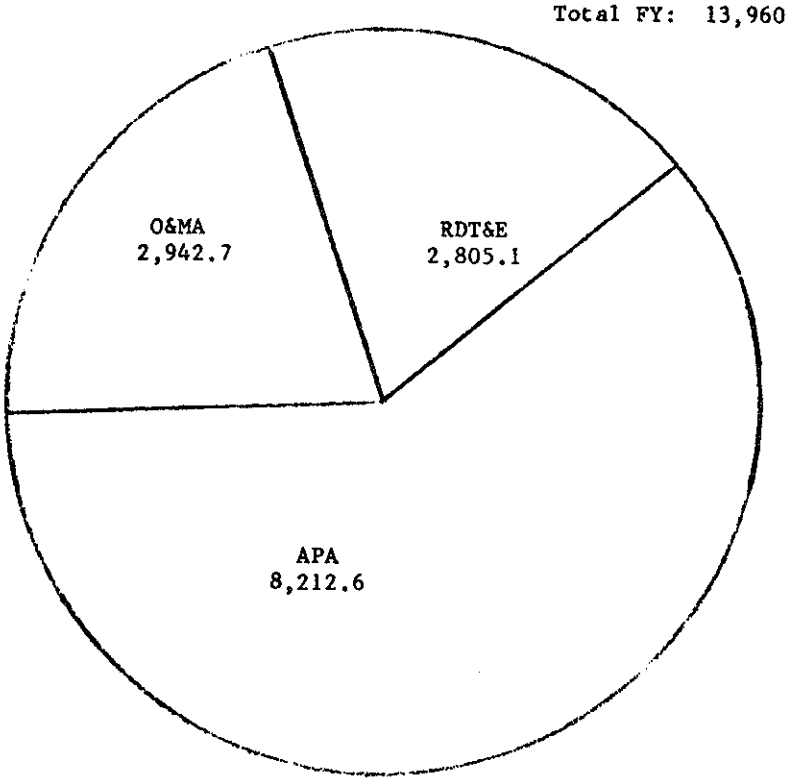
(U) Management Review and Analysis Division. The major thrusts of the Management Review and Analysis Division in FY 1980 were to provide the DARCOM Commanding General and the Command Group with review and analysis support through the Command Performance Indicator Review (CPIR) system; to perform management and evaluation studies; and to expand the Capital Investment Program. In addition, a major project was initiated to optimize the automation of Comptroller operations.

(U) Activities include in-depth analyses of OMA year-end closeout procedures; review of AR 5-2; study of the Small Arms Central Registry; critical item management; and publication of the DARCOM Commander's Handbook of Performance Indicators which were distributed to the staff and field elements. The staff administered the conduct of Comptroller Evaluation Survey (CES) which consisted of field visits to Comptroller elements for the purpose of evaluatinag their performance. Five CESs were conducted during the year. Significant accomplishments under the DARCOM Productivity Improvement Program included the establishment of the Integrated Methods and Standards Activity at Redstone Arsenal, Alabama. Other actions included planning for the automation of the Capital Investment Program and cash flow management, as well as for expanding office automation within the Office of the Comptroller, and the control of three Financial Management Executive Workshops (FMEWs).

ARMY PROGRAMS RECEIVED
APPROPRIATIONS
(MILLIONS OF DOLLARS)

As of 30 Sep 80

Total FY: 13,960.4



FISCAL YEARS	TOTAL RECEIVED	OMA	APA	RDT&E
77	11,938.5	2,313.8	7,373.0	2,251.6
78	13,239.7	2,691.0	8,086.0	2,462.7
79	14,392.3	2,635.6	9,021.7	2,735.0
80	13,960.4	2,942.7	8,212.6	2,805.1

APA FUNDING
FY 80
(MILLIONS OF DOLLARS)
(DIRECT AND REIMBURSABLE)

As of 30 Sep 80

FISCAL YEAR	Aircraft (2031)	Missile (2032)	Weapons & Tracked Vehicles (2033)	Ammunition (2034)	Other (2035)	TOTAL
Available						
78	37.6	(21.5)	71.8	107.1	133.9	328.9
79	130.3	153.3	207.6	283.2	448.2	1,222.6
80	971.9	1,721.9	3,058.3	1,530.9	1,520.2	8,803.2
TOTAL	1,139.8	1,853.7	3,337.7	1,921.2	2,102.3	10,354.7
Obligated						
78	27.3	(27.8)	57.5	67.0	112.6	236.6
79	69.0	117.1	127.9	177.3	335.9	827.2
80	813.2	1,337.8	2,475.6	1,341.1	1,181.0	7,148.7
TOTAL	909.5	1,427.1	2,661.0	1,585.4	1,629.5	8,212.5
Unobligated						
78	10.3	6.3	14.3	40.1	21.3	92.3
79	61.3	36.2	79.7	105.9	112.3	395.4
80	158.7	384.1	582.7	189.8	339.2	1,654.5
TOTAL	230.3	426.6	676.7	335.8	472.8	2,142.2

O&MA FUNDING
FY 80
(MILLIONS OF DOLLARS)

As of 30 Sep 80

Appropriation	Direct	Reimbursable	Total
Available			
Central Supply Activities (Program 7S)	1,312.1	210.9	1,523.0
Depot Materiel Maintenance & Support Activities (Program 7M)	1,076.9	85.9	1,162.8
Support of Other Nations (Program P10)	--	98.0	98.0
Other Programs	123.7	36.3	160.0
Total	2,512.7	431.1	2,943.8
Obligated	2,511.5	431.0	2,942.5
Unobligated	1.2	0	1.2

RDT&E FUNDING
FY 80
(MILLIONS OF DOLLARS)

As of 30 Sep 80

	FISCAL YEAR	DIRECT	REIMBURSABLE	TOTAL
Available	79	105.3	69.1	174.4
	80	2,332.7	504.7	2,837.4
	Total	2,438.0	573.8	3,011.8
Obligated	79	104.1	66.0	170.1
	80	2,229.3	405.7	2,635.0
	Total	2,333.4	471.7	2,805.1
Unobligated	79	1.2*	3.0*	4.2*
	80	103.3*	99.0*	202.3*
	Total	104.5*	102.0*	206.5*

* May not add due to rounding

DARCOM ARMY INDUSTRIAL FUND
FY 80
(MILLIONS OF DOLLARS)

As of 30 Sep 80

	PROGRAM	ACTUAL
Obligation - End of FY	2,035.7	2,128.6
Sales	2,235.8	2,151.8
Collections	2,210.7	2,168.3
Cash	173.6	137.5
Accounts Receivable	90.1	100.8
Inventory	152.0	156.4

DARCOM DIVISION, ARMY STOCK FUND
FY 80
(MILLIONS OF DOLLARS)

	As of 30 Sep 80	
	PROGRAM	ACTUAL
Obligation - End of FY	1,280.0	1,290.9
Sales	1,009.1	976.4
Collections	1,185.8	1,133.9
Cash	207.4	194.4
Accounts Receivable	60.5	71.0
Inventory	2,501.0	2,395.6

Career Program Office

(U) The fourth appraisal and screening cycle was accomplished for the Comptroller Career Program under the SKAP system. A "no change" policy was in effect for the 1980 SKAP cycle. This resulted in a reduction of SKAP submissions. DARCOM representatives participated in the DA Comptroller Civilian Career Planning Board to set guidance and emphasis for the year. These matters include overall review of the Comptroller Intern Program to include development and review of program instructions, allocation of intern spaces, selection of intern training sites, and assignment of permanent duty locations. Administration of these actions was to be handled by the Deputy Comptroller Career Program Manager.

(U) PABE. The FY 1982-1986 DARCOM PABE identified the DA prescribed core resource levels for each program element, provided program element level manpower and dollar detail for each Program Development Increment Package (PDIP) that affected DARCOM, provided revised narrative justification for specified DARCOM PARR PDIPs, and portrayed the DARCOM FY 1982 resource posture in an Executive Summary.

(U) DARCOM Programmer's Conference, 2-5 October 1979. Program and budget representatives from each major subordinate command/ activity were briefed on the new concept for program building and were issued the FY 1982-1986 Impact Memorandum Instructions. The goal was to ensure complete underatanding and unity of effort for the PARR cycle.

(U) DA Programmer's Conference, 17-18 July 1980. DA Programmer's Conference identified some significant changes to the Army programming process. The magnitude of these changes to Army requirements and the changes to the DARCOM system and to the Impact Memorandum format necessitated a thorough understanding of the process throughout the DARCOM program community.

(U) DARCOM Programmer's Workshop, 27-29 August 1980. The purpose of the workshop was to distribute Impact Memorandum Instructions to the field representatives that attended from each of the 32 reporting activities, which would insure a better understanding of the submission requirements for the PARR.

(U) PARR. The PARR expressed the Army's major resource requirements and initiatives essential to provide the support needed by the Army. The Modernization Resource Information Submission was the first attempt to capture all of the resources (other than research, development, test and evaluation acquisition dollars) associated with all of the Army Modernization Information Memorandum identification systems. That effort required a tripling of data collection and processing storage capacity. The DARCOM PARR submission was generated at a cost of approximately $1.8 million and 53 man-years of effort. The amount required to sustain the program at the Basic Level for OMA was $2,959.5 million.

(U) New Systems/Force Modernization. During FY 1980 emphasis was placed on programming for the fielding of new weapons systems for the Army. Several major weapon systems, such as the XM1 Tank, BLACK HAWK, and Infantry Fighting Vehicles, were being fielded in FY 1981 and FY 1982. The fielding of these major new systems would require additional resources. When HQDA approved DARCOM resources for new systems, these resources were offset by reduction in DARCOM base level programs.

(U) Management of Contingency Funds of the Secretary of the Army. To insure that all limitation (.0012) funds were used and managed strictly in accordance with AR 37-47 and the DARCOM Supplement, the Commanding General approved procedures for controlling all DARCOM funds at HQ DARCOM. Fund cites were then issued for all subordinate command contingency fund expenditures.

(U) FY 1980 Year End Funding Procedures. DARCOM issued year end funding procedures for OMA funds on 21 July 1980. Three formal status reports were required. The first report was submitted as of 15 August 1980 with two follow-on reports during September. They 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 ten days of FY 1980, daily flash obligation reports were established, utilizing the ARPANET reporting procedure.

(U) Funding adjustments were made daily, and field elements having special problems were provided staff assistance. Based on actual OMA obligations through 30 September 1980, DARCOM exceeded the plan by $70.0 million. Of this total, $33.0 million was direct and $37.0 million reimbursable. The plan,totalling $2,873.0 billion, was not updated in the last quarter since year-end procedures were instituted and continual reprogramming actions occurred to ensure optimum obligations. Overall, OMA obligations through September totalled $2,943.00 billion or exceeded the plan by +2.4 percent. As a result of the intensive monitoring conducted in the 4th Quarter to fully utilize available OMA resources, FY 1980 performance exceeded FY 1979 performance in both direct and reimbursable programs.

(U) FY 1981 AIF Annual Budget. The FY 1981 Budget Estimates, as submitted to DA, reflected the following operating data:

(MILLIONS OF DOLLARS)

	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE
Orders	2,047.7	2,089.8	2,268.9
Revenue	2,142.0	2,162.9	2,275.7
Costs	2,207.0	2,127.7	2,243.8
Civilian End Strength	63,485	58,483	59,006
Civilian Man-Years	67,287	61,323	60,486

(U) Major Funding Impacts. The Single Manager for Conventional Ammunition (SMCA) "get well" program for FY 1982 was funded at the time of the PARR and PABE submissions. However, the DA May Program Budget Guidance moved $37.8 million from the Basic Level to the Super Enhanced Level or unfunded level. The "get well" program for FY 1982 was then totally unfunded. The total of $37.8 million was urgently required for the SMCA in FY 1982 to correct gross deficiencies in inventory and storage operations ($21.8 million) and perform necessary demilitarization of obsolete ammunition ($16.0 million) at the former Navy installations of Crane, McAllister, and Hawthorne.

(U) The DPS cycle resulted in major reductions to the FY 1981 program, the most significant occurring in DPS 401, which reduced the FY 1981 OMA program by approximately $65.0 million. This reduction occurred during the review process of the Army Industrial Fund budgets. OMA had to take the reductions, although it was generally conceded that some of these reductions were improperly applied to that appropriation.

(U) Although DARCOM submitted High Priority Unfinanced Requirements of $498.0 million for the FY 1981 COB, this Headquarters had not experienced the same difficulties of the past years as it entered FY 1981. During previous years, DARCOM entered the execution year with severe problems for paying people. During FY 1980, the FY 1981 and FY 1982 programs remained at a viable level even though several requirements did not receive funding support.

(U) Funding of the 9th Infantry Division High Technology Test Bed. To insure that funding responsibilities involved with the financing of the activities associated with the 9th Infantry Division High Technology Test Bed were clearly understood by all participants, the DARCOM Comptroller took the lead in preparing a detailed funding annex which was incorporated in the Memorandum of Understanding governing such activities. The Memorandum of Understanding was signed by the DARCOM, FORSCOM, and TRADOC commanders.

(U) Foreign Military Sales. There were two modifications in the development of the FY 1981/1982 Foreign Military Sales (FMS) Administrative budget:

a. The FMS Administrative budget was restructured by a Joint Military Department/Defense Security Assistance Agency/HQDA Committee, with the purpose to "refine, clarify and ensure consistency of the FMS Administrative budget guidance."

b. Significant changes in criteria were included in the budget guidance. Ineligible charges to FMS administrative costs included base operations support, production engineering, and personnel who contributed less than 10 percent of their time to FMS.

(U) On 1 July 1980, these changes in criteria were announced to the military departments by the Defense Security Assistance Agency, Comptroller with the concurrence of the Assistant Secretary of Defense (Comptroller).

(U) At the conclusion of FY 1980, the status of the minor appropriations managed by this division were as follows:

Status of FY 1980 Minor Appropriations ($ in thousands)

	FY 1980 AFP	FY 1980 Oblig.	PCT Oblig.
FMS Administrative Fee	73,084.0	72,987.1	99.9
MAP Grant Aid Funding	4,762.8	4,724.4	99.2
International Military Education Training (IMET)	651.5	645.7	99.1
Operation and Maintenance Army, Reserve (OMAR)	6,160.8	6,160.8	100.0

Cost Analysis Highlights

(U) Weapon System Resource Summary (WSRS). The Cost Analysis Division developed the WSRS in order to identify cost/budget shortfalls on selected weapon systems and to provide insight into possible budget/quantity shortfalls on weapon system support equipment. The study initiated in February 1980 identified several major deficiencies with the previous procedure. As result, in FY 1980 a handbook was prepared to assist the analyst in using several existing sources of information. For each system, the analysis contained both dollars and quantities by appropriation for the current year, budget year, and five out-years. Unfinanced requirements were identified in the analysis.

(U) FY 1983 MCA Program. The FY 1983 DARCOM MCA Program was presented by the Director of Installation and Services to the Program Budget Advisory Committee for approval on 25 June 1980. It contained 50 projects consisting of five categories: Mission Support (23), Air and Water Pollution Control (15), Energy Conservation (6), Special Energy (2), and Occupation Safety and Health (4). Each of the projects was reviewed by the cost Analysis Division relative to the application and acceptability of the economic analysis (EA). Based on the review, the following summary was compiled:

	Number	Percentage
Projects	50	-
EA Application	48	96
Adequate Application	48	100
Revision Required	0	0
Initial EA Required	2	4

(U) EAs were subsequently submitted for the two projects for which they were lacking. They were reviewed and found to be adequate.

(U) Operating and Support Cost Management Information System (O&SCMIS). In FY 1980, DARCOM developed an O&SCMIS for DA to provide for the identification, collection, and dissemination of operating and support costs for fielded major weapon systems. It was to be a centralized data base to be used by Army agencies in need of operating and support cost information. A Project Master Plan for O&SCMIS was prepared in November 1979 detailing the development efforts required to implement O&SCMIS. The Detailed Functional Description was completed in September 1980 for all five commodity groups.

(U) DARCOM Cost Analysis Personnel and Training Survey. A survey of DARCOM cost analysis performance in the areas of manpower and training was completed in FY 1980. The objectives of the survey were to assess the status of DARCOM cost analysis manpower and to enhance training awareness by a comparative analysis of major subordinate command training performance. The survey results consisted of an enumeration of authorized and on-board cost analysis spaces by job series and grade levels. Training indicators were tabulated which compared FY 1979 training completed and FY 1980 training scheduled by professional, clerical, and intern personnel to the DARCOM average, as well as training performance by female and minority professionals to performance by the overall professional population.

(U) Video Conferencing Study. The Cost Analysis Division participated in a study directed by the Commanding General, DARCOM and chaired by DRCCE to determine the cost-effectiveness of having video conferencing capability at HQ DARCOM and selected major subordinate commands. Cost savings were projected from potential TDY reductions and compared with the installation and operating costs of the video system. Although the study showed that only under the most rigid conditions could the system be cost-effective, it was approved for submission to DA. Intangible benefits were addressed and weighed heavily in the decision process.

(U) Test Measurement Diagnostic Equipment Calibration and Support Realignment Studies. Several economic analyses were submitted for review in the continuing effort to consolidate test measurement diagnostic equipment calibration responsiblity under DARCOM. This office supplied extension policy and methodological guidance to improve the economic analyses so that they would be more acceptable to HQDA.

(U) DARCOM Cost Analysis Award. A recommendation to institute a special award in recognition of outstanding accomplishments in cost analysis was proposed by ARRCOM in FY 1980. All DARCOM Cost Analysis Offices were surveyed for comment. Without exception, responses were in favor of the proposal, and prior to fiscal year-end, action was taken to develop selection criteria and establish the DARCOM Cost Analysis Award.

(U) Teleprocessing Services Program. General Services Administration completed action on the selection of a Multiple Award Schedule Contractor to provide Automatic Data Processing (ADP) services to the Cost Analysis Division for FY 1981 to FY 1983. The entire process consisted of development of the overall specification, solicitation of bids, coordination with Defense Supply Services contracting officials, contractor eveluation, and contractor selection. The ADP services would include computer time sharing, training, documentation, and technical assistance.

(U) Materiel Acquisition Policies. During FY 1980, DOD Directive 5000.1 and DOD Instruction 5000.2 were revised to expand the requirements for cost data provided to senior OSD officials in the decision-making process. The Integrated Program Summary was added as a supplementary source of information to that provided by the Decision Coordinating Paper required by these policy documents. The Integrated Program Summary incorporated many cost estimate displays not previously contained in OSD documentation. Army policy also was updated in AR 1000-1 to reflect DOD changes.

(U) Deobligation Forecast Model Update. The deobligation Forecast Model was developed by the Cost Analysis Division in order to provide the Associate Director of Procurement and Production with a forecast of DARCOM deobligations for the five procurement appropriations. During this period, a new deobligation forecast total and cumulative deobligation by month, as well as forecast deobligations by month and by procurement appropriation. In addition, the model data was updated by the insertion of FY 1979 deobligation and the removal of FY 1974 deobligations. The model was then used to produce tables of anticipated monthly deobligations during FY 1981 for procurement programs starting in FY 1978 and FY 1979.

(U) Inflation Guidance. Three consolidated inflation guidance letters were issued in FY 1980. The first, dated 28 January 1980, replaced the 17 September 1979 guidance. The second guidance letter was issued on 21 April 1980, and the third on 3 September 1980.

(U) Cost Growth Special Task Force. A special task force was formed to advise the Commanding General on measures that could be taken to control cost growth with Cost Analysis Division representatives playing an important part. The principal recommendation made was the adoption of a Modified Air Force Baseline System, known as the Sleigh Initiative, after General Sleigh. Initial implementation was scheduled for the Second Quarter of FY 1981.

(U) Armored Combat Vehicle Technology (ACVT). At the center of the ACVT Program are the High Mobility/Agility Test Vehicle and the High Survivability Test Vehicle--Light, which have been used extensively during the past few years to assess the effectiveness of advanced technology vehicle/armament configurations. Interest in, and concern with, the potential costs of the various configurations led to the development of a computerized cost model, the Tracked Vehicle Resource Analysis and Display Model. Upon request by the US Army Armor Center (USAARMC), DARCOM provided input data related to 25 vehicle/armament configurations. Input data pertained to development engineering cost, numbers of research and development contractors and prototypes, project management man-years, facilities cost, and overhaul cycle for each potential configuration. Life Cycle Cost Estimates (LCCEs) for the 25 configurations would be prepared by exercising the cost model on these data.

(U) Extended Planning Annex (EPA). The Cost Analysis Division continued to support the development of the EPA by Comptroller of the Army (COA). The EPA to the Program Objective Memorandum (FY 1982 to FY 1986) extended planning to FY 1987 through FY 1996. Acquisition, annual operating, and support costs for 60 materiel systems were provided. The EPA was to be used in affordability studies and other Army planning efforts.

(U) XM1 Manpower and Logistics Analysis Study. The Office of the Secretary of Defense indicated that Department of Army would have to provide, as part of XM1 DSARC IIIA, a comprehensive analysis of the impact of system maintainability, reliability and availability changes on maintenance manpower, costs and other resources. TRADOC was directed to conduct a study to determine the maintenance manpower levels and spares requirements needed to field and sustain the XM1 Tank System at various reliability levels. The Cost Analysis Division provided tasking, study advisory group membership, and very active participation in coordination of study effort between TARCOM, MICOM, and TRADOC agencies.

(U) Space Systems Cost Analysis Group. This group was created by the US Air Force Space and Missile Systems Office to share cost estimating expertise among DOD, NASA, and the aerospace industry. DARCOM has been represented by the Office of the Comptroller since May 1979. This group has provided a basis for the revision of standard work breakdown structures and access to a complete library of cost estimating relations available in the aerospace industry.

(U) Special Study of Army Systems Acquisition Review Council (ASARC)/ Defense Systems Acquisition Review Council (DSARC). The Cost Analysis Division performed a special study of the interface between the ASARC/ DSARC and the Planning, Programming and Budgeting System. The former was a decision making system which was event oriented. The latter was a financial system which was time oriented. A letter was written to the Conptroller of the Army, over the signature of the DARCOM Comptroller, making suggestions for improvements.

(U) Infantry Close Combat Anti-Armor Requirements Study. This effort was initiated by TRADOC in February 1980 as a result of the perception that the growing threat necessitated the anti-armor capability of infantry-type units. The study compared the existing Light Anti-Tank Weapon, DRAGON, and TOW Systems, in various mixes, with their follow-on systems.

(U) BLACK HAWK Depot Maintenance Study. This effort was the result of DCSLOG tasking DARCOM to conduct a "cost-effectiveness" analysis to determine whether the depot maintenance function for the BLACK HAWK Aircraft System should continue to be performed under contract or brought in-house. The initial effort, submitted by TSARCOM in November 1979, was adjudged inadequate. In FY 1980, a new two-phase effort was underway with Phase I, a parametric analysis scheduled for completion in November 1980.

(U) Life Cycle Cost Estimate to Support Non-divisional Shop/Tool Set Complex. The Cost Analysis Division coordinated and staffed a TRADOC request for preparation of Life Cycle Cost Estimates (LCCE) on the Aviation Intermediate Maintenance (AVIM) Non-divisional Shop/Tool Set Complex. LCCEs were generated by AVRADCOM and furnished to the US Army Transportation School.

(U) Air-Transportable, Protected, Anti-Armor/Assault Capable System (APAS). The Cost Analysis Division was involved in the APAS Study during the period May to November 1980. In this study, which was sponsored by US Army Infantry School (USAIS) and US Army Armor Center (USAARMC), numerous weapon systems were under consideration to fulfill the APAS role, Primary effort was in coordinating work of TARADCOM, TACOM, ARRADCOM and ARRCOM Cost Analysis Offices. These offices generated a considerable amount of the cost and related data for 15 candidate systems.

(U) Army 86 Studies. During FY 1980 the Cost Analysis Division submitted to TRADOC the final package of cost/logistics data for use in the Division 86 study. Approximately 200 different equipment items were addressed, including the full range of combat and support equipment forecast for an Army Division use in 1986. This package of data was the culmination of several months of effort involving every major subordinate command. Other studies in the Army 86 series emerged during FY 1980, such as Corps 86 and Light Division 86. It became evident that DARCOM cost support to TRADOC would be recurring, as a result of new organization structures and new equipment.

(U) Battlefield Exploitation Target Acquisition (BETA) Study. A Special Cost Task Force was chaired by this headquarters for the purpose of developing an independent cost estimate of the BETA System. The findings of the BETA Special Cost Task Force were presented to the OSD BETA Steering Committee.

(U) The Cost Analysis Division provided representation to the SOTAS Blue Ribbon Panel which was established to conduct a comprehensive management review of the overall program; also to the DA directed Division Air Defense Command and Control Study Advisory Group.

(U) Logistical Command Assessment of Projects (LOGCAP) provided 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. Review and Command Assessment Projects (RECAP) and DA Program Report (DAPR) covering technical performance, schedule and cost information on selected systems were prepared by the project managers to provide timely program review by higher authorities. RECAPs were submitted to the HQ DARCOM level and DAPRs to HQDA because of special interest in those projects at those levels.

(U) Independent Parametric Cost Estimates (IPCE). DOD policies governing the materiel acquisition process required an IPCE for each major weapon system undergoing a milestone review by the DSARC; and selected IPR systems required an Independent Cost Estimate (ICE) for systems undergoing a review by Army Systems Acquisition Review Council (ASARC). The IPCE or ICE was used to assess the rational of the project manager's estimate of the cost resources required to complete the program.

Completed

SOTAS	ASH	IFV/CFV
LACV-30	GSRS	AN/TTC-39
AH 47	AN/TPQ-37	AAH
SINCGARS	BLACK HAWK	PATRIOT
GMFSC	TOS	

In-Process

AN/TPQ-37	CNCE	DIVAD
GMFSC/TACSATCOM	HELLFIRE (FFS)	IMAAWS
RPV	SINCGARS	XM1 (105mm)
MSE		

(U) Baseline Cost Estimates (BCE) and BCE Reassessments. BCEs are prepared by the project manager offices and reviewed and coordinated by the Cost Analysis Offices at the major subordinate commands and HQ DARCOM, and form the basis for the audit trail/track throughout the life cycle of a weapon system. Reassessments are made at major decision points and tracked to the initial BCE.

Completed

SOTAS	ASH	IFV/CFV
LACV-30	GSRS	AN/TTC-39
AH 47	AN/TPQ-37	AAH
SINCGARS	BLACK HAWK	PATRIOT
GMFSC	TOS	

In-Process

AN/TPQ-37	CNCE	DIVAD
GMFSC/TACSATCOM	HELLFIRE (FFS)	IMAAWS
RPV	SINCGARS	XM1 (105mm)
MSE		

(U) Cost and Operational Effectiveness Analyses. Coordination with Comptroller of the Army (COA), TRADOC, major subordinate commands and the project manager offices was required for the following Cost and Operational Effectiveness Analyses:

ROLAND	SOTAS	VIPER
FVS	AHIP	TAC (SATCOM)
GSRS	SAW	AN/TPQ-37
HMMWV	SLUFAE	CH-47-MODERNIZATION
PATRIOT	HELLFIRE	AN/TTC-39
PLRS	MULTEWS	BRIDGING 85

(U) Selected Acquisition Reports (SAR). SARs are standard, comprehensive, summary status reports on major defense systems, prepared for management within the Department of Defense and for submission to Congress and Government agencies. They are prepared by the project manager offices and reviewed and coordinated by the major subordinate command cost analysis offices and HQ DARCOM. The following major systems were under SAR reporting during FY 1980:

ROLAND	PATRIOT	HELLFIRE
PERSHING II	MLRS	AAH
STINGER	CH-47 MODERNIZATION	BLACK HAWK
TACFIRE	FVS	DIVAD
COPPERHEAD	XM1 TANK	AN/TTC-39
M198	SOTAS	

Finance and Accounting Division

(U) International Logistics Resource Management Review (ILRMR). A major effort was devoted to the identification and solution of problem areas in International Logistics during FY 1980. This effort was initiated to identify policies, systems, procedures, and management practices

which inhibit program execution on a timely basis and to recommend changes or actions to effect the rapid and responsive acquisition of materiel and services to accomplish the DARCOM mission. An ILRMR committee was formed at HQ DARCOM and held its initial meetings on 25 and 27 February and 5 March 1980. In these meetings, problem areas were identified and grouped under the five categories of Foreign Military Sales (FMS), Administrative Fee, Funded Reimbursable Authority, FMS Automated Systems and Military Assistance Program (MAP)-Grant Aid. Information papers were prepared on each of the identified problems, and on 3 April 1980, the ILRMR met with representatives of the materiel readiness commands to review the information papers and give the materiel readiness command representatives an opportunity to identify additional problem areas. During this meeting the list of problem areas was revised; problem areas were prioritized; and a follow-up plan was prepared. Following the 3 April 1980 meeting, information papers and milestone action plans were finalized and required actions were initiated. The first quarterly status reports were prepared and distributed in July 1980 which indicated that action had been initiated on all problem areas. Progress reports for the Fourth Quarter FY 1980 were due in HQ DARCOM on 20 October 1980 and continuing progress was expected throughout FY 1980 in improving the management of international logistics programs.

(U) Program and Funds Control System (PFCS). During the First Quarter of FY 1977, the Comptroller of the Army initiated action for the design and implementation of an automated system to control program and funds for the Procurement Appropriation, based on a recommendation by the Financial Management Advisory Committee. Under contract with Control Data Corporation, the general system design and the specific Phase I design were worked out and implemented 30 June 1977. This phase allowed the control and release of Army Procurement Appropriations (APA) program in conjunction with DARCOM at US Army Communications Command (USACC), Phase I and II were designed in the preliminary.

(U) Phase II, PFCS was implemented for testing of sub-allocation process during the Third and Fourth Quarters, FY 1980. Numerous system deficiencies were noted, and corrective action was taken by Control Data Corporation. Further requirements were required to coincide with the acceptance of the system during FY 1981. Significant savings were anticipated with prime emphasis on the internal operating controls to preclude overdistribution of program and funds.

(U) Transfer of Accounting and Payroll Services from Military District, Washington (MDW) to Aberdeen Proving Ground (APG). The accounting and payroll functions applicable to the HQ DARCOM, Foreign Science and Technology Center, and PM Training Devices were successfully transferred from MDW to APG during FY 1980.

(U) The FY 1980 funds were issued to APG in October 1979. Prior year's accounts were to remain at MDW until final liquidation or disposition. Full payroll services were assumed by APG with the payroll period ending 29 December 1979. While transfer of this function was accomplished successfully in FY 1980, there were two problems unresolved at the time of transfer: One was the inability at HQ DARCOM to provide full travel advances, and the second concerned the use of a daily courier between APG and DARCOM.

(U) Army Customer Order Control System (ACOCS). ACOCS was established as the official Customer Order Control System for the Army on 1 October 1979, and during FY 1980, a major effort was devoted to purifying the data and initializing the Detail Other Customers Order Module for non-FMS activity. It was anticipated that in FY 1981 the Security Assistance Control Module would be implemented. This module would include such functions as distribution and control of the FMS administration budget, distribution and control of expenditure authority, and streamlining the procedures of forecasting and obtaining obligational authority.

(U) GAO Approval of HQ DARCOM Fund Distribution System. Effective 1 October 1979, the HQ DARCOM Fund Distribution System was converted from magnetic ledger card system to a disk operation on the NCR 399 system. The system provided for Block Ticket Control procedures, a Daily Transaction Register, general ledger controls, and random access/reprogramming listings to determine program and fund availability.

(U) Redesign of Standard Army Installation Accounting and Financial Reporting System (STANFINS Redesign). The Comptroller of the Army was directed by Army Chief of Staff in April 1979 to field a Department of Army standard installation accounting and financial reporting system for all general funds and industrial funds entrusted to the Army. In order to develop and field a DA standard installation level accounting and reporting system, it was necessary to incorporate into the functional Automatic Data Processing (ADP) design those requirements relating to the industrial, acquisition, and research and development requirements of DARCOM. This effort included the sharing between DA and DARCOM functional and ADP design resources. The functional package completion was scheduled for the Second Quarter FY 1981.

(U) Free Assets. The Free Asset Module was deleted from the Army Procurement Appropriation Reporting System (APARS) Control System (commonly referred to as "PFCS"). Manual operations were implemented and required establishment of manual records to meet reporting requirements. The reporting due date established by US Army Finance and Accounting Center (USAFAC) was not attainable, and a recommendation to reinstate the Free Asset Module was submitted to USAFAC on 24 July 1980.

(U) Fund Allowance System (FAS). In FY 1980, it was determined that with the issuance of fund allowances, DARCOM would improve its utilization of financial resources while reducing the incidences of minor violations of RS 3679. The implementation of the FAS began with a letter to HQDA from the Comptroller, DARCOM informing HQDA of the implementation for OMA and Family Housing Management Account (FHMA) appropriations. During August 1980, field activities were made cognizant of FAS, and meetings were held with HQ staff activities for the purpose of drafting the HQ DARCOM SOP and revision of DARCOM-R 37-17. The scheduled meeting of DARCOM activities was canceled by an F&AO meeting held at HQ DARCOM. On 22 August 1980, the Comptroller of the Army approved the DARCOM FAS for OMA and disapproved it for FHMA. At this time, Comptroller of the Army asked DARCOM to consider using the Other Procurement Army (OPA) appropriation under FAS. HQ DARCOM agreed to putting OPA under FAS with an expected implementation date of January 1981.

(U) A model funding document for local reproduction was provided to the field activities; the SOP and revised regulation was scheduled to be completed on 31 October 1980; and a monitoring of the system was scheduled quarterly in order to detect problems.

Internal Review and Audit Compliance Office

(U) Semiannual Report, Inspector General Act of 1978. On 17 October 1980, the fourth DARCOM report on actions taken to detect fraud and eliminate waste was issued, which covered the period 1 April 1980 to 30 September 1980. A joint effort of the Internal Review and Audit Compliance Office and the DARCOM Inspector General, represents a compilation of data obtained from HQ DARCOM and DARCOM subordinate commands and organizations. This effort to prevent or uncover fraud and waste established disbursing procedures and audited related internal controls; issued comprehensive cash count procedures; issued audit guidance on payroll, nonappropriated funds, and automatic data processing; issued the External Audit Executive Summary, which reported to DARCOM activities the results of external audits. The report also included a summary of internal reviews for the period which resulted in five cases being referred for investigation.

(U) Quarterly GAO/DARCOM Meeting. On 26 September 1980, the first of planned quarterly meetings between GAO and DARCOM took place. Topics discussed at the meeting included:

GAO's review of major systems acquisitions including PATRIOT, COPPERHEAD, Attack Helicopter, and HELLFIRE.

DARCOM studies of High Grade Analysis, Overtime, and Travel.

GAO study of logistics management issues.

(U) The Internal Review Guide Program continued in FY 1980 to provide guidance on specific areas for use by command internal review staffs. Two guides issued during this period were for Computer Security and Stabilized Rates. The guide on Computer Security, one of the first to be issued on that subject by an internal review office, was submitted to Comptroller of the Army for distribution to other MACOMs. Copies were also furnished the US Army Audit Agency.

(U) Implementation of the Real-Time Audit. Real-time audit applications assisted in identifying system deficiencies before they became significant problem areas. During FY 1980 reports were issued on nonappropriated funds and payroll, which provided examples of real-time audit situations which could occur at the various DARCOM commands. They provided suggested real-time audit procedures for implementation by functional supervisors and managers. Other reports on procurement and foreign military sales were scheduled to be issued during FY 1981.

Management Review and Analysis Division

(U) Summary of DARCOM CPIRs Conducted in FY 1980. The HQ DARCOM CPIR System was established by the Commanding General, DARCOM, in August 1977 as the Commander's review and analysis system.

(U) First Quarter FY 1980 - 19-22 February 1980. The Commanding General provided general guidance and comments to improve the staff CPIR presentations, stressing that he was not interested in just program status. Rather, he was more interested in determining if trends were good or bad; and what actions were being taken to correct imbalances. He noted a great disparity among directorates in the awards area, and in particular, the imbalance of awards to women as opposed to men. He noted that a positive affirmative action program assures that there is neither underrepresentation nor overrepresentation. In the mission areas, he issued 37 directed actions to 14 headquarters staff elements participating in the review.

(U) Second Quarter FY 1980 - 2-3 June 1980. At the Second Quarter FY 1980 review, the Commanding General provided guidance aimed at improving CPIR techniques and management objectives. He also expressed his concern on several problem areas, such as the unacceptable filling of high grade vacancies; the need to track merit pay in the same manner that awards and affirmative programs are tracked; the need to follow the progress of RESHAPE objectives; and the progress in important mission areas, such as small business, system support packages, and affirmative action programs. The Commanding General provided guidance and comments to other members of the Command Group relating to selected acquisition report system, product improvement funding, tracking weapon system progress, and cost growth. The Commanding General issued 51 directed action to 17 headquarters staff elements participating in the review.

(U) Third Quarter FY 1980 - 4-5 September 1980. The Commanding General restated policy directed at further improving the CPIR system. Lack of analysis, cost growth, the use of developing indicators as dynamic management tools and the development of management information systems were again stressed. He was concerned about cost changes in Third Quarter FY 1980 versus Second Quarter FY 1980 and changes in target cost during the same period. He asked the Director, Procurement and Production to conduct an additional analysis on the cost change data and to discuss this with him. The Commanding General was also interested in why eight letter contracts were awarded in the Third Quarter FY 1980. In other mission areas, he issued 34 directed actions to 17 headquarters staff elements participating in the review.

(U) Command Summary Analysis Briefing - Yearend FY 1979. This briefing was presented to the Commanding General and the Command Group on 12 February 1980 and provided an independent assessment of the FY 1979 yearend health of the command.

a. Indicators and review areas were reexamined and reviewed independently by the Management Review and Analysis Division against requirements/workload performance and management activities designed to influence mission performance and the availability and utilization of resources.

b. Additional HQ DARCOM staff attention included the downward trend in research, development, test and evaluation program for product improvement; the management and control of the scientists and engineers program; the growing test and evaluation command backlog; the thrust and the identifiable benefits of the international research and development and the military adaptation of commercial items programs; the condition of the procurement program; and the trends of minority and female representation in the work force.

c. Areas for improvement included many indicators in the key management areas of requirements/workload, resources, and management. Analysis by the staff needed further improvement. It was suggested that the principal reason for weaknesses in the staff's CPIR input resulted from not sufficiently stratifying data to identify the area or location of problems, to identify the effect of unfavorable performance, or to demonstrate the relative quality of performance.

d. The Commanding General stated that the trends in workload and performance and their various interpretations required him to vigorously challenge justifications for additional resources. While many performance trends were moving in the right direction, many of the targets had not been met. He pointed out that coverage on the materiel development portion of the CPIR was inadequate. With respect to overall DARCOM mission performance, the Commanding General agreed with the conclusion that most of the trends of mission performance were favorable, but the relationship of projections of requirements/workload to resources for future years was not favorable.

e. The Commanding General directed the Comptroller and the Deputy Commanding General for Resources and Management to coordinate the selection of indicators used in the analysis and portrayal of the resources and requirements relationships reported in the CPIR and in documentation to higher headquarters. He also directed the Comptroller to issue guidance to the staff on the need for more complete analysis of the conditions and trends disclosed by their indicators.

(U) CPIR Magazine Article - "Managing DARCOM". Management Review and Analysis Division submitted a lead article in the May-June 1980 issue of Army Logistician on the HQ DARCOM CPIR System entitled, "Managing DARCOM". The article identified the CPIR as a cohesive management plan implemented by DARCOM to bring together the talents, knowledge, and energy of its directors to better achieve mission goals. The system includes the following elements: Quarterly reviews of performance in each staff area; the Commander's Handbook of Performance Indicators; a summary analysis of overall command performance; and a feedback of information and guidance to the field.

(U) Management Analysis Study of Alignment of Comptroller Functions. AR 5-2, Comptroller/Deputy Chief of Staff for Resource Management (Comptroller/DCSRM/DRM) in the DA Field Establishment, was revised and published on 15 March 1980. The tone of the regulation, as compared with the 1 May 1969 edition, was directive rather than permissive. One significant change in the revised regulation was the requirement that exemptions to the assignment of Comptroller functions outlined therein had to be approved by HQDA.

(U) To comply with the requirement, a study was initiated in March 1980 to identify functions/subfunctions delineated in AR 5-2 which were not the assigned responsibility of the Comptroller, DCSRM or DRM. DARCOM Comptroller staff elements, major subordinate commands, and subordinate activities of ARRCOM, DESCOM and TECOM participated in the review. Study results with recommendations for exemptions to be requested from HQDA were forwarded to the DARCOM Comptroller. These exemptions fell into two categories: exceptions in the management analysis functional area for several activities and exceptions in all major Comptroller functional areas except finance and accounting for one activity.

(U) Study of Management of Year end Operations and Maintenance, Army (OMA) Closeout. After reviewing the results of the FY 1979 OMA year end closeout, the DARCOM Comptroller directed the Management Review and Analysis Division to conduct a study which would assist in further improving the management of year end OMA closeout. The study developed recommendations for the most effective management of obligation of OMA funds and the minimum deobligations and adjustments of these funds in subsequent fiscal years. It focused on two parameters of fiscal year closeout: the unobligated balances and the adjustments of obligations in subsequent years.

(U) The key conclusions of the study were that the year end practices used in the previous years were effective as evidenced by the reduction of unobligated balances from year to year. Obligational adjustments in subsequent years have not been consistently reduced in the past. Three specific reasons caused 55 percent of unobligated balances: the policy of retaining an unobligated balance as a contingency at one major subordinate command; the necessity of retaining a contingency for award fees at another major subordinate command; and inadequate finance and accounting office operations at MDW which served HQ DARCOM and FSTC. Certain subordinate commands and activities fell behind their obligation plans, and the planned obligations in the last quarter of the year were occasionally higher than in the preceding quarters.

(U) The study recommended that the FY 1979 year end practices be continued; that underlying causes of obligational adjustments be further examined; and that appropriate major subordinate commands reconsider their policy of holding an obligated balance as a contingency. In addition, those commands falling behind in their obligation plans were prompted to avoid planning high obligations in the last two months of fiscal year.

(U) Small Arms Registry Staff Study. The results of subject study were presented to the Deputy Commanding General for Resources and management on 25 March 1980. He directed that the presentation be given to the Director of Materiel Management and the DESCOM Liaison Officer; and areas, where directed requirements are consuming our resources and have outlived their usefulness, be investigated for elimination.

(U) Management Analysis Study of HQ DARCOM Budget and Programs Office (HQ BPO). An onsite follow-up study was made during the period 4-12 October 1980 to ascertain if the HQ BPO was reorganized, as recommended in the organization study conducted by the Management Review and Analysis Division in March 1979, and if so, was the organization effective? In addition, the study was a follow-up to determine whether the shortcomings in management controls and operations cited in the reports of Internal Review and Audit Compliance Office had been corrected. Significant conclusions made from this study were that the recommended reorganization had not been fully implemented, the management controls were still inadequate, and the functions of controlling and reprogramming funds were ineffective.

(U) It was recommended that the Director, DARCOM Service Support Activity should follow closely the progress made by the HQ BPO toward implementing the recommendations in the reports of the Internal Review and Audit Compliance Office and the study by the Management Review and Analysis Division. Also, progress reports were required bi-monthly to the Chief of Staff.

(U) Critical Items Shortages. In FY 1980, an independent analysis and evaluation of critical combat items shortages adversely affecting the combat readiness of specific Army units was conducted for the Director for Readiness. Updated three times in compliance with the Comptroller's request, the scope of the analysis included all military units in the Army's Unit Readiness Reporting System (AR 220-1). An important byproduct of the evaluation was the DA DARCOM unit readiness relationships, time cycle, and analyses performed.

(U) Project Comptroller Organization Evaluation (CORE) Concept Plan. Project CORE was directed by the Comptroller to unify into one project four studies that were aimed at improving the efficiency of the DARCOM Office of the Comptroller. A concept plan was written which contained the objective, scope, phasing, and the requirements of the project. The four phases that comprised the study are enumerated below:

Phase I - A Priority Listing of Comptroller Functions. The Comptroller was briefed on a priority listing of consolidated Comptroller functions. At his request, a priority listing by division was subsequently prepared which provided him a contingency plan for any loss of personnel spaces.

Phase II - The Optimum Organization. This study, which was cancelled, was to consider the Comptroller organization at HQ DARCOM at a staffing level of between 120 to 125 spaces.

Phase III - The Administrative Support Study. This study was conducted to define the current and future administrative support requirements, including application of state-of-the-art automated systems, procedures, and equipment of all organizations in HQ DARCOM, Office of the Comptroller. The Comptroller who was briefed in August 1980 on the study results, concurred with the recommendation to establish a Comptroller administrative support requirements steering group, chaired by the Deputy Comptroller. He also directed that overall responsibility for automated support requirements remain with the Management Review and Analysis Division.

Phase IV - A Priority Listing of Comptroller Functions at the Planned Civilian Strength of Between 120 to 125 spaces. This study was to be an FY 1981 plan. It was cancelled.

(U) Labor Saving Capital Investment Program (LSCIP). This program was announced by DOD in August 1979. DOD established an investment fund of $110 million for FY 1982. Projects had to represent a $100,000 investment, payback in 4 years or less and at least 50 percent of the project cost was to be recovered from labor savings in 4 years. The DARCOM Program and Budget Advisory Committee selected the DARCOM program from projects submitted. The DARCOM program consisted of 18 projects with a total value of $176 million.

(U) Army Industrial Fund Fast Payback System (AIF-FPS). The AIF-FPS is the rapid amortization program applicable to industrially funded activities. Two significant changes were made to the program during the fiscal year 1980. The investment criteria increased to include projects costing between $5,000 and $300,000, amortizing in 3 years or less. (The old limits were $1,000 and $100,000 in two years.) Also, automatic data processing equipment was eligible for AID-EPS purchase. Total DARCOM investments made during the year totaled $1,504,000.

(U) Quick Return on Investment Program (QRIP). An FY 1980 appropriation provided $3 million for the Army QRIP. During the year, ten DARCOM projects totaling $289,000 were funded. Predicted annual savings from these investments are $471 thousand. During FY 1980 investments producing energy-related savings became eligible for QRIP funding.

(U) Productivity Enhancing Capital Investment PECI Program. PECI provided a special display or highlighting of requirements for projects which would pay back within four 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 Appropriations Plan (FYDP) 1981-1985.

(U) Comptroller Evaluation Surveys (CES). The evaluation of Comptroller offices throughout DARCOM began on 23 October 1979. Nine surveys were planned for FY 1980. Because of expected travel fund shortages, the program was suspended for the remainder of the fiscal year after completion of five surveys. A study was conducted to determine if the CES program should be resumed, and if resumed, how the program could be improved while minimizing costs. The DARCOM Comptroller was briefed in September 1980 on the conclusions of the study, and approved resumption of the program for FY 1981 with adjustments to CES team composition for reducing costs and reduction of depot surveys to those requested by DESCOM.

(U) CERCOM. In the CERCOM CES, conducted 23-26 October 1979, all Comptroller functions were rated satisfactory. This achievement was regarded as notable considering the short time since CERCOM had been operational and the complexity of the base operations responsibilities of CERCOM. Additional efforts in establishing procedures and controls, especially in the finance and accounting functions were needed, and were undertaken by CERCOM.

(U) CORADCOM. In the CORADCOM survey of 22 October - 1 November 1979, the program and budget and the cost and economic analysis functions were rated excellent. All other functions were satisfactory except for review and analysis. Difficulties in staffing, training, and work planning in this area required corrective action. CORADCOM responded to the CES recommendations with a program of positive actions which were expected to improve functional capability.

(U) ARRCOM. In the ARRCOM CES, conducted 27-30 November 1979, the internal review and audit compliance, cost and economic analysis, and Comptroller career programs functions were rated excellent. All other Comptroller functions were satisfactory. It was noted, however, that the management review and analysis functions had suffered from fragmentation, degradation of analytical capability, and manpower reductions. A reversal in these trends was needed to prevent future unsatisfactory ratings.

(U) ARRADCOM. In the ARRADCOM survey, conducted 10-14 December 1979, the internal review and audit compliance, review and analysis, cost and economic analysis, and Comptroller career functions were rated excellent. All other functions were satisfactory. The DA Productivity Improvement Program was not rated because the responsibilities of the ARRADCOM Comptroller for this function were under review at that time.

(U) ERADCOM. In the ERADCOM CES, conducted 12-15 February 1980, the program and budget and the finance and accounting functions were rated excellent. All other Comptroller functions were satisfactory.

(U) Comptroller Automation. Developments in expanding the application of automation within the Office of the Comptroller included five system changes as recommended in the LSSA FY 1979 study of Comptroller Automation Requirements. These were automating the Command Operating Budget, establishing files in the LSSA automated data base for three major fiscal reports, and modifying the methods of transmission of various reports and other information for the Finance and Accounting Division, the Resources and Programs Division and the Management Review and Analysis Division.

(U) The Office of the Comptroller accepted delivery of three CDC Model 18-5 terminal/printers for extracting data and reports from the financial data files in the LSSA data base. Additional Comptroller personnel were trained in the use of the terminals.

(U) An urgent requirement for cash flow information in the revolving funds (Army Industrial Fund and Army Stock Fund) was automated with contractor assistance. Several Comptroller employees were trained in using the terminal hardware for extracting tabular and graphic information from the established data base.

(U) Through the assistance and cooperation of the Directorate for Management Information Systems (DMIS) and the LSSA, a special network of Comptroller field organizations was linked with the Resources and Programs Division for the exchange of information during the FY 1980 OMA year end closeout process. A significant increase in the use of this communication medium is planned for FY 1981

(U) DARCOM Comptroller Financial Management Information System (DCFMIS). DCFMIS, originally developed in FY 1979, is an integrated system for monthly tracking of DARCOM's flash and actual financial obligations against planned obligations. The data is maintained in a mechanized data base at the Logistics System Support Activity, Tobyhanna Army Depot, and extracted via remote terminals in a wide variety of formats. During FY 1980 a number of improvements and refinements were made to the system. These included adding breakdowns of data for Foreign Military Sales and Grant Aid categories and analytical breakdown of the 6A (Headquarters) account by its various subelements for use by the appropriation managers.

(U) Methods and Standards (M&S) Program. During FY 1980, a total of six M&S Program reviews were conducted throughout the depot system. 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 were integrated into the quantification of budget and manpower requirements.

(U) The US Army Integrated Methods and Standards Activity (IMSA) was activated at Redstone Arsenal, Huntsville, Alabama on 1 October 1979 and became operational in March 1980. During FY 1980, the IMSA was involved in the details of activation/organization and recruitment. Studies were initiated in the procurement and production directorates at MICOM and TSARCOM. IMSA also became involved in assisting the US Army Finance and Accounting Center in the development of the performance measurement module for support of the US Army Standard Financial System (STANFINS) Redesign effort (DA tasking).

(U) DARCOM Financial Management Executive Workshops (FMEWs). Actions initiated in May 1979 to develop and conduct workshops continued in FY 1980 which would enhance the financial management capabilities of selected DARCOM officials. As a result of these actions, three FMEWs were held during FY 1980, either at the Coolfont Conference Center, Berkeley Springs, West Virginia or at the Sheraton Inn, Gettysburg, Pennsylvania.

(U) A total of 80 non-Comptroller DARCOM officials participated in the three FMEWs. The Comptroller of the Army was a guest speaker at each FMEW, and the Commanding General of DARCOM participated in the closing session at the third FMEW.

(U) In line with guidance developed in the Management Review and Analysis Division to meet the requirements of the DARCOM Comptroller, case studies and moderators were provided by the Comptrollers of four commands (ARRCOM, MICOM, TECOM and TSARCOM) and by the Director for Personnel, Training and Force Development (DRCPT), HQ DARCOM. Attendees were selected jointly by the DARCOM Comptroller and DRCPT from nominations submitted by every DARCOM major subordinate command and several directors and office chiefs at HQ DARCOM. Commanders/Directors/Office Chiefs were requested to encourage participation of qualified minority and female employees.

(U) Tentative plans for FYs 1981 and 1982 were for four similar workshops each year. These workshops would be named DARCOM Resource Management Executive Workshops (RMEWs) and would include a new case study which would improve the coverage of research, development, test and evaluation funds.

(U) Input Change Packages Tables of Distribution and Allowances (TDAs). During FY 1980, 134 input change packages were processed. Organization and mission and functions statements were included in the distributions to Comptroller division/branches. The Resources and Programs Division received complete TDAs because of their interest in reviewing Army management structure codes. Inputs received from the various divisions/branches were reviewed, analyzed, summarized, and forwarded to the Chief, Manpower TDA Branch, presenting the Comptroller position.

(U) Productivity Measurement and Evaluation. As required by AR 5-4, DA Productivity Improvement Program, DARCOM must measure and evaluate its internal productivity. The current system, Productivity Trend Evaluation System,was being upgraded for use in all of DARCOM. The new system, DARCOM Resource Utilization Measurement System (DRUMS), was expected to be implemented in FY 1981.

(U) DRUMS was designed to measure an activity's utilization of resources compared with a previous period of time. The DRUMS regulation was to prescribe policies, responsibilities, and procedures for implementing, administering, and maintaining the DARCOM Productivity Measurement Program.

(U) Commercial/Industrial-Type Activities (CITA). In March 1979, the Office of Management and Budget (OMB) substantially revised OMB Circular A-76, establishing revised policies and detailed procedures regarding commercial or industrial-type activities.

(U) Specific DARCOM 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 study of DARCOM Comptroller responsibilities associated with the CITA process commenced in July 1979. The study addressed the principal ground rules established by OMB Circular A-76 and the provisions that affected financial management operations. The study also 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 programming and budgeting, finance and accounting, cost analysis, and auditing were discussed.

(U) Executive Communications Program. The scope of the Comptroller Executive Communications Program in FY 1980 was to establish executive communications criteria, guidance and standards; to arrange for graphics and publication support for all Comptroller elements and for the DARCOM Command Group, as required; and to develop and design executive communications requiring identification, selection, and portrayal of significant data.

(U) The following are some of the more significant accomplishments for FY 1980:

DARCOM IG Conference.
Merit Pay Institute Briefing.
DARCOM Comptrollers Conference.
DARCOM PM Conference.
DARCOM FMEW Presentations.
Comptroller Letters to MSC Commanders.
Comptroller Letters to MSC Comptrollers.
Quarterly Command Performance Indicator Reviews.
Comptroller Briefings at Syracuse University, Fort Benjamin Harrison, and Maxwell AFB.

(U) Idea Interchange. During FY 1980, three Idea Interchange publications were distributed throughout the command. These issues collectively represented the exchange of over 100 innovations developed by members of DARCOM. Those ideas published amounted in savings of time and materials valued at approximately $8 million.

(U) Special Review of Army Studies, Analyses & Consulting Services (SANCS). The Department of the Army conducted a special review of SANCS covering over 7,500 efforts. The Chief of Staff, DARCOM, directed an internal evaluation of DARCOM's input to the larger study. Accordingly, an ad hoc committee was formed from among headquarters staff elements, including the Office of the Comptroller, Management Review and Analysis Division. The Comptroller's full-time representative performed a general analysis of current data and a specific analysis in Comptroller functional areas.

(U) The committee evaluation report, submitted to the Chief of Staff on 30 September 1980, recommended that the Directorate of Plans and Analysis establish a SANCS unit to provide central management and staff supervision of all DARCOM efforts included under SANCS. In addition, the Directorate for Plans and Analysis would publish procedures which would assign responsibility and direct headquarters staff action for functional area management.

(U) DA Briefing on HQ DARCOM's Review and Analysis Program. On 22 January 1980, the Management Review and Analysis Division briefed a Department of the Army Study Team from the Office of the Director of Management, Office of the Chief of Staff on the conduct of review and analysis in HQ DARCOM.

(U) The purpose of the briefing was to provide an assessment of the adequacy of the Command's review and analysis programs and input to proposals related to the accomplishment and proponency at DA level. The briefing pointed out that the principal review and analysis effort in HQ DARCOM is in the HQ DARCOM Command Performance Indicator Review (CPIR) System. This system was described and outlined the Comptroller role

in organizing and managing the system. The team was told that the CPIR System was the principal management tool used by the Commanding General, DARCOM to keep abreast of the DARCOM mission accomplishment. It was pointed out that the CPIR System imposed a review and analysis discipline on every director and office chief in DARCOM headquarters, which if not a review and analysis discipline, then a mental review and analysis. This achievement was realized by the requirement that each director and office chief make a quarterly presentation to the Commanding General in which they present analyses of performance in their respective areas of responsibility.

(U) Although the DA team found that review and analysis programs were barely existent throughout DA, they praised the program of HQ DARCOM and wrote, "DARCOM is an exception. With a staff of about 12 people, quarterly reviews are conducted 6 weeks after the cut-off date. The Commanding General spends two days in the reviews and uses the program as a management tool."

(U) Performance Standards Review Committee (PSRC). The Management Analysis Branch provided Management Review and Analysis Division representation to the PSRC. Under the chairmanship of the Deputy Comptroller, the PSRC performed two major functions to assure comprehensive and uniform performance standards. First, committee members developed model standards for common functions, such as Personnel Management and Equal Opportunity. These standards were provided to each division for use, where applicable. Second, a review of draft standards provided comments and recommendations to supervisors, with the purpose of increasing uniform standards for similar functions. To assure that standards were attainable, they were set at the fully successful performance level and true measures of successful task accomplishment.

(U) Secretary of the Army's Mobility Opportunity and Development (SAMOD) Program. The SAMOD intern program was designed to locate and utilize previously untapped sources of talent for positions in the Department of the Army's civilian professional and administrative fields. Its purpose was to provide maximum opportunity for high potential individuals to advance and perform at their highest potential. Participants entered the program in grades GS-301-4, 5, and 7 and were promoted to target positions in a career program series to grades GS-09 and GS-11. The specified objectives of the program were to attract, develop, and retain highly qualified employees, and better utilize their capabilities while meeting equal opportunity objectives. Ten SAMOD interns were assigned to the Comptroller's Office--six management analysts and four budget analysts. The Management Review and Analysis Division had overall responsibility of coordinating the SAMOD Intern Program for the Comptroller.

(U) Equal Employment Opportunity Affirmative Action Plan. Significant progress was made in increasing minority and women representation within the work force of the Office of the Comptroller during FY 1980. Minority representation increased from 12.8 percent to 13.9 percent, and the number of minority employees at the GS 13-14 level increased from five to eight. Women representation in the work force also rose, climbing from 36.5 percent to 38.3 percent during the year.

(U) Anticipating the implementation of the Civil Service Reform Act, a system was developed to quantitatively measure supervisory affirmative action performance. Performance factors were established for each objective within the Equal Opportunity Affirmative Action Plan, and points were assigned based upon progress attained toward each objective. The system was successfully tested and served as the basis for reporting EEO in the Mini-CPIRs throughout the fiscal year.

(U) Performance Management. The FY 1980 Performance Management Program proved to be a valuable tool in directing, controlling, and measureing the Office of the Comptroller's many and varied programs. Based upon organizational and personal values adopted prior to the fiscal year, the Comptroller established 16 broad objectives for FY 1980. Each division chief then established objectives to support Comptroller objectives applicable to his division. Correspondingly, branch chiefs established detailed and specific objectives to support their division's objectives. Thus, each Comptroller objective was supported by a structure of division and branch level objectives which provided implementation details and measureable milestones. These implementing objectives were reviewed and updated throughout the fiscal year, and accomplishments were charted for the Comptroller's Quarterly Mini-CPIR presentations.

(U) In August 1980, drawing on the experiences and lessons learned in the FY 1980 program, the Comptroller's management team met at Fort Belvoir to draw up plans for FY 1981. The session resulted in the establishment of 14 Comptroller objectives and the provision of detailed guidance for the structure and development of the FY 1981 division and branch objectives. Division chiefs were charged with providing representation to a steering group headed by the Chief, Management Review and Analysis Division with the responsibility for reviewing division and branch objectives inputs and preparing a consolidated objective submission for Comptroller approval. The approval objectives served as a base for the development of individual performance standards required by the Civil Service Reform Act.

Manpower and Force Management

Introduction

(U) The Department of the Army gave DARCOM some relief in FY 1980 with increased resources allocations over FY 1979. An increase of 1020 civilian authorizations was primarily in the procurement areas to improve DARCOM's readiness position. A net increase of 268 military spaces included 239 enlisted to staff the Electronic Proving Ground, Digital Communications System Test Company in support of TRI-TAC. The President's one for two (one replacement from outside DOD for every two losses to outside DOD) imposed hiring limitations notwithstanding, DARCOM managed a formidable on-board fill for FY 1980 through an on-going intensive overhire program.

(U) DARCOM participated in the DA Position Identity Study, TDA Scrub, development of Force Development Integrated Management System (FORDIMS), the Functional Army Manpower Evaluation (FAME) system, and the planning for the Full-Time Equivalent/Work Year (FTE/WY) Program.

(U) DARCOM submitted the FY 1982-1986 Program Analysis and Resource Review (PARR) to HQDA in January 1980. The required DARCOM Manpower resources for FY 1982 were reflected at approximately 134,000. Subsequent submission of the Program and Budget Estimate (PABE) in March 1980 reflected increased DARCOM Military and Civilian requirements for FY 1982 to 137,079.

Personnel Space Authorization and Strength

(U) Civilian. The DA program increased DARCOM's civilian space authorization by 1020 from end FY 1979 to end FY 1980. This net increase included DA adjustments for improved readiness posture for DARCOM primarily in the procurement area. Actual (on-board) civilian strength increased from 103,794 at end FY 1979 to 104,027 at end FY 1980 which was net increase of 233.

(U) Military. DARCOM was increased by a net of 268 military spaces from end FY 1979 to end FY 1980 by DA. This was primarily in enlisted spaces in that the staffing for the Electronic Proving Ground, Digital Communications System Test Company in support of TRI-TAC (239 enlisted spaces) was extended from 3rd quarter, FY 1980 through 4th quarter FY 1981. Actual (on-board) military strength increased from 9,116 at end FY 1979 to 9,707 at end FY 1980, an increase of 591. This actual military strength was materially below the authorized level at end FY 1980, i.e., 10,777 authorized versus 9,707 actual, (-1,070). DARCOM's low standing on the Department of the Army Master Priority List (DAMPL), and the Personnel Structure and Composition System (PERSACS), resulted in a low distribution capability in FY 1980 precluding high rate of fill for military positions; however, this was an improvement over FY 1979.

Civilian Manpower Guidance and Ceilings

(U) DARCOM exceeded its end FY 1980 DA authorization by being 422 over the ceiling (104,027 on-board versus 103,605 authorized). Whereas DARCOM was understrength by 1,601 full-time permanent (FTP) employees, temporary part-time (TPT) strength was over by 2,023 employees.

Army Management Headquarters Activities (AMHA)

(U) Army Management Headquarters Activities (AMHA) ceilings continue under strict DA/DOD controls. In May 1977 DARCOM recommendation to amend the AR 570-8 but the DOD Directive was not acted upon during the fiscal year.

Manpower Utilization, Standards and Policies

(U) DA Position Identity Study. In FY 1980, the Director of Personnel Training and Force Development participated in a DA Study Advisory Group to develop an Army-wide procedure to determine the proper identity of all TAADS positions whether these were military or civilian. If military, whether positions should be officer, warrant officer, or enlisted. DA adopted several DARCOM recommended changes to the proposed procedures. DARCOM (TECOM/APG) participated in a DA test of the procedure.

HQDA TDA Scrub

(U) HQDA began a Tables of Distribution & Allowances (TDA) review in May 1980 with the purpose of reducing officer and non-commissioned officer positions including grade reductions. The reason for the HQDA TDA Scrub was to improve staffing of Active Army Modified Tables of Organization and Equipment (MTOE) units by FY 1982. Phase I results recommended reductions, downgrades, and upgrades in 119 DARCOM units. Intensive negotiations between DARCOM and the Vice Chief of Staff Army/ DA Staff resulted in some modifications which diminished the initial impact. The project was completed in early FY 1981.

(U) Full-Time Equivalent Work Year Manpower Ceiling (FTE/WY). Early in April 1980, it was learned that the President directed implementation of an FTE/WY manpower ceiling in the Executive Branch beginning FY 1982.[1] The purpose of the new ceiling was to break down barriers to enhance part-time permanent employment, improve personnel management, and overcome criticism of the end strength ceiling. The following major points surfaced in an Office of Personnel Management (OPM) orientation session, 31 July 1980, and in a DARCOM conference, 20 August 1980:

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1 a. Office of Management and Budget Circular No. A-64 (Revised Jul 30, 1980).
b. Office of Personnel Management FPM Bulletin 340-5, Aug 25, 1980.

(U) Two ceilings might be imposed: end strength imposed by Congress; work year directed by President. Implementation would require: advanced planning; training for managers/supervisors; adequate ADP support; test period. Another point was the ceiling was more restrictive and harder to control; also higher administrative/overhead costs.

(U) Initial information on FTE/WY was disseminated to DARCOM elements. Concerns and a request for guidance were transmitted to HQDA,[2] and during the Joint Logistic Commanders Meeting of 23-25 September 1980, DARCOM concerns/positions were discussed.[3]

(U) On 10 March 1979, the Principal Deputy Assistant Secretary of Defense opposed an OMB imposition of the work year ceiling.[4] Since FTE/WY was in the FY 1982 budget, comprehensive planning for implementation was underway.

(U) Force Development Integrated Management Systems (FORDIMS). In FY 1980 FORDIMS was the HQDA management information system that would accommodate the new manpower accountability system. It was designed to enable HQDA to identify the nature of and reasons for changes in the Army Force Program at the level necessary to satisfy reporting requirements of HQDA management and higher authorities such as OSD, OMB, and Congress. Thus far, in FY 1980, the DARCOM Command Plan (troop lists) had been reconciled with the HQDA October 1980 PBG by total end strength (civilian and military identity) at the AMSCO level of detail for FYs 1981-1986. Final FORDIMS instructions were issued to DARCOM units.[5] Guidance tracking within DARCOM would begin with the submission of Program Change Reports and/or correspondence that requested program changes requiring prior HQDA approval.

(U) Overtime Study. An overtime use study completed by DARCOM in 1980 revealed that overtime, when properly justified, was cost effective and could be used to help compensate for the shortage of man-years required, to adequately perform DARCOM's peacetime mission. Study findings

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2 Letter DRCPT-SU, 18 Sep 1980, subj: Full-Time Equivalent Workyear Manpower Ceiling.

3 a. HQ DARCOM Position Paper DRCPT-SU, 4 Sep 1980, title: Full-Time Equivalent/Workyears (FTE/WY).
b. Joint Logistics Commanders (JLC) Meeting Position Paper of 23-25 Sep. 1980, Subj: Full-Time Equivalent Workyear (FTE/WY) Ceiling.

4 Principal Deputy Assistant Secretary of Defense (MRA&L) Memo to OMB, 10 Mar 1979, subj: Civilian Employment Control.

5 Letter, DRCPT-SU, HQ DARCOM, 16 Jan 1981, Subj: Manpower Accountability/ Force Development Integrated Management System.

were tested at Watervliet Arsenal, Anniston Army Depot, and at the Missile Command headquarters. Based on the study and test results, DARCOM-R 616-4, Overtime for Civilian Employees, was revised effective 17 October 1980. The revised regulation withdrew the one percent overtime to base pay goal, established two break-even points at which overtime became cost effective, and stressed the need for documented justification and control of overtime usage. Overtime estimates for the fiscal year would be presented in the Command Operating Budget of each unit reporting to DARCOM headquarters. Monitoring overtime utilization would be accomplished by comparing overtime estimates to actual usage throughout the fiscal year.

(U) Presidential Hiring Limitation. With an effective date of 29 February 1980, the President imposed a "1 for 2" hiring limitation, and to assess the impact of this limitation, HQDA established the RCS DD-COMP(M) 1550 Report, in March 1980. For the period 29 February through 30 September 1980, DARCOM absorbed a total of 2035 losses to outside DOD as a direct result of the reduced "1 for 2" hiring limitation.

Special Surveys, Reviews, and Projects

(U) Management Analysts in the Manpower Survey Branch participated in or conducted the following special surveys and projects:

1. Final in-process review at Sacramento Army Depot of staffing guides and back-up documentation for standard DMIS functions at depots.
2. Evaluation of nuclear reactor security personnel requirements at White Sands Missile Range and Aberdeen Proving Ground.
3. Feasibility study of decentralizing HQ DARCOM Comptroller functions.
4. Manpower survey of Materiel Readiness Support Activity, Lexington, Kentucky.
5. Collection of measurement data to develop staffing standards for civilian personnel requirements under the HQDA Functional Army Manpower Evaluation (FAME) project.
6. Manpower review of PM TRADE, Florida and TRADOC, Virginia, relative to transfer of the Training Extension Courses from DARCOM (PM TRADE) to TRADOC.
7. Manpower determination workshop at Lowry AFB, Colorado for establishing a centralized accounting and disbursement activity for direct cite Foreign Military Sales (FMS) procurements.
8. Manpower review of Quality Assurance functions at USA Security Assistance Center at Cumberland, Pennsylvania.
9. Identification of 100 enlisted positions in DARCOM for conversion to civilian status for the HQDA Improved Manning Active Army Division (IMAAD) study.
10. Member of DARCOM's Quality of Life Working Committee whose obligations to provide for the fulfillment of the needs of the total Army community, including the active duty soldier, dependents, and DA Civilians.
11. Study of the manpower staffing impact on Small and Disadvantaged Business Utilization Offices (SADBU) as a result of requirements detailed to Public Law 95-507 and a major increase in small business goals. Five Readiness Commands and three R&D SADBUs were studied.

12. Development of a mathematical test model for allocation of manpower resources in a systematic manner.

13. Augmentation of DA team conducting a manpower survey of MILPERCEN.

14. Action officer for DA program identifying officer and enlisted spaces in TDA Scrub for Downgrading, realignment, and conversion to civilian status.

15. Committee member for a special review of Army Studies, Analyses, and Consulting Services (SANCS).

16. Participation in development of work measurement standards for procurement functions.

(U) Review of Manpower Surveys Conducted by Major Subordinate Commands. Four of the major subordinate commands conducted seven manpower sueveys in FY 1980 which were reviewed by the Manpower Survey Branch prior to forwarding to DA.

TAADS Management

(U) Management of Change (MOC). The TAADS Manager reviewed the use of MOC over the past two years and concluded that MOC was not satisfying the original objectives to control the flow of change and did not assist in meeting manpower and personnel management requirements. Implementation of MOC produced a reduction of turbulence and change at HQDA level, but not at MACOM and lower levels. The fact that TDA/MTOEs were submitted only two times a year (January-March and July-September) complicated rather than assisted unit operation. On 21 April 1980, a letter was forwarded to HQDA recommending rescission of the MOC constraints over TDA/MTOE processing and revision of AR 310-49, which governs TAADS management.[6]

(U) RESHAPE Affects TAADS. The Resouece Self-Help/Affordability Planning Effort (RESHAPE) Study required streamlining of organizational goals within the DARCOM complex and generated an additional workload for the TAADS Manager during FY 1980. This requirement involved the annotation of TDA/MTOE personnel authorization lines with function/subfunction codes. These codes were being used to classify all TDA/MTOE manpower positions into functional groups. Each manpower position required coding to reflect the correct functional group.[7] This action was expected to be completed by the end of FY 1981.

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6 Ltr, DRXMM-TM, subj: Management of Change, 21 Apr 1980.

7 Ltrs, DRXMM-TMS, subj: TAADS, 30 May 1980 and 13 June 1980 and DRXMM-TMS Messages 311801Z and 181705Z July 1980.

(U) Command Redesignation. As a result of the post-AMARC organizational assessment, it was concluded that the US Army Natick Research and Development Command (NARADCOM) located at Natick, Massachusetts, should be redesignated as the US Army Natick Research and Development Laboratories (NLABS), effective 1 September 1980. HQ, DARCOM Permanent Order 64-1, 20 August 1980, was published reflecting this redesignation.

Manpower Program Development FY 1980

(U) The Program Analysis and Resource Review (PARR). The PARR which is the first document in the Program/Budget Cycle, providing a formal means for MACOM participants in the budget process and enables MACOMs to identify and explain their resource requirements to HQDA. The FY 1982 - 1986 PARR was based on the October 1979 PARR Budget Guidance (PBG) and covered five fiscal years, FY 1982-1986, but focused on FY 1982.

(U) Selected DARCOM commands participated in the preparation of DARCOM instructions for PARR preparation. Commands submitted impact memoranda to HQ DARCOM in November 1979, DARCOM submitted the PARR to HQDA in January 1980.[8]

(U) PARR Submissions - Commands/Activities. All commands, Project Managers, and selected Activities participated in the PARR. Field civilian requirements totaled 11,007 military and 119,449 civilians for FY 1982.

(U) DARCOM PARR Submission to HQDA. The PARR identified 124,434 hard-core military and civilian requirements for FY 1982, and total requirements of approximately 134,000. DARCOM included major increases for Supply Depot Operations, Supply Management Operations, Depot Maintenance, Maintenance Support, and RDTE.

(U) The DA FY 1980 Program and Budget Guidance (PBG) included Program Objective Memorandum (POM) increases for Force Modernization Systems, Ammo War Reserve, Product Improvement, Tech Base Growth, and for Central Procurement Activities.

(U) The Program and Budget Estimate (PABE). The PABE furnishes budget-level detail supporting Command requirements approved during DA Staff evaluation of the PARR. It specifies dollar costs and end strengths for military and civilian manpower and helps link the program to the budget. The FY 1982 - 1986 PABE was based on the January 1980 PBG. It covered five fiscal years, FY 1982-1986. DARCOM staff developed the PABE and submitted the document to DA in March 1980.

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8 Command Statement: FY 1982-1986 Program Analysis and Resource Review (PARR).

(U) The Program and Budget Estimate (PABE) Submission to HQDA. DARCOM manpower requirements totaled 125,418 civilians and 11,661 military for a combined total of 137,079. DARCOM provided detailed Program Development Implement Package (PDIP) data to HQDA.[9]

(U) Command Operating Budget (COB). The COB provided detailed costing of decisions made during the Program Cycle, with clear and complete justification. The COB was thus a detailed extension of the PARR in terms of data justification for the Budget Year 1982. The COB also updated the prior year (FY 1980), and fiscal year 1981 was included in the FY 1983 budget year submission. The FY 1981-1982 COB covered FY 1980, FY 1981, and FY 1982 and was based on the DA October 1980 PBG.

(U) COB Submissions - Commands/Activities. DARCOM subordinate commands and activities submitted their COB requirements to HQ DARCOM in May 1980, with military requirements totaling about 12,000 for FY 1981 and FY 1982, and civilian requirements totaling 118,040 for FY 1981 and 119,619 for FY 1982.

(U) DARCOM COB Submission to HQDA. In the COB which DARCOM submitted to HQDA in July 1980[10], civilian requirements, including high priority unfinanced requirements[11], totaled 125,018 for FY 1982 and were consistent with the DARCOM Baseline Study. DARCOM identified major increases for Supply Operations and for Depot Maintenance. DARCOM also requested numerous program adjustments between appropriations and between budget programs. During the months of August and September, DRCPT-SP worked closely with the DA Program Directors and was highly successful in getting all the civilian requested reprogramming accomplished in the DA October 1980 PBG. DRCPT-SP continued to assist the DA staff in their review of the COB through December, with the result that manpower reductions (advance January 1981 PBG) were minimal.

(U) Research Development Test and Evaluation (RDTE Program) DA expanded the RDTE-NAIF manpower guidance from 16 arbitrary AMS Codes to approximately 150 codes, in the DA May 1980 PBG and will expand RDTE Codes, including AIF in the DARCOM PBG, effective FY 1981. A comparison of total civilian and military manpower data in the Modernized Army R&D Information System (MARDIS) and the DARCOM PBG revealed a considerable under-reporting in MARDIS, thereby reducing the validity of the MARDIS manpower data. The DA (DCSRADA) reviewed the RDTE Manpower Management Report, including MARDIS and codes contained in the DA PBG.

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9 Command Statement: FY 1982-1986 Program and Budget Estimate (PABE).

10 Command Statement: FY 1981-1982 Command Operating Budget.

11 High Priority Unfinanced Requirements.

(U) FY 1982 Army Industrial Fund Budget and Annual Report. The budget system is designed to provide data required by DA, the Office of Secretary of Defense (OSD), and the Office of Manpower and Budget (OMB) to evaluate operations and the financial condition of Army Industrial Fund activities. DARCOM submitted the initial budget to DA in July 1980. DA/OSD hearings were held in October 1980, the Directorate for Personnel, Training and Force Development (DRCPT-SP) represented the Director, PT&FD, DRCPT-SP was involved in the AIF Budget as late as February 1981. All AIF commands prepare AIF budgets for AIF installations.

Civilian Personnel Management

(U) Much of the DARCOM Civilian Personnel Management emphasis during FY 1980 was directed toward implementation of the Civil Service Reform Act of 1978 (CSRA). Two major areas of this Act have not been fully implemented, so the full impact of the CSRA cannot yet be assessed. When the first payout under the Merit Pay System is made next October and the first ratings are given under the new General Army Performance System, the Act will be fully implemented and evaluation can be made.

Program Objectives and Goals

(U) Civilian Personnel Management Program Objectives and Goals for FY 1980 were publisied 28 December 1979. Performance against the goals was published in Civilian Personnel Management Program Report.

(U) Strength. DARCOM's worldwide appropriated fund end-of-year on board strength continued the slow decline of the past several years. At year end it was 104,027 compared with 105,880 at the end of FY 1979. The government-wide freeze had not caused the actual fill to go below the authorized strength although at year end the excess was only one half of a percentage point.

(U) Because of the hiring freeze and the abnormal retirement rate there was much more use made of reemployed annuitants on the DARCOM rolls in FY 1980.

(U) SES Fill Rate. The fill rate for the Senior Executive Service positions in DARCOM declined almost 10 percent during FY 1980 due to several factors such as a high retirement rate and delay in establishing the centralized recruiting methods.

(U) Merit Pay Training. Training for merit pay supervisors and employees fell short of the goal of 100 percent completed by 1 October 1980. Since the remaining training was ongoing it was expected that the goal was reached during the thirty days following October 1.

REFLECTS THE ADJUSTMENTS IN DARCOM MILITARY AUTHORIZATION AND CIVILIAN EMPLOYMENT PROJECTIONS

FY 80 DA PROGRAM TO DARCOM (OCT 80 PBG)

	MILITARY				CIVILIAN EMPLOYMENT PROJECTION		
	TOTAL	OFF	WO	EM	TOTAL	FTP	TPT
END FY 79	10509	3188	249	7072	102585 1/	100784	1801
END FY 80	10777	3177	260	7340	103605 2/	102017	1588
FY 80 (+/-)	+268	-11	+11	+268	+1020	+1233	-213

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

2/ Excludes 1870 overhires authorized by DARCOM and includes +31 HQDA overhire authority

FY 80 DARCOM PROGRAM (OCT 80 PBG)

	MILITARY				CIVILIAN EMPLOYMENT PROJECTION		
	TOTAL	OFF	WO	EM	TOTAL	FTP	TPT
END FY 79	10476	3179	249	7048	102598 1/	100862	1736
END FY 80	10760	3174	259	7327	103495 2/	101759	1736
FY 80 (+/-)	+284	-5	+10	+279	+897	+897	N/C

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

For explanation of increases to DARCOM's end FY 80 military and increase in civilian authorizations refer to narrative Chapter I "Personnel Space Authorization and Strength".

MAJOR DARCOM ACTIVITIES
ACTUAL CIVILIAN STRENGTHS

	FY 79 30 Sep 79 TOTAL	FY 80 30 Sep 80 TOTAL	DIFFERENCE AS OF 30 SEP 80
TOTAL	103,794	104,027	+233
(FTP)	(100,660)	(100,416)	(-244)
(TPT)	(3,134)	(3,611)	(+477)
HQ DARCOM	1,276	1,875	+599
SUB-MACOMS	60,554	61,791	+1,237
DEPOTS (DESCOM)	35,897	34,947	-950
PROJECT MANAGERS	1,143	1,045	-98
RESEARCH LABS	765	757	-8
ALL OTHER	4,159	3,612	-547

MANPOWER SURVEYS CONDUCTED BY MAJOR SUBORDINATE COMMANDS FY 1980

	AUTH STRENGTH	RECM BY CDR	DIFF FROM AUTH	APPV'D RECOG RQMT	DIFF FROM AUTH
ARRCOM					
Pine Bluff Ars	934	1108	+174	936	+2
Watervliet Ars	2056	2375	+319	2226	+170
Def Ammo Center	130	228	+ 98	145	+15
CERCOM					
TV Audio Spt Act	98	152	+ 54	101	+3
CORADCOM					
FM-TACFIRE/FATDS	65	81	+ 16	72	+7
FM-PLRS/TIDS	21	23	+ 2	21	0
TECOM					
Elec Proving Grnd	650	738	+ 88	719	+69
TOTAL	3954	4705	+751	4220	+266

Diff between total CDR recm and appvd rqmt +485

(U) Surveys. DCSPER conducted surveys at four DARCOM activities and found an overall regulatory violation rate of 1.4 percent, the best experienced by DARCOM in the past ten years. In addition, an Office of Personnel Management (OPM) survey team reviewed one DARCOM installation. Interpolating the OPM results in the DCSPER format would result in an overall violation rate of 4.7 percent--still well within the DA/DARCOM goal.

(U) Career Intern Recruiting. Difficulty was experienced in recruiting for Career Program Interns because of a CIVPERCEN cut in manpower spaces for centralized interns from 1,543 to 1,454 and the absorption of 27 SAMODS. This cut of 116 spaces, which occurred in March, curtailed all 4th Quarter recruiting except for staffing the formal schools.

(U) EEO Affirmative Action. In EEO, DARCOM met or exceeded seven of its eight goals for women and four of seven goals for minorities. There was a favorable trend in women holding positions at the GS-15 and above level and some improvement at the GS-11/12 level for minorities. The number of formal EEO complaints filed was sharply up from 180 in FY 1979 to 245 in FY 1980. In turn, the percentage of complaints resolved informally dropped from 85.3 percent to 64.9 percent. It is reasonable to believe that the increased number of formal complaints was adversely affected by the low rate of informal complaint resolutions.

(U) Sick Leave. There was increased emphasis focused on DARCOM sick leave use including a DARCOM-wide study made during FY 1980. The DARCOM FY 1980 sick leave use of 68.3 hours per employee compares favorably with the FY 1978 rate of 75.9 and the FY 1979 rate of 72.7 but was still 4.3 hours per employee over the DA goal. DARCOM FY 1981 goal would seek a 20 percent reduction of the FY 1979 use rate.

Career Management

(U) Effective March 1980, the Engineer and Scientist Career Program (Non-Construction) was further decentralized to include GS-15 supervisory positions to DARCOM civilian personnel offices (CPO). From GS-13 through GS-15, designated CPOs could locally constitute a referral using the DARCOM Career Inventory. Competition remained DA-wide.

(U) Processing of career referrals at the DARCOM Command level (GS-12) in the Comptroller Career Program were delegated to DARCOM CPOs for referral purposes effective 6 February 1980. Referral lists contained those categories that were rated as highly qualified (HQ), possessed the necessary (SKAP) elements matching the duties of the position under fill, and indicated required geographic availability.

(U) The Screening Panel rating results for the following career program were automated: Comptroller, Supply, Materiel Maintenance Management, Automated Data Processing.

(U) Automation permitted a roster of highly qualified careerists to be issued from the DARCOM Career Inventory by inputing the desired SKAP elements and geographic availability. Plans to automate SKAP panel rating results in the Civilian Personnel Administration and Information and Editorial Career Programs were underway for FY 1981.

(U) Quarterly Newsletter. "RECAP" (Recent Events-Career Administration and Planning) was issued on a quarterly basis in FY 1980. Its purpose was to inform careerists and career program managers concerning items of current interests, in the area of career management and development.

(U) Career Management Counseling Handbook. DARCOM Handbook 690-1.1-79, published 1 December 1979, provided insight into the operation of screening panels, and contained a section pertaining to geographic availability. It also gave career program managers and supervisors a source of up-to-date information on career management.

Union Representation in DARCOM

(U) In FY 1980 there were no significant changes in union representation within DARCOM. Command-wide, employees continued to be represented by 14 labor unions, with concentration in four unions, which include AFGE, NFFE,NAGE, and IAM. The AFGE continued to dominate with eligibility more than twice the number of units and employees represented than the NFFE, the second place representative. The four dominant unions account for nearly all the employees represented within DARCOM. Among non-appropriated fund employees only AFGE, NFFE, and NAGE have recognition. The AFGE maintained its lead in terms of number of units recognized but the NFFE was a close second in the number of NAF employees represented.

Post-Audit Review of Negotiated Agreements

(U) In FY 1980 all labor-management agreements negotiated by DARCOM commands and activities continued to be reviewed in Headquarters DARCOM to insure compliance with applicable laws, regulations, and rules. Violations. in the agreements had to be modified to conform with the finding. During the fiscal year, 31 agreements were reviewed and 21 required modification.

NAGE Petition for Unit Consolidation

(U) By letter dated 27 February 1980, from the Federal Labor Relations Authority (FLRA) DARCOM was notified that the NAGE had filed a petition for consolidation of all units nationwide into one bargaining unit. DARCOM opposed the consolidation because it did not meet criteria set forth in Title VII, Civil Service Reform Act, which stated that the proposed unit did not constitute a community of interest, would not promote effective dealings, and would not contribute to efficient operations. At a hearing on 18 November, which was held at the Washington Regional Office of the FLRA,

DARCOM introduced into the record a number of exhibits supporting its position. None of the exhibits were challenged by the union, the union did not introduce any exhibits in support of their positions, and both DARCOM and the union submitted post hearing briefs to the FLRA in support of their respective positions. No decision had been received from the Federal Labor Relations Authority as to whether the units should be consolidated.

Clarification of Unit Petitions (Merit Pay)

(U) As a part of the implementation of merit pay, several subordinate commands and activities submitted Clarification of Unit (CU) petitions to the Federal Labor Relations Authority in fiscal year 1980, with the purpose of excluding from bargaining units GS-13 through 15 positions which meet the definition of "supervisor" and "management official" contained in Title VII of the Civil Service Reform Act. At the end of 1980 the Federal Labor Relations Authority had completed hearings on the CU petitions at Lexington-Blue Grass Depot Activity, Natick Laboratories, the Armament Materiel Readiness Headquarters (non-professional unit), the Materiel and Mechanics Research Center, and Dugway Proving Ground. Petitions had been submitted but hearings had not been completed for Armament Materiel Readiness Command Headquarters (professional unit), Communication and Electronics Materiel Readiness Command, Communications Research and Development Command, Missile Command, Armaments Research and Development Command, Logistics Management Systems Agency, and DARCOM Headquarters. By the end of 1980, the Federal Labor Relations Authority had not issued any decisions concerning DARCOM bargainings.

Special Recruitment Programs

(U) In FY 1980, the severely handicapped recruitment program and the DARCOM Equal Opportunity Recruitment Program plans were formulated and submitted to Department of the Army, and both were approved. VRA employment continued to surpass Army goals.

Control of Continuation of Pay (COP)

(U) Passage of the amendment to the FECA in 1974 provided for 45 days COP following an on-the-job injury. This time was not chargeable to leave, was paid by the activity, and allowed the employee to elect a physician of his or her choice. Because spiraling costs and loss of productivity in the workforce, as well as abuses of the COP provision have since been experienced, a DARCOM regulation encompassing policy and procedures for injury compensation control under the FECA was published 26 November 1979. (Change 40 to AMCR 690-2) This regulation, effective in the first quarter of FY 1980, established quarterly reporting requirements, which evince that the regulation has been implemented. It resulted in reduction in COP cost for FY 1980 of $272,600.00 plus 14,600 non-production man-hours saved.

Incentive Awards

(U) In FY 1980, DARCOM goals for cash and honorary awards were, for the most part, met or exceeded; however, the command fell short of its goal for tangible benefits from civilian suggestions. At $30.2 million, it was $2.1 million below the set goal. Two DARCOM individuals were recognized at the highest level during 1980. Mr. Kenneth Moser, a Staffing Specialist from CERCOM, was picked as HQDA's Outstanding Handicapped Employee of the Year and then was selected as one of the ten Outstanding Handicapped Federal Employees for 1980. Mr. Gayton Silvestro, a Quality Assurance Engineer from ARRADCOM, was awarded the Presidential Management Improvement Award for his suggestion which saved the Army $2.4 million.

Materiel Acquisition and Readiness Executive Development (MARED)

(U) In FY 1980 there were over 350 applicants for MARED participation. Of these, 135 were nominated and 70 were selected by the MARED Board. Included among these selectees were six women and eight minority candidates. Data on minority selectees reflected continued and active participation by local commanders to insure affirmative action in support of the MARED program.

(U) At the end of FY 1980, there were 329 active MARED participants. Program elements achieved by participants since inception of the MARED program included 91 promotions, 88 developmental assignments, and 773 formal training courses completed. Included among the formal training courses were the Logistics Executive Development Course (19 weeks), Program Management Course (20 weeks), ICAF, AWC, Princeton University Educational Program for Federal Officials at Mid-Career, Sloan Fellows Program, and Fellowship in Congressional Operations for Executives.

(U) During FY 1980, six developmental assignments were begun or completed at DA or DOD departmental levels. Four developmental assignments were also completed in the Office of the Deputy Commander for Readiness in HQ DARCOM.

(U) The DARCOM regulation for MARED was revised and published in 1980. Procedures for announcing the program annually, and recertification and evaluation of developmental assignments were refined and implemented in this regulation.

Civilian High Grade Reduction

(U) DARCOM continued under a civilian high grade (GS-13 and above) ceiling during FY 1980, which was the result of the 1978 DOD Appropriation Authorization Act, requiring that DOD reduce civilian high grade positions by 6 percent. This reduction, originally required by 30 September 1980, was then extended to 30 September 1981. Under DARCOM leadership,

the Joint Logistics Commands conducted a high grade analysis to serve as the basis for justifying elemination of the high grade reduction. Because of this action the date for completion of the reduction was extended to 30 September 1982. As of 30 September 1980, the DA assigned ceiling for DARCOM was 10,591 and the number of filled positions was 10,540 or 141 below the ceiling.

Civilian Grade Management - General Schedule Positions

(U) In April 1980 the DARCOM Civilian Grade Management Plan was forwarded to subordinate commands and activities for implementation. This plan supplemented the DA policy to stop average grade escalation in FY 1980 and 1981, and its significant features of the DARCOM plan were: (1) Consideration of both filled and vacant positions in managing grades; (2) use of grade structure salary cost as a basis for monitoring trends instead of average grade; and (3) provision for quarterly reporting through command channels by summarizing grade structure trends, costs, and reasons for changes.

Senior Executive Service (SES)

(U) The DARCOM Performance Review Board (PRB), which met in March-April 1980, reviewed the critical and major elements and performance standards for each SES member and provided additional guidance to commanders, supervisors and SES members, thus completing the implementation of the SES during FY 1980. The PRB met again in August 1980 to review the performance appraisal of each SES member and to recommend to the DARCOM Commander a rating for each SES member, appropriate performance awards (bonuses) and pay level increases. Twenty-one DARCOM SES members received performance awards ranging from 5 percent to 20 percent. Two DARCOM SES members received the Presidential Rank of Distinguished Executive and three received the Meritorious Executive rank.

Military Personnel Management

Introduction

(U) FY 1980 was characterized by continued unrelenting efforts to alleviate shortages as the pendulum of manpower resources reached its furthermost point in its movement toward extreme austerity and slowly began a reverse swing toward more adequate military and civilian staffing within DARCOM. Extreme shortages in some skills resulted in command-wide assessment and some restructuring to provide better utilization of available resources to enhance mission accomplishment. Professional development was also stressed as a means of achieving maximum utilization of assigned personnel.

Army Continuing Education System

(U) FY 1980 was marked by increased participation in selected Army Continuing Education System (ACES) programs. Substantial progress was made in the continued development of Basic Skills Education Program I (BSEP I) at DARCOM installations, Aberdeen Proving Ground, and Redstone Arsenal. Participation was increased 300 percent in this program which provided basic literacy instruction in reading, writing, arithmetic, and English language skills in support of MOS training.

(U) The Off-Duty High School Program which offered opportunity for achievement of a high school diploma or an equivalency certificate was also expanded by 300 percent during FY 1980. Sixty-four service members were enrolled in the fourth quarter compared with 22 enrollments for the fourth quarter of FY 1979 and the number of personnel who received high school diplomas or equivalency certificates also increased from 74 to 174, up 238 percent.

(U) The range and scope of individualized study programs were further expanded at all DARCOM Learning Resource Centers, thus enhancing support for ACES sponsored basic skill development, high school, college, language, and other education programs. Additionally, these were used to a greater extent to support civilian training and Quality of Life programs through self development of employees, dependents, and other members of the military community.

(U) DARCOM hosted the 1980 DA Education Services Conference which was held in St. Louis, Missouri, 28 April - 1 May and focused on ACES and in particular the Servicemen's Opportunity Colleges Associate Degree Program.[12] Some 225 Army and civilian educators were in attendance. The Headquarters DARCOM Education Services Specialist and the Education Services Officer at the St. Louis Support Area arranged logistical support for this most successful conference.

Enlisted Personnel Management System

(U) During FY 1980, the DARCOM operating strength averaged above 95 percent of authorized level, a substantial increase of 5 percent over FY 1979. Average overall assigned strength for FY 1980 was 6039. In FY 1980, the percentage forecast for FY 1981 operating strength was expected to increase from 95 percent to 99 percent. Due to the increased awareness placed on physical security, the operating level for the 259th, 295th, 980th, and the 523rd Military Police Companies was above 100 percent at the end of FY 1980. The percentage forecast for FY 1981 was anticipated to be maintained at 100 percent.

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[12] Letter, DAAG-ED, subj: Army Education Conference, 1980, 9 May 1979.

(U) The operating level for NCOLP at the close of FY 1980 was 54 percent, a 4 percent increase over FY 1979. The percentage forecast for FY 1981 was expected to increase from 54 to 75 percent. This significant increase in the manning level would be as of the results of active involvement by DARCOM Command Sergeants Major (CSM) and Sergeants Major (SGM) in screening, briefing, recruiting, and nominating highly qualified individuals for NCOLP.

Reenlistment Program

(U) During FY 1980 (October 1979 - September 1980) DARCOM attained a 93 percent first term reenlistment objective and 83 percent for career reenlistment objective. The first term accomplishment of 93 percent for FY 1980 was a significant increase over the 68 percent attained during FY 1979. The career accomplishment for FY 1980 was 83 percent which was 1 percent lower than the accomplishment for FY 1979. Attrition of careerists for FY 1980 was narrowed to the 6 to 10 year frame. Increased selective Reenlistment Bonus to the midterm for FY 1981 helped and would continue to help retain more soldiers in the 6 to 10 year group.

DARCOM REENLISTMENT ACCOMPLISHMENTS - FY 1980

	FIRST TERM			CAREERISTS	
OBJECTIVE	REENLISTMENT	PERCENT	OBJECTIVE	REENLISTMENT	PERCENT
380	354	93	1092	908	83

(U) Recruiting Command requested DARCOM's support at the start of fiscal year 1980 for the Hometown Recruiter Assistance Program. DARCOM solicited the active support of subordinate commands/activities in assisting Recruiting Command by sending outstanding enlisted soldiers to their hometown to recruit people for the Army. During FY 1980 there were 31 enlisted volunteers and 25 participated with successful results.

Officer Personnel Management System

(U) Following consultation with US Army Major Commands, US Army Military Personnel Center (MILPERCEN) went to an annual Officer Distribution Plan (ODP) which is run on a calendar year versus a fiscal year basis. The first run of the annual ODP was scheduled for January 1980 and the interim period, October through December 1979, was covered by extending the FY 1979 4th quarter fiscal year ODP.

(U) DARCOM was given an excepted status in two of its most critical specialties, Procurement (97) and Research and Development (51). A supplemental ODP allocation was granted as the first increment of this excepted status. A net gain of 60 ODP spaces and redistribution of the

entire ODP resulted from this supplemental allocation coupled with numerous internal and DA directed changes. The percent of ODP to authorization supported was 85. Additional ODP in critical specialties 97 and 51 was allocated and distributed during the first spread of the annual ODP.

(U) The new 126 Basic Report instituted in late 1980, would ultimately produce a valid Alpha roster--a most useful personnel document. Because the 126 Basic Report is now tied in with MILPERCEN's Officer Master File, specific information could be extracted that was unavailable before. As a result, major subordinate commands could request specific reports based on their information needs. By the end of CY 1981, the 126 Basic Report would be used to validate the requisitions submitted by major subordinate commands before they would be forwarded to MILPERCEN.

Officer Evaluation Reports

(U) The new Officer Evaluation Reporting System (OERS) commenced on 1 November 1979. Prior to this, the HQ, Military Personnel Office which was designated as the proponent for OERS throughout DARCOM, provided guidance and instructions to the command to insure all OERS were prepared accurately and in a timely manner. On 1 July 1980, an Officer Evaluation Report Summary was initiated to monitor the quantifiable data on OERS to establish command-wide statistics for trend development and analysis. Reports were prepared for 4th Quarter, FY 1980, 1st Quarter, FY 1981, and would continue to be prepared on a quarterly basis. In FY 1980, it was too early to comment on the trends as only two reports were completed.

Review of Officer Specialty Codes 51 (Research and Development) and 97 Procurement

(U) The command-wide review of authorized positions in Specialty Codes 51 and 97, which began in August 1979, was completed in April 1980. In view of severe personnel shortages, commanders were asked to determine if positions were mandatory for mission accomplishment or could be restructured into another Specialty Code. As of 31 July 1979, the Army Authorization Documents System (TAADS) data base reflected 536 positions in Specialty Code 51 and 218 positions in Specialty Code 97. At the end of the review, the Army Authorization Documents System data base for end FY 1980 reflected 469 positions in Specialty Code 51 and 200 positions in Specialty Code 97.[13]

Mobilization Designation Program

(U) The number of assignments of Mobilization Designees (MOBDES) in comparison to authorized spaces increased by four percent from FY 1979 to FY 1980 The average quarterly fills equaled 944 while the number of

[13] Memorandum for Commander, DARCOM DRXMM-U, 1 May 1980.

positions averaged 1140 per quarter during FY 1980. These figures reflect a slight increase in assignments and also a marginal reduction in the number of authorized spaces from FY 1979.

DARCOM MOBILIZATION DESIGNATION PROGRAM
FY 1980

QUARTER	AUTHORIZED SPACES	FILLED	PERCENT OF FILL
1	1174	953	81%
2	1128	931	84%
3	1129	945	84%
4	1127	946	84%
Quarterly Average	1140	944	83%
Quarterly Average FY 1979	1176	931	79%
Difference FY 1979-1980	(36)	13	+4%

Mobilization Designee Play in Exercise Proud Spirit

(U) During FY 1980, when HQ DARCOM and subordinate commands were included in simulated play during Exercise Proud Spirit, one of the major items put to test was the evaluation of reporting response of MOBDES personnel. Although good response was given by most of the subordinate activities, simulated play did not give a realistic review and as a result, it was expected that more effective notification and reporting procedures would be implemented by HQDA.

Reserve Components Unit Training

(U) During FY 1980 DARCOM installations provided training support and evaluation for approximately 213 units totaling about 13,000 individual soldiers; primarily two-week annual training and where possible Inactive Duty Training (IDT). IDT accounted for approximately 50,000 mandays of support.

Retirement Awards

(U) During FY 1980 the Deputy Chief of Staff determined that recommendations for retirement awards would no longer be boarded because they were automatic and administrative processing could be reduced by forwarding certificates directly for approval and signature. Under this new procedure those recommended awards that the Deputy Chief of Staff determined to be inappropriate would be returned for corrective action.

PCS Awards Versus Achievement Awards

(U) Progress was made toward the goal of reducing the number of permanent change of station (PCS) awards in relation to achievement awards issued within DARCOM. During FY 1980 a command-wide total of 283 PCS awards for 2540 PCSs and 452 achievement awards (a 1 to 1.6 ratio) revealed a reduction from the 269 PCS awards for 2159 PCSs (1 to 8 ratio) and 360 achievement awards (1 to 1.3 ratio) issued during FY 1979.

Certificate of Achievement of Local Design

(U) Previously, Department of the Army had prohibited the use of local design Certificate of Achievements; however, a change in policy was issued in February 1980 to reinstate the use of these awards.[14] This policy change was implemented within DARCOM where the commander or his designated representative signed all DARCOM locally designed Certificates of Achievements.

Reemphasized Military Personnel Awards Policy

(U) In FY 1980 a special effort was made to reemphasize the military personnel awards policy and to assure proper completion and execution of recommendation for awards.[15] A total of 1230 military awards were processed in the headquarters during FY 1980. This total included 369 retirement awards and 861 nonretirement awards,(137 Legion of Merit, 209 Meritorious Service Medal, 23 Army Commendation Medal; for retirement 7 Legion of Merit, 355 Meritorious Service Medal, and 499 Army Commendation Medal.)

Morale Support Activities

(U) The Board of Advisors for the Army Club System was established on 5 June 1978 with representation from the major commands having clubs.[16] The purpose of the Board was to advise the Adjutant General on Army club matters subsequent to annual and/or special Board meetings. On 5 June 1980 the Army Morale, Welfare and Recreation (MWR) Review Committee was established by the Office of the Adjutant General.[17] The MWR Committee

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14 DA Interim Change to Ar 672-5-1, 18 February 1980.

15 Ltr, DRCPT-MT, Military Personnel Awards Policy, 25 November 1980.

16 Ltr, Adjutant General, Army, to major Army commanders, subj: Board of Advisors for the Army Club System, undated.

17 Ltr, Adjutant General, Army, to major Army commanders, subj: Establishment of the Army Morale, Welfare and Recreation (MWR) Review Committee 5 June 1980.

was chaired by the Adjutant General with membership consisting of the DCSPERs of USAREUR, FORSCOM, TRADOC and DARCOM Chief of Staff Eighth Army, Deputy the Adjutant General and the Sergeant Major of the Army.

(U) In FY 1980, this committee met semi-annually to function as the corporate arm of the Army's field commands to deal with the dynamics of the total Army MWR program management in the current and future environment. The Army Club System Board functions were merged with those of the Army MWR Review Committee.[18]

Schools Management

(U) The Schools Division exercised staff supervision over the US Army Logistics Management Center (ALMC) and the US Army Management Engineering Training Activity (AMETA), the Joint Military Packaging Training Center. The US Army Defense Ammunition Center School, an integral part of the Ammunition Center was under the operational control of the Commander, US Army Armament Materiel Readiness Command. Schools Division manages the funding program of these schools. The combined training capability of these schools resulted in the training of 15,236 students in resident, 14,337 on-site and 6,333 in the correspondence mode for a total of 35,906 students trained in FY 1980. This figure represented a decrease of 1,552 students trained in FY 1980, which was primarily attributable to the lack of resources (Program 7S funds) utilized to pay travel and per diem of DARCOM students who attended ALMC and AMETA resident courses.

DARCOM SCHOOLS
ATTENDANCE BY TYPE COURSE
FY 1980

SCHOOL	RESIDENT	ON-SITE	CORRESPONDENCE	TOTAL
ALMC	7,397	7,152	4,481	19,030
AMETA	4,826	4,861	44	9,731
AMMO	1,844	623	0	2,467
JMPTC	1,169	1,701	1,808	4,678
TOTAL	15,236	14,337	6,333	35,906

Alcohol and Drug Abuse Program
and Counseling Service

(U) In FY 1980, the DARCOM Alcohol and Drug Abuse Prevention Program for the civilian workforce set the pace for the rest of the Army. The DARCOM rate of admission to the Program was 4.8 per 1000 while the rest of Department of Army was 1.8, with alcohol abuse accounting for 89 percent of the admissions. Among several factors attributed to this

18 Ltr. Adjutant General, Army, to major Army commanders, "Merger of Army Club System Board and the Army Morale Welfare and Recreation Review Committee Functions", 7 Nov.1980.

highly successful trend were: The effective policy statement affirmed by the Commanding General; the positive action shown in support of the Alcohol and Drug Abuse Prevention and Control Program by the Commanding General; the team effort of program staff in supporting commanders-supervisors in performing the mission; the extensive training and educational program for supervisors and nonsupervisors; and the establishment of a broad Employee Counseling Services Program, which encompassed problems affecting employee performance.

(U) The military admission projection for FY 1980 was met and surpassed, with alcohol abuse accounting for 66 percent of the admissions. The ranks of E1 through E5 constituted the majority of soldiers referred to the Program.

Prevention and Education

(U) During FY 1980, prevention and education continue to be strongly emphasized among supervisory personnel. However, the DARCOM goal of 80 percent was not met during this period. Several installations experienced staffing turnover, which prevented the training of personnel. Nevertheless, that training conducted appeared to have increased the supervisors' awareness of the Program and made them amenable to referring employees to the Alcohol and Drug Abuse Program.

Organization, Functions and Staffing of the Directorate for Personnel, Training and Force Development

The Staff

(U) Brigadier General Henry Doctor, Jr., became Director of Personnel, Training and Force Development on 15 July 1980. He succeeded Brigadier General William H. Schneider, who assumed duties as Chief of Staff, DARCOM.

Organizational Changes

(U) In October 1979, the Equal Opportunity Office (military), formerly an element of PT&FD, merged with the Equal Employment Opportunity Office, which reports to the Chief of Staff.

Personnel Strength

(U) With the loss of the five spaces of the Equal Opportunity Office, the authorized strength/overhire breakout at the end of FY 1980 was as follows:

Element	Officer	Enlisted	Civilian	Total TDA	Overhire
Office of Director	2		3	5	1
Plans & Administrative Office			4	4	1
Alcohol & Drug Abuse Office			5	5	
Civilian Personnel Division			37	37	4
Force Development Division	2		41	43	4
Military Personnel Division	7	3	23	33	1
	11	3	113	127	10

The DARCOM Personnel Support Activity

(U) Organization, Functions, and Staffing. During FY 1980, HQ Equal Employment Office; Equal Opportunity Office and Organizational Effectiveness Office, formerly under the Personnel Support Activity, were placed under the Chief of Staff.

(U) The personnel authorization of the Personnel Support Activity was increased as reflected in the following table:

	Officer	Enlisted	Civilian	Total
1 October 1979	7	4	211	222
30 September 1980	8	4	212	224

DARCOM Program Plan

(U) The FY 1980 DARCOM Program Plan, containing the command goals, objectives and DARCOM-wide tasks, was published in February 1980. In the development of the Program Plan, the DARCOM Goals and Objectives were reviewed during and after the DARCOM Commanders' Conference, held 15-16 November 1979, and an approved list of seven goals and 48 objectives was announced by the Chief of Staff message on 3 December 1979. The announcement included one additional goal, the Security Assistance Goal, to the established six DARCOM goals, and the conference developed 48 objectives to implement the DARCOM goals.

(U) Following the milestones established in the regulation for the DARCOM System of Management of Goals and Objectives (MGO) (DARCOM-R 11-4, Volume 2) for the annual development and publication of the DARCOM Program Plan prior to the start of the fiscal year, a request was made in May to the major subordinate commands and to the Headquarters staff for the submission of proposed objectives for the FY 1981 DARCOM Program Plan. Using the 48 FY 1980 DARCOM objectives as the base, the major subordinate commands and Headquarters staff members proposed 163 changes. These proposals were reviewed against the criteria for objectives, and based on this review 55 objectives were approved by the Chief of Staff for the FY 1981 Plan. Narrative guidance was added as a supplement to

the goals, implementing objectives and programmed tasks. Headquarters staff investigation of more "results oriented" tasks delayed request for task submission. Plans were made to obtain implementing tasks and narrative guidance from the Headquarters staff and to publish the FY 1981 DARCOM Program Plan in November 1980.

Lexington-Blue Grass Depot Activity

(U) On 16-17 August 1979, a serious incident resulted from demilitarization operations of M5 Smoke Pots at Lexington-Blue Grass Depot Activity (LBDA). This incident was the subject of a General Officer AR 15-6 Investigation which was approved with modifications by the Commanding General, DARCOM, 21 May 1980.

Test Measurement and Diagnostic Equipment (TMDE)

(U) The reorganization plans for the Pacific Commands were approved in FY 1980. HQ DARCOM Permanent Order 64-2, 20 August 1980, established the US Army Metrology and Calibration Center under the command of MICOM, effective 1 October 1980. HQ DARCOM Permanent Order 97-1 established the US Army Area TMDE Support Operation, Hawaii reporting directly to the US Army Metrology and Calibration Center (USAMCC), effective 1 October 1980.

MIRCOM/MIRADCOM Merger

(U) Effective 1 July 1979, the US Army Missile Command (MICOM) was established at Redstone Arsenal, Alabama. MICOM was formed from the merger of the people, mission, and functions of the US Army Missile Research and Development Command (MIRADCOM) and the US Army Missile Materiel Readiness Command (MIRCOM). MIRCOM and MIRADCOM, which were simultaneously disestablished, were formed in January 1977, based on recommendations from the Army Materiel Acquisition Review Committee (AMARC). After a detailed review, evaluation and analysis of MIRADCOM and MIRCOM workload, resources, and operational effectiveness during March and April 1979, the DARCOM Commander decided to establish a single missile command. The concept of the merger was approved by the Vice Chief of Staff, Army on 5 April 1979.

(U) MICOM command structure would include a commander and two deputy commanders. One deputy commander would be responsible for functions related to readiness and procurement and the other deputy commander would be responsible for functions related to research and development. The new command was realigned in accordance with DARCOM approved organizational concept for streamlining and optimizing stringent resources. In order to effect a smooth transition into the new organization and to keep personnel turbulence to a minimum, MICOM was given a timeframe of 1 July 1979 through 30 September 1980 to complete the merger. All MIRCOM and MIRADCOM assigned organizational elements were reassigned to MICOM by Permanent Order #59-4, 30 July 1979.

TARCOM/TARADCOM Merger

(U) Based on an organizational assessment of the people, mission and functions of the US Army Tank-Automotive Materiel Readiness Command (TARCOM) and the US Army Tank-Automotive Research and Development Command (TARADCOM), the DARCOM Commander announced the establishment of a single US Army Tank-Automotive Command (TACOM). This change became effective on 1 October 1980 but complete implementation, to include organizational alignments and personnel staffing would be phased over a 12-month period to keep personnel turbulence to a minimum. Total personnel strengths would remain as currently authorized. The TACOM command structure included a commander and two deputy commanders. One deputy commander would be responsible to the commander for functions related to readiness. The other deputy would be responsible to the TACOM Commander for research and development and would also command the newly formed R&D center.

(U) In undertaking this initiative, DARCOM revisited the findings and recommendations of the Army Materiel Acquisition Review Committee (AMARC) (December 1973-April 1974) which resulted in the commodity commands being split into development commands. This reassessment was consistent with the AMARC finding that the Army periodically review, update and revitalize its improvement program, and was particularly significant in consideration of steady decreases in civilian manning. DARCOM examined the AMARC findings and recommendations in relation to how the recommendations were implemented at the Missile Commands located at Redstone Arsenal, then analyzed their organization, resources, workload and performance. The results of the analysis led to a recommendation to merge the two commands.

(U) The new command, which would include a mission oriented development center under the command of a brigadier general, would protect gains made by retaining an integrated R&D team and a separate identity for the R&D community. It would maximize use of available resources by providing additional resources for direct mission requirements. The new command would also provide the inherent flexibility of a larger pool of manpower resources, so they could be applied or shifted where most needed, and it would provide unity of command. Permanent Order #73-1, 29 September 1980, organized TACOM and reassigned all TARCOM and TARADCOM assigned elements to TACOM.

Black History Observance

(U) The Chief of Staff assigned the responsibility for planning and executing the HQ DARCOM Black History Month Activity for 1980 to the Plans and Analysis Directorate. Personnel from the P&A Directorate formed a Black History Observance Committee, which proposed that 25-29 February be designated DARCOM Black History Week. The objective of this observance was to create an awareness of and highlight for the benefit of all DARCOM employees the contributions that Blacks have made to our country with emphasis on achievements, developments and aspirations of Black Americans in todays' environment. The 1980 theme was "Heritage for America."

Directorate for Installations and Services

Mission and Organization

(U) The mission of the Directorate for Installations and Services was to direct, staff, supervise, and develop authorization and funding programs 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 systems 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, house referral service, guest houses, barracks, and bachelor quarters, intraservice 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, theaters, post restaurants, open messes, Direct Energy Coordination Center activities and Environmental Quality Programs.

DARCOM Energy Program

(U) In FY 1980, the DARCOM supplement to AR 11-27 established three major objectives of the DARCOM Energy Program: to assure adequate energy supplies to maintain readiness, to conserve energy resources, and to foster the conservation ethic.

(U) The shortfall in oil reduction in April 1979 led to steadily escalating prices throughout FY 1980 resulting in a 50% increase during the year. The Iran/Iraq war and subsequent interruption in their respective crude oil production accentuated the instability of Middle-East petroleum supplies. These events confirmed DARCOM's goals to reduce consumption of natural petroleum fuels and to derive a greater percentage of total facility energy from coal, solar, refuse derived fuels (RDF) and Biomass fuels.

(U) Program Management. DARCOM used FY 1975 as the base year for determining FY 1985 and FY 2000 goals. Since only 5.5% of DARCOM's total energy consumption was mobility related, the major thrust of the Energy Office was in the management of facility energy.

(U) In FY 1980, DARCOM realized a greater energy reduction than any year since FY 1977. This was attributed partly to conservation and partly to a mild winter. Reductions in mobility and production between FY 1975 and FY 1977 resulted in significant reduction in energy consumption. The FY 1985 goal of 30% reduction of petroleum consumption was almost achieved in FY 1980. However, this success was realized at the expense of Natural Gas consumption which was steadily increasing since FY 1977. FY 1980 consumption compared with FY 1979 revealed that DARCOM consumed 5.9% less energy, exceeding the 4.25% reduction goal set for FY 1980 for total energy use.

(U) Energy Conservation Investment Program (ECIP)/Energy Conservation and Management (ECAM) and Energy Engineering Analysis Program (EEAP). As was mentioned previously, DARCOM had realized an approximate 30% energy reduction since FY 1975 predominately due to production decreases and base closures. Assuming DARCOM's production levels remain at their present rate it is expected that most of the future energy savings would be obtained from capital investment programs. The Energy Engineering Analysis Program (EEAP) enabled surveys to be performed at each installation to identify energy saving capital investment projects. During FY 1980 two of the four FY 1979 EEAP surveys were completed. A total of 26 additional surveys were initiated during FY 1980. The percent completion of these surveys ranged from 80 to 15 percent. As a result of these surveys and the efforts of DARCOM's installation engineers, a total of 24 energy saving capital investment projects were initiated into the appropriate programming cycle during FY 1980. Seven of these projects were in the Energy Conservation Investment Program (ECIP) (MCA appropriation) ten were in the Family Housing ECIP (Family Housing appropriation), and seven in the Energy Conservation and Management (ECAM) Program (Procurement appropriation). The total savings from these projects was anticipated to be greater than 500,000 MBTU per year.

(U) The Army Energy Showcase Program, a Department of Defense (DOD) Department of Energy (DOE) joint initiative, was redesignated as the Army Energy Technology Demonstration program. The program would demonstrate energy conserving technology. The projects in this program form a comprehensive display of energy technologies of interest to DOD elements and other energy consumers, especially those in the central portion of the United States. The portion of the program being conducted at the Red River Army Depot (RRAD)/ Lone Star Army Ammunition Plant (LSAAP) will be known as the Army Energy Technology Demonstration Center. $170,000 of the $500,000 concept studies funds provided by DOE in FY 1979 were expended in support of the program. During FY 1980 RRAD received $94,000 in DOE funds to support MERADCOM testing of gasohol use in Army vehicles and $60,000 in DOE funds for purchase of five electrically powered vehicles to be used at RRAD as part of TACOM testing and evaluation of these vehicles for administrative use. DOE authorized $550,000 for installation of an industrial solar hot water system to provide hot water for chemical cleaning tanks at RRAD.

(U) The Installation Energy Conservation Award program was continued in FY 1980. Awards for FY 1979 were given in FY 1980 as follows:

CATEGORY	WINNER 1ST HALF	WINNER 2D HALF
Ammunition Plants	Kansas AAP	Milan AAP
Arsenals	Stratford AEP	None
Depots	Corpus Christi AD	Corpus Christi AD
Laboratories, Proving Grounds, & Others	Jefferson PG	AMMRC
Individual (FY 80)	Mr. Francis M. Barton	

(U) The Second Annual DARCOM Energy Conference, held on 30 September and 1 October 1980, was attended by energy officers from each of the major subordinate commands. Energy awareness from a national and DOD perspective was presented on the first day while specific attention was given to the DARCOM Energy program on the second day.

Program Problems/Solutions

(U) The most obvious problem during FY 1980 was the imbalance between the mission of the Energy Office and the number of personnel available to manage the program. The greater part of this need was satisfied by the filling of vacant positions during FY 1980; two GS-14, a GS-13, a GS-12, and a GS-6 position were filled by the 4th Quarter FY 1980.

(U) The next major task was to identify and implement a successful Command Energy Program with the necessary insight and initiative to meet the energy challenge. Management of energy in the past was constrained to tracking fuel consumption with little manpower resources left for the management of energy. The DA Energy Plan did not address the industrial nature of DARCOM, therefore, the major management thrust for the Energy Office was to develop the DARCOM Industrial Energy Plan. Its implementation remained to be completed in FY 1981.

(U) In FY 1980, energy consumption data was contained in and reported through the Defense Energy Information System. Data is stored in one computer at Defense Logistics Agency (DLA) for HQDA and in another computer at Logistics Systems Support Agency (LSSA), Chambersburg, Pennsylvania for HQ, DARCOM. Errors in the submitted reports historically corrected only through the DARCOM computer resulted in a discrepancy between DA data and DARCOM data since FY 1975. In FY 1980, data for FY 1975, FY 1978, and FY 1979, validated and loaded into both computers, finally resolved the discrepancy between DA data and DARCOM data on energy consumption.

Engineer Division

DARCOM Master Planning Review Board

(U) This board was created under the provision of AMCR 11-4 to provide assigned directorate members with visual detailed reviews of future development plans, submitted annually by each Government-Owned, Government-Operated (GOGO) installation.

(U) Installation master plans were the source documents for development of an orderly growth through the Military Construction program, and provide for new and expanded facilities required for support of approved missions, workloads, and for timely replacement of temporary and deteriorated facilities.

(U) Review comments and recommendations were forwarded to HQDA for inclusion in its technical review. After approval, the master plans became guiding documents for the installation. All construction accomplished at the installation must be consonant with DA's approved master plans.

Nonreimbursable Master Planning Assistance Funds

(U) In fiscal year 1980, in order to provide up to date master planning documents, HQDA through the Corps of Engineers made some limited funds available to the District Engineers supporting the DARCOM installations with the funds usually provided for 2d, 3rd, and/or 4th phases of planning documents. For FY 1981, the following installations were the recipients of nonreimbursable master planning assistance funds through their respective districts:

INSTALLATION	DIVISION DISTRICT	DISTRIBUTION ($000) PHASE I	PHASE II	PHASE III	PHASE IV	LINE TOTAL
Watervliet Arsenal	New York			25.0		25.0
Picatinny Arsenal	New York			20.0		20.0
Fort Monmouth	New York			30.0	30.0	60.0
Seneca Army Depot	New York		30.0			30.0
Blossom Point	Baltimore		50.0			50.0
Redstone Arsenal	Mobile		30.0	8.0		38.0
Anniston Army Depot	Mobile				70.0	70.0
Detroit Arsenal	Omaha		20.0		20.0	40.0
Rock Island Arsenal	Omaha		75.0			75.0
St.Louis Area Spt Ctr	Kansas City		15.0			15.0
Pine Bluff Arsenal	Ft. Worth		150.0			150.0
Red River Army Depot	Ft. Worth		25.0			25.0
Dugway Proving Ground	Sacramento		20.0			20.0
Yuma Proving Ground	Sacramento		15.0	10.0		25.0
Tooele Army Depot	Sacramento		25.0	15.0	15.0	55.0

(U) Due to budgetary constraints during the fiscal year, the Office of the Chief of Engineers (OCE) experienced a temporary reduction in the funds and directed the field operating agencies to implement the reduction. The exact amount of reduction would depend upon the field operating agency and would depend upon their priorities. It was hoped that the reduction in temporary reinstatement of the entire program would not occur until approximately mid year.

Traffic Engineering Program

(U) Another area of interest in master planning documentation in FY 1980 was traffic engineering, which dealt with needs for development and maintenance of public highway systems. These were recommended by the Department of Defense for special consideration by the Federal Highway Administration, Department of Transportation because of the strategic nature of particular highways or their major transportation importance to the national defense. To that end the Military Traffic Management Command (MTMC) provided highway traffic engineering services to all DOD components upon request. To insure timely programing of resources, annual traffic engineering needs were submitted.

Minor Construction

(U) In FY 1980, urgent minor Military Construction, Army (MCA) projects and self-amortizing minor construction projects ($100,000-$500,000) funded for construction for DARCOM installations or activities amounted to $6.7 million. Twenty-one of these projects were funded during the fiscal year.

Military Construction

(U) Eighty seven military construction projects were authorized by the Congress in the FY 1980 budget. The MCA appropriated amount for FY 1980 was $143.7 million.

Real Estate

(U) During FY 1980 the HQ, DARCOM real estate branch was involved in events which led to transfer of ownership of MAMP to the state of Michigan in exchange for two badly needed new office buildings to be built by the state of Michigan at the Detroit Arsenal. Benefits to the government included moving 2300 TACOM employees from substandard administrative administrative space at MAMP to new, adequate space on the Detroit Arsenal, savings of over $5,000,000 per year in management and operation costs, acquisition of new office buildings valued at approximately $20,000,000 in exchange for MAMP which was fully excess to government needs, obsolete and valued at approximately $16,000,000.

(U) Frankford Arsenal. The Mitigation Report and procedures for demolition of 23 historically significant buildings as part of the decontamination procedures of Frankford Arsenal (FACA) were completed during the fiscal year. A mitigation report was prepared during FY 1980, showing that the buildings were identified as historically significant; FACA historical background, detailed data for each building, pictures of all buildings, elevation drawings of certain buildings and Historic American Engineering Record (HAER) inventory cards for each building. This report is required by section 106 of Public Law 89-665.

(U) FACA was certified to HQDA as decontaminated for unrestricted use during FY 1980.

Environmental Quality Division

(U) In fiscal year 1980, the DARCOM Environmental Program was a broad-based multi-disciplined effort encompassing environmental management, applied technology for pollution abatement and environmental enhancement, and research and development for solution of unique Army environmental problems. The Environmental Quality Division of the DARCOM Installations and Services Directorate was the focal point for the command program, working closely with the environmental representatives of the Major Subordinate Commands (MSC), installations, and the functional directorates of the headquarters. The division had a total of 13 persons authorized, but closed FY 1980 with only 11 on hand, nine full time permanent civilians and two military.

(U) During the fiscal year, a plethora of environmental regulations were promulgated as Federal and State regulators established new or more stringent standards under the Clean Air Act, Clean Water Act, Toxic Substances Control Act, and especially the Resource Conservation and Recovery Act.

(U) The Pollution Abatement Operations Center (PAOC) established in FY 1978, continued to be a focal point for information on the DARCOM environmental posture. In addition to the routine environmental status briefing for HQ DARCOM Directorate personnel, the PAOC was visited by: General John R. Guthrie, CG DARCOM; MG Robert Moore, Commander, MICOM: MG W. H. Schneider, Chief of Staff, DARCOM; Mr. Lewis D. Walker, Deputy for Environment, Safety and Occupational Health, Office of Assistant Secretary of the Army (Installations, Logistics and Financial Management); BG John F. Wall, and BG Mark Sisinyak, past and current Deputy Director for Facilities Engineering, Office of the Chief of Engineers; MG Henry Doctor, Director, Personnel, Training and Force Development; BG J. F. McCall, Comptroller; COL Charles E. Sell and COL Kenneth E. Haleran Past and current Chiefs, Army Environmental Office, Corps of Engineers; and a Special Briefing for DARCOM Workshop attendees.

(U) A significant change in DARCOM environmental organization occurred in April 1980 with the transfer of the Polution Abatement and Environmental Control Technology program from the Chemical Systems Laboratory at Edgewood Arsenal area of Aberdeen Proving Ground to the US Army Toxic and Hazardous Materials Agency (USATHAMA) at the same location. This change involved the transfer of mission and personnel (11 persons) to USATHAMA for better environmental management and effectiveness.

(U) USATHAMA is now the single DARCOM/DA point-of-contact for chemical demilitarization, installation restoration (IR), and research and development (R&D) matters for pollution abatement and environmental control technology. In FY 1980, the Environmental Quality Division, was the prime staff proponent for IR and R&D matters, but chemical demilitarization was managed by the Nuclear-Chemical Office at HQ DARCOM.

(U) During FY 1980 there were several major accomplishments in the PAOC management of environmental programs. In conjunction with the comptroller, PAOC obtained a two-year exemption to policy permitting use of Operations & Maintenance, Army (OMA)funds at AIF-funded GOCO plants and depots for FYs 1980 and 1981, allowing DARCOM to correct a number of pollution problems without charge to AIF customers, and obligated all "fenced" OMA pollution abatement funds in FY 1980. No funds returned to DA.

(U) The Enrivonmental Management-By-Objectives Report indicates that intensive management by the DARCOM Environmental Quality Division made the DARCOM submissions under the report a recognized model for the reporting and management of installations level environmental programs.

Compliance with Applicable Environmental Quality Standards

(U) The Clean Air Act and Clean Water Act were the primary environmental emphasis during the 1970s, but regulations implementing the Resource Conservation and Recovery Act (RCRA) would generate the most costly and significant requirements of the 1980s.

(U) At the onset of FY 1980 DARCOM had 26 noncomplying installations with 11 air sources and 24 water sources out of compliance. At the close of FY 1980, due to positive management emphasis by the Environmental Quality Division (EQD), the number had been reduced to 21 noncomplying installations with nine air sources, 19 water sources and one solid waste violator out of compliance. Joliet Army Ammunition Plant (AAP) was the first solid waste noncomplier under RCRA, when the State of Illinois filed a lawsuit against the installation, Army, and DOD on 17 March 1980 for alleged solid waste disposal without a permit, and for operating an open dump.

(U) Regulatory proceedings and litigation represented a measure of pending and actual legal actions against DARCOM installations. This was the only negative area in FY 1980. At the start of FY 1980, DARCOM had

eight installations with pending regulatory proceedings, consisting of eight notices of violation, two adjudicatory hearings, and one compliance order. At the close of FY 1980 the number of installations with regulatory proceedings had increased to nine involving 18 notices of violation, and one administrative order. The two adjudicatory hearings were solved by the granting of a variance by the State of Illinois to Savanna Army Depot to open burn until September 1984 and the withdrawal of the proposal to extend the critical habitat for the pygmy sculpin into Anniston Army Depot.

(U) The operating permit status (air, water, solid waste, and dredging) for DARCOM installations continued to improve during FY 1980. The permits increased from 52 percent on hand at the beginning to 71 percent on hand at the close of FY 1980. The on hand plus applied for permits increased from 91 percent to 99 percent during the same time period. Command emphasis resulted in very positive results in DARCOM's operating permit picture.

Resource Conservation and Recovery Act (RCRA)

(U) The state and Federal RCRA implementing regulations were promulgated during FY 1980. These regulations represented a radical departure from past concepts of acceptable waste disposal practices, and required stringent, costly, "cradle-to-grave" control of hazardous waste taking into account both short-term construction and operating costs and long-term closure, decontamination, and environmental monitoring costs for landfills and dumps.

(U) To ensure that new hazardous waste regulations did not compromise operational readiness, installation commanders were required to file notification of hazardous waste (HW) activities and submit preliminary permit applications for HW management facilities. During FY 1980, 60 installations notified the Environmental Protection Agency (EPA) that they generated, treated, stored, or disposed of hazardous waste (HW). Also, 55 installations filed preliminary HW facility permit applications for more than 500 HW storage, treatment, or disposal facilities. As of FY 1980, these facilities were considered federally-permitted facilities, and in those 11 states which were granted primacy, these were considered state-permitted facilities. The next deadline for RCRA compliance would be November 1981 for the installation of monitoring wells and run-on diversion/run-off collection at landfills and surface impoundments.

Water Quality

(U) The EQD (Environmental Quality Division) continued in FY 1980 to participate in public comment on EPA's proposed consolidated permit regulations and proposed effluent criteria for explosive-manufacturing wastes. In addition to managing the water noncompliers from 24 to 19 sources at the end of the fiscal year, the EQD monitored closely the unique solution

to the NPDES violations at the sewage treatment plants at Seneca Army Depot through coordination with the state and EPA Region, and innovative technology project would be evaluated to use wetland discharge in lieu of tertiary treatment at a savings of over $2 million from the original Golden Football - required project.

Air Quality

(U) During FY 1980 efforts continued toward compliance in acquiring air quality permits, inspection and maintenance plans for vehicles, and open burning and open detonation initiatives. Another major action involved the DARCOM Xonics ambient air monitoring trailer network. Previously nine DARCOM installations had been in this network, but when the US Army Environmental Hygiene Agency took over non-continuous ambient air monitoring, the monitoring network was terminated and the trailers declared excess. By letter of 17 January 1980, the EQD promulgated the termination/excess guidance with significant future year operational savings in this area.

(U) Another cost saving air venture was the Chief of Staff message in late FY 1979 which directed installations and major subordinate commands to control state or local air pollution control agencies to revalidate the regulatory need for incinerator projects. DARCOM pursued methods for disposal/demilitarization of explosives, munitions, chemical agents, and contaminated wastes acceptable to Federal, state, and local air pollution regulatory agencies. Historically these items were processed by open burning (OB). DARCOM had programmed over 50 projects such as air curtain destructors, car bottom processors, and regional demil facilities. Since these facilities were very high cost and energy intensive and certain states may allow open burning under their State Implementation Plans, the seeking of regulatory relief would be appropriate. By managing ammunition disposal options, through renegotiation with 21 states and 30 installations, a total of $115 million was saved through fiscal year 1980. This was done by canceling and deferring 28 projects for incinerators.

National Environmental Protection Agency (NEPA)

(U) During FY 1980, several major actions were undertaken regarding the implementing of NEPA for DARCOM installations and activities:

a. On 22 April 1980, the EQD issued, over General Guthrie's signature, a comprehensive directive for NEPA compliance for DARCOM materiel development and acquisition.

b. On 6 October 1980, the EQD issued, over General Guthrie's signature, a guidance letter on NEPA compliance within the Materiel Development and Acquisition Process. The directive provided guidance for both developed and non-developed life cycle acquisition systems. This policy was needed because consultations with environmental officers and other sources indicated that the environmental impact analyses, in accordance with the Council of Environmental Quality (CEQ) regulations, of all phases of development and acquisition was not being accomplished.

c. Several exchanges of letters with HQDA regarding the NEPA regulation AR 200-2 and categorical exclusion nominations. This latter area resulted from the HQDA elimination of DOD categorical exclusion number six (CX#6). The EQD argued, to no avail, that CX#6 was needed to prevent unnecessary environmental document preparation for the myriad of proposed activities which may not have been anticipated and published as Army CXs. DARCOM EQD felt that the CEQ regulations authorized agencies to publish categories of actions which would have insignificant environmental impact and therefore require neither an EA nor an EIS. Thus, DOD in publishing CX#6 clearly intended to avoid environmental documentation which would serve no useful purpose.

d. In September 1980 HQDA was completing its regulation (AR 200-2) to implement the 29 November 1978 CEQ Regulations and DODDs 6050.1 and 6050.7. Publication in the Federal Register was expected in October 1980.

Installation Restoration (IR)

(U) During FY 1980 in the DARCOM IR program, 17 record searches and five on-site installation surveys were completed; eight on-site surveys were continued from FY 1979, and seven surveys were started. The IR design/construction and operational facilities program continued at Redstone Arsenal, Rocky Mountain Arsenal, Milan AAP and Frankfort Arsenal. This last decontamination effort prior to excessing at Frankfort was running on schedule, with clearance documents being processed two months ahead of schedule. It was expected to cost approximately $8 million. Other significant FY 1980 IR activities occurred at:

a. Michigan Army Missile Plant where an accelerated decontamination study was completed and transfer of the facility to VW of America was accomplished on schedule.

b. Rocky Mountain Arsenal where DARCOM obtained HQDA exception to policy to put in off-post monitoring wells.

c. Nike sites in Rhode Island where an unsymetrical dimethyl hydrazine (UDMH) report was completed and a milestone schedule for UDMH survey was developed.

d. Redstone Arsenal where the EPA requested PCB sampling, was completed and US Corps of Engineers DDT study completed.

e. Weldon Springs Chemical plant where there were several White House, Secretary of the Army and Missouri Governor actions involving radioactive contamination.

f. Accelerated record searches where the EQD requested and obtained additional resources from HQDA to complete the records searches at all DARCOM facilities by FY 1981.

g. The EQD assured a coordinated, timely and effective DARCOM position on the State of New York allegations of Army involvement in the Love Canal area of Niagara Falls, New York.

Environmental Conference

(U) The DARCOM 2d annual environmental workshop was originally scheduled for July 1980, but was postponed until 28-30 October 1980 due to the lack of TDY funds in FY 1980.

Environmental Awards

(U) The promotion of aggressive environmental management programs at DARCOM installations resulted in recognition for several installations.

a. DARCOM Environmental Quality Award: Red River Army Depot (AD) winner; Tobyhanna AD, Iowa Army Ammunition Plant (AAP), and Watervliet Arsenal runners-up.

b. Secretary of the Army Environmental Quality Award: Red River AD winner.

c. Secretary of Defense Environmental Quality Award: Red River AD runner-up.

d. National Environmental Industry Award: Tobyhanna AD honorable mention.

Housing Management Division

Program Review

(U) Full housing management staff assistance visits were completed at 12 DARCOM installations. Seventy-five percent of the installations received a rating of satisfactory, down from 95 percent for fiscal year 1979.

New Construction Requirements

(U) The calendar year 1980 Family Housing Requirements Survey (FHRS) indicated that nine DARCOM installations have a requirement for additional family housing units. FY 1980 DA plans for new construction of family housing is as follows;

Year	Installation	No. of Units
FY 1983	Letterkenny AD	16
	Picatinny Arsenal	69
	Tobyhanna AD	46
	Seneca AD	64
	Sierra AD	9

Year	Installation	No. of Units
FY 1984	Rock Isl Arsenal	134
	New Cumberland AD	29
	St.Louis Spt Area	154
FY 1986	Redstone Ars	98

These numbers indicated above may be revised based on the CY 1981 FHRS.

Services Division

(U) DARCOM's program to improve property accountability made substantial progress during FY 1980, with 35 of the 39 (89.7 percent) installations reviewed for property accountability receiving satisfactory ratings. This could be compared to 20 of 29 (69 percent) in FY 1979 and 10 of 31 (32 percent) in FY 1978. This improvement could be attributed to continued high level command emphasis.

(U) Under Services Division guidance, 3273 line items of equipment valued at $15.6 million were declared excess by the DARCOM installations and activities. Six hundred and seventy-three line items valued at $7.5 million (including 297 Administrative Use Vehicles valued at $4 million) were redistributed within the command. The remainder were made available to other DOD/Government activities through property disposal channels.

(U) Petroleum continued to be a high-level interest area. The necessity for improved petroleum operations and management led to the development of a "hands-on" petroleum training program.

(U) Because of reduced fuel availability, constraints on operating funds, and increasing fuel costs, reductions were directed for administrative vehicles and mileage. AUV was reduced by 3 percent, mileage was reduced by 13 percent.

(U) Motion picture production declined in FY 1980 to 73 films completed for a total of 1343 screen minutes, compared with 90 films and 1483 screen minutes for FY 1979. Major reduction in Motion Picture production was attributed to the transfer of the Motion Picture Production Division, Redstone Arsenal Support Activity to the Defense Audiovisual Agency (DAVA) effective 31 March 1980. The change in DARCOM mission reduced the number of command-wide Motion Picture production capabilities from three to two. In this area, DARCOM audiovisual manning was reduced by 22 spaces and annual funds in the amount of $3.5 million due to the transfer of mission responsibilities to DAVA. Progress continued in effecting single management and consolidation of audiovisual resources within the command. Several depots and arsenals completed on-going actions that resulted in attaining centralized management goals established by management. During FY 1980, DARCOM expended approximately $40 million for audiovisual operations, employed 825 audiovisual personnel and received reportable data from 60 audiovisual facilities throughout the command.

CHAPTER III

MATERIEL DEVELOPMENT

Development and Engineering Directorate

Clothing and Equipment

(U) During FY 1980, the development effort was completed on three portions of two major uniform ensembles. The temporate portion of the Battledress Uniform Systems was type classified in November 1979, just five months after approval of the requirement document, and the desert portion was type classified in August 1980. Work was virtually completed on Phase II of the Ground Combat Vehicle Crewman's clothing system with type classification early in FY 1981.

Food and Food Service Equipment

(U) During FY 1980 a decision was made to transfer responsibility for the Radiation Preservation of Food Program from DA to the Department of Agriculture. The Army had not established a firm requirement for irradiated food; therefore, it was determined that the work was more properly attuned to the mission of Department of Agriculture. A Memorandum of Understanding (MOU) between DA and Department of Agriculture provided for the National Food Irradiation Program to be transferred from Department of the Army's Natick Laboratories to Department of Agriculture in October 1980.

(U) During this period the Marine Corps Emergency Assault Packet was successfully tested, and caloric content increase was achieved from 1200 to 1550 calories. Also protein, fat and carbohydrate levels were increased to meet levels required for a restricted diet.

Development Aircraft Airdrop Support

(U) As part of the Department of the Army's participation in the Air Force C-141B aircraft modification program, Natick Laboratories (NLAB) was assigned the Army lead agency during the developmental testing of the aircraft. NLAB participated full time at the test sites. As a result of these efforts, not only did the Air Force benefit from the Army support to the test program, but the Army attained its goals, with a considerable savings in time and money, assuring the airdrop and air transport capabilities of the C-141B aircraft were not degraded as a result of the modifications, and determining the design parameters for any new Army airdrop equipment to be required.

Training Devices

(U) During fiscal year 1980, five training devices were completed by the Development and Engineering Directorate. The Multiple Integrated

Laser Engagement System (MILES) was developed, type classified, and entered production. The Blank Firing Adapters (M2/M85) for use with MILES were completed and type classified. Contracts were entered into for engineering development of Air Ground Engagement System (AGES) and for Army Tactical Battle Simulation System (ARTBASS). The Infantry Remoted Armor System (IRETS) completed DT/OTI. Finally, two commercial Observed Fire Trainers were successfully tested and both were found to be suitable. In a special in progress review (IPR) approval was given for generic type classification and item transitioned from PM, TRADE to ARRCOM.

Aircraft/Systems

(U) During fiscal year 1980 a number of milestones were reached. On 9 April 1980, the Army announced the selection of Martin Marietta as the winner of the TADS/PNVS competition. All systems test aircraft were configured with the winning TADS/PNVS design. Successful firing of all weapons was accomplished on a YAH-64 equipped with an automatic stabilator.

(U) Full scale engineering development contract for the Remotely Piloted Vehicle (RPV) program was awarded in August 1979, and the program continued through FY 1980 on schedule.

(U) On 15 October 1979, Force Development Test and Experimentation (FDTE) on the UH-60 BLACKHAWK was successfully completed at Ft. Campbell, Kentucky, and ASARC IIIA was held on 22 October 1979, which provided approval for follow-on production.

(U) Prototype System Qualification Test for the HELLFIRE missile system was started in March of 1980, and OTII with Cobra was successfully completed in July 1980.

(U) The CH-47D underwent OTII at Ft. Campbell, Kentucky, and successfully completed the test on 9 May 1980. ASARC III was held on 19 August 1980 which provided permission to enter production to modernize the available fleet of 436 aircraft to D model configuration.

Air Defense Systems

(U) US ROLAND. The first two Low Rate Initial production contracts were awarded during FY 1980. The Reliability Improvement Program directed by Defense Systems Acquisition Review Council (DSARC) III, was successfully conducted and completed during FY 1980. Fire unit #3 and peculiar support equipment hardware was delivered to the Missile and Munitions Center and school at Redstone Arsenal. DA/OSD approved ROLAND Integrated Logistics Support concept.

(U) STINGER/STINGER-POST. During fiscal year 1980, the third production contract for STINGER was awarded and training equipment was

deployed to Europe. The First Article/Initial Production Test was successfully completed for STINGER, and captured flight tests with the STINGER-POST seeker confirmed design capability to successfully engage targets in a countermeasure environment.

(U) PATRIOT. On 10 September 1980, the Secretary of Defense approved limited production of the PATRIOT. Only at such time as test demonstration of performance reliability and maintainability warrant, could program quantities of PATRIOT fire units be increased from the 5-6-6 authorized for fiscal years 1980, 1981, and 1982. The first production contract was awarded to Raytheon Company in October 1980.

(U) DIVAD. Combined Development and Operational Testing (DT/OT) was completed on the Division Air Defense (DIVAD) System on 14 November 1980. The Phase II proposals for production hardware and Research, Development, Test and Evaluation (RDT&E) were received in August 1980, at which time the Source Selection Evaluation Board (SSEB) was also convened. Due to significant changes and the uncertainty of program funds, source selection and contract award were extended to early 1981. Both DIVAD contractors (Ford and General Dynamics) were awarded interim contracts to provide continuity between completion of DT/OT and Phase II contract award.

Communications/Electronics

(U) During FY 1980, a three year contract was awarded for production of the AN/TTC-39 circuit switch (29-300 line and 4-600 line) and 25 An/TYC-39 message switch. These were transportable, mobile, modular in both hardware and software, and provided flexibility of configuration compatible with all equipment which was being developed for multi-Service use within the TRI-TAC program. In the Army, they were to be employed from corps level back through theater Army.

(U) A three year contract was also awarded for the Special Forces Burst Communications Central AN/TSC-99, which would provide HF/UHF voice and data communications between Special Forces Base stations and outstations.

(U) Two major programs, the Stand-off Target Acquisition System (SOTAS) and the Single Channel Ground and Airborne Radio System (SINCGARS), experienced funding difficulties during this period. Strong user support for both systems dictated re-baselining of the former and acquisition of less engineering development essential hardware for test. The latter program experienced a schedule adjustment but was to be executed as originally planned, with three competing contractors to assure as much as possible the development of a reliable new family of combat net radios.

Close Combat Weapons

(U) M16A1 Rifle Study. Since its adoption during the Vietnam War, there had been persistent concern expressed about the adequacy of the M16A1 rifle as a combat weapon. Because of this concern, Congress requested that DOD direct the Joint Services Small Arms Program Management Committee to initiate a report assuring the need for a full scale development of a replacement for the M16A1 rifle, in addition to consideration in the following areas: a summary of performance, reliability and maintainability requirements for a combat rifle; an enumeration of the principal deficiencies of the M16A1 and corrective actions taken; a rank-ordered listing of candidates (extant and conceptual) for replacement of the M16A1, enumerating the advantages and disadvantages of each compared with the M16A1; estimated development and production costs associated with deployment of each candidate rifle; and an official position of each armed Service on the need to initiate a full scale development program for replacement of the M16A1 rifle.

(U) Preliminary evaluation concluded that the M16A1 rifle met the basic Army requirements for the short range terms, and the overall effectiveness of this weapon could further be enhanced by a product improvement effort. This improvement would include a heavier barrel with a 1:7 twist opposed to the 1:12, to accommodate the heavier bullet (SS109), therefore extending range and accuracy; and improved rear sight with correction for cartridge and range, improved buttstock, trigger handle, and hand guard. These findings remained to be fully evaluated and coordinated within DARCOM prior to submission to DA.

(U) Plastic and Limited Range Ammunition. This type of ammunition was extensively used in training because it reduced the cost of expended ammunition, and because the limited range provided additional areas for troops to train close to their station, especially in congested areas where real estate was at a premium or simply not available. In FY 1980, DARCOM purchased and was testing .22 caliber, .50 caliber, and 5.56mm plastic ammunition.

(U) During the testing a few technical problems arose, such as degradation of performance at low temperatures, failure to eject properly because of slight distortion of the aluminium base, and double feeds--in which two live cartridges go into the chamber at the same time. These discrepancies were called to the attention of the prime manufacturers, who addressed them with reasonable assurance that they would be corrected within the following twelve months.

(U) 81mm Improved Mortar (L16A2). Approximately two years before, the US Army entered into an informal agreement with the United Kingdom (UK) to evaluate its 81mm Mortar System. If the system met DA requirements, the Army would favorably consider procuring the system. The major advantage of the UK mortar was its maximum range of 5600 meters, approximately 1000 meters greater than the 81mm mortar.

(U) Preliminary testing indicated two major deficiencies in the UK systems, which would have to be addressed and corrected before the UK system could be accepted by the US Army. These were blast overpressure, and wet efficiency. When firing the immediate mortar, the crew was exposed to higher back pressure (above the "Z" curve) than allowed by the Surgeon General for safety reasons. This situation was somewhat alleviated by the use of a conical banel extension which had not been tested. The wet efficiency problem in the (L31 UK round) proved more difficult to address. The UK rounds, when wet, failed to fire or the range was drastically reduced to several hundred feet down range. This drastic loss of performance occurred at very low rain rates. In view of this, the UK was advised that unless the wet efficiency problem could be corrected, the US would not accept the system. Consequently, UK late in the fiscal year, requested 90 days to come up with a positive reply to the wet efficiency problem.

(U) Hand Gun Studies. The Joint Services Small Arms Program Committee (JSSAPC) completed a hand gun study directed by Congress to evaluate the approximately 27 varieties of hand guns in the five Services. The basic purpose was to reduce the total number and its related ammunition requirements, which in turn, would reduce the overall logistical problems. Two basic hand weapons appeared to meet the Services' need--a regular side arm and a small concealable weapon with silencer for air crews and special forces. The caliber selected was the 9mm (NATO Standard), which would replace the .45 caliber pistol long used in the Army.

(U) An acquisition strategy, projected over a 10 year period, was formulated and submitted to DA for consideration. This included complete replacement of existing hand guns in the subsequent ten years.

(U) 5.56mm NATO Ammunition Standardization. The NATO testing and evaluation of Small Arms Ammunition and Weapons conducted from 1977 through 1979 and into 1980 concluded with a final report "NATO Testing and Evaluation of Small Arms Ammunition for the Post-1980 Period" and was issued by the NATO Small Arms Test Control Commission in May 1980. The Coordinating Panel of NATO Army Armaments Group (NAAG) studied the report and made the following recommendations to NAAG: The NAAG should approve the adoption of 5.56mm as the second standard NATO caliber for small arms. The NAAG should either approve the SS109 ammunition as the basis for standardization of an individual or the light support weapon should not be made. The NAAG should direct Panel III to expedite its preparation of STANAG 4172 for an ammunition for use in both individual and light support weapons using the SS109 ammunition as a basis. The NAAG should agree that a recommendation for NATO standardization of an individual or light support weapon should not be made.

(U) In FY 1980, ARRADCOM was actively involved in all facets of the program for standardization of ammunition for the second NATO caliber for small arms, and was instrumental in drafting STANAG 4172 and would actively participate in the development of the 5.56mm NATO Manual of Proof.

(U) Ammunition 5.56mm (SAW). Selection of a candidate ammunition for the SAW program started with the realization that the standard 5.56mm service rounds M193 ball/M196 tracer were inadequate to perform the mission of a light machine gun. As a result, the XM777 ball/XM-78 tracer rounds were developed, which were similar in many ways to the standard service rounds except for the addition of a 4.5 grain steel penetrator in the XM777 and a 20 percent longer trace column in the XM778. These improvements resulted in better helmet penetration and an extended range trace, compared with the standard rounds. The XM777/XM778 rounds were used in all four candidates SAW weapons evaluated at DT/OT tests conducted at Aberdeen Proving Ground, Maryland, and Ft. Benning, Georgia, between April 1979 and February 1980.

(U) The XM777 and XM778 ammunition was submitted to NATO for testing during Light Support Weapon and Ammunition Trials. As a result of these trials, the Belgium 5.56mm ammunition, Model SS109 ball and L110 tracer were selected by NATO to serve as the basis for the new STANAG for second caliber standard ammunition. The SS109 and L110 bullets were longer and heavier than the XM777/XM778 and they offered improved trajectory and helmet penetration. The SS109 and L110 cartridges had the same exterior dimensions as the M193 and M196 service rounds and were interoperable but not interchangeable in the M16A1 rifle. Although the exterior cartridge configurations were the same as the M193/M196, a one-in seven-inch barrel twist was required compared with the one-in 12-inch barrel twist used in the M16A1 rifle. The SS109 and L110 were being developed for use in the XM249 (Belgium MINIMI) weapon.

(U) Squad Automatic Weapon (SAW) System. The SAW is a small caliber automatic weapon for infantry squads, having a sustained-fire capability superior to that of the M16A1 automatic rifle. Advanced development of the 5.56mm SAW system was initiated in February 1976 by agreement between TRADOC and DARCOM. Initial guidance was furnished by DA in October 1976 by approval of a revised Materiel Need document (MN). Four candidate weapons were considered for the SAW. (1) The XM248 machine gun developed/fabricated on contract by the Ford Aerospace and Communications Corporation, Aeronutronic Division, Newport Beach, California. (2) The XM249 machine gun procured from Fabrique Nationale, Herstal, Belgium. (3) The XM106 automatic rifle (M16A1 rifle with heavy barrel) developed/fabricated by ARRADCOM. (4) The XM262 machine gun furnished by Heckler and Koch, Oberdorf, Germany.

(U) These were evaluated on the basis of cost, producibility, and logistic support in order to select which SAW candidate should enter the maturity phase program. DARCOM recommended the XM249 weapon be selected. Recommendation was approved 4 September 1980 by the Deputy Chief of Staff for Research, Development and Acquisition.

(U) Ammunition for the Heavy Machine Gun. The caliber .50 ammunition family which dated back to pre-World War II, did not adequately support the role of the caliber .50 heavy machine gun. Studies showed that the caliber .50 weapon systems had virtually no effect against enemy armored vehicles, which dictated development of more effective ammunition.

(U) The objective of the program was to conduct a performance assessment of foreign and domestic caliber .50 cartridges. Four cartridges were evaluated during FY 1980--CARDE, DUTCH, PATEC concepts as well as a Norwegian concept. These rounds were tested for velocity, dispersion, drag and armor penetration to define their performance when fired from standard caliber .50 weapons. In addition to the assessment of these state-of-the-art munitions, another caliber .50 concept was developed. This concept was a high velocity-low drag, saboted round with a fin-stabilized long rod, dense metal penetrator for improved terminal effectiveness against armored vehicles. This contract was expected to be completed in 1Q FY 1981 with the Government receiving 100 cartridges for in-house evaluation.

(U) Dover Devil (General Purpose Heavy Machine Gun). The Dover Devil was a state-of-the-art concept for a fully automatic, gas operated heavy machine gun with multipurpose applications, including infantry, armor, and aircraft. This new weapon was expected to demonstrate increased effectiveness, reliability, and producibility with decreased manufacturing costs as compared with current systems. The new weapon was proven in caliber .50 to be 35 pounds lighter and have less than one half the parts of the active systems.

(U) During FY 1980, four design improved weapons were built, assembled, and test fired. The test firings were highly successful with one weapon accumulating over 11,000 rounds fired. In addition, the parts for conversion of the weapon from .50 caliber to 20mm were built and assembled with single shot firing conducted. Hardware required to mount this weapon on all Browning type pintles as well as the hardware for mounting on the Commander's Station of the XM1 tank was built. The 6.2 effort for the .50 caliber Dover Devil would culminate in a user test program to be conducted at Ft. Knox, Kentucky during early FY 1981.

(U) Firing Port Weapon (M231). The M231 was developed for use on the M2 Infantry Fighting Vehicle (IFV). Six weapons per vehicle, two mounted on each side and two in the rear, were used as secondary armament to provide suppressive fire during movement of the vehicle and occasionally at its objective. They would protect the vehicle from small arms fire and close-in anti-armor weapons fire. The weapon was a shortened, heavy barrel version of the M16A1, firing M196 5.56mm tracer ammunition in an automatic high sustained rate mode only. The DT II/OT II tests were completed in FY 1980 with weapon reliability data that exceeded the Material Need Requirement for stoppages and failures. The technical development plan (TDP) was released in July 1979, and the FY 1980 production contract for 1600 weapons was awarded to Colt Industries on 15 May 1980. Follow-on actions would eventually result in the manufacture of over 24,000 weapons over the following three years.

Systems Evaluation/Testing

(U) Special Interest Items. This office conducted a study which highlighted the impact which OSD and DA "Special Interest" items had on DARCOM's flexibility to execute a viable composite research, development, test and evaluation (RDTE) program. Results of the study were presented

to DA and OSD. On 9 May 1980, the Under Secretary of Defense for Research and Engineering, agreed that indiscriminate use of the "Special Interest" designation could have a considerable effect on the flexibility of the Army to manage its RDTE programs. The Under Secretary of Defense indicated he would carefully review all proposals for such designations and also suggested other procedures which could improve management of the process.

(U) Memorandum of Understanding with the United Kingdom. A tri-Service Bilateral Memorandum of Understanding with the United Kingdom on Explosive Ordnance testing was negotiated and signed.

(U) TECOM Test Workload and Capability. During FY 1980, the test workload scheduled at TECOM test facilities was 8.7 million direct labor hours (DLH). Accomplished test workload was 6.2 million DLH with the remainder deferred or carried over into FY 1981 for accomplishment. During FY 1980 TECOM achieved the first significant increase in capability from implementation of a contract augmentation program, designed to reduce TECOM's increasing backlog of test workload by contracting out. Output was 140,000 DLH at Yuma Proving Ground. Plans for expanding the program to three additional test activities would be implemented in FY 1981--Aberdeen Proving Ground, Dugway Proving Ground, and the Electronic Proving Ground. During FY 1980, the recorded TECOM-caused test slippages at TECOM test facilities as a result of non-availability of personnel were below that level in FY 1978 and FY 1979. However, the numbers recorded were still of such magnitude to cause serious concern throughout the materiel acquisition community. It was expected that as the TECOM contract augmentation program expanded to full implementation, the occurrence of TECOM-caused test slippage would substantially decrease.

(U) Deterioration of the Testing Base. The inadequate FY 1980 fiscal resources at TECOM followed a trend developing for several years. This resulted in a general deterioration at the testing base. TECOM invested only $14 million in RDTE funds in modernization of instrumentation in FY 1980, $28 million below what TECOM considered necessary. Generally, the instrumentation program was underfunded from $25 - $30 million annually over the previous four years. This shortfall precluded the desirable replacement of aging and labor intensive instrumentation. About two-thirds of TECOM's instrumentation was over 15 years in age, an age at which time instrumentation was usually replaced. Continued deferral of replacement or modernization of old instrumentation equipment adversely affected test efficiency and maintenance costs, and prevented TECOM from reducing the growing backlog of test workload, which might not otherwise have occurred with a fully funded program. In a second area, the backlog of maintenance and repair (BMAR) at TECOM test facilities grew from $31.1 million at the end of FY 1979 to $45.1 million at the end of FY 1980. TECOM's total Maintenance and Repair (M&R) program in FY 1980, direct and reimbursable, was $22 million, with one half of this amount supplied from TECOM institutional RDTE funds. The impact of an ever increasing BMAR accelerated the

deterioration of test facilities, buildings, grounds, and structures at DARCOM major ranges, which in turn impacted substantially on quality of life of personnel and generally increased the cost of repairs when eventually accomplished. This backlog of repairs could be eventually expected to impact on the conduct of testing if continued deferment of M&R occurred.

(U) International Materiel Evaluation (IME) Program 1980. During FY 1980, the IME Program initiated 16 Phase I evaluations and completed 24 Phase I evaluations. Two special In-Process Reviews (IPRs) were held to determine whether the material identified in Phase I should proceed, and the program was terminated. Also, 11 Phase II evaluations were initiated and eight were completed. Two special IPRs, resulting from Phase II evaluations, were held. In both cases, the items were type-classified standard. The TECOM IME FY 1980 program operating costs were approximately $2 million.

(U) Defense Standardization and Specification Program (DSSP). The FY 1980 funds for the DARCOM portion of the Army DSSP was $15.044 million, an increase of approximately $1.5 million above FY 1979. These funds represented 81 percent of funds requested to accomplish the DARCOM DSSP mission for FY 1979, and provided for 327 manyears of standardization effort. Approximately $1.5 million was utilized on contracts.

(U) Metric Adoption. In FY 1980, metrication continued to be high on the Under Secretary of Defense's priority for standardization. The Honorable Dr. Perry, Office of the Under Secretary of Defense for Research and Development (OUSD)(R&D), established a target date of January 1990 for availability of a complete spectrum of metric Specification and Standards which could be used in lieu of the 40,000 documents listed in the DOD Index of Specifications and Standards (DODISS). All the Services promulgated this policy, and in mid-FY 1980, DARCOM representatives attended a high level metric seminar workshop conducted by OUSD (R&D) for Service secretarial level personnel and commanders.

(U) Acquisition and Distribution of Commercial Products. In FY 1980, the Office of the Under Secretary of Defense continued to stress the policy that the military Services should acquire commercial items (off the shelf) when these items met the needs of the military; and for the past three years the Services reviewed their specification and standards for items meeting criteria. By 31 December 1980, the Army had approved and issued none, after reviewing over 1,000 of its specifications. The other Services had less than 10 combined.

(U) Parts Control. DARCOM subordinate commands continued to actively participate in the DOD Parts Control Program as prescribed in AR 700-60 and MIL STD 965. Of the 7153 nonstandard parts proposed by Army contractors, it was found that 41 percent of these could be replaced by preferred or standard parts for new design. This resulted in an increase in the degree of standardization from 45 percent to 67 percent and a computer cost avoidance of over $20 million.

(U) Technical Data Program/Acquisition Management Systems and Data Requirements Control Program. Recognizing that a more precise delineation of DOD policy for the uniform release of technical data to the public was required, the Under Secretary of Defense for Research and Engineering issued on 31 March 1980 "interim guidelines" for the Military Departments to implement. At the 25 June 1980, Joint Logistics Commanders' (JLC) meeting, the commanders discussed the procedures associated with each Service separately implementing the interim guidelines from the USDR&E. The JLC agreed that an ad hoc group should be established to develop a draft Joint Regulation for the uniform release of technical data to the public. Under the auspices of the Joint Logistics Commanders' ad hoc group for the uniform release of technical data to the public, the Army participated in the development of a joint regulation for the uniform release and/or selling of technical data to the public.

(U) The Under Secretary of Defense for Research and Engineering issued DOD Directive 4120.21, Application of Specifications, Standards, and Related Documents in the Acquisition Process on 3 November 1980. This directive contained policies and procedures to achieve greater effectiveness, efficiency, and economy in the acquisition process and was implemented within the Army by a complete revision of AR 700-70, with the same title.

(U) Configuration Management. In FY 1980, two meetings of Army Configuration Managers were held to foster exchange of information with the goal of improving the efficiency and effectiveness of configuration management. Forty-two persons representing DARCOM Commands and Project Managers and other Army MACOMs attended the meeting held 29 January through 1 February 1980.

(U) Technical Data/Configuration Management System (TD/CMS). The TD/CMS was the DARCOM standard computer program used by configuration management personnel to identify, record, and control changes to the documentation of Army systems/equipment throughout the life cycle of Army materiel and to produce output for automated assembly of Technical Data Packages for procurement of major end items, secondary items, and spare parts. ARRADCOM and ERADCOM installed and tested that standard program in their respective computers. ARRADCOM then loaded data on the turret for the XM1 tank. Progress was made in preparation of data on other ARRADCOM items in preparation for converting these data from the ARRADCOM unique TD/CMS to the DARCOM standard TD/CMS.

(U) Government/Industry Data Exchange Program (GIDEP). The Army continued as an active participant to GIDEP during FY 1980. The Army member of the Government Advisory Group (GAG) served as Vice Chairman during the year and was elected to serve as Chairman for FY 1981. Army contribution to GIDEP funding was $527,000, which consisted of $245,000 of RDTE funds and $285,000 of OMA funds.

(U) Scientific and Technical Information (STINFO). The Army STINFO program was funded under RDTE Program Element 6.58.03A, Technical Information Activities of AR 100-79. Funding of $3.155 million was budgeted in FY 1980 for M720 Technical Information Functions, M728 Information Technology,

M729 Youth Science Activities, Symposium and Conferences, M761 Technical Information Analysis Centers, and M903 Signal Intelligence/Electronic Warfare Technical Information.

(U) Project M367 was completed and implemented. Project M720 continued to support the remote access (automation) of RDT&E information and in 1980 implemented the 100th installation. Project M728 supported the Army share of the tri-Service effort in Government Industry Data Exchange Program (GIDEP). This project also assumed the support (from another program) for the Army share of the tri-Service effort in the Advisory Group on Electron Devices (AGED). A new task was supported to enable R&D test reporting to be developed, coordinated with remote activities, and updated, using automated data processing and telemetry techniques. A new task was also supported to encourage disadvantaged youth to pursue education and occupations in science and engineering.

(U) Support was not extended to the Chemical Information Data System (CIDS) due to discontinuation of the original requirement. The data base, developed from previous support, was achieved and alternate applications were being invested in FY 1980.

(U) A revision of AR 70-14 "Payment of Costs of Reprints of Articles in Professional Journals" was completed and released for distribution.

(U) A 3-day DOD conference on the management of Defense Technical Information Analysis Centers was planned, organized, and conducted.

Battlefield Automation Management

(U) Post Deployment Software Support (PDSS). The Post Deployment Software Support (PDSS) Concept Plan was presented to, and approved by CG, DARCOM, on 12 May 1980. The CG, at that time, directed that detailed implementation data be assembled prior to forwarding the plan to HQDA. DARCOM tasked the subordinate commands in June 1980 to provide detailed resource estimates for the recommended alternative.

(U) Army Command and Control System. The Army Command and Control Master Plan, which was published 21 September 1979, specified that DARCOM have the responsibility for Army-wide Systems Engineering for the Army Command and Control System (ACCS). To accomplish this responsibility, the DARCOM Director of Development and Engineering, was assigned Program Director, The Communications Research and Development Command (CECOM) was assigned responsibility for technical execution and systems analysis This responsibility required intense coordination with a wide variety of Army major commands and agencies in order to manage and design the numerous systems and equipment that constituted the Army Command and Control capability.

(U) Within DARCOM, additional personnel spaces, as well as approximately $10 million per year, were required to prepare standards, design the total system and interfaces, and test the ACCS. Much of the work would be performed under contract with several DARCOM subordinate commands having additional responsibilities. The resource requirements and program outline were presented by CECOM at the Fifth Battlefield Automation Appraisal held 29 July 1980, and presided over by the Vice Chief of Staff of the Army (VCSA). As a result of this appraisal, direction was given by the VCSA to provide 53 personnel spaces for DARCOM to execute the System Engineering responsibility. The principal products of this program would be an ACCS Materiel Development Plan, a series of system specifications and the tested design of system-to-system interfaces.

(U) Computer Resource Management. The Army had participated with other agencies and Services in the Department of Defense as well as industry and other countries to develop Ada, a high order computer programming language. Ada was expected to become the long-term standard high order language for embedded computer resources within the Department of Defense. The design of the Ada language was frozen in August 1980. The Army had a development program to provide a compiler and associated software tools for use in software development by 1983.

(U) In FY 1980, an Ada Joint Program Office (AJPO) was established to provide for management of the total Department of Defense effort to implement, introduce, and provide life-cycle support for Ada. The AJPO would assure that validated Ada compilers and associated software development and support environments were available to support a policy of using only accredited support software on DOD programs.

(U) The Army supported development of a standard family of military computers (MCF) which would reduce logistic and training costs and improve commonality between systems on the battlefield. The MCF development would use a single Instruction Set Architecture (ISA) and would take advantage of the parallel efforts in software. In FY 1980, MCF production hardware was expected by the 1986 timeframe.

Programs and Budget

Future Year Operations

(U) The FY 1982-1986 RDTE Program. The US DARCOM Five-Year RDTE program for FY 1982-1986 was submitted to the Deputy Chief of Staff for Research, Development and Acquisition, Department of the Army, in May 1980.

Dollars in Thousands

FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
$2,635,481	$2,624,097	$2,887,763	$3,633,857	$3,950,150	$4,400,931

(U) The Deputy Chief of Staff for Research, Development, and Acquisition, Department of the Army, in the Research, Development and Acquisition Committee with other DA staff reviewed the DARCOM program and changed it as of 25 September 1980 as shown:

FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
$2,726,049	$2,888,865	$3,146,778	$3,852,822	$4,165,305	$4,598,358

(U) The FY 1982 program was to be presented to Congress in January 1981.

Program Control

(U) Level of Effort. The FY 1980 RDTE Program Apportionment Request in September 1979, was $2,416.4 thousand; and as of 30 September 1980, the RDTE Program released to DARCOM totalled $2,332.7 thousand. During FY 1980, this office reviewed on a quarterly basis 19 selected acquisition reports for submission to DA, OSD and/or Congress.

(U) Management Systems and Procedures. The practice of limiting face-to-face reviews with major subordinate commands, project managers (PM), or laboratories to one a year was successfully implemented and the fifth annual RDTE Program Review was conducted in May-June of 1980.

(U) The practice minimized the number of program reviews requiring field participation and preparation both to this Headquarters and to Headquarters DA. It further reduced the number and time duration of meetings required between DARCOM and DA staff members required to resolve differences toward establishing an Army RDTE Program.

(U) Modernized Army Research and Development Information System (MARDIS). In an effort to modernize the RDTE reporting system, DA developed an automated MARDIS. The system included a Program Data Form (PDF) for data capture, which replaced manually prepared forms supporting the budget formulation, phase scheduling, and apportionment processes. MARDIS became operational with the submission of data support of the FY 1981 budget. The MARDIS technical milestone reporting requirements for DARCOM merged with the Integrated Logistic Milestone Reporting System operated by the directorate for Readiness, which eliminated one quarterly reporting requirement. A special report was prepared for the Office of Manufacturing Technology drawing their requirements for producibility engineering data from the MARDIS file. In FY 1980, a special report was being prepared to satisfy the interchange of dollars between DARCOM commands, drawing from the data contained in the MARDIS data base. An FY 1983-1987 Program Objective Memorandum (POM) submission of MARDIS data was made by this Headquarters to DCSRDA in December 1980, and was used to support the HQDA preparation of Congressional descriptive summaries and the OSD required submission of the DD Form 1634 program planning data.

(U) Project SCORECARD. In FY 1980 DARCOM subordinate commands, independent corporate laboratories, project and product managers again operated under the concepts and principles of incremental funding. SCORECARD (Obligation Status) reports began in October 1978 on a monthly basis. Subordinate commands and independent activities reported their unobligated balances of the FY 1979 carryover program as well as their FY 1980 unobligated balances at project level. As of June 1980 the status of funds of reimbursable programs was reported on a semi-monthly basis.

(U) The total unobligated balance for FY 1980 as of 30 September 1980 was $103 million. The total direct RDTE program for FY 1980 was $2,332.6 thousand. The following tabulation reflects the direct FY 1980 program and percent of obligation achieved for each major subordinate command and the separate activities and HQ, DARCOM as of 30 September 1980.

COMMAND	PROGRAM ($000)	% OBLIGATED
ARRADCOM	257.9	95.7
AVRADCOM	357.4	94.4
TSARCOM	15.4	93.3
ERADCOM	268.4	96.6
CECOM	210.8	90.4
MICOM	602.7	99.2
TARADCOM	191.9	95.6
TARCOM	4.7	99.5
TECOM	207.5	99.0
MERADCOM	50.5	98.4
NLABS	31.4	96.8
OTHER DARCOM	134.1	89.3
TOTAL	2,332,651	95.6

(U) Through the SCORECARD reporting system, this headquarters continuously assessed the progress of each command toward meeting an obligational goal established by the subcommand and/or activity.

Battlefield Systems Integration

Focus, Mission and Application

(U) The Battlefield Systems Integration (BSI) Directorate mission implementation, which began in fiscal year 1979, continued during 1980. The shift in focus and method of operation was the result of the assignment of a new Director and Congressional action which eliminated the funding for Program Element 6.57.13.A, Battlefield Systems Integration, from the Army RDTE budget.

(U) Major General James H. Patterson became Director of Battlefield Systems Integration on 31 July 1979. Within two months he was faced with a final House and Senate Armed Services Committee joint decision to reduce the budget for the BSI program to zero dollars.

(U) The assigned mission of the BSI was extremely broad while the staffing was limited to a Major General as Director, ten Colonels as Deputy Director/Systems Directors, and four GS-15 technical personnel. The full scope of the mission assigned could not be performed by such a small group even with a $3 million budget, and with no contract and analysis dollars, prioritization and selective address of tasks was critical.

(U) BSI mission and functions included representing the Army materiel developer in creative inter-disciplinary design work and identification and documentation of gaps in battlefield systems. Both functions represented the breadth of all systems and all multimission, multi-Service reviews in which the Army, and therefore the materiel developer, would participate. Limited BSI manning dictated concentrating its participation on those areas which were most critical from a materiel requirements and integration standpoint, directing DARCOM's action in the matter. Identification of gaps could not be undertaken without significant resources; therefore, BSI had to focus on the development of solutions for the most critical areas and where data could readily be gathered and analyzed.

(U) The portion of the BSI mission relating to the sponsorship of Army studies on integration issues and the demonstration of concepts through application of advanced technology could not be executed without program funds. These efforts were to be pursued by subordinate DARCOM commands and agencies with BSI encouragement and staff support, but without funds.

(U) A key aspect of the FY 1980 BSI mission was to insure that Army materiel development programs were synchronized with US Army Training and Doctrine Command. To that end BSI fostered regular interchanges between DARCOM laboratories and TRADOC centers and schools, emphasizing evolving technology. BSI personnel participated in reviews of on-going development programs to stay aware of progress and problems and to direct performance of DARCOM activities to their integration-related tasks. Of particular significance was the "Army 86" force structure study. Oriented toward the development of force structures which were compatible with and maximized the use of new weapons and systems scheduled for 1986 fielding, this effort had significant impact on DARCOM as the Army logistics wholesaler. Participation with TRADOC was of great significance in several aspects of the BSI mission.

(U) The thrust of the BSI program for fiscal year 1980, given its mission and financial constraint, was in three areas. First, analyses and demonstrations initiated in 1979 were fully funded and nearing completion. Second, the core information resource programs of the Directorate, SPIDER-CHARTS and the Systems Integration Data Base, would continue to final decisions as to their future by fiscal year end. Finally, the connection with TRADOC would be strengthened by a more active role in the Army 86 series of force structure studies and management of the DARCOM role in TRADOC Mission Area Analysis.

Activities and Accomplishments

(U) The heightened interest in Mission Area Analysis, Army-wide caused the Battlefield Systems Integration Directorate to orient along the lines of the tactical mission areas. These were the areas under which TRADOC was to undertake analysis broad enough to be largely multifunctional and to encompass most issues of battlefield systems integration concern. The mission areas and TRADOC Proponent schools in FY 1980 were:

Close Combat - Light	Infantry Center
Close Combat - Heavy	Armor Center
Air Defense	AD Center
Fire Support	Artillery Center
Tactical Communications	Signal Center
Command and Control	Combined Arms Center
Combat Service Support	Logistics Center
Intelligence and EW	Intelligence Center
Combat Support, NBC	Chemical Center
Combat Support, Engr and Mine	Engineer Center
Tactical Nuclear Warfare	Combined Arms Center
Aviation	Aviation Center

(U) In addition to addressing developmental programs within the context of these mission areas, synchronization with the combat developer (TRADOC) had to start with the earliest stages of research and development. In an institutional sense, this meant a concern over the composition and direction of the Technology Base Programs.

Long Range Research, Development, and Acquisition (RDA) Planning

(U) In the area of technology base (6.1 - 6.3A) planning, BSI's primary contribution was in the management of the SPIDERCHART program. User and developer dialogue continued to improve because of this relatively free mechanism which linked laboratory work efforts to user requirements.

(U) Fiscal year 1980 saw an intensive program of indoctrination of DARCOM Laboratory Management into the utility of the SPIDERCHART Data Base as a macro management tool for tech base oversight. The zenith of this indoctrination program was achieved at the 2 May 1980 meeting of the DARCOM Corporate Board of Technical Directors. Because of the importance of the SPIDERCHART Data Base as a laboratory management tool, BSI, in a 9 September 1980 briefing to the Deputy Commanding General for Materiel Development, recommended that direction of the SPIDERCHART activities be transferred from BSI to the Office of Laboratory Development Command Management. LTG Robert J. Lunn reiterated the utility of the SPIDERCHARTS but directed that BSI retain control of the program.

(U) The BSI Directorate compiled DARCOM comments and suggested revisions to the Science and Technology Guide (STOG). Comments were obtained

from every DARCOM command and activity, consolidated, and forwarded to DCSOPS/DCSRDA. BSI represented DARCOM at the STOG Review Meetings and assisted in the consolidation and review of all field and HQDA comments and proposed changes to the STOG. Publication of the 1981 STOG was delayed because of administrative details at HQDA and had not been published as FY 1980 closed. This delay in the release of the STOG prevented BSI from publishing the 1981 SPIDERCHARTS on schedule since the call for SPIDERCHART data inputs followed the publication of the STOG.

(U) Again in FY 1980, the directorate provided representation at the Spring Lab Reviews, when DARCOM management, along with Army Secretariet, ARSTAFF, and TRADOC representatives met with individual R&D commands and laboratories to review the R&D programs and budgets.

(U) The Assistant for Science and Technology assumed responsibility in FY 1980 for development of the Science and Technology (S&T) Plans which supported the Mission Area Analyses; BSI remained the DARCOM POC for the entire Mission Area Analysis (MAA) Program. The Fire Support Phase II MAA was completed and was intended to serve as a model for all MAAs. The utility of MAAs was unquestioned; the cost in terms of time and resources became apparent in the production of the Fire Support MAA. Meanwhile, TRADOC developed MAAs for all of the designated mission areas.

Army 86

(U) In the spring of 1978, HQ TRADOC was tasked to develop the most combat-effective organization for the Army's Heavy Divisions in 1986 in order to facilitate the integration of new and advanced materiel systems, operational concepts, and human resources into the Army. In August of the same year this tasking was expanded to include studies on the development of an infantry division and a corps structure for heavy and light divisions, respectively. Finally, and as a direct result of a Division 86 briefing at the 1979 Army Commanders' Conference, HQ TRADOC was directed to conduct a study addressing echelons above corps.

(U) From the inception of the Army 86 studies, elements of HQ DARCOM joined hands with members of the TRADOC community providing input on developmental materiel and attendant milestone schedules as well as combat service support requirements. Notwithstanding, in April of 1980, by direction of the Chief of Staff, HQ DARCOM, BSI was designated lead directorate for Heavy Division 86, Infantry Division 86, and Corps 86 with full authority to task other HQ DARCOM staff elements as well as subordinate command activities for input to these tasks.

(U) In the execution of these taskings, BSI Systems/Technical Directors were made responsible for maintaining interface and currency with HQ TRADOC counterparts for respective mission, functional/tasks areas, such as Air Defense, Battle Support/Reconstitution, and Command Control Communications. Evolving organizations and systems issues were monitored

and written input and assistance provided to Army 86 task forces. However, in view of a specific charge that DARCOM personnel would be aware of the Army 86 studies implication on DARCOM missions, objectives and workload, a major BSI thrust was in the area of Combat Service Support (CSS). In this regard, the focus was on providing the Logistics Center, proponent agency for Army 86 Combat Service Support doctrine, with recommendations for the management of logistics support initiatives that would take full advantage of new technology as well as the logistics expertise existent within HQ DARCOM. One of the major products of this effort was the preparation of a DARCOM Army 86 handbook which provided insight into emerging Army 86 logistics concepts. This document addressed the organizations responsible for and many of the issues pertaining to division CSS doctrine/operations, and concepts and issues applicable to corps and EAC (echelons above corps). The handbook was the key reference document for DARCOM personnel involved in Army 86 and was employed extensively by senior DARCOM logisticians who met with TRADOC counterparts at an unprecedented meeting in May 1980 to clarify and resolve many issues attendant to emerging Army 86 logistics doctrine.

Close Combat

(U) The three primary efforts in the area of Close Combat have been Infantry Division 86 (ID-86), Contingency Corps 86 (CC-86) and Close Combat (Light) Mission Area Analysis. The Infantry Directorate worked closely with HQ TRADOC and Combined Army Combat Development Activity (CACDA) on the organizational and operational (O&O) concept development for both ID-86 and CC-86. In response to a request from CACDA, BSI solicited from DARCOM subordinate commands and key agencies information and ideas on innovative weapons systems, vehicles and equipment that might enhance the firepower and survivability of ID-86 and CC-86. BSI provided representation at all major meetings on ID-86 and CC-86 and were active participants.

(U) Establishing a close working relationship with Fort Benning on the Close Combat (Light) Mission Area Analysis was in its embryo stage but held great promise for the development of an organized effort to enhance the acquisition process for light infantry.

Air Defense

(U) The general thrust of the air defense systems integration effort during fiscal year 1980 was oriented toward continuing to define the interrelationship of evolving air defense weapon systems and other information systems on the battlefield. While maintaining contacts with the "vertical" systems development, managers at HQDA, DARCOM commands, Project Managers, the TRADOC (user) community, and industry, attention was focused on the establishment of interface requirements between systems to capitalize on the potential synergistic effects of modernization of air defense systems and data requirements. Of particular interest was the Short Range Air Defense Command and Control (SHORAD C^2) development effort and its interrelationship/requirement for communications, sensor data, executive data

and air space management. Additional areas of special interest were concerned with analyses of technologies which could improve air defense effectiveness. The most important areas analyzed included improved Identification Friend or Foe (IFF), Sensor Data, Forward Looking Infrared, Fire and Forget Seeker, Air Defense capability for Army helicopters, and Light Weight Air Defense weapons for the Rapid Deployment Force.

Short Range Air Defense (SHORAD) Command and Control (C^2)

(U) The action to develop a SHORAD C^2 system which could solve the data flow problem between SHORAD weapons, sensor systems and command elements was initiated by BSI in 1978 and had received close staff supervision afterward. The SHORAD C^2 effort was assigned to the ADCC, however, it was necessary to defend the budget and insure that related studies and development efforts were integrated with the program. The BSI sponsored sensor analysis was used as the foundation for a TRADOC cost and effectiveness analysis to determine which SHORAD sensor would be obtained to provide data for the SHORAD C^2 system. BSI participated, with TRADOC, in developing a Mission Elements Needs Statement (MENS) and Letter of Acceptance (LOA) for the program and provided guidance to the contractor, Research and Development Associates (RDA), in the SHORAD C^2 study. This study would develop the architecture which would be tested in the SHORAD C^2 Test Bed in early 1981.

Advanced Technology for Use in Air Defense Artillery (ADA) Missions

(U) IFF. It was determined that IFF systems had a potential over-interrogation problem in Europe, a problem which BSI discovered, defined and identified to Department of the Army and OSD for resolution. OJCS tasked the USAF with Army assistance to perform a complete study and resolve the issue.

(U) Non-cooperative IFF development efforts in industry and subordinate DARCOM commands were reviewed and those with promise received BSI guidance and support. This was a high pay off program which would allow the new family of air defense weapons to be fully used with minimum danger to friendly air craft.

(U) Sensor Data. In addition to the above discussed Sensor Analyses which would define data that could be available to ADA systems, new sensor technology had been reviewed such as Bi-Static, Quiet Radar, foreign systems and modification of non-ADA systems to perform ADA missions. The results of this analysis would determine what sensor or sensors would be in the future ADA C^2 system and how the data would flow throughout the network.

(U) Forward Looking Infrared (FLIR). FY 1980 SHORAD weapons did not have a night or limited visibility capability even though the enemy would be able to perform his mission during these periods. BSI in cooperation

with ERADCOM's Night Vision and Electro-Optics Lab (NVEOL) analyzed the FLIR technology and developed a light weight (3 pounds) FLIR for the STINGER. This system was ready for demonstration during FY 1980 and would provide a greatly improved capability for these weapons. The PM DIVAD Gun, after being informed of the FLIR capability by BSI and NVEOL, indicated that the future ADA gun would have a FLIR capability.

(U) Fire and Forget Seeker. Analysis during FY 1980 indicated that future ADA systems would require a dual mode fire and forget seeker to properly meet the increasing threat. BSI pursued this issue with Missile Command and industry and several conceptual systems were under development. This area had the potential for high pay off at low cost.

Air Defense Capability for Helicopters

(U) Air Defense Artillery (ADA) weapons would increase the survivability of the aircraft and improve combat effectiveness. The development of this capability was assigned to MICOM with AVRADCOM support. The future ADA system could include a mobile force of helicopters capable of rapid deployment as needed to meet the helicopters air threat in the division or corps rear area.

(U) Light Weight ADA Weapons. Because the Air Defense Gun system was too heavy for deployment by air, BSI, in cooperation with TRADOC and subordinate DARCOM commands, analysed methods of solving this problem and a MENS was nearing completion at TRADOC. The system would be a gun or missile.

Fire Support

(U) During the year, efforts continued to examine various aspects of the Field Artillery Mission Area in order to promote increased fire power effectiveness and improved integration of artillery systems with each other and with external systems. Two studies were completed on counterfire and the functional specialization of FA units. The studies received wide distribution and the user community was very receptive. The BSI Directorate also took the lead for DARCOM in preparing a Science and Technology Plan to support Phase I of the Fire Support Mission Area Analysis (FSMAA) being done by TRADOC. BSID supplied the DARCOM member to the SAG for the FSMAA and for the executive committee planning the next HELBAT test. The two studies published are described below.

(U) Field Artillery Functional Specialization. The objective of this study was to determine the degree to which field artillery should be specialized to most efficiently and effectively use the weapons, communication types, target acquisition systems, and command and control systems which would be available to the field artillery in Europe in 1986. The organizational concepts developed for using field artillery in a specialized manner in several cases departed considerably from active field

artillery doctrine. Each concept was directed toward accomplishing the basic field artillery functional requirements of target servicing with indirect fires, suppression of the enemy air defense, counterfire, and interdiction. Results of the study showed that specialization of the field artillery along functional lines would improve the overall performance of the field artillery system against a sophisticated enemy. The study was well received by the artillery community and served as a source for an article published in the Field Artillery Journal.

(U) Counterfire Campaign Analysis. This study was completed and briefed throughout the combat and materiel development communities and presented a case for the following: (a) A substantial increase in the percentage of MLRS in the overall artillery mix would result in a decisive improvement in counterfire effectiveness and an improvement in the quantity of TSIF/DS artillery support to the central battle. (b) This decisive improvement was most effective if Q-37/36, TACFIRE and MLRS were brought along as an integrated system. (c) The added firepower of MLRS in quantity also allowed the artillery to consider assuming the SEAD and interdiction roles without diluting the counterfire and direct support efforts. (d) In order to stay ahead of the aggressive Soviet artillery modernization program, it was prudent to examine further improvements which included Q-37/36 (a rocket discrimination capability), a TACFIRE speedup (or a quick fire alternative) for dealing with Soviet heavy MLRS; a more effective munition of the TGM type and an advanced sound system as a complement to the Q-37/36 radar.

(U) The study offered a start point not only for integrating the artillery as an overall system, but also indicated steps which could be taken to integrate counterfire, TSIF, SEAD and interdiction and focus them on support of the central battle. Together the two studies provided good analyses of alternative ways to structure the artillery force for better integration of functional missions and for improved effectiveness.

Combat Service Support (CSS)

(U) During the year, the primary thrust in the logistics area focused on the Army 86 studies. Serving as a member of the US Army Logistics Center Army 86 Task Group, extensive input was provided to the organization and operational concept (O&O) for those organizations responsible for providing combat service support to the Army-in-the-field.

(U) Two additional areas of concentration were of significant CSS note, the Human Engineering Laboratory Forward Ammunition Supply and Transfer Team (HELFAST) effort and the Battlefield Recovery and Evacuation Capabilities study.

(U) The Human Engineering Laboratory Forward Ammunition Supply and Transfer Team (HELFAST). As a result of the Army's ammunition initiative task force which was a BSI 1977 initiative, the US Army Human Engineering Laboratory (HEL) established a team in 1978 that became involved in the

human factors associated with the resupply of Army ammunition. Known as the Human Engineering Laboratory Forward Ammunition Supply and Transfer (HELFAST) Team, its initial goals were to establish a data base for field testing of Materials Handling Equipment (MHE) operators' performance and to attempt to observe the human factors that caused variance in performance between MHE operations.

(U) As time passed, a number of additional initiatives arose from the field testing, such as a modification to the lighting system on MHE to allow its use in the forward area at night and the development of a computer simulation of the operations of an Ammunition Supply Point (ASP). The development of the alternative lighting concept to significantly reduce the visual signature of Materiels Handling Equipment had such recognized potential that BSI petitioned HQ TRADOC to review the HELFAST concept for widespread application. In August 1980, HQ TRADOC established a Joint Working Group which pursued the concept for transportation and construction equipment as well.

(U) Another initiative of the HELFAST effort was the recognized requirement for standard lifting devices on slings required to support ammunition transfer operations. By message to MERADCOM, BSI reiterated the need to develop, type classify, and field a standard lifting device and requested this task be undertaken. MERADCOM accepted this project which, in FY 1980, was programmed for completion by the end of FY 1981.

(U) As a part of HELFAST's continuing effort to develop forward area resupply and transfer operations, HEL hosted a meeting 16-17 September 1980 where an investigation of Army helicopter rearm and refuel operations was initiated. This study would assist TRADOC by providing human performance data on rearm and refuel of US helicopters in both daytime and night operations in a field environment.

(U) As the fiscal year ended, it became obvious that the scope of work and issues presented at the quarterly HELFAST seminars exceeded the charter of either the HELFAST team or the Human Engineering Laboratory. Therefore, senior representatives from both DARCOM (BSI) and TRADOC felt that since this program had proven beneficial to the ammunition community, it should be formalized with a charter and established as a joint DARCOM/TRADOC ammunition working group.

(U) Battlefield Recovery and Evacuation (BRE). Tactical doctrine envisioned the central battle to be one of intense combat, accompanied by high losses of men and materiel with little prospect for replacements being available. It was vital that the US preserve its combat power through judicious utilization of available resources and by recovering the maximum number of damaged or inoperable weapons systems to effect expeditious repair and return to owning units. Recognizing this fact, HQ TRADOC, in August of 1978, directed that a Battlefield Recovery and Evacuation Capabilities study be made. The study, sponsored by the Logistics Center and conducted by the Ordnance Center and School, examined

recovery, and to the extent necessary, maintenance evacuation requirements at the combat, combat support, and combat service support levels within a division.

(U) A formal Study Advisory Group (SAG) was established, on which BSI was the voting DARCOM member. The study was originally planned to be conducted in two phases. Phase I - tracked vehicle recovery and evacuation in the heavy division; Phase II - wheeled vehicle recovery and evacuation within the heavy division, and wheeled and tracked vehicle and recovery evacuation within the corps. Phase I, which had been completed and approved by HQ TRADOC, offered several important findings. Tracked recovery vehicle authorizations were adequate to meet all but surge recovery requirements with better recovery asset management. Centralization of recovery vehicle management at battalion level would significantly improve recovery rates. Increased emphasis on immediately available means of recovery would be required. A surge capability would be required to absorb recovery requirements exceeding the battalion's capability. Improved recovery vehicle availability, crew survivability, and combat recovery capability were identified. Increased requirements for Heavy Equipment Transporters (HETs) were identified as well as the need for adequate evacuation routes.

(U) In July 1980, HQ TRADOC identified a requirement for Phase IA excursion to address tracked vehicle recovery and evacuation within the Division 86. Both Phase IA and II were scheduled for completion during the 2d quarter of FY 1981.

Command, Control, and Communications - C^3

(U) BSI represented HQ DARCOM in the materiel development support of the Tactical Communication Mission Area Analysis which was finalized by TRADOC during fiscal year 1980. This effort represented the Army's objective communication architecture as well as a realistic mid-term capability and would be the basis for all tactical communication planning and acquisition.

(U) BSI represented the DARCOM community as Combat Arms Concepts Development Agency (CACDA) initiated concept development of Executive/Command/Subordinate Subsystem (ECS^2) Concept of battlefield automation. Development and Engineering (DE) Directorate and Field Commands were then brought in. This concept involved a complex interrelationship of information flow vertically within echelons of functional areas and horizontally across functional areas at each echelon. A Letter of Agreement (LOA) for the force level and maneuver control applications was drafted by CACDA but rejected because details of the information flow requirements were not firm.

(U) The JTIDS portion of the Army's planned PLRS/JTIDS hybrid system received significant turbulance in that the USAF sponsor decided to pull out because of expected hardware costs and competing technical approaches. Withdrawal of the primary participants in this joint program would leave the Army with serious shortcomings in the planned communications architecture. OSD directed continuation, but this issue was not fully resolved in FY 1980. BSI closely followed the developments in this program, as to potential technical alternatives, competing net management studies, user interface developments, and potential costs.

(U) The Army Materiel Systems Analysis Activity (AMSAA) conducted a POS/NAV systems integration analysis under BSI tasking--a dual objective as envisioned for the study. Primarily it was intended to determine gaps and overlaps in the various materiel existing and being developed to accomplish Positioning/Navigation (POS/NAV) functions. Secondly, it was intended to investigate methodologies for systems integration analysis among vastly dissimilar items. The study showed success in reaching both objectives.

(U) A co-sponsored study with the Avionics Research and Development Activity on Army Aviation Command Control and Communications needs were initiated. The first phase documented the C^3 requirements for basic Army Aviation combat employments, the capability of Avionics/C^3 at each functional mode. This allowed follow-on efforts to better define the materiel/operational C^3 voids and focus the avionics science and technological programs.

Intelligence/Electronic Warfare (IEW)

(U) During FY 1980, the IEW effort was focused on Division 86, with a view toward improving the means of providing the tactical commander with a clearer view of the battlefield, enhanced early warning of enemy attack, and an accurate assessment of the enemy intentions. To this end, a conscious effort was initiated to blend intelligence, surveillance, target acquisition, electronic warfare and reconnaissance objectives into one cohesive program.

(U) Articulating the need for an Intelligence/Electronic Warware architecture brought positive results. TRADOC was designated lead command in the development of such an architecture, and in September 1980 began staffing the draft architecture with major commands and agencies. When finalized, approved, and disseminated, the architecture would assist in effectively integrating IEW with other major tasks performed on the battlefield. Also, having a framework within which the intelligence community could focus its efforts would remedy some of the problems plaguing the Army in its systems development effort, such as frequent and erratic changes to systems specifications.

(U) Requests from the Commander, US Forces Korea (CDRUSFK) for items of equipment to enhance the intelligence collection effort were handled expeditiously.

(U) Second Echelon Technology Assessment. During fiscal year, 1980, a study was initiated to assess US Army technological capability to engage Second Echelon Warsaw Pact forces. The study depicted interrelationships between systems; identified deficiencies of Army systems to detect and engage Second Echelon Forces; and proposed means to correct deficiencies/gaps and exploit opportunities. The effort was designed to enhance the Army battlefield systems integration effort and to provide essential data required for the German-American (GE/US) Army Staff Talks.

(U) Automated Language Translation. The continuing shortage of linguists, particularly in the critical skills (Russian, Chinese, Arabic, Polish, Czech) dictated a need to seek alternatives to the human linguist and a means to improve the Army's language translation capability. At the request of BSI, the US Army Signals Warfare Lab (SWL) began exploring techniques for developing a real-time automated language translation capability. CG, INSCOM agreed to take the lead in organizing a steering committee comprised of DCSRDA, NSA, DCSOPS, TRADOC, INSCOM, DARCOM, FORSCOM to direct development of this capability. A test was planned for December 1980 and would determine the feasibility of proceeding with this effort.

(U) PLSS Interface. Interface with the Air Force continued in an effort to identify, formulate, and incorporate Army requirements into the Air Force's Precision Location Strike System (PLSS). A BSI sponsored study identified the type of tactical information to be exchanged at various echelons.

(U) Automated IPB. A need to capitalize on new capabilities offered by technological advances was made evident by the development and demonstration of Automated Intelligence Preparation of the Battlefield (IPB). Automated IPB, a two-phased effort, was initiated by BSI in the summer of 1978. Its main purpose was to develop an experiment to demonstrate the use of IPB techniques as they would be applied in an automated environment. This application was necessary in the light of the widespread acceptance of IPB within the Army as a valuable and needed improvement to tactical intelligence operations; the difficulties in implementing IPB techniques in a manual mode; the high implementation costs encountered in providing terrain data bases in sufficient detail for manual IPB applications.

(U) Phase I was completed in October 1978. A report entitled IPB - An Automated Approach to Terrain and Mobility Corridor Analysis, dated October 1978 was distributed summarizing the results of Phase I. An In-Process Review was held in May 1979 which resulted in a decision to proceed with Phase II.

(U) A Phase II Interim Report entitled IPB - Analysis, Design, and Demonstration of Automated IPB Four-Step Templates was distributed. The report summarized the work performed in the development of Workshop I, Phase II. The Software Functional Description and Final Report was distributed in early FY 1980. Approximately 800 military and DOD civilian

personnel viewed the automated IPB demonstration, which illustrated the potential value of IPB to the Army. In FY 1980, it was expected that automated IPB would become one of the primary functions of the All Source Analysis System (ASAS).

(U) Counter C^3. BSI continued its efforts to develop the Army counter-command, control and communications concepts during FY 1980. A technology survey of sensors and weapons available to counter enemy C^3 was completed and briefed to DCSRDA, TRADOC and numerous interested organizations. This study, entitled Anti-Radiation Weapon Systems (ARWS), was requested by DA staff to help them highlight Counter C^3 in the program objective memorandum (POM).

(U) The Army Science Board convened a Counter C^3 study in December 1979 at Ft. Leavenworth. BSI represented HQ DARCOM and provided briefings on the Army's present and future materiel capability to conduct Counter C^3. The Defense Science Board met in February 1980 at the Pentagon to investigate Counter C^3 and BSI provided them with similar support.

(U) A draft DOD directive for Counter C^3 and a draft Army regulation for Counter C^3 were coordinated through BSI for DARCOM input. The DOD directive, 4600.4, was approved.

(U) A major study of Army Counter C^3 technical and managerial issues was initiated with the MITRE Corporation in October 1979 and completed in October 1980. It provided an update of the enemy C^3 system, analyzed the vulnerability of the enemy C^3 system to jamming and destruction, and recommended specific Counter C^3 material options to exploit the enemy C^3. The study also presented a management plan of DARCOM actions required to implement DOD Directive 4600.4 and the Army Science Board recommendations.

Combat Support, NBC

(U) The Chemical Systems Architecture Study, initiated by BSI, and conducted by AMSAA, was completed during this fiscal year. It described the Army's Chemical Warfare and Biological Defense Programs and showed interrelated capabilities in such a way as to permit identification of weak links in the Architecture versus the threat during 1979-1985 and beyond. The study continued to provide a firm basis with supporting rationale for DA and MACOM corrective actions to strengthen the Chemical Warfare and Biological Defense Programs as they relate to equipment, organization, training and doctrine. Also, it was a major factor in the development of the ODCSOPS Chemical Warfare and nuclear, biological, and chemical (NBC) Defense Program Master Plan (CHEM-MAP 90); planning for the conduct of the May 1980 Chemical Special Program Review, especially as related to the Capstone issues of threat, policy and command emphasis; and BSI initiated study to determine the architecture of the logistics system available to support chemical warfare (defensive and retaliatory)

and biological defense during 1980-1985 and beyond. It was anticipated that these efforts would provide and/or significantly improve doctrine, equipment, training, and overall management of chemical warfare and biological defense programs so as to increase the capability of US forces to maintain effectiveness on a CB (contaminated battlefield).

(U) During fiscal year 1980, BSI participated in the SMOKE Week III Briefing Demonstration and Tour. It brought together, in a carefully characterized environment, obscurant materials of different but determinable properties, with standard and developmental electro-optical (EO) systems with different, but known operating characteristics, and assessed their interaction. The EO hardware developers used derived data to assist in determining the effectiveness of those systems in a realistic battlefield environment.

(U) BSI also participated in the Tactical Nuclear and Chemical Warfare Working Group, Army Operations Research Symposium, XVIII, which identified and acknowledged many gaps. The group produced recommendations which would improve the Tactical Nuclear and Chemical Warfare Priority Problem Area and the PPA process itself.

(U) BSI took part in assorted conferences/meetings/briefings. These were conducted to assist in expediting the development, testing, and systems integration of materiel designed to provide improved protection, detection, decontamination, and/or survivability of the Army in the field.

Systems Integration Data Base

(U) The data base project became a major BSI project under MG Patterson's guidance and Dr. Gerald R. Andersen's active efforts. On 3 October 1979, MG Patterson and staff members of the Directorate were briefed on the data base progress and witnessed a demonstration of the product. While it was clear that a tool of great utility to BSI had evolved, it was also apparent that many others in the Army, from HQ DA to TRADOC, could greatly benefit from such an information management approach.

(U) MG Patterson directed that three actions be taken. First, the data base be refined and briefed widely to the perspective user community. Second, a long term management plan and cost estimate for a fully operating implementation be developed. And finally, the program should be brought to the DARCOM Command Group for decision by the end of fiscal year 1980.

(U) The Battlefield Systems Integration Directorate effort focused on the issue of accurate technical systems data availability. Experience had shown that contractors hired to perform studies often spent a large amount of time gathering data. The report that resulted would then only portray the information in one or two ways, while an ability to take other "looks" was also needed. With that need in mind, the System Characteristics and Operational Relationship Data Base project was initiated.

(U) This was an experimental data base in the mission areas of Fire Support and Intelligence, Surveillance, and Target Acquisition (ISTA). In FY 1980 it contained data only on active fielded systems, consisting of technical system characteristics and intersystem operational relationships. These data were embedded in an Automated Data Base Management System (DBMS) that allowed information retrieval to assist users in assessing the impact of new requirements and systems modifications/developments on the materiel structure of the Army in the field. If demonstration of this experimental prototype proved the concept to be feasible, it would be appropriate that the data base be extended to all functional areas and include systems in development.

(U) The storage and information retrieval system consisted of two main data bases--the Systems Characteristics (SYSCHAR) data base and the Operational Relationship (OPREL) data base. The SYSCHAR data base included over 500 systems essential to the field artillery (FA) and ISTA missions. For each system, this data base contained information on from 10 to 100 technical characteristics relevant to system integration issues (i.e. those characteristics corresponding to a counter battery radar included range, scan rate, sector of scan, pulse width, power source, minimum and maximum frequency, etc.). If the Army intended to build an omni-directional jammer, for instance, one could immediately determine (by a simple query to SYSCHAR) which of its systems would be affected.

(U) The Computer Center at MERADCOM, Ft. Belvoir was the main facility which housed the data base while improvements were made and experimentation continued. The Ballistics Research Lab (BRL) computer personnel were invaluable in providing expert assistance and interceding with the proprietory DBMS owner (Daniel Analytics - CREATABASE) for specialized software. A significant variation saw the data base expanded to include classified data and housed, in that version, at the Army Research and Development Information Systems Agency (RDAISA), Radford, Virginia. That action demonstrated the compatability of the DBMS with yet another host computer and permitted classified demonstrations from the terminal room at the Pentagon.

(U) The final decision briefing was presented to LTG R. J. Lunn, Deputy CG for Materiel Development on 10 September 1980 recommending the assignment of the task to finalize the data base and maintain the data to AMSAA. LTG Lunn did not approve the course of action, recognizing the need and utility of such a system, but alleging the grand approach to be about five years ahead of its time. He felt the demand for such a system would have to come from the users who would also have the task to input the data. Until that demand surfaced the project should be held in abeyance.

(U) Project closedown actions were accomplished for the data base program. The data files and DBMS were archived at both BRL and MERADCOM to permit recall when necessary. Documentation of the effort in the form

of a report would be prepared and placed both in BSI Historical Files and in the Defense Technical Information Service (DTIS).

Continuing Problems and Accomplishments

(U) The problem of withdrawn financial authorization, which started in FY 1980, continued for FY 1981 and 1982 with actions by the Congress and the Army Staff in the budget process. The first action came as the Army Staff developed the budget package for the program objective memorandum (POM) years 1982-1986. The planning programming and budget system (PPBS) was being implemented in a new way for the fiscal year 1982 budget, combining the POM and budget development and including research, development, and evaluation (RDTE) more closely with other accounts. The Mission Area Cell dealing with the BSI program was unable to hold the support for the program at the "must fund" level, hence it became part of the "enhanced band". This action, in effect, deleted the funded BSI program from the Army budget.

(U) The fate of the 1981 BSI program in the Congressional Budget Hearings was similar to that of fiscal year 1980. The House Armed Services Committee again reduced the authorization to zero; however, support from the Senate was expected, necessitating Joint Committee consideration. Prior to Senate Armed Services Committee final consideration of the RDTE budget, the DCSRDA requested an additional $23 million for 90mm gun research and development. The Senate staff requested offsetting reductions and the BSI program was offered in its full amount. This effectively withdrew the request from the President's Budget.

(U) Notwithstanding the financial problems of the BSI program, the Battlefield Systems Integration Directorate accomplished a great deal, as documented above, during FY 1980. The interrelationship of DARCOM and TRADOC improved during the year, a fact largely attributable to the efforts of BSI in the mission area analysis (MAA), SPIDERCHART and Army 86 programs. In every case the interchange of information between laboratories and TRADOC centers was emphasized with the objective of assuring mutual pursuit of complementing goals.

(U) The DARCOM Project, RESHAPE also had its impact on BSI. RESHAPE I affected the subordinate commands and agencies in an effort to streamline activities and maximize productivity. By May 1980, it was clear that RESHAPE II, which focused on HQ DARCOM, would directly impact on the Battlefield Systems Integration Directorate although the extent of the impact was unknown. Major General Patterson retired from active Army service on 31 July 1980, and was not replaced by a general officer. Finally on 26 September 1980, dissolution of the BSI Directorate was announced, its functions to be transferred to AMSAA with HQ DARCOM Permanent Order Number 74-1, dated 1 October 1980, formalizing that decision.

(U) Since its inception in 1975, through its discontinuance on 26 September 1980, the Battlefield Systems Integration Directorate made significant contributions to a more effective, modern and integrated fighting force. Over $11 million was applied to studies, analyses, experiments and demonstrations during that period.

Assigned Programs

(U) Mutual Weapons Development, Data Exchange Programs (DEA) and Defense Development Exchange Program. A total of six new DEAs were effected during FY 1980--one with Australia, three with France, one with the Federal Republic of Germany, and one with Korea. In addition, twelve were pending--two with Australia, two with France, one with the Federal Republic of Germany, two with Japan, one with Korea, one with Norway and three with another country. At the end of the period DARCOM had monitorship of 213 DEAs involving sixteen countries. These DEAs required the participation of thirty-two Army activities. Also, DARCOM participated in thirty DEAs sponsored by the US Navy and seventeen sponsored by the US Air Force. The Army terminated one with Germany.

(U) International Professional (Scientists and Engineer) Exchange Program. During the reporting period a total of 22 Scientists and Engineers were assigned to Army activities under this program. Fourteen were representatives of the Federal Republic of Germany and eight were representatives from Korea. The cumulative total of Scientists and Engineers assigned to DARCOM activities since the program was initiated in 1964 was 341, of which 285 were from the Federal Republic of Germany. In March 1979 a similar program was established with Israel. Pending was the establishment of a program with Egypt, Greece, Japan, Norway, Portugal, Spain, Turkey, and Yugoslavia.

(U) During fiscal year 1980 the Army saw a continued increase in cooperative R&D arrangements with many Allies. Due in large part to the emphasis on Rationalization, Standardization, and Interoperability (RSI), there were two general memoranda of understanding (MOU) and five specific MOUs concluded.

(U) A general MOU was concluded with Germany on 17 October 1978 covering principles governing mutual cooperation in the Research, Development, Production, Procurement and Logistic Support of Defense Equipment. These two MOUs were negotiated and signed at the Secretary of Defense level.

US/CA Defense Development Sharing Program (DDSP)

(U) During FY 1979 the United States-Canadian Defense Development Sharing Program received high level attention within the Department of Army and DARCOM, which resulted in increased management emphasis and cooperation between the two countries.

(U) Although in effect since 1963, the program had not achieved 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 conducted a series of workshops at HQ DARCOM and four subordinate command locations in conjunction with Canadian government representatives to provide a forum for detailed discussions and explanations concerning the implementation of the program. These workshops were well received and had been greatly instrumental in rejuvenating interest and participation in the program. DARCOM's Office of International Research and Development (DRCIRD) was also tasked with updating AR 1-25, the implementing document for the Army participation in the DDSP. The regulation would be reissued as AR 70-66 to bring it into the Research and Development series of regulations. In addition to AR 70-66, DRCIRD would prepare a reference handbook providing detailed descriptions and procedures pertaining to the DDSP implementation process. This document would be issued as a DARCOM Handbook in early 1980 and distributed to DARCOM subordinate commands and laboratories.

(U) The Rationalization, Standardization and Interoperability (RSI) Program for HQ DARCOM was officially established during early 1979 by the allocation of additional manpower resources. The significant accomplishments for FY 1979 included development of command RSI policies, participation in the establishment of a Department of the Army RSI priority system and submission of resource requirements to support the RSI Program and participation in a special OSD study group on foreign acquisition data.

(U) During FY 1980, DARCOM initiatives were expanded to include detailed input to higher headquarters for the Secretary of Defense Report to Congress on standardization and interoperability and participation with USAREUR to assess field RSI effectiveness through the Reforger Exercise. The annual DARCOM RSI Conference was held during October 1979, to permit subordinate commands and selected PMs to report on specific accomplishments. At this conference RSI problems were analyzed and command-wide efforts presented to improve the program. A major effort during FY 1980 involved the production base study and the potential for US/UK co-production of the Infantry Fighting Vehicle (IFV). The office participated in a special OSD study effort on critical technology to develop a revised list for export control.

Product Improvement

(U) AR 70-15, Product Improvement of Materiel, was submitted to DA, the proponent, in final form in September 1979. The regulation was

printed 15 June 1980 and effective 15 July.[1] Printing errors necessitated the issuance of a change dated 1 August 1980.[2] A supplement to cover additional procedures and policy for DARCOM was drafted and the staffing process begun. DARCOM pamphlet 70-5, subject Product Improvement Management Information Report (PRIMIR)., dated 15 December 1978 was obsolete; the procedural information replaced by Appendix B of the new AR.[3]

(U) The new AR necessitated the reissuance of the original DARCOM delegation of PIP approval authority to the major subordinate commanders and those project managers reporting directly to the HQ.[4] This action, on September 1980, superseded the original delegation which had been issued in July 1975.

Joint Review

(U) The FY 1982 POM Product Improvement (PI) Program Joint Review and the FY 1982 Budget PI Program Joint Review were held at this HQ in December 1979 and June 1980 respectively.

(U) Product improvement proposals (PIPs) approved in the PI Program Joint Review were prioritized by DCSOPS and competed for funding. Each of these reviews focused on new and late start PIPs and significantly revised previously approved PIPs. Any of the previously approved PIPs were subject to review and question at the request of the principal review participants: DAMA, DALO, DAMO, TRADOC, and DARCOM.

(U) To be responsive to the FY 1982 budget formulation procedures and the needs of HQDA, the June session of the JR was shortened from five to one and a half days, addressing only special issues and PIPs not previously addressed.[5] Special issues were submitted formally by the JR participants based upon their examination of the Product Management Information Reports (PRIMIRS) distributed by this office prior to the JR. Both innovations were successful. The special issue submission by participants was to be continued in future JRs,[6] and the abbreviated session would be evaluated for future budget JRs.

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1 AR 70-15, dated 15 June 1980, Product Improvements of Material (sic).

2 Change 1, AR 70-15 dated 1 Aug 1980, subj: Product Improvement of Materiel.

3 DRCPI DF CMT 1 dated June 1980.

4 DRCPI ltr, 30 Sep 1980, subj: Delegation of Product Improvement Proposal (PIP) Approval Authority.

5 DRCPI Message, 06 2010Z May 1980, subj: Product Improvement Program Joint Review for FY 1982 Budget.

6 DRCPI ltr, 12 Sep 1980, subj: Product Improvement (PI) Program Joint Review.

(U) Three of the four PIP sponsoring MACOMs participated in the Joint Reviews. Of these three, DARCOM and the Army Communications Command had funded ongoing product improvement efforts in FY 1980. The Surgeon General had five approved but unfunded PIPs. The 21 July 1980 identification of a specific organization within the Surgeon General for product improvement proponency was expected to improve this situation.[7]

Priorities

(U) In FY 1980, all approved PIPs were assigned priorities by DCSOPS based primarily upon recommended prioritization by TRADOC. There were six categories. Priority 1 was defined as "most urgent" and needed acceleration.

(U) Priority 1a was defined as "no user requirement, should be terminated." This prioritization was essential in the allocation and reprogramming of fiscal and other resources, such as test range time, and kit application scheduling. The priority assignments were published in the semi-annual PI Program Joint Review Minutes. All Category 1 priorities were addressed in the Quarterly Command Performance Indicator Review (CPIR).

(U) TRADOC/DARCOM Coordination. In FY 1980, the TRADOC and DARCOM interface was based upon the combat and materiel developer relationship and extended from identification of the requirement for an improvement through the acquisition process and installation of all modifications. This relationship was defined in the January 1980 initial publication of the DARCOM/TRADOC Materiel Acquisition Handbook. The Office of Product Improvement was co-author of Chapter 4 titled Product Improvement.

(U) Requirements Documentation. TRADOC identified problems to be addressed by PI, validated and prioritized each PIP, and participated in the semi-annual review of all PIPs. TRADOC was responsible for the development of requirement documentation necessary to formalize the need for those improvements which exceeded established performance envelope of the weapon or item to be improved upon.

(U) In October 1979, the PI Office initiated a joint effort with TRADOC to verify the appropriateness of requirement documents associated with those PIPs using RDTE funding for the first phase.[8] These included over 70 PIPs partially financed with RDTE funds. These were reviewed and their documentation resolved.[9]

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7 DASG ltr, 21 July 1980, subj; Product Improvement Program (PIP) for the Army Medical Department.

8 DRCPI ltr, 9 Oct 1979, subj; PIP Requirement Documentation.

9 ATCD-EP (9 Oct 79) 3rd Ind, 13 Mar 1980, subj: PIP Requirement Documentation.

Command Performance Indicator Review (CPIR)

(U) The Office of Product Improvement continued presentation of major subordinate command performance in respect to technical milestones and fiscal obligation accomplishment. Added presentations included analisis of the funding, obligational and milestone accomplishment status and trends for all of the DCSOPS priority product improvement proposals (PIP) and selected high interest PIPs. The PIP program was stratified by priority category for evaluation of status and performance. A running average was determined for the duration of each of the three phases of a PIP: Engineering 1.8 years, procurement 1.5 years, and kit application 2.2 years. The total span of the average PIP from initiation of the improvement effort through completion of the application of last kit was 5.5 years.

(U) At the request of the CG, an analysis was made of those PIPs with accomplishment spans of ten years or more. These PIPs were evaluated to see if they would still be worth doing when the last kit was installed.

(U) A few PIPs, through administration error, included precursor studies and feasibility efforts in the milestone schedule even though these were conducted before the decision to initiate the PIPs. The requirements were or would be still valid at the conclusion of the PIP effort and this span of time until the last kit would be installed was recognized and accepted as of the time the PIP was approved. The largest contributor to this long span was the third or application phase of the PIP. Application in these cases was tied to scheduled overhaul or was dictated by a factor such as the active life of radioactive illuminants used in field artillery fire control.[10]

Automatic Data Processing (ADP)

(U) In the 5th year of PIP ADP operation, the data base for product improvement management information was developed into a viable, reliable management tool. It had become an essential element for the DARCOM product improvement program, supporting recurring and ad hoc reviews, program management, timely responses to higher headquarters inquiries on program status, and fiscal information. All of the information contained in the Product Improvement Management Information Report (PRIMIR) plus the assigned DCSOPS priorities were provided through a wide variety of computer programs using System 2000. The Product Improvement Office, in fiscal year 1980, forged an effective and dependable management tool essential to the product improvement mission of not only DARCOM, but for the other PIP sponsoring MACOMs. By FY 1980 the efforts were so successful that direct automated information update from the PIP proponents was scheduled to replace the PRIMIR beginning with second quarter FY 1981 PRIMIR submission.

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10 DRCPI Memorandum for CG, 15 February 1980, subj: Response to CPIR Comment on Long-Span PIPs.

(U) Product Improvement Management Training During FY 1980. DRCPI conducted one product improvement training presentation for XM1, XM2/2 and M60 personnel at Warren, Michigan. The US Army Management Engineering Training Activity (AMETA) bore the brunt of on site PI training, making 31 presentations to 582 participants at the major subordinate commands. These were shortened two-day courses and focused primarily on management procedures, responsibilities and preparation of the PRIMIR. This shortened course was the result of a number of reviews and critiques with AMETA. At AMETA's invitation, the Product Improvement Office made a presentation on 13-14 December 1979 at Rock Island Arsenal for the AMETA instructors in order to emphasize areas identified by experience to be of most importance to the product improvement mission.[11] Presentations by DRCPI of product improvement orientation to TRADOC and its schools did not occur during FY 1980, largely due to the high priority workload, rapidly changing policy, and revision of the material for presentation.

New Initiatives

(U) The concept of product improvement, its applicability and what it included continued to evolve. In December 1978, the Deputy Chief of Staff for Research, Development, and Acquisition (DCSRDA) proposed insertion of technology base improvements into developmental weapon systems after fielding and when the state-of-the-art permitted, thus protecting the investment in weapons by extending their useful life. TRADOC proposed a telescoping concept to reduce the time to field successive generations of selective systems. Their idea was to develop product improvements of systems in engineering development while the system itself continued on to production, and to initiate a milestone zero cycle for a second generation system while the first generation system was being developed. This milestone would integrate systems recommended for telescoping into the TRADOC priorities listings.[12]

(U) Essentially similar concepts were identified as System Technology Enhancement Proposals (STEP) in AR 70-15, Program System Evolution (PSE) in Draft AR 1000-1, and pre-planned product improvement by the Office of Secretary of Defense (OSD) and the American Defense Preparedness Association (ADPA). The ADPA held a P^{3}I seminar workshop in April 1980 in response to an OSD tasking. At the close of the fiscal year, however, the only institutionalized approach was that recognized in the product improvement regulation, AR 70-15, effective 15 July 1980. This permitted

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11 DRXOM-SE ltr, 20 December 1979.

12 ATCD-E ltr, subj: Implementation of PG Material Acquisition Telescoping Concept.

tentative approval of product improvements for planning year budget recognition with the provision that funds for initiation of the PIP were not released until and unless the type classification had been accomplished. Both the XM1 tank and the XM2/3 infantry/cavalry fighting vehicle had approved PIPs for FY 1981 initiation.

(U) On 8 August 1980, COL George Hehemann became the Chief of the Product Improvement Office upon the retirement of COL Graham Byrnes who had served in that assignment since January 1979.

Manufacturing Technology

(U) Mission and Functions. While FY 1980 saw no basic mission change in the Office of Manufacturing Technology, the directorate intensified its pursuit of early producibility engineering and planning (PEP) utilization in all Army R&D and PM managed developments and of end item oriented manufacturing methods and technology (MMT) projects. These were pursued in an effort to assure implementation of successfully completed projects and to establish an audit trail for transfer of the gained technology to prime and sub-contractore.

(U) OMT Personnel. In 1980, OMT gained a second value engineering (VE) project engineer, GS-14, but through a series of retirements, promotions and the detail of the Chief, Office of Manufacturing Technology to DRCDE-D, the office was severely understaffed to handle its responsibilities, requiring extensive unpaid overtime on the part of its top staff to assure proper continuation of the MT program.

Manufacturing Methods and Technology (MMT)

(U) FY 1980 saw a tapering off in the MT program in dollar funding level by 6 percent and in project numbers by 4 percent. But 1980 also saw an increase in successfully completed projects, end-of-contract demonstrations, production readiness reviews, and in the percentage of projects satisfactorily completed. A total of 111 projects were completed in the first half of 1980 due at least in part to the increasing emphasis placed by OMT on closing out older projects.

(U) Also in 1980, the OMT served as Army host for the annual Manufacturing Technology Advisory Group (MTAG) meeting, which was attended by 230 registered government and 330 private industry representatives. The best MT projects of all three Services were displayed. An international flavor was introduced by having a special seminar devoted to foreign manufacturing technologies.

(U) In addition to increasing evidence of PEP identified by PMs and MSCs, growth in value engineering and design to cost results, tightening of MMT and MACI efforts, and expansion of the PRR program, OMT published a handbook in 1980 which was in great demand and went into a second printing of 1000 copies.

Producibility Engineering and Planning (PEP)

(U) During FY 1980, the Office of Manufacturing Technology placed new emphasis on its mission and function assignment to provide policy and guidance for the Army's Producibility Engineering and Planning (PEP) program. This program was funded with RDT&E money. Approximately one-half manyear of professional effort was directed toward enhancing and promoting the early use of PEP in all system developments. Eighty percent of the PEP portion of the RDT&E program represented the accomplishment of objectives for FY 1980. In addition, incomplete PEP efforts were identified at two Production Readiness Reviews. The lack of these completed PEP efforts in turn precluded production readiness. The increased emphasis by DRCMT had a further positive effect on the PEP program in that it served notice that PEP could no longer be used as a slush fund to resolve other, non-PEP related, RDT&E problems.

Value Engineering (VE)

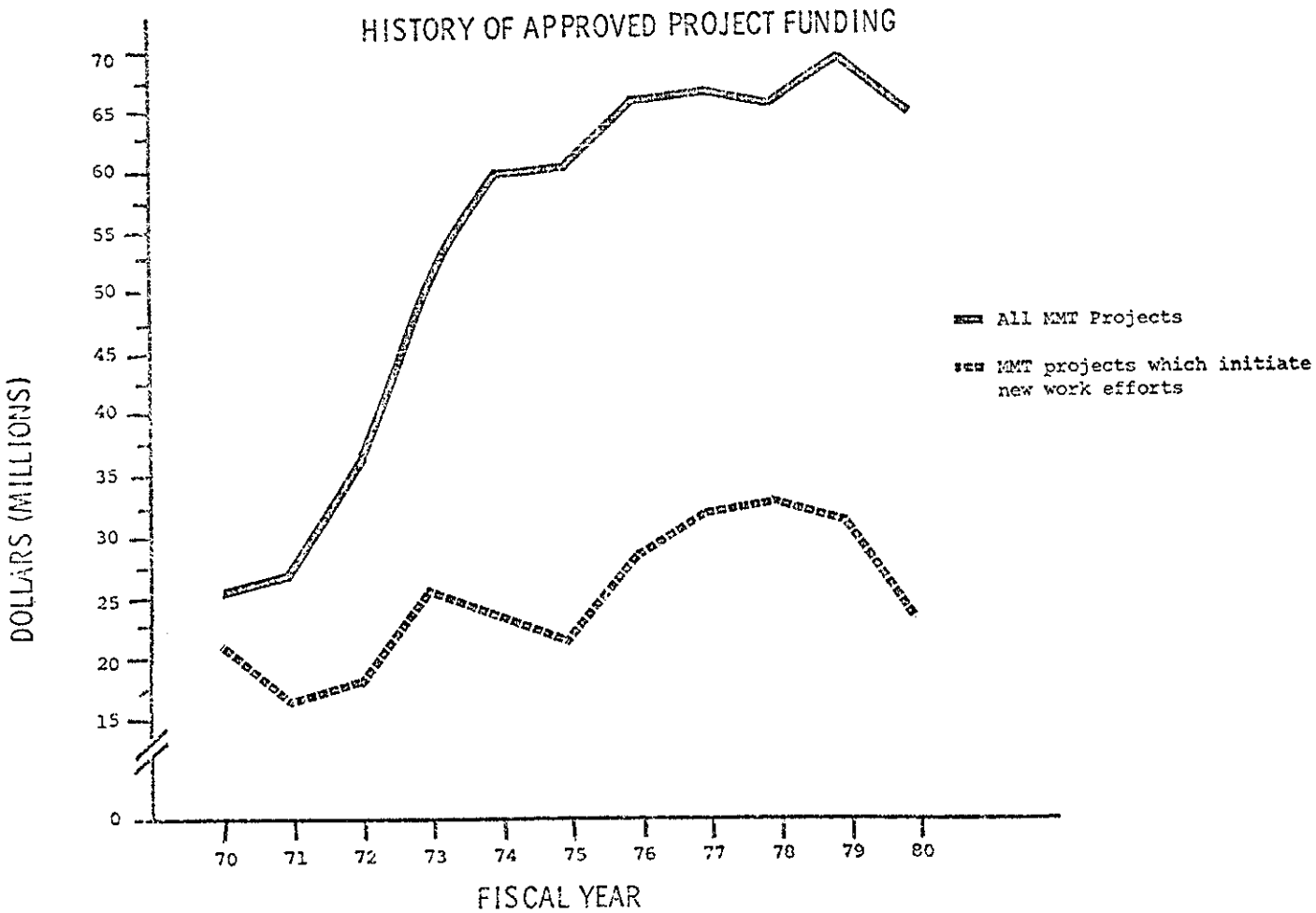
(U) The Value Engineering program had yet another highly successful year in FY 1980, with savings reaching $215 million, which represented an increase of $13 million over FY 1979. Contractors submitted 611 Value Engineering Change Proposals (VECPs) during the year for an increase of seven percent over FY 1979 and in-house personnel submitted 1486 Value Engineering Proposals. FY 1980 was a banner year for VECPs submitted. It was the first time the 600 mark had been broken. The Value Engineering Awards Program recognized twenty-three Army contractors and ten major subordinate commands through the presentation of appropriate plaques and certificates proclaiming their outstanding achievements.

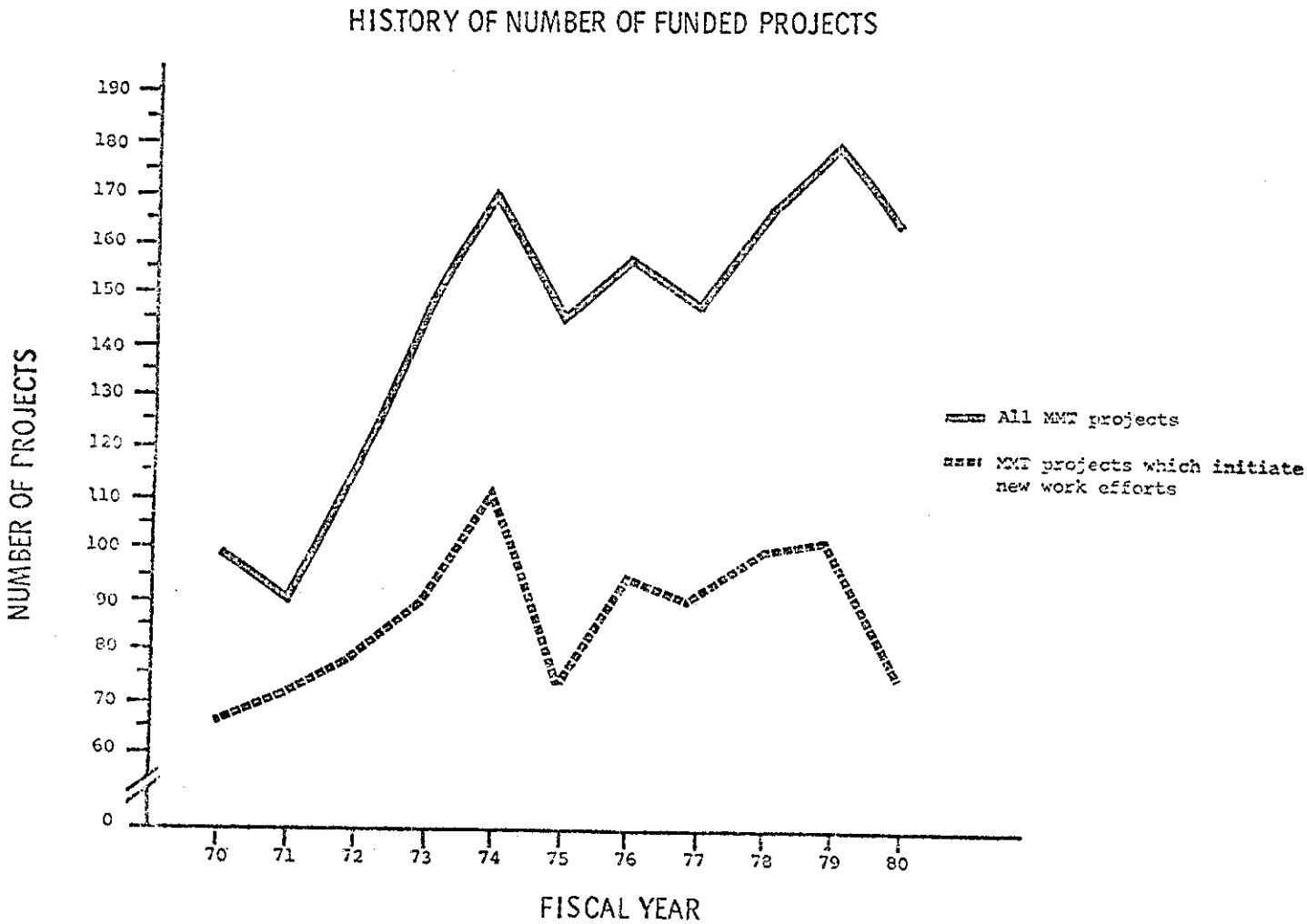
Design to Cost (DTC)

(U) The new Army Regulation 70-64, Design to Cost, dated January 1980, was distributed in February 1980. It required all Army materiel developers to report selected design to cost (DTC) information to DARCOM's Logistic Systems Support Activity (LSSA) for the preparation of an automated quarterly report. The Office of Product Improvement was designated the proponent of the regulation and had the responsibility for overseeing the preparation of the quarterly reports and providing them to HQDA. Throughout FY 1980, the PI office worked with LSSA to establish the report and resolve problems with the computer program that generated the report. The fourth quarter FY 1980 report was forwarded to HQDA.

(U) The DTC Data Item Descriptions (DIDs) which were sent through the American Defense Preparedness Association for industrial comments during FY 1979 experienced lengthy delays because of committee changes in that organization. The DIDs were then sent out through the Electronic Industries Association (EIA) for industry comment. EIA responses were received in September 1980.

(U) Production Engineering. An effort was initiated to develop a reporting system to permit a closer analysis of the use of funds and a more effective identification of the need for Man Tech support.


HISTORY OF APPROVED PROJECT FUNDING
DOLLARS (MILLIONS)
70
65
60
55
50
45
40
35
30
25
20
15
0
70
71
72
73
74
75
76
77
78
79
80
FISCAL YEAR
All MMT Projects
MMT projects which initiate new work efforts


HISTORY OF NUMBER OF FUNDED PROJECTS
NUMBER OF PROJECTS
190
180
170
160
150
140
130
120
110
100
90
80
70
60
0
70
71
72
73
74
75
76
77
78
79
80
FISCAL YEAR
All MMT projects
MMT projects which initiate new work efforts

ACCOMPLISHMENTS SUMMARY

PROJECT NUMBER	ANTICIPATED BENEFITS $ SAVINGS	ANTICIPATED BENEFITS OTHER	ACTUAL BENEFITS $ SAVINGS	ACTUAL BENEFITS OTHER	REMARKS
7 72 350[illegible]		INCREASED CAPABILITY			AVAILABLE FOR IMPLEMENTATION
7 74 356[illegible]		REDUCED TEST TIME			TWO PROTOTYPE SIMULATORS WERE BUILT
2 76 977[illegible]	$2 MILLION				SOFTWARE IS AVAILABLE FOR IMPLEMENTATION
2 74 952[illegible]	$175/UNIT	INCREASED LIFE & PERFORMANCE			
2 75 952[illegible]		REDUCED LABOR & INCREASED PROCESS YIELD			A PRODUCTION RATE OF 200/MONTH WAS ACHIEVED
H 75 966[illegible]	$700,000/YEAR				LASER TRIMMING FOR FINAL TUNING
2 75 973[illegible]	$1.7 MILLION				IMPROVED PROCESSING
2 73 974[illegible]		REDUCED DESIGN VERIFICATION TIME			AVAILABLE FOR IMPLEMENTATION
4 75 456[illegible]		REDUCED DIE DESIGN TIME			INTERACTIVE COMPUTER ASSIST
T 77 450[illegible]		ASSURES INTEGRITY OF DESIGNS			COMMAND CONVERSION PLAN WILL IMPLEMENT
4 77 501[illegible]	$3.0 MILLION	LOWER MAINTENANCE			FOLLOW-ON PROJECT IS COMPLETING THIS EFFORT
1 76 70[illegible]	$225,000	LIGHTER & LESS EXPENSIVE UNIT			FOLLOW-ON PROJECT IS COMPLETING THIS EFFORT
1 72 80[illegible]	NONE				UNDESIRABLE SIDE EFFECTS
1 74 80[illegible]		80% REDUCTION IN PROCESSING COSTS			
1 74,75,76 8109	$14 MILLION	MORE ENVIRONMENTALLY TOLERANT UNIT			
3 76 3147	$4.7 MILLION	REDUCES UNDESIRABLE CHEMICAL DISCHARGES			FOLLOW-ON PROJECT IS COMPLETING THIS EFFORT
R 77 3168	$10 MILLION	INCREASED PERFORMANCE			PRODUCTION RATE OF 50/HOUR ACHIEVED
3 76 3224	$1.5 MILLION	REDUCED FIELD FAILURES			ADDITIONAL EFFORT IS PROPOSED
3 76 3225	$760,000/YEAR				FOLLOW-ON EFFORTS ARE REQUIRED
3 76,77 3[illegible]		ELIMINATES BATCH OPERATIONS			FOLLOW-ON PROJECT IS COMPLETING THIS EFFORT

UNCLASSIFIED

ACCOMPLISHMENTS SUMMARY (CONT)

PROJECT NUMBER	ANTICIPATED BENEFITS $ SAVINGS	ANTICIPATED BENEFITS OTHER	ACTUAL BENEFITS $ SAVINGS	ACTUAL BENEFITS OTHER	REMARKS
S 73 4139		REDUCED EXPLOSIVE HAZARD			TWO MACHINES WERE FITTED WITH FLUIDIC CONTROLS
S 73,75 1248		SAFETY ENHANCEMENT			AIR VENTILATION SYSTEMS DESIGN CRITERIA
S 74 4361		INCREASED CAPABILITY			PROTOTYPE SYSTEMS ARE IN USE
S 77,77 1237		PROVIDED PRODUCTION CAPABILITY			PILOT PLANT WAS CONSTRUCTED
S 74 4049 & 3 76 3141	$200,000/YEAR				LAMINATED FLUIDIC DEVICE
S 73 4051	$250,000/YEAR	INCREASED TESTING CAPABILITY			
S 71,74 4041		AUTOMATED LINE			FOLLOW-ON PROJECTS ARE COMPLETING THIS EFFORT
S 73,74,77,78 4139	$2.9 MILLION/YR	INCREASED CAPABILITY			FOLLOW-ON PROJECTS ARE ENHANCING CAPABILITIES
S 74 4162	$1.29 MILLION/YR				CONTINUOUS AUTOMATED PROCESSING
S 71,72 4171	$2.0 MILLION/YEAR				MINI PILOT PLANT WAS CONSTRUCTED
S 72,73 4220		INCREASED PRODUCTION CAPABILITY			AUTOMATED BATCH EQUIPMENT WAS CONSTRUCTED
S 74 255		INCREASED PRODUCTION & TEST CAPABILITY			INSUFFICIENT PRODUCTION REQUIREMENTS
S 76, 7 4280		AUTOMATED FINAL ASSY & CALIBRATION			MACHINES ARE BEING INTEGRATED INTO PRODUCTION
S 77 4288		SAFETY STANDARDS			WILL BE INCORPORATED INTO SAFETY REGULATIONS
S 76 4288		SAFETY STANDARDS			WILL BE INCORPORATED INTO SAFETY REGULATIONS
S 77 4268		SAFETY STANDARDS			WILL BE INCORPORATED INTO SAFETY REGULATIONS
S 76 4291		EXPLOSION RESISTANT STRUCTURES			WILL BE INCORPORATED INTO SAFETY REGULATIONS
S 77 4341	$1.2 MILLION/YR				CONTINUOUS PURIFICATION PROCESS
S 77 4416	$1.6 MILLION/YR				SIMPLER AND LESS EXPENSIVE FABRICATION

UNCLASSIFIED

ACCOMPLISHMENTS SUMMARY (CONT)

PROJECT NUMBER	ANTICIPATED BENEFITS $ SAVINGS	ANTICIPATED BENEFITS OTHER	ACTUAL BENEFITS $ SAVINGS	ACTUAL BENEFITS OTHER	REMARKS
5 71 4457	$1.5 MILLION/YEAR				INCREASED THE CAPABILITY OF EXISTING HARDWARE
5 72 6335		IMPROVED MATERIAL PROPERTIES			COMMERCIAL EFFORTS ARE IMPLEMENTING
5 71 6388		PURCHASE DESCRIPTION			ADDITIONAL EFFORTS ARE NEEDED
5 73 6550		REDUCED PERSONNEL & ELECTRICAL POWER REQUIREMENTS			
6 72,73 6681		LIGHTER CANNON TUBE			NO REQUIREMENT
6 72 6786	$450,000/100K BBLS	REDUCED OPERATOR REQUIREMENTS			INSUFFICIENT PRODUCTION REQUIREMENTS
6 72 6838		IMPROVED PROPERTIES & DECREASED COST			IMPLEMENTATION WILL BE UNDER PROJECTS 6 XX 7419
6 73 7056		DOUBLED THE OPERATIONAL LIFE			UNIT IS NOW A REPAIRABLE ITEM
6 73 7124		IMPROVED & MORE CONSISTENT PROPERTIES			PROCESS SPECIFICATIONS ARE AVAILABLE
6 72 7220		REDUCED TAPE PREPARATION COSTS			USED PRIMARILY FOR PROTOTYPING
6 72 7226		INCREASED MEASURING CAPABILITY			LASER OPTICAL SYSTEM
6 76 7236	$57/TUBE	REDUCED FURNACE TIME FROM 70 TO 20 HOURS			
73 7242			$110,000/YEAR	PARTIAL IMPLEMENTATION	ADDITIONAL IMPLEMENTATION IN PROCESS
73 7261		LOW COST MIRRORS			INSUFFICIENT REQUIREMENTS
6 73 7265			$19,000		FACILITY CLOSURE TERMINATED IMPLEMENTATION
6 74 7411		INCREASE PERFORMANCE UNIFORMITY			PROCESS DATA IS AVAILABLE
6 74,75 7419	$85,000/YEAR				INSUFFICIENT REQUIREMENTS
6 74 7495		PROCESS INFORMATION			END ITEM NO LONGER IN PRODUCTION
6 74 7524		7% SAVINGS IN LABOR & TOOL COST			BORIDE COATED TOOLS
6 74,75 7550	$500/TUBE				NO REQUIREMENT
6 75 7571		50% REDUCTION IN REQUIRED TESTS			SHOCK TEST METHODS & SPECIFICATIONS
6 75 7572		50% REDUCTION IN PRODUCTION TESTS			DETAILED ENG. SPECIFICATIONS

UNCLASSIFIED

IMPLEMENTATION SUMMARY

PROJECT NUMBER	ANTICIPATED BENEFITS $ SAVINGS	ANTICIPATED BENEFITS OTHER	ACTUAL BENEFITS $ SAVINGS	ACTUAL BENEFITS OTHER	REMARKS
7 7X 3524			$13.28 MILLION/YR		EQUIPMENT AT USE IN TWO FACILITIES
2 74 9744				PROVIDED PRODUCTION CAPABILITY	REPLACED HAND PRODUCED ITEMS
2 74 9750	$3.2 MILLION				EQUIPMENT UPGRADING
2 75 9856	$2.45 MILLION			PRODUCT QUALITY IMPROVEMENT	QUALITY ASSURANCE POLICIES AND PROCEDURES
T 7X 4329				NEW PRODUCTION CAPABILITY	JOINING OF DIFFERENT TYPES & HARDNESSES OF ARMOR
1 XX 7103			$60 MILLION	PROVIDED PRODUCTION CAPABILITY	TURBINE ENGINE MACHINING
1 77 7112				IMPROVED PERFORMANCE	KAMAN AEROSPACE CORP IS IMPLEMENTING
1 7X 8046			$2.0 MILLION/YR	REDUCED CRITICAL MATL USEAGE	IMPLEMENTED AT GE
1 75 8154			$10,000/YR (AIR FORCE APPLICATION)		INTERACTIVE COMPUTER SYSTEM
3 75 3157	$10.24 MILLION			REDUCED WT & INCR RELIABILITY	HIGH RATE PRODUCTION CAPABILITY
R 7X 3170				PROVIDED PRODUCTION CAPABILITY	IMPLEMENTED AT LONGHORN
3 7X 3232				39% REDUCTION IN PROCESS PLANNING	COMPUTERIZED PROCESS PLANNING
5 7X 1248				REDUCED EMISSIONS	INSTALLED AT SEVERAL LOCATIONS
5 7X 1260			$0.056/GRENADE	IMPROVED SAFETY	IMPLEMENTATION AT PINE BLUFF ARSENAL
5 7X 1277				IMPROVED SAFETY	IMPLEMENTED AT TOOELE ARMY DEPOT
5 7X 4032				TWO MILLION FUZES PRODUCED	IMPLEMENTED AT HONEYWELL FOR THE M739
5 XX 4114-205				REDUCES POLLUTANTS	INSTALLED AT RADFORD, OTHERS PLANNED
5 74 4205			$11,000/YEAR	PROCESS IMPROVEMENT	IMPLEMENTED AT HOLSTON
5 73 6522				INCREASED YIELD & REDUCED OPERATOR REQUIREMENTS	SEVERAL APPLICATIONS
6 7X 7248	$176,000/YEAR			INCREASED EFFICIENCY	IMPLEMENTED AT WATERVLIET ARSENAL
6 73 7305			$21,000/YEAR		IMPLEMENTED AT ROCK ISLAND ARSENAL

UNCLASSIFIED

IMPLEMENTATION SUMMARY (CONT)

PROJECT NUMBER	ANTICIPATED BENEFITS $ SAVINGS	ANTICIPATED BENEFITS OTHER	ACTUAL BENEFITS $ SAVINGS	ACTUAL BENEFITS OTHER	REMARKS
6 74 7481 6 74 7484			$1.3 MILLION	FASTER & LESS EXPENSIVE N/C TAPE VERIFICATION	IMPLEMENTED AT WATERVLIET ARSENAL

Laboratory and Development Command Management

Personnel

(U) The position of Chief, Office of Laboratory and Development Command Management, a Senior Executive Service (SES) position, continued as a vacancy in FY 1980. One of the five authorized GS-15 Physical Science Administrators served as Acting Chief. Mr. J. Lindwarm served until his retirement on 28 February 1980 and Mr. J. Bender thereafter. Mr. R. Zentner also retired in February. Mr. Lindwarm became a rehired annuitant until final separation on 30 September 1980. During the summer months a MARED trainee, Dr. R. Gonano, from MERADCOM assisted in coordination of office programs, particularly the Army Energy R&D program.

Operations

(U) During FY 1980 procedures for management of the technology base program and for selection of SES candidates and research and development awards were worked out with Dr. Wiseman, the new DRCDMD-ST who succeeded Mr. Klein at the beginning of the fiscal year. In conjunction with DRCLDC staff members, Dr. Wiseman and the Technical Directors of commands and corporate laboratories met for a week in January 1980 at HQ DARCOM to review in detail and to plan a fully coordinated technology base program for FY 1981-1982. This permitted each organization to participate in defense and decisions regarding the entire program. Another new style Technical Directors' Meeting was held at the Army Research Office in conjunction with the Army Research Office (ARO) review of the DARCOM 6.1 program, 11-12 March 1980. Participating in the 6.1 review were technical managers from DRCLDC and each DARCOM laboratory, as well as representatives from OCE, OTSG, TRADOC, DCSRDA, OASA(RDA) and OUSDRE(R&AT). The Technical Directors were also used as a body in organizing the DARCOM cooperative effort with TRADOC in development of long range science and technology plans for each Army mission area. This effort continued into FY 1981. The rating of each DARCOM laboratory by the Technical Directors was included in the overall DRCLDC evaluation for submission to the ASA(RD&A). The top nominations by DARCOM were Night Vision and Electro-Optics (NV&EO) Laboratory, ERADCOM; Ballistics Research Laboratory, ARRADCOM; Missile Command Laboratories; Human Engineering Laboratory; and Electronics Technology and Devices Laboratory, ERADCOM. The NV&EO Laboratory received the Laboratory of the Year Award from ASA(RD&A). The others received awards for excellence.

(U) Dr. G. Bushey served as HQ DARCOM member of the ASC Advisory Group and chairman of one of the four technical sessions at the biannual Army Science Conference, (ASC) at West Point, 17-20 June 1980. Based on recommendations from DRCLDC staff he recommended awards to DA for the best papers, and the top prize, Paul A. Siple medallion with $1000 was presented by ASA(RDA) Pierre for a paper from Harry Diamond Laboratories, ERADCOM, entitled "The Generation of Gigawatt Power Levels of Microwave Radiation," to authors Kehs, Brandt, Bromborsky, and Lasche.

(U) In addition to the on-going Army Youth Science Programs, such as Science Fairs, Junior Science and Humanities Symposia, and UNITE orientation, DRCLDC directed DARCOM's participation in the President's Research and Engineering Apprenticeship Program (REAP) through a contract effort with 45 colleges and universities having research contracts with the Army Research Office and by summer hires at DARCOM laboratories. REAP was aimed at high school students from "segments of our society that for cultural or economic reasons do not enter the scientific and engineering professions." The target for the Army was 70 students working with a mentor in a laboratory; largely through the Army Research Office (ARO) program with 55 apprentices, the Army, counting DARCOM, TSG, Corps of Engineers, and ARI exceeded its goal by almost 50 percent.

(U) DRCLDC participated more actively than before in planning for readiness evaluations and in Army exercises. An annex for the 1980 Exercise Proud Spirit/Mobex 80 (U) was prepared to assess the status of mobilization plans and implementation procedures for materiel development and engineering organizational efforts in a mobilization situation. R&D commands were responsible for reviewing plans and procedures, including initial item production, engineering in direct support of production, product improvement program, utilization of in-house production/testing capabilities, technical data package update, reprioritization of research and development tasks, technical intelligence, malfunction investigations, and agreement with materiel readiness commands for workforce diversions.

(U) DRCLDC technical staff members participated actively in the first quarter, FY 1980 review of the In-house Laboratory Independent Research (ILIR) program conducted by the Army Science Board for the ASA(RD&A) and in the annual joint DARCOM-DA spring reviews of the development and engineering programs at each field organization.

Project Management

(U) During fiscal year 1980 the office of Project Management arranged for the conduct of approximately 21 Review and Command Assessment of Projects (RECAPs), eight Logistic Command and Assessment of Projects (LOGCAPs), and six Department of the Army Program Reviews (DAPRs) to keep the DARCOM Command Group and Army staffs apprised of progress and problems associated with the development and readiness programs under PM management. In addition, quarterly Selected Acquisition Reports (SARs) were submitted on 17 PM managed development programs which Congress and DOD choose to keep under special surveillance.

(U) Entering FY 1980 there were 57 chartered PMs. During FY 1980 this number was reduced by transferring the missions and functions of the PMOs to functional elements of existing organizations and in some instances to newly created ones. Three PM offices were eliminated, including the High Energy Laser System, COPPERHEAD, and LANCE Missile System. No new programs were established. This left the year-end count of PM at 54.

(U) During FY 1980 DARCOM PMs guided the expenditure of approximately $5.6 billion in R&D and procurement funds. This represented a little over half the total DARCOM budget in these categories for FY 1980. The work force assigned to PMs at the end of FY 1980 averaged about 3,426 people or about 3.1 percent of the total DARCOM work force.

(U) Many significant ASARC/DSARC decisions and other milestones were reached during FY 1980. Highlights included the Type Classification of the Fighting Vehicle System with release to Full Scale Production; and PATRIOT, CH-47 Modernization Program, Multiple Launch Rocket System, and Multi-Service Communication System being authorized to proceed with initial production.

(U) Improving and sustaining excellent lines of communication and rapport between command headquarters and the PMs, and between the PMs themselves, continued to rank high on the list of Office of Project Management priorities. Toward this end, the tenth annual PM Conference was held in Orlando, Florida, early in the fiscal year. During the conference, the fourth annual Secretary of the Army Award was presented to two outstanding project managers. They were Colonel James M. Hesson, PM, CH-47, and Colonel Harry V. Dutchyshyn, PM, MPBME.

(U) The Project Manager Development Program (PMDP) was organized in 1972 to provide a body of officers educated and experienced in project management for assignment to PMOs. Membership at yearend FY 1980 stood at 1155 officers ranging in rank from captain to colonel. Statistics relative to promotions and selections to Senior Service School and Command Staff College for members of the PMDP were closely monitored by the Program's administrators and by this office.

Battlefield Systems Integration

(U) The Directorate for Battlefield Systems Integration (BSI) was established at DARCOM in August 1975 for the purpose of providing a continuing overview of Army systems development to insure that gaps in combat capabilities were filled, that new systems were compatible with those they would join on the battlefield, and that the overall materiel development effort achieved a significant gain in the effectiveness of the fighting force. Impetus for establishment of this directorate came from the conviction that a need existed for an organization in the Army to take advantage of technology breakthroughs and to treat the whole Army as a system to be improved, rather than dealing with each of its functionally oriented elements separately.

Products and Accomplishments

(U) BSI organized and chaired the Ammunition Initiative Task Force (AITF) which made 40 specific recommendations for the improvement of

ammunition supply from the producer to the ultimate user. The Army needed an integrated concept for packaging, storing, handling, forward resupply and servicing of weapons with conventional ammunition. Implementation of the 40 recommendations resulting from the AITF was directed by the VCSA.

(U) The SPIDERCHARTS (Systematic Planning for Integrated Defense Engineering and Research), developed by BSI and updated annually since FY 1977, portrayed in graphical logic the relationship of tech base projects to a prioritized requirement for a system capability. A dialogue between the user (TRADOC Schools) and the developer (DARCOM Laboratories) was essential to optimize the contribution made by science and technology to advanced systems and the upgrade of those in use in FY 1980. SPIDERCHARTS instilled that dialogue and served as a management tool to compare laboratory efforts with user validated needs.

(U) Fire Support combat development and force structure decisions were greatly influenced by BSI sponsored analyses. Integration investigations focused on the potential gains which would be derived by various degrees of specialization within field artillery organizations and improvements in doctrine and materiel needed to wage a successful counterfire campaign.

(U) The BSI recommendation to link RPVs and COPPERHEAD materially affected decisions on the assignment of RPVs within the combat division. Targets beyond line-of-sight, or otherwise invisible to ground observers, would have to be attacked. The linking of RPVs and COPPERHEAD resulted in an attack system which would be highly effective in disrupting the movement of enemy forces beyond direct observation.

(U) The BSI sponsored Chemical Systems Architecture Study provided a firm basis and impetus to initiate short range corrective actions to strengthen the chemical warfare defense program and served as a primary input to the Chemical Warfare Master Plan (CHEM-MAP 90), strongly influencing long range program direction. The study, a segment of an overall effort toward an integrated battlefield systems architecture, described and analyzed chemical defense programs and identified weak links for the period 1975-1985 and beyond.

(U) Air defense suppression recommendations from BSI analyses were influencing TRADOC Division 86 decisions, the Joint Defense Suppression Steering Group, and the Joint Defense Integration Analysis. Soviet/Warsaw Pact air defenses were formidable and improving rapidly. A suppression of Enemy Air Defense (SEAD) Campaign analysis sponsored by BSI examined alternate means of coping with enemy air defense systems and recommended both a best mix of responses and a means of controlling joint response assets.

(U) The BSI Military System Reference Book was an invaluable handbook for action officer and executive personnel. Surveillance and electronic warfare equipment was quite complex and capabilities were not understood by non-technical personnel. The BSI handbook, over 200 copies distributed worldwide, was used as a working document at an INSCOM Commanders' Conference. The information was updated in FY 1979 and was found as an Annex to the DOD Plan for Intelligence Support to Military Tactical Units.

(U) A BSI study of the unique problems of communications in built-up areas defined numerous deficiencies and demonstrated an inexpensive, low visibility antenna that would significantly improve operations. Military Operations in Built-up Areas/Military Operations in Urban Terrain (MOBA/MOUT) presented unique operational problems, particularly in communications. Deficiencies were defined, solutions recommended, and one solution prototyped and demonstrated.

(U) The Technological and System Forecast for the Battlefield of 1990-2000, sponsored by BSI, served as a dictionary of technologies for planning exchanges between Allies. Projected technology and future systems which had a high probability of being in the inventory of NATO forces in 1990-2000 were identified. The forecast which resulted was used as a primary reference document during US/UK Rationalization, Standardization and Interoperability staff talks.

(U) BSI's CORCOM 85 (Corps Communication, 1985) was accepted by the combat development community as the foundation for updating the tactical communications architecture (INTACS or Integrated Tactical Communication System) by the US Army Signal Center. Successful integration of battlefield information and data systems could not occur without a highly responsive tactical communications system. BSI's CORCOM 85 provided a solid, broad understanding of this complex subject and included a series of technical reports on data distribution, POS/NAV, multi-channel systems, TACSATCOM, Combat Net Radio, and mobile subscriber voice systems.

(U) BSI directed an analysis which contributed directly to a decision by the RDAC not to modify the TOW missiles and launchers to counter a postulated electronic countermeasure, saving $225 million.

(U) Through means of a BSI designed test bed known as DIVRAS, the feasibility of integrating combat information from several diverse sources, using information correlation techniques, was demonstrated. DIVRAS provided a direct technique and technology transfer to BETA and many of the DIVRAS' techniques were being used in Project BETA.

(U) BSI was instrumental in the development of the first set of approved interoperability requirements for the Army's tactical data systems. This was the very important first step in achieving total interoperability of tactical data systems which would enhance the combat effectiveness of individual systems by allowing them to function as an integrated command and control system.

(U) Effective and timely command and control of the new family of Short Range Air Defense Systems (SHORAD) would be achieved when the BSI initiated SHORAD C^2 system was fielded. This accelerated test bed program would tie sensors, weapons and commanders together to maximize the complementing advantages of each for a significant increase in overall capability through the force multiplier of effective command and control.

(U) BSI produced an electronic warfare materiel architecture and Combat Electronic Warfare and Intelligence (CEWI) reorganization based upon the commander's new responsibilities of managing the electronic warfare assets which were organic to the tactical units. The architecture provided the commander a clear display of combat data based upon SIGINT and a simplified chain of command to his CEWI support units. TRADOC was using the findings to develop EW tactics and doctrines.

(U) BSI initiatives had a direct impact in formulating Army policy and direction for Counter Command, Control, Communication. Key participation was provided to Army and Defense Science Board sessions on Counter C^3, the DOD Working Group on C^3 Countermeasures, and the USAF sponsored Countermission Analysis of Warsaw Pact C^3. MITRE studies of antiradiation weapons systems and Counter C^3 technical and management issues would focus future materiel and doctrinal development.

(U) BSI designed the Combat Model Evaluation Systems (CMES) to provide a quantitative way of assessing the worth of alternative materiel developments without building yet another combat model. It allowed BSI to obtain quick response, quantitative measures of the relative value of competing weapon systems. CG TRADOC based his study concerning the importance of the survivability of the tank on analysis produced with this tool. CMES had been briefed to numerous analytic groups within the Army as well as to analysts from Germany and the United Kingdom.

(U) The Systems Integration Data Base, developed and demonstrated by BSI, had the potential of becoming an invaluable resource development and force structure for technical planning and management. The experiment used a relational data base management system, described input/output relationships of all fielded systems in division Fire Support and ISTA, and permitted comparisons and analysis in an automated, interactive mode.

(U) BSI encouraged development of an improved automated message processing system using commercially available computer equipment which could be quickly fielded in USAREUR as an interim capability pending fielding of militarized equipment under TRI-TAC or other programs. This work was key since the Staff Message Center was a critical area in tactical communications vital to effective operations of a corps in the field.

(U) Intelligence Preparation of the Battlefield (IPB) was a concept which maximized the integration and analysis of the factors associated with combat intelligence--enemy, weather and terrain. The concept was sound, but IPB was labor intensive and to be useful on the modern battlefield had to be automated. BSI developed an experimental means to demonstrate the automation of the process of integrating and analyzing combat intelligence factors. This BSI test bed of an automated IPB would enhance the Army's understanding of the full value and potential of this capability.

Ammunition Initiatives Task Force

(U) Systems for moving and handling large quantities of ammunition from production lines in CONUS to depots and OCONUS storage sites were reasonably efficient. However, a serious shortfall surfaced in getting the ammunition from the ASP to the artillery firing battery or tank company. Given increased ammo firing rates, and increased numbers of tasks on the battlefield, this shortfall could present an unacceptable situation in light of the WP threat.

(U) BSI chaired the Ammunition Initiatives Task Force, in response to a tasking by the Vice Chief of Staff, US Army, to develop an integrated concept for packaging, shipping, storing, handling, forward resupply and servicing of weapons with ammunition. The Task Force, composed of representatives from DARCOM and TRADOC with input from FORSCOM and USAREUR systematically analyzed the ammunition supply system from the gun tube all the way back to the packing. The study analyzed the ammunition supply/resupply system from the tank/tube/launcher to the production line. Concentration was on conventional field artillery, armor and infantry weapon systems.

(U) This analysis uncovered significant gaps and voids in transportation capabilities, material handling equipment, ASP operations, ammunition packaging, training and doctrine, C^3, survivability, logistic support structure, and weapon system and ammunition design. The report recommended 40 specific actions which would improve ammunition resupply particularly at the user interface. Actions encompassed initiatives in materiel development doctrine, management, force structure and training.

SPIDERCHARTS

(U) SPIDERCHARTS (Systematic Planning for the Integration of Defense Engineering and Research) were initiated in 1976 by Battlefield Systems Integration (BSI) Directorate, DARCOM to establish the relationship between operational and future needs for Army battlefield systems

and the work which was being done in DARCOM Laboratories. BSI developed the SPIDERCHARTS with computer assistance from the Army Materials and Mechanics Research Center (AMMRC), with input from TRADOC Schools and DARCOM Laboratories. A new edition, funded by BSI, was published annually.

(U) SPIDERCHARTS were used by Army managers to determine how the base technology effort supported Battlefield Systems needs. SPIDERCHARTS prioritized technology requirements and promoted user/developer (TRADOC School/DARCOM Laboratory) dialogues and assisted in identifying gaps and trade-offs.

(U) Copies of the SPIDERCHARTS were provided to all TRADOC Schools/ Centers and the entire DARCOM organization for use in managing the technology needed or being developed in their areas of responsibility. SPIDERCHARTS were used as basic documents by TRADOC in the Battlefield Development Plan and Army 86 studies and Mission Area Analysis.

(U) The SPIDERCHART Data Base provided inquirers data on the technology base in a variety of output formats to suit their individual needs and requirements. An example of such a cumulative display was a portrayal of tech base work units compared with the Science and Technology Guide (STOG) requirements to which they were directed.

Fire Support Integration

(U) In 1979-1980, BSI undertook investigations of two major facets of Fire Support--how much specialization should be built into the fire support system to accomplish its various sub-tasks and how should the system view the counterfire sub-task.

(U) The objective of the first effort was to determine the degree to which field artillery had to be specialized to most efficiently and effectively use the weapons, communication types, target acquisition systems and command and control systems which would be available to the field artillery in Europe in 1986. The organizational concepts developed for using field artillery in a specialized manner in several cases departed considerably from established field artillery doctrine. Each concept was directed toward accomplishing the basic field artillery functional requirements of target servicing with indirect fires, suppression of the enemy air defenses, counterfire, and interdiction. The study showed that specialization of the field artillery along functional lines would improve the overall performance of the field artillery system against a sophisticated enemy. Specialization would develop experts for specific functions, ensure all functional tasks were addressed, facilitate positioning of assets, improve communications, simplify ammunition resupply, enhance the system survivability, reduce weapon signatures, fully use all command echelons, and permit commander emphasis on critical functional tasks.

(U) Accepting the fact that US forces were and probably would remain numerically inferior to the Soviets, the only hope of redressing the imballance was by identifying, creating, and exploiting asymmetries between forces. Important potential asymmetries included speed of response, weapon accuracy, munition lethality, tactical posture, and doctrinal procedures. The second investigation, the Counterfire Campaign Analysis, examined these factors and identified those materiel and doctrinal improvements most likely to make significant differences in the capabilities of the US Army Field Artillery to wage a successful counterfire campaign.

(U) These efforts demonstrated that marked improvements could be made by better integration and employment of the planned-for materiel resources. Both investigations greatly influenced the major fire support combat development effort of the period, the Fire Support Mission Area Analysis.

Target Acquisition for CLGP

(U) The Fire Support Mission Area Analysis resulted in a recommendation that an opportunity existed to exploit the synergism of linking RPVs and COPPERHEAD to attack targets beyond line-of-sight or otherwise invisible to ground observers. The study was performed by BDM, and was completed December 1977.

(U) The study concluded that Soviet tactics, both breakthrough and granular, lent themselves to disruption by selective attack by RPV/COPPERHEAD. Potential target arrays were analyzed, RPV tactics were devised, and a number of weapons were dedicated to this mission. The results showed a great potential for the RPV/COPPERHEAD linkage and recommanded that FASCOM be added to the tactics to further delay and attrite second echelon forces.

Chemical Systems Architecture

(U) This study described the Army Chemical Warfare and Biological Defense Programs, showing interrelated capabilities in such a way that it identified weak links in the architecture versus the Soviet-Warsaw Pact threat during 1979-1985 and beyond. The chemical architecture included the equipment, organizations and doctrine that made up specific combat support capabilities and the interrelationship of the various subsystems within the capabilities and with other systems in the total battlefield complex. Two types of architectural design were studied. In the organization-dependent architecture, a mechanized division was used.

(U) Three basic deficiencies in the US chemical warfare and biological defense posture were identified--general recognition of the threat, preparedness goals, and staffing for improvements. The study identified significant voids in fielded materiel, developmental materiel, doctrine

and/or training and recommended corrective actions in the areas of threat definition, individual and collective protection, detection and warning, individual and collective decontamination, medical treatment and services and policy implementation. Of these recommendations, 68 were categorized as first priority (immediate initiation), 38 as second priority (as resources permit) and 9 as medical. Sixteen additional R&D investigations were identified.

(U) The study, with its gaps and voids identification and recommended actions, provided a firm basis and supporting rationale for DA corrective actions to strengthen the chemical warfare and biological defense programs. As the primary input to the DCSOPS Chemical Warfare and NBC Defense Program Master Plan (CHEM-MAP 90), it strongly influenced long range program direction. The impact of the study was such that many corrective actions were initiated prior to study completion. The study was conducted November 1978 to November 1979.

Suppression of Enemy Air Defense (SEAD)

(U) Soviet-Warsaw Pact air defenses were formidable and improving. The success of the US/NATO forces depended on the ability to use aviation assets in many roles. Therefore, enemy air defenses had to be suppressed using the most effective means available with due consideration to competing requirements for those means.

(U) A preliminary analysis indicated that the Army had a vested interest in SEAD, not just to assure the availability of close air support, but to protect Army assets as well.

(U) Director, BSI approved the initiation of a complete SEAD Campaign Analysis. MITRE performed the SEAD Campaign Analysis during FY 1978. The SEAD Campaign Analysis examined alternative means of coping with enemy air defense systems in the active and projected battlefield environments. Comprehensive in scope, the analysis provided cost and effectiveness details on potential strike systems and recommended both a best mix of responses and a means of controlling joint response assets.

(U) A major review took place in June 1978 at a SEAD Symposium attended by all agencies, Army, Air Force and Marine Corps, involved with SEAD. The final report included volumes on missiles, rockets, cannons and drones, cruise missiles, SEAD sensors, CAS, platform vulnerability and the potential of jammers for SEAD and combat modeling of SEAD on the battlefield. Recommendations were offered to improve the operational and system development responses to the enemy's potent air defenses.

(U) Results and recommendations were affecting the Division 86 effort by TRADOC, the Joint Defense Suppression Steering Group, and the Joint Defense Integration Analysis.

Military Systems Reference Handbook

(U) This handbook, prepared by MITRE Corporation under the sponsorship of BSI, was designed for use by action officers and executive personnel.

(U) It was a reference book which described technical characteristics of selected surveillance and electronic warfare equipment. These systems were quite complex and their capabilities not well understood, particularly by personnel with a non-technical background and orientation. The handbook turned out to be a very popular reference, requests were filled for over 200 copies and it was distributed worldwide. INSCOM used it as a working document at their commanders conference.

(U) An FY 1979 update was completed that included interconnecting data links as well as updates of technical information and a changed format. It was combined into the equipment annex to the DOD Plan for Intelligence Support to Tactical Units.

Communications in Built-up Areas (COBRA)

(U) This study was part of the overall MOBA/MOUT effort and analyses. The unique problems of communicating in built up areas was selected for detailed examination via digitized data and actual observation. Reduction in communication range was not a pressing problem, because of the decreased range between maneuver units. Maintaining communications from command posts located inside buildings was a problem. Antennas could not be located inside because of building attenuation. Conventional antennas located outside were easily seen and subject to enemy fire.

(U) The study determined quality of performance and mission effectiveness of communications in support MOBA, identified deficiencies, and recommended measures to correct the deficiency. Several organizations contributed. Overall technical direction was provided by CORADCOM, HEL assisted in some field tests, technical analysis was provided by two contractors (Ketron and Signatron) and the University of the German Armed Forces. Detailed propagation path losses were calculated, based upon digital terrain maps, digital characterization of manmade structures, and actual observations in the Fulda area. Tactical scenarios based on SCORES were evaluated.

(U) Generalized conclusions showed that compared with operations in open areas, the communication ranges were greatly reduced, but were relatively consistent with the shorter distances between the maneuver units. Communications from building to building were a problem because of electromagnetic attenuation through the structure and vulnerability of the antenna to enemy observation. One important benefit realized was the demonstration of a low visibility antenna prototype.

Technological and System Forecast for the Battlefield of 1990-2000

(U) Forecasting International, a consulting firm performed this study for BSI for use in the US/UK NATO RSI talks. The report served as the dictionary of technologies which would be discussed and exchanged between the national. The study also included a list of systems which had a high probability of being a part of the inventory of NATO armies in the 1990-2000 time frame. It was expected that the future US/UK talks would continue an in-depth exchange of data on some of the technologies included in this study.

Tactical Communications System Analysis

(U) The successful integration of battlefield information and data systems could not occur without a highly responsive tactical communications system.

(U) The Tactical Communications System Analysis Study took an in-depth look at systems including net and multi-channel radio, TACSATCOM and data links. Based upon emerging threat, technology, and tactical computer driven sensors and weapons systems, a new architectural concept was proposed. BSI initiated this study with MITRE in FY 1977, to assess plans and programs against changing threat and needs. The FY 1977 and 1978 work achieved a solid broad understanding of the complex area, as well as a series of technical reports on data distribution, POS/NAV, multi-channel systems, TACSATCOM, Combat Net Radio, and mobile subscriber voice systems.

(U) The capstone of the analysis was a tactical communications architecture concept called CORCOM 85. This concept had been accepted by the combat development community as a foundation for the INTACS Objective System to reflect changing technology and new requirements. The impetus for this update came from the data distribution needs of new weapons and sensor systems anticipated to be on the battlefield beginning in the 1980s. The CORCOM 85 architecture was the framework for the updated INTACS objective system.

(U) During FY 1979, BSI and MITRE completed detailed definition of the CORCOM 85 architecture and participated with the TRADOC community in the INTACS update analysis.

TOW Solid State Track Link

(U) The Army was considering a fix to the TOW missile to reduce vulnerability to a postulated electronic countermeasure. Estimated cost to modify missiles and launchers was $225 million.

(U) BSI investigated the probability of enemy deployment by sponsoring intelligence analyses and fabricating a countermeasure device. Foreign Science Technology Center performed the intelligence analyses; ERADCOM,

Electronic Warfare Laboratory (EWL) and Office, Missile Electronic Warfare conducted the vulnerability analysis of the missile; ERADCOM, EWL, and Night Vision and Electro-Optics Laboratory (NVEOL) fabricated the model countermeasure; TCATA developed a field test plan.

(U) The BSI initiative contributed to the RDAC decision not to procure the modifications at a net cost savings of $255 million.

Division Real Time Applications Study (DIVRAS)

(U) DIVRAS was an experimental test bed designed to examine the capability of integrating combat information from several sources resulting in the development of targets and a maneuver display. The basic sourses of information included GUARDRAIL, QUICKLOOK, SOTAS, TACFIRE, TEAMPACK, TRAILBLAZER, and reports from subordinate and higher headquarters.

(U) The basic algorithms used in the target routing process of DIVRAS included translating input languagees, inferring missing information factors, filtering superfluous information, correlating/associating diverse inputs and assigning targets. These algorithms resulted in a recommended target and means of destruction.

(U) The commander's maneuver display was in five colors and included unique symbology for enemy and friendly forces, plus the capability to call up limited terrain background data, grid system and symbols representing enemy shooters, movers and emitters. The DIVRAS experiment was based on the SCORES 2A scenario relocated from Germany to Ft. Hood. Six thousand messages were created to drive six hours of the most intense portion of the scenario.

(U) DIVRAS was briefed to approximately 200 people to include the Vice Chief of Staff of the Army, General Guthrie and General Starry. The DIVRAS software specifications and final report were distributed throughout the Army. Many of the techniques developed in DIVRAS were being used in Project BETA.

Interoperability of Tactical Data Systems

(U) BSI observed that the prescribed study and documentation procedure for defining and approving interoperability requirements was so lengthy that the cycle was not being completed. BSI proposed a more realistic procedure for defining and processing these requirements. DIVRAS experience was utilized in this definition.

(U) The BSI interoperability program covered both system requirements and management procedures. Acting as a catalyst for every step in the requirements definition and approval chain, BSI was instrumental in the Army finally producing an approved set of interoperability requirements.

In late 1977 and 1978, a General Officer interoperability appraisal was held at HQDA and follow-on actions adopted an improved interoperability requirements procedure. An initial set of interoperability requirements was developed by TRADOC with DARCOM participation and was approved by HQDA. This constituted the first set of approved interoperability requirements for the Army's tactical data systems.

SHORAD C^2

(U) The Army Short Range Air Defense Command and Control (SHORAD C^2) development program was initiated by BSI in coordination with TRADOC in November 1978 by publishing a draft outline development plan. Since that time, the Battlefield Systems Integration Directorate supervised the preparation and staffing of the requirements documents and marshalled budget support.

(U) The SHORAD C^2 program was to use a test bed development process to field a near real time data system which would interconnect sensors, commanders, and weapons to allow enhanced C^2. BSI performed a study of a full range of sensors to determine which should be tied into the SHORAD C^2 network when completed. BSI also performed a study to determine the operational benefit which a SHORAD C^2 system could offer.

(U) The SHORAD C^2 system would be fielded in increments with the initial system fielded in FY 1984. The complete system was scheduled to coincide with the PLRS/JTIDS Hybrid Communications Systems fielding which would greatly facilitate the expected data exchange. The program was assigned for execution to the PM Air Defense Command and Control Systems, Missile Command, Huntsville, Alabama.

Electronic Warfare Architecture

(U) Tactical commanders had a more active role in electronic warfare since the Intelligence Operations and Stationing Study (IOSS). Electronic warfare assets were organic to the tactical units. An EW Architecture for this role was required.

(U) Under BSI sponsorship, the MITRE Corporation studied the new tactical orientation of EW and evolved an EW architecture. This architecture defined both hardware and organizational concepts. Main thrust of the architecture was a scheme to derive data on an interactive terminal. Complementary to that was a proposed reorganization of the Combat Electronic Warfare and Intelligence (CEWI) units to make them more responsive to the supported commander. This reorganization required no additional manpower, but provided the basic EW support required through a simplified chain of command.

(U) Results of this study were briefed to TRADOC and were to be used by them to develop EW tactics and doctrine.

Zone II Interdiction

(U) A conventional breakthrough scenario in Europe had Soviet forces attacking in depth, with follow-on echelons prepared to exploit any breach of opposing forward defenses. The entire strategy was based on momentum. Dissipation of momentum was equated to loss of initiative. Since this was a desirable situation for an outnumbered defender, it was worthwhile to search for tactical and materiel concepts that would bring this about.

(U) The objective of this study was to investigate the trade-off of the use of actual, conceptual or developmental artillery and air support in reducing rates of reinforcement and resupply (interdiction), versus its use in close combat. The principal conclusion of the study was that TAC AIR had far more leverage than artillery in the interdiction task. This leverage was expressed in terms of success in the Zone I battle with various allocations of Artillery/TAC AIR expended in Zone II.

Counter C^3 and Antiradiation Weapons Systems

(U) The battlefield Systems Integration Directorate began its view of Counter C^3 as a multimission area by participating with MITRE Corporation, Bedfore, Massachusetts in the Air Force Systems Command, Electronics Systems Division Study, Countermission Analysis of Warsaw Pact C^3, from June 1977-1978.

(U) BSI continued its efforts to develop the Army countercommand, control, and communications concepts in FY 1979 and through FY 1980. A technology survey of sensors and weapons available to counter enemy C^3 was completed and briefed to DCSRDA, TRADOC and numerous interested organizations. This study, titled Antiradiation Weapon System (ARWS), was requested by the DA staff to help them highlight Counter C^3 in the POM.

(U) The Army Science Board convened a Counter C^3 study in December 1979 at Fort Leavenworth. BSI represented HQ DARCOM and provided briefings on Army active and future materiel capability to conduct Counter C^3. The Defense Science Board met in February 1980 at the Pentagon to investigate Counter C^3 and BSI provided them with similar support.

(U) A draft DOD directive for Counter C^3 and a draft Army regulation for Counter C^3 were coordinated through BSI for DARCOM input, and the DOD directive, 4600.4, was approved.

(U) A major study of Army Counter C^3 technical and managerial issues was jointly initiated with ERADCOM and the MITRE Corporation in October 1979 and completed in October 1980. This study provided an update of the enemy C^3 system, analyzed the vulnerability of the enemy C^3 system to jamming and destruction and recommended specific Counter C^3 material options to exploit the enemy C^3. The study also presented a management plan of DARCOM actions required to implement the DOD Directive and the Army Science Board recommendations. A final report was to be published by the MITRE Corporation during 1Q FY 1981.

Combat Model Evaluation System (CMES)

(U) In order to assess the battlefield impact of alternative material developments, BSID required a quantitative method to determine the value of each military system relative to every other system on the battlefield, and to measure the contribution of each system to the total force, relative to specific known or conjectured threats. In an attempt to accommodate this task, BSI personnel extended a well-known methodology for determining the values of weapons systems.

(U) The Combat Model Evaluation System was designed to provide the Director of BSI with a quantitative way of assessing the worth of alternative materiel developments without building yet another combat model. CMES was constructed by BSI personnel and was used by the directorate to obtain quick (in hours), first approximation answers to numerous materiel effectiveness questions. The basic data that drove the system was obtained from the output of approximately 50 completed off-the-shelf studies, each employing one of the many Army combat models.

(U) This methodology and data were stored in a small minicomputer within BSID and were used to provide the systems directors quick reaction answers to questions about the worth of alternative developmental opportunities. In addition, General Starry, CG, TRADOC, based his study, concerning the importance of the survivability of the tank on analyses produced with CMES. It was also used in the ITV COEA. CMES had been briefed to numerous analytic groups within the Army, as well as to analysts from the FRG and the United Kingdom.

Systems Integration Data Base

(U) The System Characteristics and Operational Relationship Data Base was an experimental data base in the mission areas of Fire Support and Intelligence, Surveillance and Target Acquisition (ISTA). It contained data only on fielded systems consisting of technical system characteristics and intersystem operational relationships. These data were embedded in an automated data base management system (DBMS) that allowed information retrieval to assist users in assessing the impact of new requirements and system modifications/developments on the materiel

structure of the Army in the field. The demonstration of this experimental prototype proved the concept to be feasible and it was appropriate that the data base be extended to all functional areas and include systems in development, given financial support and management direction.

(U) The storage and information retrieval system consisted of two main data bases: the Systems Characteristics (SYSCHAR) data base and The Operational Relationships (OPREL) data base.

(U) The SYSCHAR data base included over 500 systems that were essential to the FA and ISTA missions. For each system, this data base contained information on 10 to 100 technical characteristics relevant to systems integration issues (those characteristics corresponding to a counter battery radar included range, scan rate, section of scan, pulse width, power source, minimum and maximum frequency, etc.). If the Army intended to build an omnidirectional jammer, for instance, one could immediately determine (by a single query to SYSCHAR) which of our systems would be affected.

(U) The data stored in OPREL included system name, mission area applicable, organizational location, inputs to and outputs from the system of focus, all systems which provided inputs or received outputs, and the linkages between those systems.

(U) In essence, the operational relationship data base, OPREL told one how all systems within FA and ISTA were connected to (or dependent upon) other systems and the purpose of this connection. Moreover, if the characteristics of a replacement for FADAC were known, one could query SYSCHAR to determine which of the existing systems or connecting links would require modification to accommodate the replacement system.

(U) Work was concluded on the data base based on direction of the DARCOM Deputy Commanding General for Materiel Development, LTG Lunn. He directed further work be held in abeyance until the community of users clearly recognized the need for such a supporting resource. The data files were archived at the Computer Center, Mobility Equipment Research and Development Command (MERADCOM), Ft. Belvoir, Virginia.

Corps Tactical Message Center System

(U) An Automated Staff Message Processing System (ASMPS) for tactical corps operation was demonstrated as an early solution to the initial tactical shortcoming of extensive message delays. It resulted in a letter requirement (LR) for six interim systems to satisfy the urgent need in Europe.

(U) This action originated in the V Corps through their study Task Force Charlie. A critical area identified in tactical communications operations was the Staff Message Center when in the field. When the V and VII Corps were in garrison, the majority of the narrative traffic was supported

by an element of the 5th Signal Command, an Army Communications Command organization. When the Corps deployed in tactical configuration, the majority of message support shifted to the Corps TOE unit. The move from garrison to tactical involved much more than a change in message center support roles. In garrison the message traffic was prepared in a JANAP 128 format, transmitted through the fixed Defense Communications System to an AUTODIN switch for processing and subsequent delivery to the designated addresses. When the Corps deployed in their NATO role, the constraints of NATO interoperability required the ACP-127 format be used and a new set of unique (NATO and tactical) routine indicators be employed. Training proficiency could not be fully maintained for the separate tactical configuration while operating in the garrison or fixed communications systems. In addition, the standard Army TOE telegraph terminals were inadequate to meet the Corps requirements for handling the large quantities of multiple address messages, resulting in unavoidable message delays.

(U) In V Corps exercise REFORGER '77, a BSI supported demonstration of commercial automated message processing equipment showed significant improvement in record traffic flow. As a result of this success, BSI supported the development of a Corps Information Management System functional and systems design including the formatting of JINTACCS messages. This was done in close coordination with V Corps and included onsite participation in several V Corps exercises by the contractor to assure the real world needs were being addressed. The result was a LR for an ASMPS using commercial off-the-shelf equipment to satisfy the immediate urgent need for Europe. This would provide an interim capability until fielding of the militarized TRITAC equipment anticipated for mid/late 1980s.

Automated Intelligence Preparation of the Battlefield

(U) Automated IPB, a two-phased effort, was initiated by BSI in the summer of 1978. Its main purpose was to develop an experiment to demonstrate the use of IPB techniques as they would be applied in an automated environment. This was felt to be necessary in light of the widespread acceptance of IPB within the Army as a valuable and needed improvement to tactical intelligence operations; the difficulties in implementing costs encountered in providing terrain data bases in sufficient detail for manual IPB applications.

(U) Phase I was completed in October 1978. A report entitled IPB - An Automated Approach to Terrain and Mobility Corridor Analysis, dated October 1978 was distributed summarizing the results of Phase I. An In-Process Review was held in May 1979, which resulted in a decision to proceed with Phase II.

(U) Phase II was completed. Two workshops were conducted during this phase. Workshop I, which began in July 1979, demonstrated development

of IPB products by the tactical intelligence analyst. Workshop II, conducted in November 1979, demonstrated the development of IPB products by the G-2, and their use by the G-3 and the Commander.

(U) A Phase II Interim Report entitled IPB - Analysis, Design and Demonstration of Automated IPB Four-Step Templates, undated, was distributed. The report summarized the work performed in the development of Workshop I, Phase II, while the final report documented the full experiment.

(U) During the past two years, over 400 military and DOD civilians viewed the demonstration of automated IPB. All recognized and acknowledged the potential value of IPB to the Army. The concepts of automated intelligence preparation of the battlefield was to be incorporated into the evolving functional systems description for the All Source Analysis System (ASAS).

Accomplishments of Assigned Programs

(U) Mutual Weapons Development Data Exchange Programs and Defense Development Exchange Program (DEA). A total of twelve new DEAs were effected during fiscal year 1980. DARCOM also participated in thirty DEAs sponsored by the United States Navy and seventeen DEAs sponsored by the United States Air Force.

(U) International Professional (Scientists and Engineers) Exchange Program. During the reporting period a total of 25 Scientists/Engineers were assigned to Army activities under this program. Fourteen were representatives of the Federal Republic of Germany, ten representatives from Korea, and one from Israel. The cumulative total of Scientists/Engineers assigned to DARCOM activities since the program was initiated in 1964 was 366 of which 299 have been from Germany, 166 from Korea, and one from Israel. A Scientists/Engineers Exchange Program was established with Egypt in April of 1980. Pending at yearend FY 1980 was the establishment of this program with Greece, Japan, Norway, Portugal, Spain, Turkey, and Yugoslavia.

(U) US/GE Cooperative Research and Development Project for a Laser Tactical Display System (LTDS). This project was effective 8 November 1979, initially for five years. Its purpose was to increase effectiveness of tactical operations, intelligence and fire support coordination; the provision of a rapid, efficient electronics display of the total area military command/control situations; and, the exploitation of laser-display technologies developed by the firm Elektro-Spezial of Germany.

(U) US/FR/GE/UK Exchange of Information and Conduct of Feasibility Studies on the Formulation of a Third-Generation, Anti-Tank Guided Weapon Package. Effective in March 1980, this quadrilateral project intended to conduct feasibility study/concept definition to determine whether the participants could proceed with the development of a family of ATGW. The European participants looked at the vehicle-mounted, long range system. The US defined a man-portable, medium range system. The European system had to be compatible with the US TOW-carrying vehicles. The US system had to meet European requirements for a MILAN replacement.

(U) US/GE Cooperation Within the Area of Army Tactical Data Systems for the Purpose of Standardization and Interoperability. Effective in April 1980, the project aimed to achieve interoperability between the US Army and the German Armed Forces tactical data systems; to improve capabilities of command/control systems of NATO forces; and to utilize the German testbed development for testing the TOS interface and demonstrate interoperability with TOS.

(U) US/UK/CA Cooperative Program on Research, Development, Production and Procurement of Chemical and Biological Defensive Materiel. Effective in April 1980, this program provided a basis for identifying candidates in CBD for cooperative development and production.

(U) US/GE Cooperation in ECCM Techniques for VHF Combat Net Radios. Effective in April 1980, this project involved testing, evaluating and comparing candidate systems to provide a basis for a common choice of a combat net radio system with ECCM capability.

(U) US/Canadian Defense Development Sharing Program. Efforts continued to rejuvenate Army participation in this program. In December 1979, a new regulation, AR70-66, was published which prescribed the policy and procedures for Army participation. Complementing AR70-66, in April 1980, a DARCOM Handbook provided detailed information on the DDSP and described organizations, responsibilities, implementation and documentation.

CHAPTER IV

PM: WEAPONS AND WEAPONS SYSTEMS

Introduction

(U) Activities and accomplishments of eight major weapons programs whose project manager or program manager reported directly to the Commander, DARCOM at Headquarters DARCOM, are discussed in this chapter. These were Advanced Attack Helicopter, BLACK HAWK Fighting Vehicle Systems, Nuclear Munitions, PATRIOT, Smoke/Obscurants, and the XM1 tank, which in turn included several substantial subordinate related programs. The group consisted of a significant portion of the DARCOM budget.

(U) The availability of experienced personnel continued to be a problem which varied in degree among the offices of these weapons managers. MG Duard D. Ball replaced MG Donald M. Babers as Program Manager, XM1 Tank System on 28 July 1980; and COL David A. Appling was designated Project Manager, Tank Armament Systems on 20 December 1979. BG Donald P. Whalen was designated by the Department of the Army as Program Manager, Fighting Vehicle System on 1 July 1980. On 30 June 1980, COL Donald P. Wray assumed responsibility as Department of the Army Project Manager for the Target Acquisition Designation Sensor (TADS)/Pilot Night Vision Sight (PNVS) for the Advanced Attack Helicopter (AAH).

Highlights

(U) During FY 1980, activities on the XM1 Tank System dramatically expanded with the start up of the Lima Army Tank Center facility. On 28 February 1980 the US Army accepted the first two low rate initial production models of the XM1 Main Battle Tank on schedule at which time this tank was designated the Abrams.

(U) The entry of the XM1 into the production phase dictated a reorganization of the Program Office, and on 30 June 1980 the new organization became operational. To accomplish the assigned mission, the Program Manager's authorized strength was increased from 186 to 269, which included 60 military and 209 civilian personnel.

(U) The Advanced Attack Helicopter Program Development achievements included completed flight tests in February 1980 on the prototype aircraft AV05, showing that the redesigned empennage with stabilator had resolved the loads, dynamics, and flight landing quality difficulties of the T-tail configuration.

(U) Armament and Fire Control Surveys continued throughout the fiscal year with successful test firing of the HELLFIRE missile, development of 30mm, and 2.75" Folding Fin Aerial Rocket (FFAR) on a stabilator configured vehicle being completed in the 4th quarter of FY 1980.

(U) The BLACK HAWK Program saw restrictions and restructured contracts in FY 1980, which reduced production quantity from 129 to 90 aircraft and a reduction in engine production from 324 to 220 (GE-T700-700 engines). The Government later exercised the option for two additional BLACK HAWK helicopters, increasing production quantity to 92 aircraft.

(U) The Fighting Vehicle Systems (FVS) program extensively tested the eight prototype Infantry Fighting Vehicle (IFV)/Cavalry Fighting Vehicle (CFV) vehicles during government conducted Operational Development and Force Developmental Tests. Product Assurance tests on the IFV/CFV resulted in important redesign of the crew hatch and seating configuration on the CFV.

(U) A formal cost reduction program on the FVS was initiated during the fiscal year. The major efforts started were analyses of different acquisition strategies to include Second Source, Value Engineering and Should Cost Study for the IFV/CFV.

(U) A major reduction of DOD funding for FY 1981 resulted in a one-year slip in the XM-785 Nuc-Projectile Initial Operating Capability (IOC) in the Nuclear Munitions Program.

(U) Additional funding was required to eliminate a shortfall in the LANCE Project, but funding was not available at yearend 1980.

(U) A continued primary concern of the Project Manager-Nuclear Munitions was in keeping informed and experienced key personnel available on a prolonged basis to assure continuity of the program without a loss of valuable knowledge and expertise in future years.

(U) A major milestone in advanced surface-to-air missile systems was achieved on 10 September 1980, when the Department of Defense announced that PATRIOT was approved to enter limited production.

Advanced Attack Helicopter

(U) The YAH-64 AAH was a two place twin-engine rotary wing aircraft, 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. The YAH-64 AAH represented an optimization of helicopter technology for the modern tank-heavy battlefield environment. It was expected to contribute greatly to the Army's ability to fight outnumbered and win.[1]

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[1] AAH Program Summary as of May 1977, p. 1.

(U) An AAH task force had been 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) By September 1972 the Cheyenne Project Management Office (PMO) was redesignated the AAH-PMO with spaces and personnel transferred, and reported to HQ DARCOM. Also in September 1972, the Secretary of the Army had approved the initiation of the development of an Advanced Attack Helicopter System which would provide greater agility, hover performance and heavier aerial fire support capability than possessed by existing Army aerial weapons systems.

(U) Government testing (flyoff) was completed on 30 September 1976 and the AAH Defense System Acquisition Review Council (DSARC) held on 7 December 1976 resulted in approval of the AAH to enter full scale Engineering Development (Phase 2) of the AAH system. The Secretary of the Army then selected Hughes Helicopters (YAH-64) as the prime aircraft system contractor for Phase 2, which was announced 10 December 1976. Phase 2 consisted of modification of the two Phase 1 aircraft, fabrication of three additional air vehicles, subsystem development, and testing and integration of mission equipment subsystems into these aircraft.

AAH Program Management Structure

(U) The AAH continued to be one of the Army's top priority programs. It was structured under the new DARCOM multi-level project concept. Major General Browne (then COL) assumed program responsibility for the Advanced Attack Helicopter (AAH) System as Project Manager (PM), AAH, 1 June 1976 and as Program Manager, AAH, on 10 December 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 the Program Manager, AAH, and used certain elements of the AAH staff to assist them in their program efforts.

Target Acquisition Designation Sensor (TADS)/Pilot Night Vision Sight (PNVS)

(U) 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 competively by the Government, a separate project office was established in March 1977 within the AAH Project 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 COL C. A. Patnode, Jr., Department of the Army Project Manager for the TADS/PNVS was signed on 24 August 1978. COL Donald P. Wray assumed responsibility from COL C. A. Patnode, Jr. on 30 June 1980. 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.

30mm Ammunition

(U) On 12 October 1976, the AAH Project Manager briefed the DCGMD, DARCOM, on a recommended course of action to develop XM788/789 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 COL D. J. DeLany, the initial 30mm Ammunition Project Manager, who reported to the AAH Program Manager. The office of the Product Manager, 30mm was included in the AAH Program Management Office.

(U) Development of 30mm ammunition continued through FY 1980, and deliveries were expected to be completed in the 1st quarter of FY 1981, for the contract awarded in September 1979 for 384,000 cartridges for the US Navy.

FY 1980 AAH Development

(U) The first flight of prototype aircraft AV04, incorporating a redesigned empennage with stabilator, took place on 31 October 1979. The AV05 first flight occurred on 23 December 1979. Flight tests which began in October 1979 were completed in February 1980, and showed that the redesigned empennage with stabilator had resolved the loads, dynamics and flight landing quality difficulties of the T-tail configuration. With the first flight of AV06 on 16 March 1980, all of the prototype aircraft to be developed during the R&D Program were in flight test.

(U) The three hundred hours Initial Formal Qualification Test on AAH Power Train, Dynamic Stability Demonstration, Flying Qualities Demonstration, Infrared (IR) Survey, and the aerodynamic flight envelope expansion program and the first functional configuration audit were all completed during the 4th quarter FY 1980.

TADS/PNVS

(U) After the Martin Northrop TADS/PNVS Systems were successfully integrated in the AAH in late 1979, the Army conducted a flyoff in January/February 1980. The TADS/PNVS Source Selection Evaluation Board awarded Martin Marietta a Maturity Phase contract with production options for the first and second year procurements on 9 April 1980, and the Configuration Changes Critical Design Review was completed in June. In addition, Dedicated Training Test Detachment (DTTD) instructors provided Hughes Helicopter pilots familiarization training in the PNVS Surrogate Trainers.

Organization and Staffing for AAH

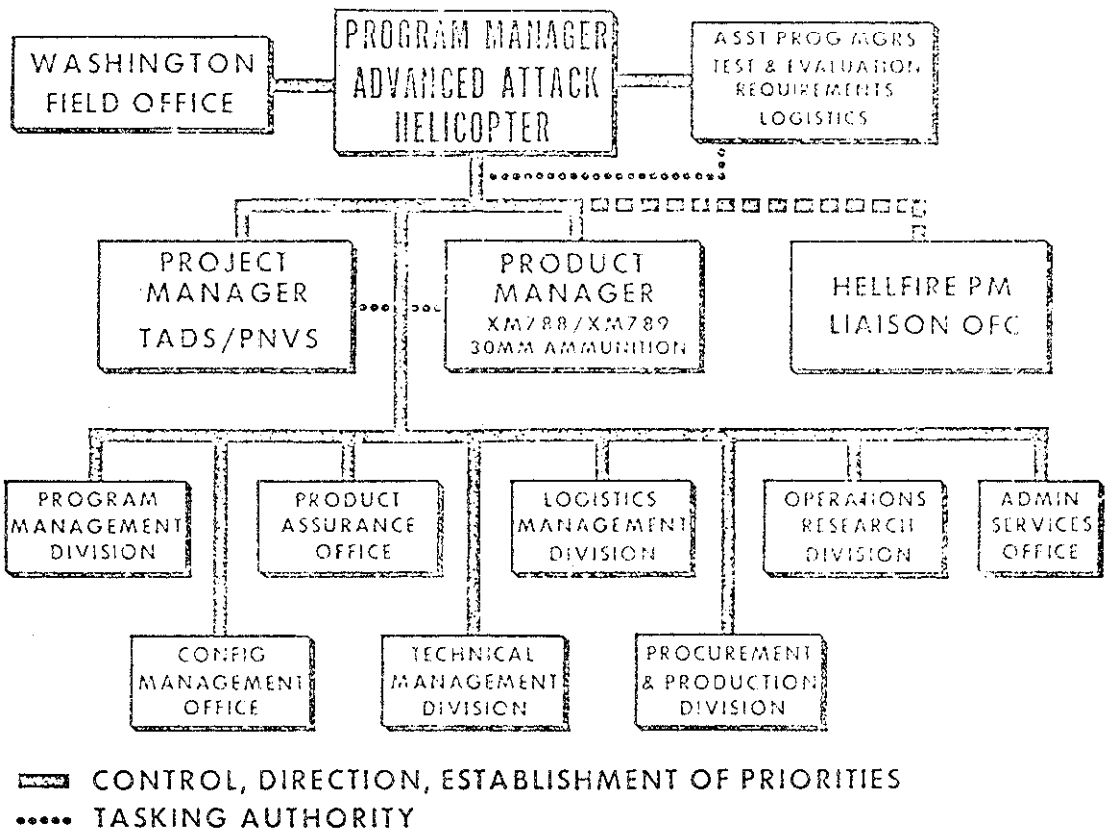
(U) Personnel strength, both authorized and assigned, for the AAH PMO during fiscal year 1980 was: As of 30 September 1979, 89 civilians

authorized, 93 assigned; 14 military authorized, 10 assigned; total authorized - 103 and 103 assigned. As of 30 September 1980, 91 civilians were authorized, 101 assigned; 14 military authorized, 14 assigned; total authorized - 103 and 115 assigned. By 30 September 1980, there were ten temporary clerk stenographic personnel assigned in order to complete the heavy administrative/clerical workload of the office.

Program Cost Estimate

(U) As of 30 September 1980, the total AAH Program cost estimate was $1106.1 million for development and $4750.2 million for procurement for a total of $5856.3 million based upon April 1980 DA/OSD indices.[2]

AAH PROGRAM MANAGEMENT STRUCTURE



[2] For supplemental information see AVRADCOM AHR, FY 1980, DARCOM(DRCHO) Archives.

BLACK HAWK

Organization and Staffing for BLACK HAWK

(U) Colonel Charles F. Drenz continued to serve as the BLACK HAWK Project Manager until September 1980, when he was promoted to Brigadier General. He was succeeded by Colonel Ronald K. Anderson, who continued to report to HQ DARCOM.

(U) During fiscal year 1980, while the personnel authorization remained at 76 civilians and 19 military, the onboard strength was 67 civilians and 19 military by the end of the fiscal year.

Operations

(U) By the end of the fiscal year, 80 to 90 percent of the RDT&E Program of $12,759,000 had been obligated and committed in regard to the Airframe T700 component improvement program and the UH-60A feasibility demonstration.

Appropriations Act 1980

(U) Funds in the amount of $354,800,000 was received for procurement of 94 UH-60A aircraft which brought the total to 257 aircraft; 62 were accepted by the Army in FY 1980 bringing the total up to that time to 81.

Testing

(U) The Production Validation Tests (PVT-C) continued through half of FY 1980, with the conduct of a structural demonstration with the Infrared (IR) Suppressor (22 October 1979), a five hour flight load survey (5 November 1979), and completion of the snow ski demonstration. PVT-C testing was completed during the 2d quarter, FY 1980, with the conduct of the hot fuel test and the stress survey on the servo beam railing on Aircraft 77-21714.

(U) PVT-C testing was conducted by Aviation Engineering Flight Activity (AEFA) during FY 1980 with the conduct of Airworthiness and Flight Characteristics (A&FC) on Aircraft 77-22716 and was scheduled for completion during October 1980. AEFA completed the artificial and natural icing tests at the end of March 1980 on Aircraft 77-22717. The Northern Continental United States (CONUS)/Arctic phase of the extreme environment test was completed on 19 January 1980, when Aircraft 77-22715 was airlifted from Fort Greely, Alaska to Fort Rucker, Alabama. The tropic test was cancelled with Training and Doctrine Command (TRADOC) concurrence after a successful exercise in the Panama Canal Zone, entitled Black Fury.

(U) All fatigue testing was completed during FY 1980, and review and approval of the test reports were to extend into 2d quarter, FY 1981.

Product Assurance

(U) A joint Army/Navy/Sikorsky meeting was conducted on Materiel Deterioration Prevention and Control (MADPAC) at the Sikorsky, Stratford facility. Data and pictures were provided to the contractor, Sikorsky Division, on the condition of Aircraft 77-22718 at the time of its second 500 flight hour inspection.

Reliability, Availability, and Maintainability (RAM)

(U) The Force Development Test and Experimentation (FDTE) was completed in October 1979 and followed by the Army Systems Acquisition Review Council (ASARC) IIIa meeting to decide on follow-on production of the UH-60A. The RAM parameters of system Mean-Time-Between-Failure (MTBF), fault corrective maintenance manhours per flight hour and preventive maintenance manhours per flight hour were better during the mid-200 flight hour RAM demonstration period of the FDTE than the required levels.

(U) The last BLACK HAWK Government Scoring Conference of fiscal year 1980 was held at Fort Campbell, Kentucky, on 19-21 August 1980 on the fifteen Lot II aircraft under controlled/intense sample data collection.

(U) A new production aircraft, S/N 78-22976, was ferried to Fort Rucker in January 1980 for RAM-D testing. This aircraft achieved 954 flight hours through 15 September 1980, and was expected to achieve the programmed 1500 flight hours by the end of December 1980.

Special Missions/Exercises

(U) During FY 1980, UH-60A BLACK HAWK assigned to the 101st Airborne Division, participated in several special aircraft deployments. These exercises included movements to Fort Hood, Texas, in November 1979; Panama Canal Zone in February 1980; Puerto Rico in July 1980 and finally to Fort Polk, Louisiana, in August 1980. At each of these locations, deployed aircraft maintained an operational readiness capability sufficient to perform all missions demanded.[3]

Fighting Vehicle Systems

Office of the Project Manager

(U) Brigadier General Donald P. Whalen was designated by the Department of the Army as Program Manager, Fighting Vehicle Systems, on 1 July 1980. General Whalen's Charter was approved by the Secretary of the Army on 22 December 1980. 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 (TACOM),

[3] BLACK HAWK PMO AHR FY 1980; for supplemental information see AVRADCOM AHR FY 1980.

other organizations with DARCOM, and other participating organizations.

(U) At the end of FY 1980, the authorized strength for the FVS Office was 26 military and 122 civilians. Authorization for FVS stood at 24 military and 108 civilians.

FVS Description

(U) The same basic vehicle was used in both the Infantry Fighting Vehicle (IFV) and Cavalry Fighting Vehicle (CFV) roles, and the vehicles were virtually indistinguishable when viewed externally. The interiors, however, were unique and configured to best accommodate the personnel and equipment for each particular role.

(U) The IFV (M2) provided optimum arrangement for the nine-man infantry squad to most effectively fight from the vehicle while mounted. The location of the commander in the turret provided him all-round vision, and permitted him the greatest capability for command and control. The six personnel in the crew compartment each had a unity vision device with an associated firing port weapon which gave them visual orientation within the battlefield, as well as the capability to suppress enemy ground troops. Stowed within the vehicle interior was a quantity of ammunition to support the needs of both the vehicular and individual weapons, as well as a mixture of TOW, Dragon and LAW missiles.

(U) The arrangement of the CFV (M3) was optimally suited for the five-man cavalry squad so that they too could most effectively operate while mounted. The commander also had an optimum location within the turret. The CFV, however, carried 900 more rounds of 25mm ammunition than the IFV, and stows a total of ten TOW missiles. Seating arrangements for the two crewmen in the rear compartment provided for maximum comfort and safety while in transit, as well as an optimized viewing capability while performing reconnaissance underway.

(U) The two man turret, identical for both IFV and CFV applications, was occupied by the commander and gunner. Each had control of the turret through separate control handles with the commander having an override capability. The turret was powered by an all-electric, stabilized drive system developed by General Motors (GM) and permitted the 25mm primary gun and 7.62mm coaxially mounted machine gun to be accurately fired by either crewman while moving cross-country. The same power control system was used for employment of the TOW missiles. The drive system had two speeds; a slow, extremely accurate for laying and tracking of targets, as well as a high speed rate for rapid engagement of alternate targets. The 25mm gun was dual fed and could selectively fire either armor piercing (AP) or high explosive (HE) ammunition. A new integrated day/night sight developed by Hughes Aircraft Company (HAC) used the modern thermal imaging componentry developed for the TOW ground mount system in the night portion of the sight to allow effective employment of all turret mounted weapons during both day and night operations. The two-missile TOW launcher, which had both a travel and firing position, could be reloaded through the crew compartment hatch which provided a degree of overhead protection.

(U) The IFV/CFV was intended to operate with the M1 tank in combined arms operations. Its automotive and suspension systems were continuously improved to meet this requirement. The 500 horsepower Cummins turbocharged diesel engine combined with the very responsive GE hydromechanical transmission, provided the IFV/CFV with a top speed of 42 miles per hour. Performance evaluations during cross-country operations at Aberdeen Proving Ground demonstrated that the redesigned suspension system--using high strength torsion bars and high performance shock absorbers--provided a mobility capability comparable to the M1.

(U) The IFV and CFV, unlike the lightly armored M113A1 Armored Personnel Carrier, were fighting vehicles and required significantly increased armor protection. This was provided at a minimum weight to insure vehicle mobility. This increased protection was achieved through the use of a unique, spaced laminate armor system combining both aluminum and steel materials.

(U) The MLRS Carrier was the first of the derivative vehicles to be developed using IFV/CFV components. This vehicle was expected to provide a mobile, long-range artillery rocket for the support of ground forces. The lightly armored cab permitted completion of an entire fire mission from within the cab interior. The suspension system was fitted with lockouts for platform stability during launching and loading operations. Although the hull and structure were unique, due to its special purpose application, the same power pack and suspension components developed for the IFV/CFV were used in the MLRS Carrier.

(U) During FY 1980, the program extensively tested the eight prototype IFV/CFV vehicles in the course of government conducted Operational, Development and Force Developmental Tests.

Armament Engineering

(U) The selected 25mm candidate weapon, the M242 gun, developed by Hughes Helicopters Incorporated (HH) was type classified STD by an Army Systems Acquisition Review Council (ASARC) in December 1979, and given production approval. The M242 gun completed Operational Testing and Prototype Qualification Testing at Fort Carson and Aberdeen Proving Ground, demonstrating satisfactory performance. The Technical Data Package (TDP) effort continued into FY 1981.

(U) The development portion of the 25mm Ammunition Program was completed, with the development of the M790 family of ammunition. The Prototype Qualification Test, Government was completed on the ammunition in May 1979 and all of the major requirements were met. Type classification of this ammunition was accomplished in November 1979. Based on Office of the Secretary of Defense (OSD) guidance, a request for proposal (RFP) was prepared for the development of a second source to produce 25mm ammunition. The RFP was scheduled for release in November 1980 with a planned contract award date of June 1981.

(U) In FY 1980 the two ammunition items still under development were the XM794 Dummy Cartridge and the XM621 shipping and storage container.

(U) A NATO STANAG for 25mm ammunition was initiated with three formal meetings held in Brussels, Belgium. The NATO working party for the STANAG was chaired by The Netherlands, with the participation of the US, UK, Belgium, Germany, and France (not an official member).

Submachinegun/Firing Port Weapon

(U) The M231 SMG (submachinegun) was type classified standard concurrently with the M2/M3 IFV/CFV in January 1980. The initial production contract was awarded to Colt Industries in May 1980 for 1600 SMGs. This contract contained a Pre-Production Evaluation effort to maximize the practical producibility of the Technical Data Package (TDP). The improved TDP resulting provided improvements for both the instant contract and the follow-on contract to be awarded for 4000 SMGs. All events performed by Colt and ARRADCOM indicated that the SMG should remain on schedule and successfully complete First Article Tests in May 1981 and first production deliveries in August 1981.

Coaxial Machinegun (MG)

(U) The M240C underwent additional IFV/CFV integration testing at APG August through December 1980. FMC had redesigned the feed chutes and the firing solenoid system. The system performed better. ARRCOM conducted an Initial Production Test (IPT) on the M240C MG at APG from June to September 1980. Part of the MG's IPT included firing from a vehicle turret. Results were satisfactory, and the first production deliveries of M240Cs arrived in a US Depot during February 1981 to support IFV/CFV production.

Fuze Program

(U) In FY 1980, the development of the M758 fuze was completed, and it was type classified standard along with the M792 HEI cartridge (25mm) in December 1979. A three-year multi-year contract was signed in March 1980, with Honeywell to produce 1.375 million M758 fuzes. First deliveries on the contract were to be in 3d quarter FY 1981.

(U) Development of the XM759 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 completed. The fuze was type classified LP for the Marine Corps HEI cartridge and the PQT-G for the HEDP cartridge began in October 1980 with type classification scheduled for September 1981.

(U) Development of the XM760/35mm and XM761/40mm fuzes was continued with Honeywell in support of the DIVAD Program. Government demonstration firings were conducted in July 1980 at Yuma Proving Ground. Also, development of the XM757/20mm fuze was completed in FY 1980 and type classification action was pending. The COBRA Program evaluated this fuze for its application to their weapon system in conjunction with M50 series ammunition and the M197 gun.

Logistics Management

(U) The major logistics event during FY 1980 was the development and contract award of the Integrated Logistic Support (ILS) modification to the PEP Contract in June 1980. This contract modification contained the major part of the ILS package development to support initial fielding. Of equal importance was the initiation of the ILS effort for the three field test sets being developed to support FVS.

Supply

(U) The DARCOM decision of August 1979 to convert from contractor supply support to full government was implemented during the 1980 fiscal year. Recommended Buy List (RBL) was obtained from the contractors in February 1980. This enabled the MRCs (Mateiel Readiness Commands) to effect off-line procurement of repair parts on Basic Order Agreements to support the first vehicles used in test and logistic activities and to support the early TRADOC vehicles. Submission of provisioning technical documentation to support standard initial provisioning was scheduled to be completed by June 1980.

Maintenance

(U) The maintenance concept for initial fielding was finalized with PCB repair remaining at the depot level. Plans called for this capability to be developed at the general support (GS) level in FY 1983-1984 depending on development of Army capability in this area, since tasks designed for DS for the TOW-Subsystem would initially be performed at depot pending availability of follow-on TMDE. Previously questionable "black box" repair would be accomplished at the DS level according to the agreement with TRADOC. A definitive schedule for the development of technical manuals (TM) for the IFV/CFV was developed and concurred with by appropriate government agencies.

Materiel Fielding

(U) The materiel fielding effort hit full stride in 1980. A new concept deeply involving TRADOC in the new equipment training process was developed and coordinated through the use of a draft Materiel Fielding Plan. This concept, developed as a result of the realization of the vast change in capabilities provided by the IFV/CFV envisioned fielding in company sets within battalion packages, with training to platoon level proficiency. This level of training and its accompanying administrative and logistic support would require greater effort and resources than previous system fielding. DARCOM, TRADOC, FORSCOM, and USAREUR began the planning and programming for these resources, and in FY 1981 refinement of efforts for execution in FY 1982 and beyond would continue.

Training

(U) In FY 1980, the majority of contractor new equipment training (NET) was accomplished for Force Development Test and Experimentation (FDTE) during March through August at Fort Knox, Kentucky. The test was conducted using four CFVs. Other training efforts consisted of MLRS carrier training at FMC during August through September for government testing. The remaining part of 1980 was used in development of the NET concept for setting up an institutional and fielding team base for FY 1981.

Product Assurance Test and Evaluation

(U) RAM Data Collection. RAM data were collected during PQT-G and OTII for comparison against the IFV/CFV RAM requirements. The OTII RAM data base consisted of four vehicles which ran for over 8,900 miles while the Development Test (DT) II vehicles accumulated over 12,000 miles. The vehicles were run according to the IFV/CFV mission profile and all data were scored according to the IFV/CFV Failure Definition/Scoring Criteria (FD/SC). The vehicles demonstrated 289 Mean Miles Between Failure (MMBF) which was well above the 195 MMBF DT/OTII requirement.

(U) M28 25mm Link First Article Test. First article inspection and test of the M28 25mm Link Assembly was conducted at Aluminum Specialty Company, Manitouac, Wisconsin, during the week of 14 July 1980, and the functional test firing was conducted at the Ford Aeronutronic Test Range in San Juan Capistrano, California, during the week of 21 July 1980. The First Article Test report was conditionally approved 29 August 1980, and a supplemental report providing corrective action was approved 1 November 1980.

(U) OTII. The OTII, which began in September 1979 at Fort Carson, Colorado, was completed in November 1979. Its purpose was to provide data and associated analysis on the operational effectiveness and suitability of the FVS prior to Army Systems Acquisition Review Council (ASARC) III. Four test vehicles accumulated 8,900 miles and fired 39 TOW missiles and 30,500 rounds of 25mm ammunition. Results of this test were provided to ASARC/DSARC III.

(U) Prototype Qualification Test-Government (Vehicles). The PQT-G testing, which began at APG on 18 June 1979, was completed on 30 June 1980. Two IFVs and one CFV ran 13,624 miles, fired 68 TOW missiles and 27,257 rounds of 25mm ammunition. The purpose of this test was to demonstrate that the IFV/CFV was ready for type classification, and confirm TOW interface. The test was managed to maximize reliability, maintainability, and key performance data available for the ASARC/DSARC III decision points.

(U) Force Development Test and Experimentation (FDTE). Because of type classification and production decisions from ASARC and DSARC respectively, and because of the design similarities of the IFV/CFV, a Force Development Test and Experimentation was approved for the CFV. This test, conducted at Fort Knox, Kentucky, from 2 June 1980 until 8 August 1980,

validated tactical employment doctrine and techniques and assessed the adequacy of training literature. Five CFVs, accumulating 4,751 miles, firing 28 missiles and 7,682 rounds of 25mm ammunition, participated in the test, which resulted in important redesign of the crew hatch and seating configuration.

(U) Development Test (DT) IIa. In order to complete PQT-G subtests which were not previously conducted or which were not passed, a DTIIa test was run at APG using FV 108. This test started on 22 August 1980 and was completed 19 November 1980. The subtests were in swimming, speech intelligibility, center of gravity, self-righting, swim barrier erection, manual traverse rate, ISU error detector checkout, and turning radius.

(U) Fix Verification Test. From 16 September 1980 until 20 December 1980, one vehicle was tested at APG to technically verify DT/OT II fixes. Also, experience was gained on PEP hardware as available. The test was completed after the vehicle ran 2532 miles and fired 14 missiles and 5,170 rounds of 25mm ammunition. Valuable lessons were learned regarding the performance of the vehicle generator and fuel cell systems.

(U) Vulnerability Test. In FY 1980, the vulnerability test was conducted to determine the protection provided by the FVS against conventional weapons to include the effects of small arms attack, artillery shell fragmentation, mine blast and antiarmor HEAT attack. The vulnerability test would also determine the degree of crew protection during a chemical or biological attack, determine survivability characteristics of the vehicle, assess human factors engineering aspects, and gather limited repair parts and component damage data during enemy threat engagement. Furthermore, this test would explore battlefield repairability, logistics and cannibalization techniques. The vulnerability test began on 15 November 1980 at APG and was scheduled to end in July 1981.

(U) Dummy Rounds. PQT-G began the second week of August 1980. The testing was designed to evaluate the performance of the dummy cartridge in its expected operational use, for example, gun functioning and as an aid to personnel training with the M242 weapon in the M2/M3 vehicle. Initially, a composite plastic/metallic cartridge was tested, but with poor results. The composite round was dropped and testing of a new metal dummy round was ongoing.

Procurement and Production

(U) A letter contract was awarded to Ford Motor Corporation (FMC) on 1 February 1980, for initial production of 75 IFVs and 25 CFVs at an estimated value of $167,000,000.

(U) Multiple Launch Rocket System (MLRS) Maturation. A contract was awarded on 15 July 1980 for conduct of the maturation phase for the MLRS carrier program, to FMC for $15,911,000. Maturation encompassed

fabrication of spares and repair parts to supplement existing maintenance test support packages, modification, and repair of prototype hardware, testing, Government test support, and various software tasks as a continuation of validation phase effort.

(U) MLRS Carrier XM993 FY 1980 Production. FMC was awarded a letter contract on 1 August 1980 for initial production of 16 MLRS carriers. The contract included FY 1980 requirements in MLRS carrier peculiar support tools, MLRS carrier peculiar support and test equipment, and MLRS special test equipment.

(U) Systems Technical Support (STS) IFV/CFV and MLRS. A letter contract for conduct of STS of the FY 1980 initial production contract was awarded February 1980 to FMC. It was amended on 8 September 1980 to include STS requirements for the MLRS carrier. Contractual amounts were $22,500,000 for the IFV/CFV and $625,000 for the MLRS carrier support. Definitization of this contract was expected by January 1981. An RFP was issued in May 1980 for STS which would be concurrent with the FY 1981 IFV/CFV production contract. It was expected that a proposal would be received in October 1980 and definitization would occur in January 1981.

(U) Basic Ordering Agreement (BOA). Basic Ordering Agreement (BOA), signed with FMC on 27 March 1980, was used by ARRCOM, CECOM, MICOM, and TACOM to place orders for spare and repair parts for use on the IFV/CFV and MLRS carrier.

(U) FY 1981 Production for IFV (M2), CFV(M3)& MLRS Carrier (XM993). A request for proposal (RFP) for procurement of the FY 1981 requirements for the IFV, CFV, and MLRS carriers was issued on 25 April 1980. The RFP required a response date of 1 August 1980 and requested a proposal covering:

IFV (M2) Range One - 161-173 Range Two - 174-185	IFV/CFV Classroom Peculiar Spares
CFV (M3) Range One - 114-122 Range Two - 122-130	IFV/CFV Suspension Restraint Kits for Depot Stocks
MLRS Carriers (XM993) Range - 30-48	IFV/CFV Special Test and Inspection Equipment
IFV/CFV Peculiar Special Tools	MLRS Carrier Peculiar Special Tools
IFV/CFV Peculiar Support and Test Equipment	MLRS Carrier Support and Test Equipment

(U) Test Measurement and Diagnostic Equipment. STE-M1/FVS (Simplified Test Equipment - Abrams M1 Tank/Fighting Vehicle System) and DSESTS (Direct Support Electrical System Test Set) were both Abrams M1 tank test sets which would be adapted for the IFV/CFV systems.

The Phase I development contract for the FVS adaptation to both systems was awarded 2 May 1980. The contract would be followed by full scale development and initial production.

(U) 25mm Automatic Gun. Hughes Helicopters, Incorporated, exercised Option I on 6 February 1980 for the first year production quantity of 310 each, gun, automatic (M242).

(U) 25mm Ammunition. A production contract was awarded on 9 January 1980 for a total of 2,638,000 rounds of the 25mm M790 series family of ammunition. The award was made on a fixed-price incentive, three-year, multi-year basis with Ford Aerospace and Communications Corporation. The First Program Year was funded for 685,000 rounds of ammunition.

(U) Systems Technical Support (STS) 25mm Gun and Ammo. An STS contract was awarded on 2 July 1980 to Hughes Helicopters for STS services in support of the Initial Gun (M242) production contract. Ford Aerospace and Communications Corporation was awarded a contract for STS services in support of the Initial Ammunition Production contract.

(U) M758 (25mm) Fuzes. A three-year, multi-year contract for initial production of 1,375,000 M758 (25mm) fuzes for FY 1980-1982 requirements was awarded to Honeywell, Inc., Defense Systems Division, on 1 April 1980. The total contract amount was $13,950,000 on a firm-fixed-price basis, of which amount the FY 1980 requirement of $2,232,000 was awarded.

(U) System Technical Support (STS) M758 Fuze. A contract for FY 1980 STS of the M758 fuze was awarded to Honeywell, Inc., Defense Systems Division, on 4 June 1980.

(U) Firing Port Weapon (M231). An initial production contract for 1,600 M231 submachine gun (Firing Port Weapon) was awarded to Colt Industries, Firearms Division, on 15 May 1980 in the amount of $3,955,610.

(U) Government Furnished Property (GFP). Government Furnished Property for the IFV/CFV MLRS carrier and in support of the 25mm guns, ammunition, and fuze production contracts was identified and procured. The GFP was divided between new procurement and supply system support, as appropriate. Initial procurement was for the FY 1980 contracts with funding identified for FY 1981, to include planning PRONS where required.

(U) Defense Industrial Plant Equipment (DIPEC). FMC Corporation identified 139 items of industrial plant equipment which were required for FVS production and which could be supplied by DIPEC. After processing the requisition, 70 items were found to be unavailable. Of the 69 remaining, 31 were accepted by FMC. Replacement cost for the accepted items was estimated at $2.8 million.

(U) DX Rating. A second application for a DX rating for the FVS program was made as suggested by the DSARC. Information from major contractors indicated a continuing growth in subcomponent procurement/production lead times, particularly in electrical and electronic hardware. Without a priority rating, material reorder lead time would jeopardize future vehicle delivery schedules.

(U) United Kingdom Study of the Infantry Fighting Vehicle (IFV). The UK study of the IFV, which formally began in October 1978 with the signing of a US/UK Statement of Accord, was terminated in July 1980 when the UK elected to proceed with their national MCV80 program in preference to the adoption of the IFV. Although the US Government had compiled an extremely attractive package designed to persuade the UK to adopt the IFV, it was insufficient to adequately offset UK's concern over lost jobs and the inherent political problems associated with an off-shore procurement.

Program Management

(U) General. The combined FY 1980 programs managed by the Fighting Vehicle Systems Office totaled $360.2 million of which $275.2 million or 76.4 percent were obligated at fiscal year end. These resources covered three appropriations: PAA (Procurement Appropriations, Army), O&MA (Operations and Maintenance, Army), and RDT&E (Research, Development, Test and Evaluation).

(U) Program and Fiscal Resources. Status of allotment reports as of 30 September 1980 for fiscal year 1977 through 1980 were reviewed, their accuracy verified, and reports certified. Joint reviews were conducted with the TACOM Comptroller's Office of all unliquidated obligations against their source documents. The results of this review for FY 1980 are summarized below:

Research & Development	Program Authority ($000)	Obligations	Percent of Obligation
IFV/CFV (644616.258)	$34,637	$33,984	98.1
Fighting Vehicle Armament Sys. (644617.340) - FVAS	4,103	3,327	81.1
Multiple Launch Rocket System (694000.564) - MLRS	14,660	8,364	57.1
Divisional Air Defense System (694000.648) - DIVAD	1,250	1,230	98.4
Other Reimbursables (694000.133.340)	330	115	34.4
	$54,980	$47,020	85.5%
Procurement Appropriations, Army			
Infantry Fighting Vehicle (IFV)	225,700	173,090	76.7
25mm Gun, M242 (3211.16)	37,000	23,676	64.0
25mm Ammo, M790 Series	36,900	25,863	70.1
Firing Port Weapon (3211.16)	4,000	3,976	99.4
Operations & Maintenance, Army			
Program Manager's Office	1,576	1,559	98.9
TOTAL	$360,156	$275,184	76.4%

(U) Cost Information and Analysis. The Life Cycle Baseline Cost Estimate for FVS systems was completed in September 1979 with a revision for the ASARC/DSARC III issued in November 1979. This baseline was also used by Comptroller of the Army (COA) in evaluating the IPCE (Independent Parametric Cost Estimate) developed by TACOM. A revised production schedule with up to 90 vehicles per month was the main alternative of interest.

(U) A formal Cost Reduction program was initiated during the fiscal year. The major efforts started were analysis of different acquisition strategies to include Second Source, Value Engineering Program, and Should Cost Study for the IFV/CFV.

(U) In April 1980, a revised MLRS production cost estimate was received from the contractor, resulting in a decrease of the first buy from 32 carriers to 16 carriers.

(U) Several inquiries were received from other Services and foreign governments on procurement of 25mm guns, including Navy, Marine Corps, other Army uses, Japan, and Saudi Arabia.

Plans and Analysis Information

(U) ASARC/DSARC. An ASARC III was held on 20 December 1979 using the key documents MSRS, DCP, and IPS prepared during FY 1979. As result, the IFV /CFV, 25mm gun, and Firing Port Weapon were type classified standard. On 22 January 1980, a DSARC III was held. The Secretary of Defense Decision Memorandum (SDDM) on the IFV/CFV DSARC III, dated 1 February 1980, approved, among other actions, full production of the IFV/CFV.

(U) Program Reviews. During the course of the fiscal year, 40 major program reviews and briefings were presented to senior commanders and management officials at OSD, DA and DARCOM, as well as presentations to HASC and SASC. Special briefings were given to OSD on the FVS test and TMDE programs and to the Cost Analysis Improvement Group on operating and support costs. The United Kingdom received an RSI briefing.

(U) Type Classification. On 22 November 1979, DA, as a result of the DEVA, IPR recommendations held on 25 October 1979, approved type classification standard of the 25mm cartridges, fuze and links. The Army Systems Acquisition Review Council (ASARC) Milestone III meeting held on 20 December 1979 resulted in type classification standard of the IFV (M2), the CFV (M3), the Gun, Automatic 25mm EP (M242) and the submachine gun 5.56mm, Port Firing (M231).

(U) External Reviews. The DA Inspector General (DAIG) conducted an inspection during 5-9 November 1979 which did not result in any findings requiring response of corrective actions taken to HQ, DARCOM. GAO conducted a study in response to Congressman Addabbo's request to identify the variety of Anti-Armor developed and used by the Army's Armor Units, and after two discussions with the local GAO office, GAO terminated its study.

(U) FVS War Emergency Plan (WEP). A revised FVS War Emergency Plan (FVS WEP) was prepared and distributed in the third quarter FY 1980. The FVS WEP was an abbreviated plan which provided guidance and direction on the unique and detailed internal activities of the PMO-FVS, as a tenant organization of TACOM, in strategic planning and emergency procedures required for survival and recovery of FVS operations under conditions of limited or general war.

(U) Management Information. The Management Information Control System (MICOS) continued to assist in the management of the many aspects of the Fighting Vehicle Systems during 1 October 1979 through 1 February 1980. The monthly MICOS meetings closely monitored the continual review of the ASARC/DSARC documents (MSRS, DCP, IPS) submitted during FY 1979. Updates of these documents were accomplished to maintain the documentation as program changes occurred.

(U) During 1 February 1980 through 1 April 1980, following the ASARC/DSARC decisions, emphasis focused on attaining the goals established by the SDDM and completion of PQT-G. Progress through and results of development test were discussed and monitored.

(U) In the period 1 April 1980 through 30 September 1980, MICOS emphasis shifted from completion of testing to the numerous areas concerned with production. Line of balance (LOB) information, drawing and methods releases for production, and production line set up were closely monitored. Also, logistical areas were being highlighted and tracked.

(U) During the last quarter of FY 1980, two special ASARCs were held by DA to review the FVS acquisition strategy. The primary decision as a result was to pursue a second source for production of IFV/CFV and to "breakout" major sub-assemblies and provide them as GFE to the prime contractor. This decision was to be presented to a DOD program review in early FY 1981.

Cost Schedule Control System (C/SCS)

(U) During FY 1981, contractor cost reports were analyzed on a monthly basis and monthly briefings were presented to the PMO, APMs, and division chiefs. Briefing content included contract cost and schedule status, projections of future cost and schedule trends, contract estimates at completion, and evaluation of potential problem areas. In addition, monthly analyses on selected contracts were provided to HQ, DARCOM and quarterly analyses were prepared for the Selected Activities Report (SAR).

(U) In preparation for the evaluation and validation of contractor production phase C/S systems, this office participated in five Implementation Visits and three Readiness Reviews. These visits and reviews

were conducted by DARCOM and TACOM on site at contractor facilities. As a result of these visits and reviews, four Demonstration Reviews and a Subsequent Application Review were scheduled for FY 1981.

(U) Actions were taken for procurement of an in-house mini-computer system, which would permit increased analysis capability and preparation of charts used in C/S briefings and submission to higher headquarters. Coordination was also made to obtain copies of C/S analysis software developed at Redstone Arsenal. Additional software was being developed to permit automated chart preparation and editing to support MICOS briefings. Delivery of the computer hardware was scheduled for early FY 1981.

(U) Because of constant concern for escalating costs, cost management continued to receive major emphasis and attention in FY 1980. 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 analysis of these reports reflecting the evaluation of contractor performance was briefed to the PM, APMs, and Division Chiefs.

Strength Figures

(U) As of 30 September 1980, strength figures for FVS were--23 military officers authorized, 24 assigned; one warrant officer authorized, one assigned; two enlisted authorized, one assigned; 120 civilian authorized, 108 assigned. The 120 civilians authorized included one authorized overhire. Total authorized strength was 148 personnel, and total assigned was 134.

Nuclear Munitions

Mission

(FOUO) The Project for Nuclear Munitions (PM-NUC) had authority and responsibility for planning, directing and controlling the allocation and utilization of authorized resources in all phases of research, development, procurement, production, distribution, logistical support, and stockpile safety and reliability testing programs of assigned nuclear munitions programs.

Organization

(U) Project Manager, Nuclear Munitions was DARCOM spokesman in dealing with all matters pertaining to life cycle management of Nuclear Munitions, materiel developer, and liaison service.

(U) During fiscal year 1980, LTC Joseph H. Brooks replaced LTC Eugene A. Howell as Assistant Project Manager, Albuquerque Field Office.

He was assigned the responsibility of representing the Army at all Design Review and Acceptance Group Meetings (DRAAG) for non-Army designed nuclear weapons. The Assistant Project Manager for Nuclear Munitions, located at the Army Armament Materiel Readiness Command, Rock Island, Illinois, served as the principal representative of the Project Manager (PM) in all nuclear munitions Life Cycle Activities involving ARRCOM support functions.

Operations

(FOUO) During the year, the ARRCOM Field Office conducted materiel readiness review of fielded systems including M422 8 inch, LANCE, PERSHING la, Nike Hercules, and Honest John Weapons Systems. These reviews included an item-by-item supply posture, outstanding procurement actions, repair/overhaul status followed by actions necessitated to improve the operational readiness posture of the Army field forces. Continued follow-up actions were maintained by the ARRCOM field office.

(U) Accomplishments. Accomplishments achieved during the year included the institution of a procedure to improve responsiveness in processing FMS orders; conducting logistical provisioning reviews pertaining to new systems to assure logistical milestones were being met; coordinating a complex classified logistical movement plan to achieve partial retirement of a weapon system resulting in a cost savings in excess of $1/2 billion to the US Government. Other accomplishment was participation in the Pla Program Reviews--tasking included maintaining updated distribution plan with continued follow-up to achieve effective and timely distribution of material. Considerations included satisfying DA allocation plan, positioning of material to support follow-on test firings, annual service practice and stockpile laboratory test requirements.

(U) Personnel Strength. At the beginning of FY 1980 (October 1979), there were 45 personnel (38 civilians, 7 military) on board. This figure remained unchanged during FY 1980. The authorized strength during the fiscal year was 40 civilians and 10 military, including two additional spaces authorized during the year. One of the new spaces was an upward mobility position, management analyst; the second was a program analyst. In addition, an overhire was added through the Veterans Readjustment Act (VRA).

(U) XM785 Nuclear Projectile. During the fiscal year, a major reduction of DOD funding resulted in a one-year slip in the program initial operational capability (IOC). A Nuclear Weapon Systems Safety Committee (NWSSC) meeting on the XM785 nuclear projectile was conducted during FY 1980. It was concluded that the nuclear safety requirements could be met by the XM785 based on the data presented.

(FOUO) The Phase II "User" Ballistic Similitude Test was completed at Fort Sill, Oklahoma, during FY 1980. The results indicated that registration with dissimilar projectiles was acceptable as the best fire direction procedure for the low transconic zones.

(FOUO) Although initial firings to evaluate the rotating band diffusion process appeared satisfactory, later tests resulted in the rotating bands failing to remain attached to the projectiles. A detailed investigation of possible causes resulted in the most probable reason being the vapor honing cleaning process. A number of rounds were prepared using a new, improved cleaning process with an acid etch in place of vapor honing.

(U) The Provisional Qualitative and Quantitative Personnel Requirements (PQQPRI) and Basis of Issue Plan (BOIP) was sent from TRADOC to DA for approval in May 1980. Tentative BOIP/QQPRI Impact Statements were finalized by TRADOC and provided to DA for their action.

(U) Harry Diamond Laboratories (HDL) placed a cost plus incentive fee contract with Motorola Corporation for the XM749 fuze in May 1980. ARRADCOM placed a cost plus incentive fee contract with the Chamberlain Corporation in March 1980 for the XM785 projectile.

(U) An XM785 Projectile Logistic Working Group was conducted and problems concerning XM617 Container Maintenance, Limited Life Component Exchange (LLCE) concepts were discussed. As a result, an XM617 Container Maintenance concept was developed and an attempt was made to identify LLC exchange test and handling equipment requirements.

(U) XM753 Nuclear Projectile. The XM753 Projectile Program transition from the development phase to the production phase continued. The M613 container and M38 fuze setter were type classified standard and production contracts awarded. The DT II/OT II Program was completed with satisfactory results. M735 fuze, rocket motor and Department of Energy (DOE) hardware production activities continued.

(U) In Process Review activity to obtain standard type classification of DOE hardware for support of the XM753 program was initiated. The XM622 training, shipping and storage container was designed and evaluated by the user.

(U) During FY 1980, the special purpose environmentally controlled (EMR and relative humidity) Limited Life Component (LLC) maintenance van (XM21) concept was finalized. A contract was signed with Southwest Truck Body Company in St. Louis, Missouri, on 2 January 1980.

(U) During FY 1980, both a BOIP and BOIP Impact Report were distributed by TRADOC. At the request of Office of the Deputy Chief of Staff for Research and Development Agency, ODCSRDA, PM-NUC performed a comparison among the BOIP Impact Report, and the Equipment Requirements List. Late in the year, action was initiated to develop this information into a proposed distribution plan for the XM753 ancillary equipment.

LANCE

(FOUO) Three successful Stockpile Firings were conducted during FY 1980.

(FOUO) A failure of a tantalum capacitor in an Adaptation Kit Delay Unit occurred during the 8th Cycle Stockpile Laboratory Test Program. A failure investigation was conducted, but it was not possible to pinpoint the cause conclusively because the high short-circuit current resulting from the failure destroyed the evidence. Inspection of all other capacitors on hand revealed no defects, and corrective action was taken to limit test current on figure laboratory tests.

(FOUO) In FY 1980, efforts were in progress to provide the balance of four items to satisfy the requirements of the M240 Training Warhead Section Foreign Military Sales (FMS) Case.

(FOUO) Efforts continued to complete activities required for fielding the M234E3/4 Warhead Section. These included processing BOIP/QQPRI drafting and distribution of a materiel fielding plan and preparing draft changes for appropriate technical manuals. Activity continued to finalize ECP package for incorporating the MC 3504 Command Disable System (CDS) in M240 Type X Trainers.

(FOUO) DA established the required LANCE protected period. To satisfy this requirement, a contract was let with Lockheed Electronics for the fabrication of six M238E1 AKs spare contingency production hardware. Additional funding required to eliminate the total shortfall was requested from the LANCE Project Officer. As of yearend 1980, funding for this effort was not available.

(FOUO) Engineering effort for the Production Improvement Proposal (PIP) to develop a method to simplify the mating and improve the reliability of the Adaptation Kit (AK) cable to warhead connection was initiated. The proposal required the addition of two cables; an armored cable mated to the warhead connector and an extension to the W31U/W78U cable. These cables were then accessible for an easier more reliable mating operation and allowed for visual confirmation of the cable connection. In addition, these were special winged connectors which also simplified the mating operation and its verification.

PERSHING II (PII AB/SB)

(FOUO) In May 1980, the DOE W85, W86 CCIU and PAL type trainers were configured via the Joint Configuration Working Group. An agreement was made to void the requirement for a W86 type W3B warhead based on SLA's statement that there would be no utility for such an item due to the inherent strength of the W86. Design drawings for the W85 trainers were reviewed in July 1980.

(U) Final packages for BOIP and QQPRI were forwarded to Equipment Authorization and Review Agency (EARA) and Materiel Readiness Support Agency (MRSA), respectively on 30 June 1980. However, the 30 September 1980 milestone for TRADOC input to DA did not occur as planned. Effort was underway to hand-input the data prior to 31 December 1980.

M454

(FOUO) During the fiscal year temperature sensitivity of some M32 timers was revealed during stockpile testing, and special laboratory tests, in addition, four investigative firings were planned to determine if any corrective action was necessary. A shortage of DOE test assets for the stockpile firing program resulted in a reduction of the planned yearly sample by approximately 40 percent for the subsequent five cycles. During the last stockpile firing cycle, the M109A1 was used on Zone 3 firings for the first time.

M422 Program (8 inch)

(U) An overpack proposal was sent to HQ DA per their request. Funding in the amount of $10,000 would be required to develop a Technical Data Package (TDP) for the wooden overpack and to fabricate one prototype to check for fit. Unit production costs for the wooden overpack would be approximately $300.00 in quantities of 300. At yearend 1980, HQ DA had not authorized a program for the overpack.

(FOUO) The telemetry package for the full-function stockpile test round was redesigned, and successfully passed rail-gun and parachute recovery tests. It was to be exposed to simulated firing environments in a joint ground qualification test in October 1980. If successful, the full-function rounds would be fired early in FY 1981.

Atomic Demolition Munition (ADM)

(FOUO) Direction from the Military Liaison Committee to the Department of Energy and from Headquarters, Department of Army to the US Army Materiel Development and Readiness Command, provided guidance for an ADM modernization study. A joint DOD/DOE study group, chaired by PM-NUC, was formed to identify alternatives to modernize the B54/SADM and W45/MADM. The alternatives were to enhance reliability safety, security, command and control, and operational utility without substantially changing the characteristics of the warhead.

(FOUO) The study provided alternative modifications of various degrees of improvements and costs, which could be implemented as field retrofits. A briefing which provided the results of the study was presented to DA Staff.

(U) A separate final report on each of the two systems was written and draft copies were distributed for coordination and concurrence. After approval by the members of the study group, the report was expected to be distributed.

PERSHING 1a

(FOUO) During 1980, PM-NUC continued the management of follow-on procurements of PERSHING 1a M15 Warhead Section subassemblies placed in 1978. Initial M15 deliveries were made to meet US OCONUS requirements during 2d quarter, FY 1980. A new M15 was flown successfully at the Eastern Test Range (ETR) during May 1980 to support the PERSHING Managers Office requirement for a production verification test.

(FOUO) Efforts continued during 1980 to coordinate the future P1a fast development tests to effect an orderly transition to the P11 system and meet the Army and DOE requirements for warhead section stockpile testing. Agreement was reached to use German ARTY/ORD flight testing to satisfy warhead section requirements starting in FY 1983.

Power Supplies for Permissive Action Link (PAL) Equipment

(FOUO) In FY 1979, PM-NUC and ARRADCOM initiated a program to evaluate a lithium sulfur-dioxide battery for use with PAL controllers. The new batteries proved superior and cheaper than the Nickel Cadmium (NICADS) in use at yearend 1980, which were procured from the DOE. Implementation of the new batteries was held up for DOE approval. A memorandum of understanding was negotiated by PM-NUC to permit the use of Army supplies for all PAL equipment.

(FOUO) During the fiscal year, ERADCOM type classified the BA5590/LI lithium sulfur-dioxide battery for Army-wide use with communications gear. This battery had one cell less than the power source evaluated by ARRADCOM in FY 1979. Sample quantities of the BA5590/05 were procured and evaluated by ARRADCOM for use with PAL controllers. Test results indicated that this battery was acceptable in meeting the power requirements of the PAL controller and provided marked operational, logistical and cost advantages over the prior NICAD.

(U) PM-NUC was expected to try to implement use of the BA5590/LI for PAL controllers.

Nike Hercules (NH)/Honest John (HJ) W31 Weapons Systems

(FOUO) In FY 1980, DA was in process of making a decision on NH improvement. A decision was made by HQ DA Deputy Chief of Staff for Operations and Plans (DCSOPS) to cancel a stockpile test sample located in a particular area because of political and security sensitivity. This was not a precedent and future situations of this kind would be considered on a case-by-case basis.

(FOUO) A major program was undertaken by the Army to retire a number of Honest John Warheads during FY 1979.

Ballistic Missile Defense (Low Altitude Defense)

(FOUO) The office of the Project Manager for Nuclear Munitions participated in a Phase 1 Study of the Ballistic Missile Defense System, which was generated and being staffed in FY 1980. Subject system would be used to defend MX (missile system) in its Multiple Protective Structure (MPS) deployment mode. There was also the potential capability of the system to defend Minuteman or MX in Silos.

Stockpile Reliability Program

(FOUO) The Army and DOE completed their efforts to select a methodology for expressing joint reliability assessments of nuclear munitions in terms of lower confidence bounds. This method would be applied on future joint assessments after receiving approval from the Assistant to the Secretary of Defense.

Medium Atomic Demolition Munition (MADM)

(FOUO) The latest stockpile test results indicatedthat one of the (MADM) firing options was subject to certain environmental interference. The PM-NUC Office notified HQ DA of this condition.

(FOUO) Because of a shortage of DOE assets to support the Joint Army-DOE (MADM) Field Test Program, no joint test would be conducted beyond FY 1980. Future field test would be Army only with a dummy load instead of DOE test unit.

M454/M198 Compatibility Program

(FOUO) The full compatibility program of 56 rounds remained in a hold status pending analysis of the seven round pretest conducted in FY 1979.

(FOUO) Ballistic Research Laboratory (BRL), as a result of reviewing the pretest differential pressure versus time, and muzzle velocity data, requested a 60 round test series to determine if there were any conditions where a misproduced or damaged M197 prop charge might damage a weapon. This test program required four months while charges were obtained and modified; projectiles obtained and inert loaded; tests conducted and data reduced. Analysis showed differential pressure levels produced in the M198 by the M197 did not constitute a safety problem.

(FOUO) All the data from the pretest and the BRL test were furnished to the DOE laboratories to determine whether their components would operate at and withstand the forces they might encounter when fired from the M198. Some were slightly above the Major Assembly Release values. In June, DOE replied that their components could operate at the levels provided by the Army.

(FOUO) Prior to taking reprogramming action to support the FY 1980 phase of the full compatibility program in DRCPM-CAWS, DA revalidated the requirement for full M454 compatibilities with the M198. This was accomplished in June.

(FOUO) Full funding for the FY 1980 phase of the full compatibility program was provided by DRCPM-CAWS in mid-September 1980. ARRADCOM and Army Materiels and Mechanic Research Center (AMMRC) started action in support of the program.

(FOUO) Action was initiated to verify that the M454 was compatible with the new M109A2 and A3 versions of the 155mm self-propelled Howitzer. The A2 and A3 were basically the same configuration; however, the A2 represented new production Howitzers while the A3 was the result of taking a fielded M109A1 and incorporating a depot installed modification kit into it. Involved Army agencies reviewed the A2/A3 charges and agreed that they did not require a firing program. The data were provided to DOE for analysis. The manner in which US Army Test & Evaluation Command (TECOM) presented some data caused some problems at DOE, and action was taken as the year ended to attempt to get these differences and interpretations resolved.

Value Engineering (VE)

Results of the FY 1980 VE Program

	Goal	Actual	% of Goal
VEPs* Initiated	8	9	112.5%
VECPs** Initiated	4	0	0
Swings Validated	$1,000,000	$2,463,000	246.3%

* Value Engineering Proposals
** Value Engineering Change Proposals

(U) No VECPs were initiated because with nuclear munitions it did not pay a contractor to do VE on his own. The small quantities involved, usually one time buys and the cost of testing and certifying a change to the safety and reliability levels required offset any savings and negated the possibly of royalties on future contracts.

Configuration Management

(U) Revision 2 to the Configuration Management Plan for Nuclear Munitions was issued in January 1980, and the drafting of the charter and procedures for a Level III Configuration Control Board at the Army Tank Automotive Command began. TACOM was involved in the development and production of a mobile maintenance facility to support the XM753 when fielded.

(FOUO) Confirmation Control Board (CCB) activities were in support of components of the XM753 Nuclear Munition System which was being type classified, released to production, and entering production. Revision to the Joint Operating Procedures for the Army/DOE exchange and approval of engineering information and materiel management required for production of M753/W79 were also reviewed and approved.

Life Cycle Cost Model (LCSCM)

(FOUO) The Life Cycle Cost Model for Army Nuclear Munitions was published in FY 1980 to provide guidance for the development of life cycle costs. The cost estimate, when completed for this model, was an essential management tool. It was developed to identify all costs in the life cycle of a nuclear munition and provided a correlation between the "Life Cycle System Management for Army Nuclear Munitions" developed by the Office of the Project Manager and the cost elements defined in Department of the Army Pamphlets 11-2, 11-3, 11-4, and 11-5 pertaining to life cycle costing. This document would assure that the base line cost estimates had considered all cost areas; identify cost drivers for full-time management attention; identify the magnitide of cost changes being considered to satisfy a particular program/technical objective. It would provide a program cost history relative to estimated costs through changes, as required, to the base line documentation; it would also provide a means to extract cost information to satisfy higher authority requirements in a timely manner, regardless of the mix of appropriations with a minimum of resources expenditure. In addition, it would provide the detail documentation (rationale) to justify resources needs to the satisfaction of higher authority and expedite the validation process.

Publications and Maintenance of Nuclear Launch Equipment by Friendly Nations

(FOUO) In the 1978-1979 timeframe, HQ DA decided to send friendly foreign nations an early photocopy of all manuals/changes and revisions to nuclear weapons publications, to help eliminate the time gap in receipt of publications between US forces and other nation forces. This decision was overturned in 1980 due to legal reasons, and the unfavorable time gap was not lessened. A Nuclear Weapon System Safety Committee (NWSSC) observation during their 1980 visit to Europe indicated that US and non-US units were translating, at the user level, the US units publication. The problem was the increased possibility of translation errors due to limited translation capability. PM-NUC in coordination with USANCA and HQ DA would continue to investigate possible solutions to the non-US publications problem.

Product Improvements Proposals

(FOUO) During FY 1980, a Product Improvement Proposal (PIP) entitled "LANCE Enhanced Cable Connection" was approved by DARCOM and DA. Previously approved product improvements associated with nuclear safety of

the Nike Hercules (NH) missile system remained unfunded during FY 1980. A decision to proceed with these improvements was associated with other proposed warhead safety improvements. This matter was being studied in DA during the fiscal year.

Nuclear Weapons Accident Exercise (NUWAX)

(FOUO) During FY 1980 the office participated in planning for a Nuclear Weapons Accident Exercise (NUWAX) to be held in FY 1981. This exercise was a follow-on to NUWAX-79 and would again evaluate command, control communications, and other functions involved in interdepartmental coordination and related activities at the scene of a nuclear weapons accident.

Mark 74 Shaped Charge

(FOUO) During FY 1980, the Materiel Fielding Plans for the MK74 were finalized and published. Also, PM-NUC directed that a laboratory test program be completed at ARRADCOM to determine the cause of water immersion test failures experienced by the contractor. Results indicated that the materials were sensitive to an adhesive curing heat cycle. A substitute room temperature curing adhesive was recommended to the Navy, which was the design proponent, as a change to the Technical Data Package (TDP).

Command Control & Security (CC&S)

(FOUO) In July 1980, Commander in Chief, United States Army Europe (CINCUSAREUR) stated a need for security. In September 1980, HQ DARCOM tasked PM-NUC to form a Technical Working Group (TWG) to satisfy the CINC's security requirements. Action to form the TWG was initiated at the end of FY 1980, with the initial meeting to take place early in FY 1981.

Foreign Military Sales Cases (FMS)

(FOUO) The PM was responsible for Foreign military sales cases involving nuclear munitions material trainers, test and handling equipment, tool sets, and ancillary equipment. In FY 1980, there were a number of FMS cases being accomplished.

FMS Case #	Signed	Item and Quantity	Cost	Delivery Schedule
NE-VHK	6/79	4-M440 Trainer	$135.1K	31 Oct 1980
UK-B-VMY	8/80	3-M455 Trainer	114.0K	31 Dec 1981
GY-B-VVB	2/79	44-M511 Containers	301.3K	31 Dec 1980
Classified Case	1/79	6-M240 Trainers	427.8K	31 Nov 1981

(FOUO) The following lessons learned were derived from these cases: FMS case priority had to be clearly stated; price and availability (P&A) responses should have included estimates for recouping R&D costs and any depot services to be provided; sufficient time should have been provided in P&A response to consider time required for US Government negotiations with FMS Case Nation. If FMS case customer did not respond to accept P&A within period specified, then the customer should be notified that the P&A might be invalid and a revised one required. There was a lack of information furnished to the OPM-NUC relative to items above. Accordingly, a procedure was developed to apply the lessons learned of FMS cases, and to assure that required information was provided the PM office for management.

(FOUO) In FY 1980, the greatest concern of the Nuclear Munitions Project Office for the future, was the continued availability of experienced engineers and nuclear project leaders. The trend of abstract requirements and requirement instability pushed budget year funds into the out years with the attendant loss of key talent which could not be recovered. Loss of talent meant the inability of Army labs to remain in competition with Department of Energy. Another major concern was the low level of effort in the nuclear technical base. While this effort was not managed by PM-NUC, there would have been no FY 1981 nuclear tech base program without pressure from that office. Inadequate 6.2 effort to support development was inviting repetition of FY 1980 problems such as those experienced with the XM785 rotating band bonding. FY 1980 problems were a direct result of inadequate 6.2 technical base effort in prior years. FY 1981 6.2 effort would only be 20 percent in real effort compared with FY 1966 and would impact new developmental programs such as LOADS and CSWS. All developmental systems (LANCE MOD 4, XM753, PERSHING II and XM785) would be fielded by end CY 1983 except for the XM785 which would rapidly be winding down. Thus, beyond FY 1984, only the potential BMD and CSWS Projects in Army labs could provide the engineers to produce Engineering Change Orders (ECOs) invariably associated with the introduction of new systems in the field. Consequently, an inadequate nuclear technical base in FY 1981 translated into no nuclear engineering work force in FY 1984, which translated into a disaster in DARCOM's readiness posture in FY 1985 and beyond.

Nuclear Munitions Programs Appropriations

($ Thousands)

Appropriation	FY 81	FY 82	FY 83	FY 84	FY 85
Procurement	36,531	30,212	38,523	47,419	33,575
RDTE	22,191	41,844	29,772	30,309	39,835
OMA	12,368	12,506	11,460	11,648	11,896
Total	71,090	84,562	79,755	89,376	85,306

PATRIOT

(U) The PATRIOT Project was the development and acquisition of an advanced surface-to-air missile system, designed for maximum effectiveness against the air breathing threat of the 1980s and beyond. It would replace the high and medium altitude air defense systems (Nike Hercules and Improved HAWK). A major milestone for the PATRIOT Weapon System was achieved on 10 September 1980 with the announcement by the Department of Defense that PATRIOT was approved to enter limited production.

Contracting

(U) In order to maintain the accelerated program schedule approved by the Department of Defense, while minimizing Government liability pending the anticipated production approval, the project office awarded an $11 million initial production contract to Raytheon in November 1979. This contract provided for critical long leadtime materials only. In March 1980, the Army awarded an additional $80 million contract for material of less criticality. The remaining material and labor contract was to await production approval. In February 1980, the Army awarded an Engineering Services contract in the amount of $23 million.

(U) To complement the earlier March 1979 initial production facility contract, the project entered a second contract in April 1980 for $80 million for additional long lead test equipment and tooling to fulfill the initial equipment requirements of the production facility. This contract provided the capability to commence production of PATRIOT upon Department of Defense approval.

Field Testing

(U) The US Army Operational Test and Evaluation Agency conducted field environment testing of the developmental PATRIOT hardware prototype system with Army troops from November 1979 to March 1980. This evaluation consisted of missile firings, field exercises, system movement, and personnel training. In response to some of the deficiencies and shortcomings identified during these tests, changes were incorporated and successfully retested in DTII. Additional changes were designed for incorporation into Engineering Development Fire Units for testing post DSARC III tests.

(U) The Government conducted equipment qualification testing during June 1979 to August 1980. That portion of the tests following the field environment testing reflected progressive improvements in software reliability and maturity. The test program included test flights of seven missiles preconditioned under various temperature and mechanical stress environments. Although the flights were successful overall, they did reveal some design weaknesses which were being eliminated.

Readiness for Production

(U) In November 1979 a review team consisting of representatives from the PATRIOT Project Office and various Army and Defense agencies evaluated the readiness of PATRIOT for production. The team assessed production readiness, which included contract management and administration, design and performance, production and manufacturing, and support and product assurance. The review concluded that the development program had achieved a producible and supportable low risk product design which was supported by adequate production and manufacturing planning by the prime contractor, Raytheon Company, and the major subcontractor, Martin Marietta Corporation (missile and launcher contractor).

(U) The Department of the Army conducted a review on 3 July 1980 to determine the readiness of PATRIOT to begin production. In considering the PATRIOT test results, the review concluded that the existing technology was adequate to easily remedy the remaining equipment deficiencies, that the test results compared favorably with experience with the fielded units in use at that time, and that the need for PATRIOT in the field was great. The Department of the Army recommended full production of the PATRIOT system and accepted the new equipment as standard items in the Army inventory. The recommended production rates were five fire units the first year, twelve the second, and eighteen thereafter.

(U) On 21 August 1980, the Department of Defense conducted its review of PATRIOT's readiness for production and the Department of Army's recommendation. The Army presented the status of the program and showed its proposed post review program for reducing production risks by a scheduled test verification of hardware and software design improvements. Approval for increase in production rates to the planned rate of 18 fire units per year was to take place automatically, incrementally upon successful completion of the verification test segments. The presentation emphasized the need for PATRIOT in the field and the technical feasibility of implementing equipment design improvements during the 24-month production cycle. The Department of Defense decision, announced on 10 September 1980, reflected approval of a limited production of PATRIOT with Defense Department review of program progress prior to approval of production rate increases. The decision directed a verification test program consisting of four test units, the last two to be followed by Department of Defense reviews. The authorized production rates were five fire units the first year, six the second and six the third year. Authorized increases were contingent upon successful test results in the four test units. In addition, the decision directed that the production contract provide for a minimum fixed fee and a maximum award fee based on technical performance.

(U) As of 30 September 1980, the Army and the PATRIOT prime contractor were finalizing contract negotiations to produce five fire units for the first year. The contract award for the remaining material and the labor effort was projected for 1 October 1980 for about $228 million.

International Operations

(U) International Operations continued work in support of the Acquisition Options Study being performed in support of the US role in NATO PATRIOT Management Office (NAPATMO). This support included participation in Program Steering Committee (PSC), Group for Industrial Matters for PATRIOT (GIP), NAPATMO Industrial Survey (preparation support and evaluation), follow-on MOU Working Group (MWG), and Technical and Logistics Working Group (TALWOG). Technical Information for Cost Estimating Purposes in the form of reports and aperture cards was prepared and provided to NAPATMO in February 1980. Portions of this information was provided to European Industries to support their preparation of estimates on production of various portions of PATRIOT in Europe. By late September, European Industry had replied either individually or jointly, as part of a single country's industry reply or as part of a Tri-National (German, French, and US) Program response. The evaluation began 1 October 1980, and was expected to result in an Interim Report on the PATRIOT Acquisition Survey (INTROPAS) to be issued 15 January 1981. Technical and Cost Evaluation support was provided NAPATMO by PATRIOT Project, IBM, MICOM, and Raytheon. A PATRIOT Annex to the Data Exchange Agreement (DEA) between the US and Germany was prepared and agreed upon, thus resulting in a Bilateral US/GE effort. This Annex resulted in an effort by PATRIOT Project Office, CAS, and Raytheon personnel to prepare and present to GE Ministry of Defense (MOD) personnel data required to support a DSARC like decision on PATRIOT by GE. The German PATRIOT Liaison Office, Huntsville, Alabama, was expanded during 1980 to include a representative from the Armaments Directorate of the MOD. An Air Defense Survey Team composed of Japanese Ground (Army) and Air Force visited the PATRIOT Project Office and various manufacturing and test facilities to support efforts in making a decision expected in CY 1981, relative to the replacement of Nike and HAWK.

Smoke/Obscurants

Milestones

(U) The Project Manager and the Technology Manager of the Smoke/Obscurants Project Office made a 3-day technology review visit to HQ, Missile Command (MICOM) and the Missile Laboratory on 29 January 1980, to brief key personnel on primary aspects of the Army Smoke/Obscurant Program.

(U) Smoke Symposium IV was held at Harry Diamond Labs on 22 and 23 April 1980, covering Smoke/Obscurants Technology and Hardware Development, Modeling, Testing, Instrumentation and Methodology, and Doctrine

and Training, Concepts and System Evaluation and Analysis. Attendees included representatives from DOD, industry, and allied countries.

(U) The PM and selected staff members visited the UK 13-22 June 1980 to observe production, proof and acceptance testing and operational test firing of L8A1 RP Smoke Grenades. Members of this team then visited USAREUR from 22-29 June 1980 to observe L8A1 Grenade test firings and storage conditions.

(U) Smoke Week III was successfully completed during 11-22 August 1980, at Eglin AFB, Florida. Forty-two trials, utilizing 12 obscurants disseminated on 25 varying sources or techniques were conducted during this period. Eighteen organizations, both military and contractor, participated in the exercise. A total of 36 different E/O devices were involved in the test, including two foreign devices. Examples of participating systems were the modified COPPERHEAD seeker, HELLFIRE seeker mast mounted sight for the Army Surveillance Helicopter CO_2 beamriders, 2 laser range finders from the UK, and a Battlefield IFF system from Federal Republic of Germany.

(U) Contingents from Israel, Japan, Germany, Australia, and the United Kingdom visited the OPM during FY 1980, and were briefed on SASG Technology Base programs.

Research, Development, Test and Evaluation Programs

(U) In FY 1980, the Army RDT&E projects and tasks assigned to the Smoke/Obscurants Project Management Office were:

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 1980 on the projectile. Following competitive development, the XM819 Red Phosphorus (RP) cartridge was selected for continued development. EIG testing of the XM819 cartridge was conducted at Dugway Proving Ground (DPG), and the item demonstrated a range capability of 4400 meters. Development Testing (DT) and Operational Testing (OT) test items were fabricated and delivered to DPG, Utah for testing, scheduled for October 1980.

(U) Large Area Smoke Screening. Advanced development of the XM49 Smoke Generator continued in FY 1980. The prototype generator successfully demonstrated dissemination of fog oil, diesel fuel, and PEG 200 as visual screening agents. Three potential infrared (IR) agents were also dispersed during August 1980, SW III exercise at Eglin AFB, Florida. Engineering Design Test Hardware manufacture was initiated and the draft ROC was formulated.

(U) Infrared Defeating Grenade, XM76. Advanced development, initiated in FY 1979, continued in FY 1980. The Acquisition Plan was prepared and initial prototype hardware was manufactured and tested. XM76 Grenades were tested at SW III against various infrared sensor devices. Toxicology testing was initiated, a special IPR was held on 30 September 1980, for the Demonstration Validation Phase of the XM76 Grenade development.

Engineering Development: Smoke Munitions and Materiel

(U) Smoke Grenade Launcher (SGL) Application. XM257 SGL testing with the XM2 IFV and XM3 CFV was successfully completed in FY 1980. The M257 SGL was type classified standard, Logistics Control Code A, on 15 April 1980.

(U) USMC LVT-7/M257 SGL. XM257 SGLs with both standard and corrosion resistant contacts and connectors were environmentally tested for US Marine Corps (USMC) use. An accelerated 500-hour salt chamber test was conducted at Aberdeen Proving Ground (APG) and nine-month exposure to salt water/salt sea air was conducted at Camp Pendleton, California. After five months, corrosion of the standard electrical tube contacts was noted. As a result, an ECP was prepared, changing the contact materiel to type 316 corrosion-resisting steel and combining two previously welded parts. The ECP reduced cost would also be applied to the M243, M250, and M239 SGLs. The USMC agreed to adopt the Army standard M257 SGL. USMC testing of the LVTP-7A1 Weapon Station, with M257 SGLs installed, was initiated in 4th quarter FY 1980 at Camp Pendleton, California.

(U) SLUFAE M257 SGL. The M257 SGL was adapted to the SLUFAE vehicle and successfully completed OT II testing during August 1980. The final TDP for SGL/SLUFAE interface hardware was prepared and provided to PO-SLUFAE.

(U) XM259 Smoke Grenade Launcher (SGL) Development. A program to type classify the XM259 SGL was initiated to provide a required SGL for the M113/A1 Squad and Command and Control Vehicle, the M233 TOW Vehicle, and M9 Universal Engineer Tractor (UET). Type Classification (TC) was forecast for 1st quarter FY 1982.

(U) M239 SGL for M728 CEV. The SGL/vehicle interface engineering effort was completed. Procurement of M728 CEV installation hardware for fielding was initiated.

(U) Report on Foreign Armored Vehicle Self-Obscuring Smoke System. Study was completed by Battelle and copies were distributed to interested parties.

Vehicle Engine Exhaust Smoke System (VEESS)

(U) VEESS/M60 Series Vehicle. IOC of VEESS on M60A1/A3 tanks was accomplished by PM-M60. As of August 1980, VEESS kits were applied by MWO to 174 USAREUR M60A3 tanks at Mainz Army Depot, Germany. M60A3 production tanks shipped with VEESS consisted of 33 tanks with the complete kit and 88 tanks with engine kits (hull kits to be field installed). VEESS was applied to three M728 CEVs by MWO at Mainz in March 1980; and as of September 1980, Anniston Army Depot had applied VEESS kits to 239 M48A5 and 69 M48A2 AVLBs by Modification Work Order (MWO).

(U) VEESS/M88A1 Medium Recovery Vehicle (MRV). TACOM/PO-M88 signed MOUs for fielding of VEESS kits in both CONUS and OCONUS.

(U) 155mm Howitzer Ammunition, 155mm Improved Screening Smoke Projectile (XM825). Full scale Engineering Development continued in FY 1980. Engineering Design tests at Dugway Proving Ground were completed in April 1980. Two hundred forty two DTII safety test rounds were shipped to DPG and safety testing was initiated. However, 2d quarter program slippage (to 2d quarter FY 1982) was forecast due to delay in procurement of DT/OT II projectile components.

Procurement and Production

(U) M116A1 HC Smoke 155mm Projectile. Pine Bluff Arsenal completed initial production of subject product improved artillery smoke round. Production assets were reviewed and released as suitable new materiel with initial distribution covering priority OCONUS requisitions.

(U) M3A3 Mechanical Fog Oil Smoke Generator. American Air Filter Company, St. Louis, Missouri, was competitively awarded a Services materials contract for engineering and improving the starting, running, and maintenance characteristics of subject smoke generator. This initiative also included investigating the potential use of diesel fuel as a replacement and/or alternative to the presently used amoke material, SGF2 fog oil.

(U) Smoke Grenade and Launchers for Armored Vehicle Applications. Third and last program year requirements were ordered on the multi-year production contracts with the UK's Ministry of Defense for the L8A1 RP Smoke Launcher Grenade and the M239 and M250 Smoke Grenade Launchers (12-tube system configurations.)

(U) Americanization of the UK's technical data packages for subject launchers was completed in support of the planned shift from sole source to competitive acquisition. American Air Filter Company, St. Louis, MO, was competitively awarded a production contract for the M239 and M250

Launchers, Ronal Industries, Port Chester, New York was successful bidder for the initial production buy of the M243 and M257 Launchers (8-tube system configurations).

(U) United Kingdom production of the L8A1 Grenade was deferred in 4th quarter FY 1980, pending investigation and improvement of design, manufacturing, and testing characteristics which impacted on the smoke yield or performance of the grenade following air burst and dispersion of burning RP/Butyl Rubber particles.

(U) M5 Ground-Type HC Smokepot. Phase II of the International Materiel Evaluation and Testing (IMET) Program was expanded to acquire and evaluate a Canadian smokepot, as well as the candidate alternative smokepots from Japan and the United Kingdom.

(U) Projectile 155mm Smoke, HC BE M116A1. Full release of the M116A1 improved projectile was approved by the Commander, ARRADCOM, on 28 August 1980. The ARRCOM NICP released the round for shipment to USA Europe on 29 August 1980.

(U) Smoke Grenade Launcher Materiel Fielding. HQ, WESTERN COMMAND signed a Materiel Fielding Agreement for the M239 Smoke Grenade Launcher on 13 August 1980.

(U) The Commander, ARRCOM, approved a conditional release of the M239 Smoke Grenade Launcher on 19 November 1980 to Eighth US Army (Korea) for the M28A5 Tank and M88A1 Medium Recovery Vehicle, pending revision and distribution of the vehicle technical manuals that incorporate the smoke grenade launcher.

(U) Materiel Fielding Agreements were signed by HQ, TRADOC, on 31 October 1980, and HQ, FORSCOM, on 21 November 1980, for fielding of the M250 Smoke Grenade Launcher.

Interfaces

(U) Interface with TRADOC. The Smoke/Obscurants office continued to participate 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. The office was also consulted and provided advice concerning the use of smoke at the National Training Center. An Army Smoke Program Briefing was developed jointly by PM and TSM Smoke. The briefing included the smoke and electro-optical weapons systems threat, the smoke concept, and the Army's materiel development, readiness, test and technology programs, impacting on smoke and obscurant capabilities. This briefing was presented to DARCOM and TRADOC Headquarters, and subsequently, to a broad TRADOC, DARCOM, FORSCOM, and other Service audience. The Systems Program Review (SPR) resulted in re-emphasis of the need for training in obscured environments,

improvement of training and doctrinal literature addressing combat in an obscured environment and employment of obscurants, and a need for enhanced obscurant delivery capabilities.

(U) International Interfaces. The goals of the PM Smoke International Arena were hardware and software oriented. The hardware goal was maximized standardization/inter-operability of smoke materiel in the NATO arena. Mechanisms by which this was accomplished included participation in the ABC and NATO Standardization Program, participation in the DARCOM International Materiel Evaluation Program, and the conduct of independent studies. The software goal was to maintain a highly active dialogue with the nations of the free world. Mechanisms for achieving this goal included involvement in NATO and wide participation in TTCP and MWDDEP, as well as the execution and implementation of bilateral DEAs. Specific activities include quadrapartite - continued participation in JAG-10, study and characterization of the limited visibility battlefield; NATO - continued participation with PG-16 (anti-IR smoke), and AC 225 Panel IV IR Optics AC-243. Bilateral DEA continued participation in eight data exchange agreements (DEA) involving six countries. A ninth DEA with a western nation was being negotiated as of close of FY 1980. PM Smoke was also participating in US/GE bilaterial non-major item staff talks concerning smoke and camouflage. In addition, Canada expressed interest in the XM49 Smoke Generator under the Defense Development Sharing Program.

(U) JAG 10. During FY 1980, a representative from PM Smoke/Obscurants attended the second and third meetings of the TTCP JAG 10 held at NV&EOL (Fort Belvoir, Virginia) and DREV (Veleartier, Quebec), respectively. The second meeting was devoted primarily to creating a strategy for accomplishing the Terms of Reference (TOR) objectives; reviewing data and or losses and limited visibility models; and commencing action in preparation of the Limited Visibility Battlefield Conditions Report - the major product of JAG-10. The third meeting extended the last action in more detail. Specific chapter focal point assignments were made among the participants. The PM Smoke/Obscurants representative was focal point for the Chapter entitled Limited Visibility Model Requirements for EO Sensor Analysis. A draft version of this chapter was to be available for discussion at the November 1980 meeting in Adelaide, Australia.

(U) Research Study Group 15. NATO AC/243 Panel IV on Infrared and Optics formed an Ad Hoc Group for characterization of the Measurement Techniques for Battlefield Effects. This Ad Hoc Group met on two separate occasions and generally concurred that a Research Study Group (RSG) should be formed. The RSG 15 was formed and was to convene its first meeting on 27 October 1980 in France. The objectives of the initial meeting were to discuss the terms of reference, information exchange, and future work schedule.

Miscellaneous

(U) Smoke Symposium IV. Smoke Symposium IV was sponsored by OPM Smoke on 22-23 April 1980 at Harry Diamond Laboratories, Adelphi, Maryland. The objective was to bring together the people of the smoke/obscurant, electro-optical (EO) community to discuss material problems, policies, test data, and other factors relating to the performance of EO systems in a characterized smoke environment. Papers were presented covering areas of interest such as modeling, testing, instrumentation and methodology, technology and hardware development, doctrine and training, concepts and systems evaluation, and analysis. These were presented by members of DOD, industry, the academic community, and allied nations. There were over 200 attendees at the symposium.

(U) Proceedings were published in June 1980 in two volumes and were attainable from the Defense Technical Information Center (DTIC), using DTIC No. ADCO 21978 for Vol 1, and ADCO 21979 for Vol II. In FY 1980, both volumes were classified CONFIDENTIAL and distributed to US DOD contractors on a "need-to-know" basis from their government sponsor.

(U) Toxicology. In April 1980, PM Smoke briefed DARCOM on a Management Plan for Reducing Toxicity Hazards of Army Inventory Pyrotechnic Smoke Screening, Marking, and Signaling Devices. The purpose was to provide an overall management plan which identified organizations, rationale, and actions required to provide the Army with safer smokes to replace hexachloroethane (HC) and colored smoke formulations used in inventory smoke materiel; and to provide the production readiness capability for introducing the improved smoke materiel into the inventory at the earliest possible date.

(U) This plan encompassed the integrated efforts deemed necessary to reduce occupational, user, and environmental hazards associated with standard HC and colored smoke compositions.

(U) Research studies conducted through FY 1980 indicated the HC smoke mix and its combustion products posed significant health hazards to manufacturing personnel and troops. Similar studies of dyes used in colored smoke pyrotechnic formulations also revealed serious health hazards to occupationally exposed personnel in both the industrial facility and in the field. These health problems were of high concern because they gave rise to a possible ban on the production and use of standard HC and colored smoke ammunition. The impact would be a gross deficiency in the US Army's combat capability for tactical screening, signaling, and target marking. The Management Plan reflected all actions required to upgrade inventory HC and colored smoke materiel to minimal toxicity levels, and it bounded the problem in terms of time and dollars required. The plan was staffed through DARCOM, and in FY 1980 was being staffed through Department of the Army for approval.

XM1 Tank System

(U) During the period 1 October 1979 to 30 September 1980, the XM1 Tank System Quality Assurance activities dramatically expanded with the initiation of DTIII/OTIII and start-up of the Lima Army Tank Center facility. The result was that the Product Assurance and Test Branch was elevated to a Division. In consonance with this, a number of additional employees were hired.

(U) Field reporting on DTIII/OTIII was streamlined through use of daily computer printouts. A finalized draft TEMP was forwarded to DA for approval, and all detailed test plans were coordinated.

(U) Licensing Agreement between Rheinmetall Corporation (Germany) and the US Government signed in fiscal year 1979 concerning the 120mm tank gun and ammunition was implemented with hardware produced at the US Army Watervliet Arsenal and some ammunition fabricated by Honeywell Corporation.

(U) During this period, the final phase of the Full Scale Engineering Development (FSED) Contract was substantially completed in November 1979 and the System Technical Support (STS) contract was definitized. Additional extended FSED testing on three refurbished FSED tanks was successfully completed. Delivery of the first Low Rate Initial Production (LRIP) vehicle was on schedule.

(U) The Department of the Army, XM1 Management Review #1 was held at the Pentagon on 5 February 1980 to review data, address OSD issues and make recommendations.

(U) On 28 February 1980 at the Lima Army Tank Plant, Lima, Ohio, the US Army accepted the first two low rate initial production models of the XM1 Main Battle Tank on schedule.

(U) OSD management reviews which established a DSARC III to follow the XM1 tank's progress in meeting mission reliability and power train durability requirements, were cancelled due to successful test results at the first of these Management Reviews which occurred in February 1980.

(U) The starting of Phase III testing began on schedule with the delivery of the first two low rate initial production vehicles, one to APG for PVT-G Phase of DTIII, and the other to Fort Knox for PVT-C Phase of DTIII.

(U) Major General Donald M. Babers received the Daedalian Weapons System Award for the XM1 Tank System Project Office. The award was for developing an inexpensive, but highly maneuverable, hard hitting main battle tank for the Armed Forces.

Reorganization

(U) In view of OSD approval for the XM1 to move into a limited production phase, the delivery of the first XM1 models, and the entry of the XM1 into the production phase dictated a refinement of the Program Office organizational structure. On 6 June 1980, DARCOM approved the XM1 reorganizational concept, and on 30 June 1980 the new organization became operational.

(U) The reorganization brought the OPM closer to the traditional project management model and provided the necessary tailoring of command, coordination, and communication lines to insure accomplishment of assigned missions. The new structure recognized the increased importance of product assurance; the return to more routine management of cost, budget, and schedule matters; and the increasing roles of automation in managing the program. The salient changes included the establishment of the Product Assurance and Test Branch as a separate division with the Chief reporting directly to the Program Manager. All branch personnel served as the cadre in staffing of the new division. The changes also included establishment of a Program Management Division, with the Chief reporting directly to the Program Manager. The division consisted of four subordinate branches--Budget, Cost Management, Plans and Systems, and Operations. Establishment of this division concurrently resulted in dissolution of the Cost Management and Analysis Office, Program Budget Office, Plans and Schedule Control Office and the Support Operations Division. All existing missions and functions and staff were absorbed by the new division.

(U) The reorganizational concept did not alter the OPM, XM1 concept as pertained to mission, magnitude of operations, cost and complexity of the assigned systems. Further, the total number of personnel, funding, equipment, and facilities required in support of the Program Office remained the same.

Personnel

(U) To accomplish the assigned mission, the Program Manager's authorized strength was increased from 186 to 269 during this period. The increased authorization included 60 military and 209 civilian positions.

Significant Events

(U) The XM1 Tank System was a high visibility program. Considerable effort was expended to keep the principals in the chain of command and in the Congress informed of the status of the program's progress.

(U) DA XM1 Management Review No. 1. On 5 February 1980, the Department of the Army, Management Review Number 1 (DA XM1 MR #1) was held at the Pentagon. The MR1 reviewed FSED extension test data and found the tank met the OSD goal for reliability. Exercise of the previously negotiated ceiling price contract option for a second year buy of 352 tanks was recommended by the Management Review. Army Management Review #2 was scheduled for March 1981 to decide on oversea deployment of the XM1. Subsequently, the blue ribbon panel confirmed the turbine engine decision for the XM1. OSD approved second year production and authorized funding necessary to insure further production continuity (although the rate was not to exceed 30 per month).

Congressional Hearings

(U) Senate Armed Services Committee. Major General Babers appeared before the Senate Armed Services Committee on 11 March 1980 with Senator J. James Exon, presiding, Honorable Percy A. Pierre, Assistant Secretary of the Army of Research, Development and Acquisition, Senator Carl M. Levin, and Senator John W. Warren. The issues discussed in depth were Fort Knox; Fort Bliss Testing, Delivery Schedule, Diesel Engine Backup Program, Government Accounting Office (GAO) and Blue Ribbon Panel Reports.

(U) House Armed Services Committee. On 6 March 1980, Major General Babers appeared before the House Armed Services Committee, Procurement and Military Nuclear Systems Subcommittee. The issues covered were the XM1 Program Progress since the last hearings, Blue Ribbon OSD Panel recommendations, facilitization and production status, back-up engine, the General Accounting Office Report to Congress of 29 January 1980, testing, track life and the ABC News Program "20-20" aired on 10 January 1980.

(U) General Babers, together with General John W. Vessey, Jr., Vice Chief of Staff of the Army and Mr. Walton H. Sheley, Deputy Director, Procurement and System Acquisition Division of the General Accounting Office appeared on 16 April 1980 before the House Armed Services Committee, Subcommittee on Investigation. The issues covered in depth were the Blue Ribbon Panel Findings, XM1 Extended Testing, backup Engine Program, 120mm Gun Program and the General Accounting Office Report dated 29 January 1980.

(U) General Accounting Office (GAO) Inquiries. The General Accounting Office initiated six and completed five inquiries during this period. The only inquiry in process at yearend FY 1980, "Logistics Support Planning Implementation for XM1 Tank, No. 947399", was initiated 28 November 1979.

(U) Army Audit Agency. During this period, the Army Audit Agency completed the data gathering inquiries which were initiated in fiscal year 1979 on the XM1 Tank System. TACOM organizations also provided data to these inquiries, "Army Industrial Preparedness Program. (Survey for Multilocation Audit)" and "Army-Wide Audit Recoupment of R&D and Nonrecurring Production Costs on Foreign Military Sales (DARCOM 1A579-32-AA Notice A-207)". No findings and recommendations were provided to the PM, XM1 Tank System.

(U) Chrysler Corporation presented the first two production models of the XM1 Main Battle Tank to the US Army at the Lima Army Tank Plant. A ceremony on 28 February 1980 was attended by an estimated 1,300 persons, including military and civic leaders, suppliers, the media and plant personnel. Following acceptance of the two vehicles, General Edward C. Meyer, Army Chief of Staff announced that the XM1 would be called the Abrams tank after the late Creighton Abrams, who served as Army Chief of Staff from 1972 to 1974. Mrs. Creighton Abrams commemorated the naming of the tank by christening the first vehicle with a bottle of champagne.

Management Procedures

(U) Program Manager. Effective 23 June 1980, Major General Donald M. Babers, Program Manager, XM1 Tank System, departed to assume Command of US Army Communications and Electronics Materiel Readiness Command 27 June 1980. Colonel Herman J. Vetort, Deputy Program Manager was designated Acting Program Manager for XM1 Tank System effective 24 June 1980. Major General Duard D. Ball was designated Program Manager (PM) for XM1 Tank System effective 28 July 1980.

(U) Tank Main Armament Systems Project Office. In October 1979, Colonel Peter B. Kenyon retired as Project Manager, Tank Main Armament Systems, and Colonel David A. Appling, previously Assistant Project Manager for 120mm systems, was designated Project Manager, Tank Main Armament Systems, effective 20 December 1979. LTC Frederick J. Mehrtens was assigned as Assistant Project Manager, 120mm Systems in April 1980. He had previously been Chief of Bonn Liaison Office, Germany.

(U) Management Information Systems. Acquisition in FY 1979 of a powerful minicomputer, high speed graphics hardware, and a remote job entry station to meet PMO XM1 computing needs was complemented in FY 1980 by acquisition of a mix of 18 terminal devices including 10 portable terminals and eight high speed cathode ray tube (CRT) terminals to meet the needs of remote and on-site users. Additional FY 1980 efforts were directed toward enhancing the capabilities of the XM1 Line of Balance production control program, the Daily Test Reporting System, and the SITREP (electronic mail). The result was a mature system comprising the basic elements to meet the needs of the XM1 Program Manager's command, control, communications, and intelligence C^3I system that provided an increase of over 28 manyears through improved productivity.

(U) Planned FY 1981 acquisitions included a tape drive for archival purposes and for data transfer between the XM1 computer system and both DARCOM standard systems and contractor systems; implementation of an Office Automation System on the XM1 minicomputer that would integrate distributed word processing with the XM1 management communications system for faster communication of ADP stored information; and continuation of information management leadership among US Army project management offices.

Product Assurance

(U) Reliability, Availability, Maintainability (RAM) Status. Approximately 6200 miles of Contractor RAM Shakedown testing was conducted at Fort Knox, Kentucky on early production tanks to provide early data on production related problems. As a result of the testing, 31 of 48 identified modifications were applied to the production tanks, with most of the modifications applied to improve RAM.

(U) RAM Test Results. During the FY 1979, results of the Office of the Secretary of Defense directed XM1 Validation Test were assessed. An XM1 assessment conference was conducted in November 1979 to establish the XM1 FSED phase RAM numbers. The results of the conference showed that the XM1 demonstrated numbers exceeded the XM1 threshold/requirements. A combined result of 326 mean miles between failures (MMBF) was given as the demonstrated reliability of the XM1. The reliability number was further broken down into mobility (573 MMBF) and non-mobility (756 MMBF) components. A system reliability number of 111 mean miles between system failure was also established.

(U) RAM Scoring Conferences. One XM1 RAM Scoring Conference was held during the fiscal year. Most of the year was spent preparing for and the initiation of DT/OT III. The XM1 Failure Definition/Scoring Criteria (FD/SC) were revised for use during DT/OT III. The Revision E contained a better subsystem breakout and several changes to make scoring easier. A requirement was established during FY 1980 by the Office of Secretary of Defense to review maintenance times and chargeabilities during future scoring conferences.

(U) OTII Vehicle Testing. Early in FY 1980, extended FSED testing was completed at Fort Knox, Kentucky. This testing consisted of two refurbished tanks (P2 and P5), rebuilt insofar as possible (chassis only) to the production configuration. This concluding phase of DTII in an operational environment consisted of running the tanks an additional 2,000 miles each (4,000 total). A third tank, P7, rebuilt to the same configuration and run under PM/Contractor cognizance, also completed an additional 2000 miles (6000 total) to validate production components. Next, P7 underwent limited cold testing at Fort Knox in January-February 1980. As a result of these Fort Knox tests, the XM1 MN and specification values for reliability and durability were proven higher than required.

(U) Engine Testing. Concurrently, two refurbished FSED engines, incorporating all available production modifications, were run 1000 hours each from October 1979 to January 1980. Testing consisted of a 400 hour durability test to a modified NATO cycle, and a 600 hour mission profile test in a laboratory controlled environment. These 1000 hour laboratory tests of two AGT 1500 engines were successfully completed, and areas for further examination in subsequent production engine laboratory tests were also identified.

(U) Limited Rate Initial Production (LRIP) Testing (DT/OTIII). Most of the testing in FY 1980 was consumed in performance of LRIP DTIII. OTIII began in late FY 1980, and DTIII began in March 1980 with the first incremental tank delivery, and was to be completed in early 1982.

(U) PVT-C. The PVT-C portion of DTIII incrementally shook down six LRIP tanks at Fort Knox from 10 March to 10 September 1980. This testing provided the first identification of problems incurred by the production process and allowed prompt initiation of corrective actions. It was also intended to perform limited measurements to check tank mobility and firepower performance. The six tanks accumulated a total of 6200 miles. One tank underwent contractor shakedown at Eglin environmental chamber from 18 August to 15 October 1980, prior to scheduled shipment to CRTC.

(U) PVT-G. The PVT-G portion of DTIII was conducted at four test sites. Aberdeen Proving Ground conducted PVT-G using six LRIP tanks and two ballistic hulls and turrets (one in FY 1980 and one in FY 1981). The ballistic hulls and turrets were subjected to destructive testing to verify that previously determined survivability characteristics were not degraded by the production process, and that appropriate testing deferred from DTIII was accomplished. Three of the tanks were used primarily for RAM-D testing, although other testing, such as hit probability, was integrated into the RAM-D testing to the extent possible. These RAM-D test vehicles would each accumulate 6000 miles. One tank, dedicated to weapons testing, would complete deferred DTIII subtests, conduct limited checks of performance established in DTII, and conduct limited instrumented hit probability testing. One tank would be used primarily in automotive performance testing with subsequent HFE testing. It was used to complete subtests deferred from or not satisfactorily completed in DTII, and to conduct checks of the automotive performance determined in DTII. One vehicle would be used in a dedicated maintenance evaluation performed by military personnel emphasizing direct support and general support maintenance tasks. During this evaluation, test sets were utilized and assessed. As of 30 September 1980, the first two RAM vehicles had accumulated 3000 and 1250 miles respectively. The third RAM vehicle was scheduled to arrive in October. The weapons evaluation vehicle arrived on 2 September but had not begun test at yearend 1980. The automotive performance and maintenance evaluation vehicles were scheduled to arrive in October 1980.

(U) Yuma Proving Ground. YPG testing was run with two LRIP tanks used to conduct those portions of the DTII desert phase which were deferred or which resulted in unsatisfactory performance; to conduct any retests dictated by design changes; and to accrue sufficient mileage to demonstrate that reliability problems discovered in the desert environment of DT/OTII were corrected. One of these tanks (67) would be shipped in November 1980 to White Sands Missile Range (WSMR) for EMR testing. As of 30 September, one tank had accumulated 1300 miles and the other 550 miles.

(U) Operational Test III. OT III testing began on 15 September 1980. The Fort Knox phase of OT III was to be conducted through 16 May 1981 by the USAARENBD under the management of US Army Operational Test and Evaluation Activity. All four tanks, based production delivery schedules, underwent an initial 300 to 1500 miles "shakedown" by the contractor between 10 June and 10 September 1980. Based on initial run-in, modifications were applied to the tanks as required. The vehicles would be grouped as a Division 86 Platoon Operational Test. Stage one was initiated in September 1980 with four "D" configured tanks for 1500 miles, followed by an "S" service, 250 additional test miles, and a Mod period accomplished by the contractor. Stage two would be initiated with "E" configured LRIP tanks in January 1981. Stage two testing would be a repeat of stage one.

(U) The Fort Hood Phase of OT III was a three-phase test, conducted by TCATA under the management of OTEA from September 1980 through May 1981. The test conduct was dependent on tank delivery and started based on the incremental issue of tanks beginning with three in September 1980 and continuing until 42 were issued by the end of February 1981.

(U) Quality Assurance. The major milestone for FY 1980 was the start-up support to LRIP activities. The quality assurance effort was production oriented. Quality assurance provided assistance to modification programs by being the on-site representative at APG and LATP, in addition to the Chrysler Centerline facility. TARADCOM and TARCOM Product Assurance Offices provided the actual support by witnessing the application of approved modifications, refurbishment of specific vehicles, performing technical inspections, and vehicle acceptance tests. PQAP assistance and calibration services were also provided at LATP. Technical Data Package quality assurance documentation (drawings, specifications, and quality assurance requirement) was reviewed for format, content, and inspectability. Production activities included negotiation of contract QA clauses for STS, vehicles, and spares; issuance of delegation letters for Procurement Quality Assurance; commencing Government Source Inspection System; and coverage of the component Initial Production Testing. Coordination of AR 700-34 release activities was initiated and input responsibilities delegated to team members.

Technical Activities

(U) Configuration Management. A copy of the complete technical data package for the XM1 tank, including all drawings, specifications, and quality assurance requirements, was delivered to the Government in November 1979 and placed in the TACOM files. Procedures were established for controlling modifications to fielded vehicles resulting from DT/OT III deficiencies and quality corrections.

(U) Product Improvement Program. The XM1 Product Improvement (PI) Program originated as result of a briefing prepared by TARADCOM on the Tank Base Science and Technology Program for the Under-Secretary of the Army in the fall of 1978. The user strongly recommended incorporating a

concept for XM1 PI Program to illustrate how new technology could and would be applied. The briefing was provided to the Under-Secretary in January 1979. Subsequently, HQDA staff inserted a wedge in the FY 1981 POM for XM1 PIP RDT&E. In June 1979, TARADCOM briefed a conceptual XM1 PI Program in some detail to both HQ DARCOM and HQDA. Following this briefing, the XM1 PMO took on the mission of conducting an XM1 PIP.

(U) In July 1979, initial coordination meetings were held to establish an XM1 PIP Steering Committee. This organization was formally established in January 1980 by signature of a Memorandum of Understanding (MOU) by the XM1 Project Manager's Office, TARADCOM, and the US Army Armor Center. In the meantime, the committee had structured an XM1 PIP under certain key assumptions. In particular, the idea of phase packaging of PIPs was accepted. That is, PIPs would be grouped in packages for introduction to production. Similarly, PIPs would be packaged for retrofit to fielded vehicles. The intent was to achieve both cost economies and also to avoid proliferation of XM1 configurations.

(U) The XM1 PI Program was scheduled to start RDT&E in FY 1981 for high priority PIPs. Congressional mark-up insured start of Nuclear, Biological and Chemical (NBC) Improvements, but left other PIPs in doubt at the close of FY 1980. Resolution by final Congressional action was expected after the 4 November elections.

(U) In July 1979, the possibility that XM1 PIPs might significantly increase weight growth surfaced and TRADOC was tasked by HQDA to brief this subject with DARCOM support to the Vice Chief of Staff, Army (VCSA) on 14 August 1979. At that briefing, the VCSA stated that he would retain approval authority for XM1 weight growth beyond the addition of the 120mm gun. Also, major commands with XM1 support systems were directed to consider potential XM1 weight growth in their future systems. A follow-up study also directed which was provided to the VCSA in February 1980.

(U) In June 1980, the user selected an Improved Armor Option that would provide the minimum weight impact. In August, HQ DARCOM was tasked to provide an XM1 weight/cost growth projection and the XM1 PMO was in turn tasked to do the same not later than 1 November 1980.

(U) Automotive. Two updated Full Scale Engineering Development (FSED) engines each completed 1000 hour tests for validation of changes to eliminate problems encountered during FSED. The 1000 hour test consisted of a 400 hour durability test to the NATO cycle followed by a 600 hour mission profile test. The results of these tests were reviewed by an OSD panel which concluded that the test performance demonstrated that significant progress had been made in reliability and durability of the power package. Even though the power train demonstrated substantial durability improvement and was deemed acceptable for production, the panel also recommended aggressive action to take advantage of the potential life-cycle benefits to be gained from the turbine engine. Two additional 1000 hour tests (one combined with an engine Initial Production Test (IPT) were to be

conducted using LRIP engines incorporating improvements in accordance with the panel's recommendations. These tests were planned to begin in November 1980 and July 1981.

(U) During the period April - July an early LRIP engine successfully completed a 6000 mile mission profile durability test at the contractor facility. The test was completed with several relatively minor incidents that contributed to improved manufacturing methods and quality control techniques.

(U) During this period, preparation of product fabrication specifications for the engine and transmission was initiated in anticipation of providing these major components as government furnished equipment during vehicle third year production.

(U) From mid-August to mid-October, the XM1 successfully completed cold weather testing at Eglin Air Force Base. This test demonstrated the power train's performance capabilities at temperatures down to -65 degrees Fahrenheit. Prior to this test, an auxiliary power unit was installed in the vehicle and its viability in low temperature operations was also successfully demonstrated prior to vehicle shipment to the Cold Regions Test Center for system performance testing during winter, 1980-81.

(U) In summary, automotive activity during FY 1980 consisted of verifying that LRIP performance objectives were achieved and that product improvements were addressed to enhance RAM-D.

(U) Ballistic Protection. The contractor demonstrated satisfactory performance in ballistic protection as evidenced during the DT III vulnerability tests conducted on a ballistic hull and turret (BH&T). The tests confirmed that the armor designs met the large caliber threat requirements. The BH&T exceeded the mine protection requirement by demonstrating crew survivability after detonation of the mine threat directly under the third roadwheel. Additional redesign was to be required for the slip ring as it did not perform satisfactorily after this test. Ammunition compartment tests reconfirmed that both the hull and bustle compartments provided full crew protection upon penetration of the ammunition compartment by large caliber threats. Small arms and overhead protection were met. In addition to the BH&T, the Government tested two sets of QA armor samples to assure quality armor was being installed in the production vehicles. The results indicated that the large caliber threats were defeated. Two test structures containing armor improvements were tested during FY 1980 with favorable results. Additional tests were planned to confirm the earlier results. Compartment testing was initiated during this timeframe to develop ammunition compartment designs for the XM1E1 (120mm gun). No final designs were available at yearend 1980.

System Survivability

(U) Night Vision System. The production configuration Thermal Imaging System was tested at White Sands Missile Range (WSMR) from November 1979 to January 1980. The system was installed in FSED vehicle #1 and exposed to 100 rounds of main gun firing and 300 miles of secondary road operation. System performance was evaluated by viewing both resolution targets and vehicle targets at specified ranges. Minor problems resulting from vehicle mobility operation were found, and corrective design changes were implemented for LRIP.

(U) Nuclear, Biological Chemical (NBC). The XM1 NBC Product Improvement Program (PIP) was presented to OSD (Dr. LaBerge) and HQDA. Transient radiation effects (TRE) tests on piece parts and circuits were continued where no previous data existed. These tests were utilized to resolve marginal situations and establish the required approved parts list. The heat stress test, conducted at Yuma, Arizona, was made to determine the length of time a tank crew could remain effective while in an NBC posture.

(U) Simplified Test Equipment - XM1 (STE-XM1). Fiscal Year 1980 was marked with significant accomplishments in the area of XM1 automatic test equipment. The Simplified Test Equipment-XM1 (STE-XM1), designed for use at the organizational level of maintenance, proceeded on schedule. Five prototype units were constructed by RCA and underwent extensive design and integration testing. A production contract for 31 units was awarded after the Critical Design Review which was held 18 September 1980. The first production unit was delivered on 20 May 1980 with subsequent deliveries throughout the year. As of 30 September 1980, fifteen production units were delivered to support DT/OT III, IPT and training requirements. In July-August, the contractor completed an extensive Fault Insertion Validation Test using a production tank.

(U) The Direct Support Electrical System Test (DSESTS) designed to fault isolate problems at the Direct Support level, completed a Critical Design Review on 3 October 1979. Contract authorization to produce 22 units was provided on 2 November 1979. Two prototype units were built and used for extensive contractor integration testing. The first production unit was delivered on 9 March 1980. This unit, as well as the nine subsequent units delivered during FY 1980, was only capable of fault isolating problems in eight of the required 12 XM1 components. The integration of the remaining four components would be completed in FY 1981.

(U) The Thermal System Test Set (TSTS) was developed to fault isolate problems in the thermal system at the Direct Support level. A Critical Design Review was held 6-7 February 1980. Two prototypes were built and undergoing integration testing at the contractor facility (Hughes Aircraft Company (HAC)) in fiscal year 1980.

(U) System Integration. System integration initial design and development activity for the XM1E1 tank system continued under the Concept Phase Contract (with Chrysler Corporation) through March 1980. On 1 April 1980, the Full Scale Engineering Development (FSED) contract was initiated with Chrysler

(U) Baseline subsystem and component development and related logistic system activities were initiated under the FSED contract. Significant items undergoing development testing were as follows: (1) US produced firing tables for the German produced KE and HEAT training rounds were completed. (2) Development and initial safety release firing of the XM1E1 recoil mechanism was initiated. (3) System testing of two upweighted system test rigs (one automotive and one fire control) was undertaken and completed to a large degree. (4) Procurement of all 120mm cannon and ammunition for the balance of the FSED program was initiated. (5) Procurement of XM1E1 conversion equipment for two prototype tanks was initiated.

International Responsibilities

(U) The International Operations Office, which had 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. The office also continued detailed discussions and data exchange with the governments of Switzerland, the United Kingdom, and others, relating to their pending national selection of tank systems and componentry.

Standardization Efforts

(U) Germany/USA. In January 1980 the German Federal Ministry of Defense informed the US that Germany (GE) had decided not to adopt the XM1 turbine powerpack for use in the German Leopard 2 battle tank. Some of the reasons given were the XM1 turbine's high fuel consumption, its lack of proven reliability and durability, the need to alter the Leopard 2 hull to accommodate the turbine powerpack, the cost and GE doubt over the performance of the brakes contained in the Detroit Diesel Allison X1100 transmission. This decision superseded the requirement for a demonstrated brake test by the PM XM1. The German observer who had been stationed in Warren, Michigan for a year was recalled by his home office in December of 1979. Factors essential to the US/GE tank standardization efforts caused a postponement and subsequent cancellation of the inquiry into an enlarged end connector. The interest in interoperable tracks focused on the possibility of making the XM1 and Leopard 2 sprockets interchangeable. It was decided during the 13th US/GE Executive Group Meeting on 29 September 1980 to 1 October 1980 in Munich, Germany to once again pursue the possibility of interchangeable sprockets which would enable both the GE Leopard 2 as well as the US XM1 to operate with each other's track, contributing to battlefield interoperability.

(U) Although in FY 1980, Chrysler Defense restated that it was not interested in a joint track development with Diehl Company (the German track manufacturer) both the German government as well as Diehl Company continued to make overtures to the US government for such an arrangement. There were indications that GE wished to enter into a jointly funded track development program with the United States.

(U) In other component areas GE was interested in the US laser, the US fire suppression system, and battery connecting bars (busbars). The US/GE/XM1/Leopard 2 Harmonization Working Group was tasked to review these systems and determine their suitability for standardization between the US and German tanks.

(U) United Kingdom/USA. In FY 1980, the United Kingdom moved to cancel its Main Battle Tank 80 program, causing a moratorium on the review of possible interoperability between the US and British tanks. The UK was in the process of developing the Challenger for its Army and was expected to look for components which were common with the XM1.

(U) XM1 purchased a small quantity of British M.E.L. Optronic (Pye Watson) muzzle boresights to be used with XM1 tanks during OT III testing in 1981. A decision would eventually be made by TRADOC whether the British muzzle boresights would be incorporated into the Army inventories.

(U) Switzerland/USA. In FY 1980, Switzerland was engaged in a thorough evaluation of the XM1 tank and in the spring of 1980, Chrysler was granted an export license by the Munitions Control Board, US State Department, and engaged in an exchange of XM1 information with its Swiss counterpart. PMO XM1 was also granted an extension to the National Disclosure Policy, which on the basis of Presidential Directive (PD) 13 restricted the sale or co-production of a US Defense item to countries other than NATO, Australia, New Zealand, and Japan.

(U) In December 1980 the Swiss would send a small group of users to Fort Knox for an intensive three weeks training on two XM1 tanks. In July of 1981, Switzerland expected to test two 105mm XM1 tanks in Switzerland for 12 to 18 months. The Swiss were expected to lease the tanks from the US government for the duration of this test.

(U) The US and Switzerland were negotiating a statement of accord (SOA). This statement of accord was to serve as a guide in the evaluation and would be signed by Herr Grossenbacher, Chief of the GRD (Military Technology and Procurement Group), and Dr. Perry, Undersecretary of Defense (R&E).

(U) The Swiss were looking into the possibility of either buying 450 tanks (FMS) or co-producing 60-70 percent of the tanks distributed to the Swiss Army. They were also looking at 100 percent offset of any tank-related purchases made by Swiss in the United States.

(U) The Swiss government were expected to make a selection toward the end of CY 1982. In competition with the XM1 was the German Leopard 2 and the British Challenger. In the event of a decision in favor of the XM1, a Memorandum of Understanding (MOU) would be signed between the US and Swiss governments.

Tank Main Armament Development and Production

(U) 120mm Tank Main Armament. In October 1979, an In-Process Review (IPR) was held at Watervliet Arsenal to review results relative to their proposed multi-lug breech and to decide the breech design. The German breech design was selected by the XM1 Program Manager due to less schedule risk and greater standardization interoperability, resulting in termination of the multi-lug breech. In April 1980, Watervliet Arsenal delivered the first XM256 cannon made in the US to the German design. By October 1980, a total of five cannons and 12 spare tubes were produced by Watervliet Arsenal.

(U) Technology transfer, fabrication, and test (TTF&T) of the three German rounds ready for production by the ammunition prime contractor, Honeywell, started in August 1979. The Honeywell team included subcontractors selected from the ammunition production base, Army ammunition plants, and ammunition test sites. The TTF&T objectives were to translate the baseline German design into a technical data package suitable for US production, assure interoperability of German and US produced material, phase in improvements necessary to satisfy US Army needs, and fabricate ammunition to support armament system tests and XM1E1 system integration tests.

(U) Honeywell completed translation of the German design package early in 1980. The Project Manager for Tank Main Armament Systems had previously established a joint US-German procedure for configuration management in March 1979; and when the German baseline was frozen in June 1980, procedures for maintaining interoperability were initiated. Honeywell designed a one-piece staballoy (depleted uranium) core for the XM827 APFSDS-T cartridge to replace the two-piece tungsten core in the German DM-12 counterparts. Fabrication of cores by Nuclear Metals, Incorporated, (NMI) and projectiles by Flinchgaugh began in January 1980. Tests of the XM827 were initiated in May 1980 and were ongoing as of October 1980.

(U) Honeywell initiated fuze improvement efforts together with Bulova, their subcontractor, for the XM830 HEAT-MP-T counterpart to the German DM-12 HEAT-MP. In February 1980, these efforts were identified as a pacing element of the program and intensified. In October 1980, the fuzing status was reviewed preparatory to a selection decision in 1st quarter FY 1981.

(U) Propellant of two types (granular and stick) was manufactured by Radford and tested by Honeywell. A high recoil slug cartridge (super slug) was designed by ARRADCOM early in 1980, and 4500 super slug cartridges were delivered by Honeywell using slugs from their subcontractor,

Norris, to APG in the May-July 1980 timeframe for tests of the XM1 recoil designed by Chrysler. Initial combustible cartridge cases produced by EFMC failed strength tests because the wrong resin formula was furnished from Germany. An intensive effort was necessary to obtain the formula due to proprietary claims. In October 1980, the formula was confirmed and samples provided. Lack of US-produced cartridge cases was a major problem.

(U) Procurement of German hardward required for support of the 120mm technology transfer, fabrication and test effort and XM1 system integration was a major activity throughout FY 1980. Delivery of German material in time to maintain schedules necessitated intensive coordination many times greater than the effort originally anticipated.

(U) Efforts to formalize cooperative development of the XM829 APFSDS-T cartridge were pursued until January 1980. In March 1980, it became apparent that such efforts were futile and US development of the XM829 was initiated. Germany showed continuing interest and indicated that provisions could be made to use the XM829 in the Leopard 2 in the future.

(U) Progress of the German kinetic energy training round (LKL) was monitored by on-site observation of German tests. In July 1980, available results for the LKL and the US breakup design were reviewed and a selection decision date of September 1981 was established.

105mm Tank Main Armament

(U) Ammunition Development (XM774 APFSDS-T Cartridge). At the start of FY 1980, there were two sources engaged in fabricating verification quantities of staballoy (depleted uranium) penetrators (Nuclear Metals, Incorporated and National Lead of Ohio). In January 1980, penetrators from Nuclear Metals, Incorporated were selected for assembly of the Initial Production Test (IPT) quantity. IPT tests were initiated in February 1980 and completed in September 1980. A failure was encountered during firing of XM774 rounds previously subjected to sequential rough handling tests, conditioned to +145°F and then fired at +145°F using a propellant charge with an additional one-half pound of propellant. Tests to resolve the failure were conducted using XM774 cartridges assembled in strict compliance with the technical data package. An IPR was held in September 1980, and in October 1980 type classification standard was approved subject to an operational temperature limit of 126°F.

(U) Production of penetrators was ongoing at NMI as of September 1980 concurrent with facilitization to increase production capability. The facilitization contract with National Lead, Albany, New York was terminated for default in July 1980 and actions initiated to establish a second production source.

(U) Ammunition Development (XM833 APFSDS-T Cartridge). The validation phase for the XM833 was initiated in FY 1980. Manufacture of hardware for Development Test (DT) I was completed and DT I was initiated in August 1980. During these tests, sporadic loss or breakoff of the sabot rear skirt after muzzle exit was observed in various tests. The round-to-round dispersion of the XM833 met requirements but the impact pattern was slightly different. In October 1980, sabot modifications to redistribute the stresses in the rear skirt were initiated with the objective of demonstrating resolution in the November-December 1980 timeframe. In October 1980, the Vice Chief of Staff was briefed on options available to improve the Initial Operational Capability (IOC) date,[4] and advance procurement and accelerated facilitization to speed up IOC from June 1984 to September 1985 were approved.

(U) Ammunition Development (XM797 TPFSDS-T Cartridge). The validation In-Process Review (IPR) was adjourned in November 1979 pending DA approval of the ROC.[5] The proposed ROC (required operational capability) was approved in April 1980.[6] The IPR was conducted by correspondence and approval was requested in June 1980.[7] During cold air tests of XM797 cartridges, conducted at the Arctic Test Center in February 1980, some subprojectiles failed to breakup within the maximum range requirement of 8000 meters. In April 1980, the schedule for the Development Acceptance (DEVA) IPR was revised from March 1981 to August 1981 to facilitate additional design effort and accommodate additional testing, including Arctic test.[8] From April through October 1980, firing tests of XM797 were conducted at Yuma Proving Ground (YPG) to gain additional insight into the breakup mechanism. Actions to establish a revised program schedule were in progress as of October 1980.

(U) Ammunition Development (XM815 HEAT-MP Cartridge). The XM815 continued as an exploratory development effort throughout FY 1980. An intensive effort was applied to revise the Draft Letter of Agreement (LOA). In August 1980, the proposed LOA was approved,[9] and plans for a 1st quarter FY 1981 Conceptual IPR were finalized.[10]

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4 PM TMAS Briefing to VCSA, 23 October 1980.

5 Message, DRDAR-AC, 312203Z October 1979, subj: Validation In-Process Review (IPR) for Cartridge, 105mm, TPFSDS-T (Formerly TP-T), XM797.

6 DMAO-RQD 1st Ind, 30 April 1980, subj: Proposed ROC for Cartridge, 105mm Target Practice Fin Stabilized Discarding Sabot Tracer, XM797.

7 Letter, DRDAR-DPC, 10 June 1980, subj: Minutes of the Validation IPR for Cartridge 105mm TPFSDS-T, XM797.

8 Msg, DRCPM-TMA, 231600Z Apr 80, subj: Cartridge 105mm TPFSDS-T, XM797.

9 Ltr, ATCD-MA, 9 Oct 80, subj: Proposed Ltr of Agreement (LOA) for 105mm Cartridge XM815, High Explosive, Anti-Tank, Multipurpose (HEAT-MP-T) USATRADOC ACN 51942.

10 Ltr, DRCPM-CAWS, 19 Aug 80, subj: Conceptual IPR for 105mm Cartridge, XM815 HEAT-MP-T.

Integrated Logistics Development

(U) Skill Performance Aids. The first group of LRIP Technical Manuals (TM) were delivered to the Government in January 1980.

(U) Extensive changes continued to be generated and reviews of procedures and repair parts and special tools lists (RPSTL) continued throughout DT/OT II and into the preparation for DT/OT III. The color of the covers was changed from buff to green to aid in distinguishing these TMs from the FSED TMs.

(U) Troubleshooting portions of manuals continued to grow extensively due to increased Test Set capability and its impact on follow-on and preliminary troubleshooting procedures.

(U) Problems existed in the RPSTLs due to attempts to support the 110 production test vehicles using provisioning data based on a 352 vehicle buy.

(U) Supply Support. Materiel Release Confirmation (MRC) began second year provisioning and support buy for the XM1. Red River Army Depot was being used as a primary supplier of parts in support of LRIP testing, and Lima Army Tank Center was used to consolidate, pack, and ship the Maintenance Test Support Packages. Use of the "Call Forward" support concept was planned for Initial Fielding in Europe, and DARCOM approval of this concept was awaited, at which time prepositioning of parts for bulk pack was expected to begin.

(U) Depot Subjects. Follow-on funding and procurement actions for Depot Maintenance Plant Equipment (DMPE) were continuing in FY 1980. The AR 235-5 New Start authorizing Government depot overhaul of the AGT 1500 Engine was approved, and studies continued to determine which Army depot would be best able to provide the requisite support. Actions were initiated to send two tanks (pilot vehicles) to Mainz Army Depot, Germany, for depot training in FY 1981. In addition, Contractor Depot Support (CDS) contract was signed to provide supply and maintenance support for LRIP vehicles.

(U) Special Tools. In FY 1980, the special tools situation was beginning to stabilize with only minor changes being made, such as the box end wrench added, maintenance level changed. The redesigned tools were all delivered except the Ground Hop Support Set, which was scheduled for early 1981. An estimated 60 additional tools would be added as a result of the expanded Maintenance Allocation Chart program (BIG MAC).

(U) The procurement proposal for tools to support the 352 tank production (European fielding) was screened and approved, and a contract would be executed in early 1981.

Procurement and Production

(U) Lima Army Tank Plant (LATP), Ohio. The Lima Army Tank Plant was commanded by LTC George J. Telenko during the period 1 October 1979 through 30 September 1980.

(U) During the period, on-going Corps of Engineer projects progressed as planned with percentage completions as follows: Engine Test Cell, approximately 60 percent; Pacific Press Enclosure, approximately 30 percent; and Employee Cafeteria, approximately 75 percent. Plans had been formulated for extending the test track sound barrier an additional 2400 feet with tree plantings.

(U) During the fall of 1979, fabrication of Low Rate Initial Production (LRIP) tanks was started. Delivery of the first two XM1 tanks was highlighted through a formal "Roll-Out Ceremony" on 28 February 1980. Attendees included General Edward C. Meyer, Army Chief of Staff; Honorable John Glenn, US Senator; Mr. Lee Iacocca, President, Chrysler Corporation; and many other distinguished guests. The first XM1 tank was christened "The First XM1 Abrams Tank" by Mrs. Creighton Abrams, widow of Former Army Chief of Staff, General Creighton Abrams.

(U) Low Rate Initial Production through 30 September 1980 resulted in shipment of 16 XM1 tanks to various test sites including Aberdeen Proving Ground, Maryland; Ft. Knox, Kentucky; Yuma Proving Ground, Arizona; Eglin AFB, Florida; and Ft. Hood, Texas.

(U) For production of 30 tanks per month, 99 percent of required industrial plant equipment had been received with 94 percent installation completed by 30 September 1980. And 95 percent of required tooling had been received with 90 percent installation completed during the same period. Since 1 October 1979, total facilitization to support production of 30 tanks per month was approximately 92 percent complete and qualification of machinery was progressing. The Lima Army Tank Plant entered into the complete initial production phase.

(U) Personnel staffing increased considerably during the period. Chrysler's work force increased from 796 to 1335 and the Lima Army Tank Plant staff increased from 31 to 57.

(U) Detroit Arsenal Tank Plant, (DATP), Michigan. Modernization/rehabilitation projects continued at DATP. In FY 1980, most significant effort of the year was the installation of the torsion bar housing line and the production of parts for shipment to LATP.

(U) The PMO Liaison Office at DATP continued to monitor all activities required to support immediate production and to prepare for assembly of the XM1 tank at DATP, beginning in March 1982.

(U) Production Schedule. Low Rate Initial Production (LRIP) moved from the planning stage to delivery of hardware. The initial production tanks were delivered on 28 February 1980. Due to initial start-up problems and the unavailability of components, the prime contractor, Chrysler, in January 1980 revised its monthly delivery schedule to reflect a more attainable pace for delivery of the first 110 tanks by January 1981. Chrysler and the PMO continued to intensively manage LRIP to insure that all tanks were delivered by January 1981. The buildup of production to a 30 a month rate remained scheduled for March 1981.

(U) DX Rating. In February 1980, the President of the United States approved a DX rating for the XM1 program. Implementation guidance was provided to the prime contractor, other involved government agencies, and the program was in effect.

(U) Component Breakout. The XM1 PMO in conjunction with the Materiel Readiness Commands aggressively pursued the time phased application of breakout of major components. Initial breakout of certain fire control components would begin during the fourth year production deliveries, and engines, transmissions, and final drives would be procured by the Government directly from suppliers, and provided to Chrysler as government furnished equipment for third production year tanks.

(U) Production Status. The purpose of LRIP was to shake out the production process, during a period of concurrency (field test/production) in order to insure that the XM1 could be produced at higher rates. Many lessons learned were noted and more efficient processes continued to be incorporated into the production line. LRIP continued to pay off in terms of creating an efficient base from which to attain a higher production rate.

(U) Procurement. The Full Scale Engineering Development/Producibility Engineering and Planning contract was substantially complete as of the estimated completion date (12 November 1979) and all contractor development effort under the contract ceased as of that date. The development effort required under the contract and not completed as of 12 November 1979 was continued without interruption under a separately priced CLIN in the System Technical Support (STS) contract. An amount of $2,343,066 was transferred from the FSED/PEP contract to the STS contract for completion of the FSED/PEP tasks. The funds obligated for Research, Development, Test and Evaluation totaled $254.5 million through 12 November 1979.

(U) Low Rate Initial Production. The first LRIP vehicle was delivered on schedule in February 1980. The unilateral determinations referenced in FY 1979 Historical Report remained in effect until 30 September 1980 at which time all parties reached agreement.

(U) Second year unilaterals were withdrawn and subject to negotiations based on new proposals which were to be submitted in FY 1981. The Government obligated approximately $300 million for long lead hardware to produce the 352 tank systems. Provisioning of second year spares and repair parts acquisition was performed by TACOM and ARRCOM.

(U) System Technical Support (STS). The 16 February 1979 letter contract was definitized on 5 June 1980 on a cost-plus-fixed-fee level of effort basis for the period ending 30 September 1980. Obligations under this contract totaled $79.4 million through September 1980.

(U) The Manufacturing Engineering, Tooling, Special Test Equipment and Facilities Procurement Program (METSFPP) Contract was in the 41st month of a 53 month effort. The funds obligated under this contract totaled $382.5 million through September 1980.

(U) Facilitization. The facilities contract, a companion contract to the METSFPP contract, was funded in the amount of $241.6 million through 30 September 1980 for authorized acquisition of Industrial Plant Equipment. Chrysler and the major subcontractors received Government authorization for the expenditure of $234.8 million through FY 1980.

(U) XM1E1 (120mm Gun) Tank Development. Chrysler performed under a concept phase contract during the period 1 June 1979 to 1 May 1980. This contract amounted to $5 million and involved the development of specifications and preliminary designs. An FSED letter contract was awarded 1 April 1980. The FY 1980 amount was $12.1 million and the estimated period of performance was 38 months. This program involved the integration of a German designed 120mm gun into the XM1 Tank System.

(U) Automatic Test Equipment - Second Generation Test Sets. During FY 1980, the second generation test set redesign/production program to support DT/OT III requirements continued. Chrysler, with RCA as the major subcontractor, delivered first production units of the Simplified Test Equipment (STE-XM1). Under a separate contract, Chrysler delivered initial production units of the Direct Support Electrical System Test Set (DSESTS) for both hull and turret application. Chrysler, with Hughes Aircraft as the key subcontractor, converted five of the original Hot Mock-up versions of the Thermal Imaging System Test Sets (TISTS) for compatibility of same to the TIS LRIP configuration and delivered these as an interim measure for early DT/OT III support. A contract was awarded to Chrysler for the design, development, and production of a Thermal System Test Set (TSTS) which would accommodate both the XM1 and the M60A3 tanks. To support production of the TSTS, a long lead time item contract was awarded to Chrysler with funding of $1.6 million. Total funding obligated during FY 1980 for these test set efforts was $9 million with the balance of both the development and production funding projected in FY 1981.

(U) Armor Improvement Program. A contract for an armor improvement program was awareed in October 1979, amounting to $3.3 million. During a 21-month development program, Chrysler was investigating improved armor designs for possible integration into the XM1E1 (120mm gun) Tank System.

(U) Contractor Depot Support (CDS). During FY 1980, a letter contract was awarded to Chrysler Defense, Incorporated to obtain logistical depot support functions in support of DT/OT III. The contract tasked Chrysler with inventory control, depot repair tasks and spare and repair parts replenishment. In FY 1980, the contract was funded at $11.7 million with total funding projected at approximately $60.1 million.

Financial

(U) Research, Development, Test and Evaluation Appropriation (RDTE). The 105mm XM1 FSED Contract was completed in November 1979 at a total cost of $255.1 million. Fiscal Year 1980 program authority in the amount of $51.8 million was provided to finance contracts for System Technical Support, Depot Support, Armor Improvement and the continuation of development of test sets and training devices as well as related in-house effort including the conduct of DT/OT III.

(U) FY 1979 Tank Gun Integration Program Authority, which decreased from $14.4 million to $12.4 million, was restored in FY 1980. FY 1980 funds in the amount of $18.7 million were received by the PM, of which $11.9 million was released to Chrysler Corporation for FSED activities. The remaining program was released to Honeywell International for ammunition procurements and to various government activities for required program support. During FY 1980, Tank Gun Integration funding requirements were reassessed in part due to higher than planned contractor estimates as well as increased in-house and contract scope. The RDTE Tank Gun Integration cost estimate was $182.4 million of which $21.0 million was TRACE (Technical Risk Assessment Cost Estimate).

(U) During FY 1980, HQDA, TRADOC, and DARCOM jointly reviewed and approved fifteen XM1 Tank System Product Improvement Proposals (PIP) for FY 1981 - 1986 funding considerations. The related RDTE Five Year Development Plan dollars were (in millions): FY 1981 - $9.9; FY 1982 - $10.2; FY 1983 - $15.2; FY 1984 - $19.1; FY 1985 - $17.6; and FY 1986 - $21.3. This planned PI program was intended to introduce time phased improvements in groups called "packages", so as to minimize costs while insuring configuration control.

(U) Army Procurement Appropriation (Weapons and Tracked Combat Vehicles). The FY 1980 program authority totaling $706.2 million, consisted of $481.1 million for vehicles, Basic Issue Items (BII), System Technical Support (STS), and Auxiliary Services; $97.7 million for Initial Production Facilities (IPF); $70.7 million for Advance Procurement of hardware items in support of FY 1981 vehicle requirements; $13.5 million for training

components; and $40.2 million for Production Base Support (PBS). During FY 1980, the low rate initial production contract for 110 vehicles (FY 1979 buy) was definitized with Chrysler Corporation. The on-going IPF and PBS contracts were increased by $97.4 million and $31.4 million respectively. Additional PBS funds were provided to the Baltimore District, Corps of Engineers (COE) for Lima Army Tank Center, SAEP, and Seneca Army Depot efforts. Funds were also provided to the Omaha District, COE for efforts at the Detroit Army Tank Plant.

(U) Operation and Maintenance, Army (OMA) Appropriation. The FY 1980 Approved Operating Program (AOP) was $5.4 million. During FY 1980, $1.8 million was contractually awarded to procure repair parts that would support the vehicle hand-off warranty period. Another $1.7 million was awarded to Chrysler Corporation for depot type operations under a Contractor Logistics Support Concept. The remaining AOP of $1.9 million paid for 67 man-years within PM, XM1 which was used to support program mission.

(U) Cost/Schedule Control System Criteria (C/SCSC). The XM1 FSED contract was concluded on 12 November 1979 with a $9.7 million cost overrun, approximately four percent. The total contract price to the Government after fee sharing was $252.1 million.

(U) The XM1 manufacturing, engineering, tooling, special test equipment and facilities procurement program contract reflected both a continuing schedule slip as well as a significant cost overrun. Efforts during the fiscal year were directed at reducing the size of the projected overrun. Accordingly, the XM1 PMO attempted to reduce the METSFPP scope to a 90 per month versus a 150 per month facilitization effort with the forecast of a total contract overrun reduced approximately $25 million.

(U) The XM1 first year production contract had a cost/schedule control system criteria (C/SCSC) requirement. During the fiscal year, the prime contractor and the engine subcontractor initiated C/SCSC implementation efforts. In FY 1980, very little meaningful progress by the prime contractor had been made. Demonstration of their system was attempted in September 1980 with clear failure.

(U) Since the XM1 PMO values C/SCSC as a management tool on appropriate contracts, all efforts were directed toward establishing contractor systems and implementing meaningful reporting. At this time, C/SCSC was seen as the management method to be employed on the XM1 METSFPP, production, STS, and 120mm FSED contracts.

(U) Baseline Cost Estimate (BCE). In January 1980, a formal XM1 Baseline Cost Estimate (BCE) was prepared to support Management Review I, which was validated by HQ DARCOM personnel. Management Review I resulted in the decision to forego alternate second year procurements of 192 and 120 vehicles in lieu of 352 vehicles. The BCE identified costs indicative of the 352 alternative; and depicted the delta costs of incorporating the XM1E1 vehicle into the life cycle estimate.

(U) Planning for the next BCE which would support ASARC, DSARC IIIA in the spring/summer of 1981, occurred in FY 1980. Steps were taken to address the maintenance, manpower, and logistics aspects of the operation and support phase of XM1. This study would be incorporated into the next BCE as an appropriate subset of the operating and support phase of the estimate.

(U) Life Cycle Cost Estimates for XM1 Product Improvements. During FY 1979, ten life cycle cost analyses were developed in support of XM1 PRIMR submission. Significant cost impacts were identified for incorporation of these PIPs. The combined costs of RDT&E, production line, APA and retrofit aspects of these PIPs amounted to over $1.5 billion. Since many of these PIPs were incomplete in engineering definition, the estimates had been structured to provide an order of magnitude of this program. Further LCC estimates were to be made in FY 1981 on PIPs with the intent of focusing more rigorously on the engineering definition, and thereby, the cost estimates.

(U) Production Contract Definitization. During FY 1980, a continuing effort was made to definitize the first year XM1 production contract. Prior to FY 1980, a simulated exercise of the first year production option was made in May 1979. On 30 September 1980, final definitization of the contract was achieved and the arduous negotiation process on the contract was concluded. Including spares and training components, as well as the 110 vehicles, the contract negotiated price approximated $200 million. As reported in the 30 September 1980 XM1 Selected Acquisition Report (SAR), the contract target price was $197.7 million and the contract ceiling price was $200.2 million.

(U) Of significance was the fact that the escalation of the ceiling price was agreed to be based on the approximate mid-point of vehicle deliveries for the prime contractor (July 1980). For the subcontractors, the planned end of component deliveries, September 1980, was agreed upon.

CHAPTER V

PROJECT MANAGEMENT: EQUIPMENT AND SYSTEMS

Training Devices

General

(U) Located at the Naval Training Center, Orlando, Florida, the Office of the Project Manager for Training Devices (PM TRADE) was responsible for the development and initial fielding of a large number of equipment items. The PM's authority to execute its mission lay in its 23 October 1978 PM charter. The charter led to the establishment of an eight-divisioned office which was manned, as fiscal year 1980 began, with an authorized office strength of 33 military and 71 civilian spaces. The main fiscal year 1980 accomplishments of these divisions follow.

Program Management Division

(U) Rationalization, Standardization and Interoperability. PM TRADE was especially active in Rationalization, Standardization and Interoperability (RSI). Besides recommending the establishment of a central point for NATO training devices information, the PM secured DA approval to procure an off-the-shelf British Model of the Medium Girder Bridge; transitioned a German-made Cartridge for the Main Tank Gun/Weapons Effect Signature Simulator to the US Army Armament Materiel Readiness Command (ARRCOM) for type classification; and evaluated and rejected a Belgian-made Blank Firing Adapter (BFA) for the MAG 58. RSI also involved Foreign Military Sales (FMS), eleven to Egypt alone. Egyptian purchases included a digital computer trainer, a digital computer maintenance trainer, an aerial radiological survey training set, a tank gunfire simulator and transparencies for the M-28 Azimuth Indicator and the M-68 105mm Tank Gun Breech.

(U) Acquisitions. PM TRADE acquired 14 major system training devices in fiscal year 1980. Four were Synthetic Flight Training Systems (SFTS): An AH-64 Flight and Weapons Simulator, a UH-60 Flight Simulator, an AH-1 Flight and Weapons Simulator, and a CH-47 Flight Simulator. The remaining items included two flying machines, the GUARDRAIL-V reconnaisance plane and the Remotely Piloted Vehicle (RPV) drone, and the BLACKHAWK Selected Task Trainers.

(U) There were also twenty-eight major non-system training devices also acquired by PM TRADE. Ten of these were in the production stage. Examples were the Combat Vehicle Kill Indicator, a Field Artillery Turret Maintenance Trainer, and a Reactive Electronics Equipment Simulator.

(U) Document Processing. PM TRADE reviewed and validated fifteen Baseline Cost Estimates and two RECAP's during fiscal year 1980. Local support service contractors prepared most of these estimates. The PM not only corrected their efforts, but also developed and refined

their cost estimating capabilities for future use. PM TRADE also processed and approved eight requirements documents and three MOAs. The former included the Armor Remote Target Systems (ARETS) and the Fighting Vehicle Conduct of Fire Trainer (FV COFT). The MOAs were with the PM, ROLAND for the development of institutional trainers and maintenance of institutional trainers; with CERCOM for transitioning PM TRADE-developed items; and with ARRCOM for the transfer of the Observed Fire Trainer program management responsibility.

Research and Engineering Management Division

(U) Organization. In fiscal year 1980 the Systems Engineering Division and the PM TRADE Field Office reorganized. The result was a new Research and Engineering Management Division which placed emphasis on both the simulator and training device (SATD) technology base and the engineering management functions of the PM TRADE mission. That was, the PM's limited number of engineering positions were totally dedicated to managing activities of operational resources external to the PM TRADE organization. Each engineer acted as a technical specialist and as a manager of a technology area and project engineering. Two new senior level positions formed to coordinate the activities of these engineers.

(U) Management. The new division took the lead in developing a management structure for tasking support service contractors to develop that information necessary to support requirements approval and concept definition. The key step was the establishment of a task for developing a cost data base that was suitable for supporting cost estimates, concept definition and source selection activities of the training device acquisition process. The product was a four-phased procedure resting upon use of the contractor's management approach and cost realism. The four phases were: New Work Assessment; Concept Formulation; Contract Definition; and Contract Performance.

(U) Army Maintenance Equipment. Fiscal year 1980 marked the formal start of a program called AMTESS, or Army Maintenance Training Evaluation and Simulation System. The intent of AMTESS was to provide a systematic approach for continuing competitive acquisition of those Army maintenance training devices that were based on proven designs. The program was multi-phased.

(U) Phase I began with the selection of four contractors to develop concepts for a modular family of maintenance training devices. Principal selection criteria included life cycle costs, procedures for selecting appropriate media for heads-on and hands-on training, adaptability of the system design for training at institutional, unit, introductory institutional, and unit sustained and proficiency levels, and suitability of the system design for use of common configuration items across the full range of Army maintenance training requirements. The contractors concluded Phase I, and began to select one or two of the Phase I concepts for breadboard evaluations.

(U) The division used a similar approach for an Automatic Weapons Effects Signature Simulator (AWESS). The purpose of AWESS was to develop alternatives for offsetting the prohibitively high cost of blank ammunition that would occur during engagement simulation training exercises of the Multiple Integrated Laser Engagement Simulation (MILES) System. After phase one completion, the Government selected two of the four contractors to build breadboard demonstrations of their approach for evaluation. The principal criteria for final selection were life cycle cost and simulated signature quality. The division calculated that full approach implementation would save $3.5 billion for blank ammunition over the 20-year life cycle of the MILES System.

Aviation Systems Division

(U) CH-47. CH-47 Flight Simulator (FS) was a very active interest area. There were two big contract actions, including definitization of a CH-47 FS letter contract not to exceed $23.5 million and a contract award to build an FS building at Fort Campbell, Kentucky. In January and June of 1980, the division participated in reviews of contractor progress. Meanwhile, final facility designs appeared for FS complexes at Fort Hood, Texas and Mannheim, Germany.

(U) In other aviation actions, the AH-1 Flight/Weapons Simulator (FWS) received a standard type classification in May 1980; three UH-60 FSs underwent delivery to Fort Rucker, Alabama; and the division started an analysis of the AH-64 Combat Mission Simulator (CMS) to use as a basis for the technical approach, schedule and projected costs to be presented at the validation IPR. Finally, the Singer Company, Link Division, received a March 1980 RDTE contract to develop a replacement for the camera/model board visual system that would have improved RAM characteristics and that would radically reduce power consumption.

Product Manager, Armor Training Devices (ARD)

(U) The Conduct of Fire Trainer (COFT) Program continued to be the largest training device project in the Army, with correspondingly high DA/DOD interest. COFT integrated one training device and three project managed weapons systems with input from the Infantry and Armor community users. The COFT Project Director Team was structured along development and production lines with an overall manager reporting to the PM ARD.

(U) Despite funding uncertainties, PM ARD engaged in the research development and acquisition of training devices in six areas. These were the XM-1, which featured a Driver Trainer, Maintenance Trainers, and COFT; Fighting Vehicle Simulator (FVS) Training Devices, which included Maintenance Trainers and a COFT; M60 Training Devices, which consisted of Maintenance Trainers and a COFT; and a Tank Weapons Gunnery Simulation System, an Eye-Safe Simulated Laser Rangefinder, and Subcaliber Training Devices. DA also awarded three contracts for

the full-scale development of an XM-1/M60 COFT, an FVS COFT, and an FVS Turret Maintenance Trainer. Yet another contract was awarded for the production of the Universal Externally Mounted Subcaliber Training Device Caliber .50 M179. The Army took delivery of 1,281 of these devices during fiscal year 1980.

Ground Systems Division

(U) Fielding. Several division interest items either underwent or neared fielding in fiscal year 1980. Among the former were four Firefinder Training Devices which, after installation at Fort Sill, Oklahoma, began use to train personnel in the operation of the AN/TPQ-36 and the AN/TPQ-37 Radars. One device could also train personnel in the organizational maintenance of the AN/TPQ-36. Other items included MILES, which completed development, underwent type classification and was at that time in production; Blank Fire Adapters (BFAs), which complemented MILES by providing realistic weapon effects signatures and which, for M2 and M85 machine guns, were in production and were being fielded with MILES; the Infantry Remoted Target Systems (IRETS), which were ready for engineering development (ED); and the Armor Remoted Target System (ARETS), which was slated to enter the Advanced Development (AD) phase of the acquisition cycle.

(U) Contracts. The Army awarded two contracts in fiscal year 1980 in this area. One to the XEOS Corporation for the Air Ground Engagement Simulation (AGES) and Air Defense (AD) Systems. These systems, due to be fielded in 1983, extended the MILES concept to embrace Aviation and Air Defense in the engagement simulation exercises. The basic aviation offensive weapon system was the COBRA, so simulation was to be of the TOW, 20mm Gun and 2.75 Rocket Systems. The OH-58A and UH-1H were to be the targets. The Air Defense Systems portion was to include the VULCAN, CHAPARRAL, and STINGER, with a possible future expansion to include the DIVAD Gun and ROLAND.

(U) The other contract went to Singer-Link Division, for the Army Training Battlefield Simulation System (ARTBASS), which was to provide real time, dynamic training in command and control of maneuver battalion commanders and their staffs. ARTBASS was essentially and update of the Combined Arms Tactical Training Simulator (CATTS) at Fort Leavenworth, Kansas. Besides updating CATTS, the Army planned to van mount it.

Technical Support Division

(U) Organization. On 1 October 1979, three elements -- the Logistic Management Division, the Product Assurance and Test Office, and the Configuration Management Offices -- merged into the Technical Support Division. Intended to provide better employment of resources, the new division had four branches. These were, Logistics Management, Field Support, Configuration and Data Management, and Product Assurance and Test Management.

(U) Acquisitions. The division acquired eight nontype classified training devices in fiscal year 1980. They covered several interest areas. Examples were the DVC 08-14, Casualty Simulation Kit; the DVC 7-22D, Small Arms Gunfire Noise Simulator; the DVC 11-37, Peripheral Equipment for Digital Computer Trainer; and the AH-IS Helicopter Armament Systems Maintenance Trainer.

(U) Tests. Fiscal year 1980 witnessed the completion of five major tests. These consisted of Operational Test III (OT III) and First Article Test for MILES; Developmental Test II (DT II) and First Article Test, with OT II user-waived, for the Universal Externally Mounted Subcaliber Training Device, Caliber .50; DT/OT II and First Article Test of the Blank Fire Attachment for the M2 Heavy Barrel Machinegun, Caliber .50 and for the M85 Machinegun, Caliber .50; and DT II for the Brewster Subcaliber Training Device, with OT II user-waived. The Contractor Logistics Support (CLS) concept for MILES also received validation during OT III, though funds were in budget through fiscal year 1986, DA had not yet determined who would administer the CLS.

(U) There was also some contention over the AH-1 Flight Simulator Development Acceptance/Type Classification IPR held in March 1980. The US Army Logistics Evaluation Agency (USALEA), alone, nonconcurred on a positive development and type classification, arguing, principally, that there had been no adequate testing of logistic supportability. DA overruled USALEA, and the simulator received a standard type classification. As all SFTSs, this simulator was to be contractor-maintained for its life cycle.

Instructional Systems Division

(U) The division started two programs in support of the Army Training Extension Course Program. One was a job-training program contract, awarded 29 September 1980, for an estimated 505 kits. A second program began for yet another award. Both kit's projects were for the reproduction of master training lessons.

(U) Though the division continued to provide contract administration and management support for the Training Extension Course (TEC) Program throughout the year, planning began in April 1980 to transfer the entire function to the Army Training Support Center. The turnover of the contract administration was to be initiated with the turnover of the previously discussed contracts. As the year ended, however, there were as yet no plans to transfer the remaining active TEC contracts.

Procurement and Production Office

(U) The Procurement and Production Office negotiated and oversaw the administration of all Naval Training Equipment Center (NAVTRAEQUIPCEN) contracts awarded for Army projects. The largest,

single contract ever let by NAVTRAEQUIPCEN was the $104 million MILES System, discussed previously. In September 1980, the Xerox Corporation began deliveries on this contract, deliveries to be completed in November 1982.

(U) Other contract activity encompassed 260 actions. There were 26 new contracts, 83 contracts under administration for $381 million and 84 purchase delivery orders for $1.2 million. Total fiscal year 1980 dollar obligation was $113 million.[1]

Mobile Electric Power

General

(U) Staffing in the Office of the Project Manager for Mobile Electric Power (PM MEP) remained constant in fiscal year 1980 at 26 civilian and 3 military spaces. Extended vacancies, however, did cause understaffing problems. This staff engaged in the cooperative DOD Mobile Electric Power Generating Sources Program, the fiscal year 1980 requirements which amounted to $43.2 million. Of this amount, the Army got $19.8 million, the Navy/Marine Corps received $17.9 million, and the Air Force, $5.5 million.

(U) Acquisitions. A Five-Year Acquisition Plan covered items obtained from these funds. PM MEP issued two updates of this plan during the year, once in November 1979 and again in May 1980. In fiscal year 1980, six generator set awards were made under the plan. Three of the awards were for diesel-driven sets, resulting in 750 kW, 60 Hz and 60 kW, 400 Hz contracts to Fermont and a 72 kW, 400 Hz contract to Essex. Two of the sets were gas turbine-driven, producing contracts for a 60 kW, 400 Hz set with Libby and for a 60 kW, 400 Hz set with Solar. The last set was gasoline-engine driven, to be a 3 kW, 60 Hz set manufactured by Hollingsworth.

(U) There were significant production problems with the 5 kW and 10 kW, 60 Hz, diesel engine-driven generator sets. As a result of these problems, the office terminated the contract with the Bogue Corporation. Other contracts were let to remedy the problem, but production delays led to critical shortages of both size sets.

Technical Management

(U) Standardization. There were seventeen active standardization projects as fiscal year 1980 began. The office concluded seven and began seven, leaving the same total active. The office also revised six military standardization documents, five for power units and one for a generator set. Moreover, on 22 February 1980, Military Standard 633E appeared, covering the Mobile Electric Power Engine Generator Standard Family, General Characteristics.

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[1] PM TRADE Annual Historical Summary, FY 80.

RDT&E Program

(U) SLEEP. Engineering support continued for the Silent Lightweight Electrical Energy Plants (SLEEP). Under TRADOC chairmanship, a Study Advisory Group (SAG) concluded that methanol fuel cells were the preferred alternatives to the gasoline engine-driven (GED) generator sets in meeting the SLEEP ROC (Required Operational Capability). Methanol was cheaper and difficult to smell. On 30 May 1980, United Technologies Corporation received a contract to develop 1.5 kW, 60 Hz and 28 fuel cell power units. The 3 and 5 kW members of the SLEEP fuel cell family remained in advanced development (AD).

(U) 60 Hz Generator Set. The 60 Hz Gas Turbine Engine-Driven Generator Set, Tactical, Utility successfully completed the development phase. On 11 September 1980, a Development Acceptance IPR (DEVA IPR) took place, at which both USALEA and TRADOC non-concurred with DARCOM's stance to type classify pending results of the First Article Test (FAT). Difficulties persisted, and the Army was unable to procure the sets which the other Services could because the sets met all DOD requirements. To resolve this problem, TRADOC began action to revalidate the Basis of Issue (BOI), an action due to conclude in January 1981.

(U) 10 kW Generator Set. Developed to support the FIREFINDER AN/TPQ-36 System, the D423A Generator Set was 10 kW, 400 Hz, Gas Turbine Driven. There were three initially fielded sets, all of which had no deficiencies, logging 956 hours mean time between failure (MTBF). This success led to an April 1966 modification of the two sole source contracts for production units to get 66 more units. FAT was to begin in January 1981.

(U) 150 kW Generator Set. The Generator set, 150 kW, 400 Hz, Gas Turbine Engine Driven was intended for use with the PATRIOT. Four test sets used in PATRIOT DT III/OT II testing underwent refurbishment and started an extensive RAM demonstration system. On 29 September 1980, Detroit Diesel Allison (DDA) Division received the start-up and long lead time materiel contract for the set, a contract that included financing construction of the first 16 production generator sets. The set was not compatible with the generator family, then in use, but the office did plan to standardize the set when and if additional customers for it appeared.

(U) 10 kW VDC. On 15 April 1980, DA approved the ROC for the 10 kW, 28 Volt Direct Current (VDC) Ground Support Center. The ROC directed that this replacement unit for the 7.5 kW be procured as a Non-Development Item, as no more 7.5s were being made. The Deputy Assistant Secretary of the Army for Acquisition approved the Procurement Acquisition Plan on 17 October 1980, with the Type Classification IPR tentatively scheduled for 2d quarter fiscal year 1981.

Other Programs

(U) EMU-30EA Generator. In response to a PATRIOT requirement, the Air Force initiated a Production Improvement Program (PIP) to improve the electronic reliability of the Generator Set, 60 kW (EMU-30EA), Gas Turbine Engine Driven, 400 Hz. An Air Force in-house effort incorporated the electronic Engineering Change Proposal (ECP) into the drawing package, and a joint Air Force-Army team established the trade-off that could improve the MEP-404A Air Force set into the nuclear-effects hardened version called the EMU-30EA. Simultaneously, an effort was afoot to improve the set's engine, also; the T62-32, when improved, was to use 35 percent less fuel and increase its mean time between overhauls (MTBO) from 1,500 to 6,000 hours.

(U) The improvements went well, but the completion schedule slipped because of an inadequate number of test hours. The PMs for PATRIOT and Cannon Launched Guided Missiles (CLGM) recognized the low hours, but also faced critical schedule requirements for production units. Accordingly, each submitted a request for deviation to use the improved T62-32 Engine in MEP-404B production. They received approval, and in September 1980 a contract was let for the improved engines.

(U) Finally, there was a third improvement effort underway, for the governor. The Woodward Governor Company completed this PIP. The result was a 17 percent reduction cost, the elimination of two parts, and an improved transient performance.

(U) Aircraft Support Generator Sets. There were five on-going efforts in this area, two of which involved deviations. One, granted to the Air Force on 31 July 1979, was to procure 430 Hobart 72 kW, 400 Hz Generator Sets to replace the MD-3. The other, granted 28 September 1979, was to procure 50 Hobart Jet-Ex IIP 15 kW, 28 VDC Generator Sets to provide ground support for the Special Electronic Mission Aircraft (SEMA) PM.

(U) The other three actions had not reached the procurement stage. One was an ROC for a multiple output ground power unit for the PM AAH, the second was a plan for a Generator Coupled/Air Conditioner to replace the M32-60A Ground Start Cart with a more fuel-efficient system, and the third was for an AiResearch contract effort to incorporate a kit recuperator on the MEP-356A, 60 kW, 400 Hz Bleed Air Start Cart. This last effort was to reduce fuel consumption by at least 50 percent and cut the noise level, too. Three units went into testing. If successful, many of the 3,000 carts, now in use, were to be modified.

(U) Tank APU. In fiscal year 1980, Turbomach received a contract for five developmental units of the 10 kW, 28 VDC, Gas Turbine Engine Driven (GTED) Auxiliary Power Unit (APU) for XM1/M60 Tanks. An

adaptation of the MEP-412A and FIREFINDER D423 Engines, noted earlier, this APU had to be very small to fit in the limited interior space. The primary purpose of the APU was to start the main propulsion engine at low temperatures. The APU successfully completed tests at Eglin Air Force Base's cold chamber, operating at -25°F, -45°F, and -65°F. A tank with an APU then went to the Arctic for more testing. Meanwhile, other Phase I units were in performance and endurance testing. On 29 October 1980, TARCOM received the contractor's proposal for the Phase II effort and a price quote for 450 APUs.

(U) Extended Oil Change Program. MERADCOM completed tests of synthetic lubricating oils on generator sets. The results were less sludge and longer intervals between changes. As the synthetics were not in the supply system, MERADCOM would have to establish specifications and do a cost study on usage of the oils in DOD generator sets.

(U) MEP-208A Generator. On 5 September 1980, DA awarded a contract for 750 kW Diesel Engine Driven (DED) Generator Sets, MEP-208A. The contract called for 20 sets, with an option for 40 more. First recipients were the Army's Facilities Engineering Support Agency and the Naval Nuclear Power Unit. The PM expected intensive management for this program, for several major DOD Defense Programs, including the Navy Fleet Hospital Program and the MX Missile Program which were expected to procure the set.

Configuration Management/Product Assurance

(U) Configuration Control Boards (CCBs). PM MEP staff officers chaired nine configuration control boards (CCBs) in fiscal year 1980. These nine boards controlled the design of 41 DOD standard family generator sets. During the year, the board evaluated 159 change proposals, deviations, and waivers. Engineering Change Proposals (ECPs) were predominant: the boards approved 112 and disapproved 22, producing a $780,550 cost increase. The boards also approved 24 waivers and deviations, saving $1,444,450.

(U) Releases. Three DED generators received production release approval. These were the 10 kW/400 Hz, the 15 kW/400 Hz, and the 30 kW/400 Hz. Three DED generators received release for issue, these were the 15 kW/60 Hz, the 30 kW/60 Hz, and the 500 kW/60 Hz.[2]

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[2] PM MEP Annual Historical Summary, FY 80.

US Army Communications Systems Agency (USACSA)/Project Manager Defense Communications Systems (DCS) (Army)

Background

(U) The USACSA PM DCS (Army) was established in 1967 as a joint AMC/US Army Communications Command (USACC) project-managed activity at Fort Monmouth, New Jersey, with the full-line authority of both Commanders. In 1972, the USACSA Commander gained yet another responsibility, becoming Commander of the US Army Communications-Electronics Engineering Installation Agency (USACEEIA). The result was a "triple-hatted" manager who was responsible, as evolved in his 20 November 1979 charter, for the centralized management of DARCOM-specified communications systems development and/or acquisitions tasks and for USACC-assigned projects that related to Army or other Service requirements or the requirements of other Government agencies or allied armies and governments.

(U) The products were two types of nontactical telecommunications projects assigned to the Army for acquisition. One type was R&D. DARCOM provided the funds for this type, which normally were feasibility and related studies assigned to USACSA's Deputy PM for R&D Systems. USACC funded the other type, which was Systems/Equipment Acquisition. Representing 95 percent of the agency's workload, these tasks were normally the province of the Deputy PM for centralized management. They ranged from the acquisition of a single piece of equipment to a global telecommunications system. These systems, or equipments, were acquired by contract and, after installation, became the province of the local commander.

(U) The USACSA was particularly sensitive to the life cycle responsibilities for the equipment that it acquired and fielded. Consequently, it managed all matters pertaining to integrated logistics support. In addition, it operated an inventory control point for those OPA and APA principal items peculiar to USACSA centrally managed systems, projects, and tasks.

Tasks

(U) During fiscal year 1980, USACSA received 205 new tasks and completed 254 tasks. At the end of the fiscal year, 235 active tasks were on hand. Of these active tasks, 99 were major and required intensive management. Task work involved USACSA in virtually every area for which USACC was responsible, except for the operation and maintenance of facilities. Nearly all means of transportation were also employed, including microwave line-of-sight, tropospheric scatter, satellites, land and sea cables, and high frequency radio.

Organization

(U) Except for minor changes, USACSA's organizational structure remained unchanged. The Field Maintenance Branch, Systems Support Division, Directorate for Logistics, was disestablished. Its tasks and functions passed to the Technical Standards and Catalog Branch, Materiel Readiness Division, Logistics, which organization obtained a new designation as the Standards and Field Maintenance Branch. The losing division, Systems Support, got the Transportable Communications Systems function, to be sited in the newly established Transportable Branch.

(U) Staffing, as fiscal year 1980 ended, consisted of 353 actual spaces -- 31 officers, 49 enlisted men, and 273 civilians. Authorizations called for 41 officers, 60 enlisted men and 279 civilians, or 380 total. Besides the standard support and operating elements, this strength manned eight DPM offices for such items as switched systems and European Telephone Systems and five field offices -- in CONUS, Hawaii, Germany, Korea, and Spain.

Funds

(U) During fiscal year 1980, USACSA controlled about $165 million in funds. Most, or about $112 million, was in OPA. APA outlays amounted to about $33 million, including $3 million for an Army Airfield and $30 million for customer funds. Finally, RDT&E exceeded $3.3 million and O&MA about $15 million. Obligation rates were high in all funding areas. Only OPA encountered major problems, falling in such areas as Transmission Media and the Satellite Interconnect Facility. Even here, however, the obligation rate was expected to reach the 70 to 75 percent range, or the highest in USACSA history.

Management

(U) Primary management interest centered upon the use of new ADP techniques, equipment, and policy. In the first area, the Management Division implemented an ADP procedure to provide for the rapid update of the USACSA Task inventory on a daily basis. These updates reflected project statuses and newly assigned tasks. Moreover, the division implemented improved methods and procedures for the distribution of the USACSA task inventory.

(U) In equipment, USACSA added IBM's Project Management System-IV (PMS IV) to its other management control tools. This tailored software system was not only to handle new Program Evaluation Review Technique (PERT) Networks, but also to develop an additional interface that would allow the introduction of projects which were already in process into PMS. PMS, in addition, provided for the first time, PERT capabilities for both classified and unclassified projects, as well as direct interfaces for such graphics output as network plots and charts.

(U) In the area of policy, USACSA formed the USACSA Automation Steering Committee to provide command guidance and policy of the agency automation program. The committee approved word processing integrated with data processing in order to provide USACSA with a total management information processing system. While awaiting approvals and funding, USACSA began training its personnel on the system by using a model of it that was supporting the Fort Hood Base Communications Upgrade Project.

Cost Analysis

(U) The Cost Analysis Office assumed a new mission in fiscal year 1980 of active participation in contract negotiations. Previously assigned a commentary role, the office took part in three acquisitions -- the AUTODIN Upgrade Program, the Digital Conferencing Unit, and the European Command and Control Console System. Thanks to its familiarity with both cost and technical matters, the office was able to save over $500,000. The Commander, therefore, ordered the office to participate in all future USACSA negotiations.

(U) The office, meanwhile, continued its traditional monitor role of cost-type contracts. The vehicle was the Cost/Schedule Status Report. Fiscal year 1980 scrutinized contracts including the MD-918 Modem and the AUTODIN and AN/FTC-31 Upgrade Programs.

(U) There were other office concerns, as well. The office performed a cost analysis for maintenance and support of the European Telephone System; made several systems or equipment cost estimates; and participated in various cost control and financial reviews for the Comptroller.

Logistics

(U) Type Classification/Reclassification Program. This program which began in September 1969 and was controlled by AR 70-61, USACSA's type classification/reclassification program, used the IPR and required concurrence from the three voting IPR members -- the US Army Communications Command (USACC), USALEA, and TRADOC. USACSA was able, as in the past to obtain written concurrences without resorting to the convention of formal IPRs. In fiscal year 1980, these concurrences covered eight type classification actions and seven reclassification actions.

(U) The fiscal year 1981 was to be heavier. Fifty-seven systems or equipments required IPRs. Chief among these were the Digital Radio and Multiplex Acquisition (DRAMA), the Worldwide Technical Control Improvement Program (WWTCIP) and the Wideband Applique Trunk Unit.

(U) Item Management. During fiscal year 1980, USACSA reviewed and studied 156 items for transfer to CERCOM as principal items. Of this total, 63 underwent transfer, 30 awaited transfer and the rest

remained under review. Effective 1 October 1981, plans called for the realignment of all items from principal to secondary management. At that time, CERCOM was to assume management of USACSA's managed items.

(U) Product Improvement Program (PIP). There were six PIPs underway in fiscal year 1980. These six were for Digital Subscriber Terminal Equipment (DSTE); the AN/GSQ-166 and AN/MSQ-73 Transportable Technical Control Facilities (TCF); the AN/GTC-29(V)2 Transportable Automatic Voice Switching Facility (AVSF); the AN/TSC-38B Communications Central housed in a Transportable S-414 Shelter; the AN/TSC-25 Communications Central housed in a Transportable S-141 Shelter; and the AN/FTC-31(V) Dial Central Office Switch. Installations of all but the final PIP were well underway as the year ended. Key among these PIPs was the AN/GSQ-166 and AN/MSQ-73 PIP, which combined the two TCFs into a single unit by providing a more efficient facility by expanding mission operation, circuit operation and circuit monitoring capabilities.

(U) Test Measurement and Diagnostic Equipment (TMDE). The System Support Branch, Test Measurement and Diagnostic Equipment (TMDE) Management Branch, provided centralized acquisition management of all of the USACC/USACSA TMDE requirements programs. This included MAP, Grant Aid and FMS programs. Fiscal year 1980 acquisition costs were $2.9 million, which obtained 1,744 individual test sets.

(U) Transportable Branch. On 25 April 1980, the Logistics Directorate acquired a Transportable Branch. This branch concentrated actions in the life cycle management and control of transportable Communications-Electronics (CE) systems used in the Joint Communications Contingency Station Assets (JCCSA). The new branch controlled and managed 20 USACSA-managed systems and acted as USACC's agent and interface with DARCOM for 70 CERCOM-managed, USACC-used transportables.

Procurement and Product Control

(U) Procurement Services. The Procurement Services Division (PSD) acted as the agency focal point for acquisition management guidance. During fiscal year 1980, it reviewed 25 final packages which were worth about $40 million. It also reviewed 107 Sole Source Statements, which had an estimated value of about $20.2 million, and it rewrote and reissued an updated internal Acquisition Requirement Package (ARP) Format and Content regulation.

(U) Data Management Office. The ARP rewrite had a direct impact on the Data Management Office. This office reviewed and provided formal advice on 25 final ARPs and provided advice on several more in preparation. These reviews saved $258,000 in cost savings.

(U) Configuration Management. The Configuration Management (CM) Division provided policy, direction and guidance in the USACSA/USACEEIA CM Program and the USACSA Value Engineering (VE) Program. Accordingly, division personnel chaired nine Configuration Control Boards (CCBs), which were active in the review and evaluation of various engineering change proposals (ECPs), equipment improvement recommendations (EIRs).

requests for deviations and waivers, and suggestions. These actions covered a wide range, as this active CCB list suggests: Army Communications Systems Agency, Automatic Secure Voice Communications System, Digital Radio and Multiplexer Acquisition, European Telephone System (ETS), Standard Remote Terminal, Automatic Digital Network, USACC CE Transportable System, European Command Static War Headquarters, and Joint Crisis Capability Project.

(U) Configuration Management (CM) personnel accomplished a host of activities. These accomplishments included the revision of five CM plans, the completion of two physical and functional configuration audits, and the development of a new status accounting system and data base. CM personnel also participated in technical reviews of documents prior to their release for procurement.

(U) Value Engineering (VE). CM personnel also operated USACSA's VE Program. During fiscal year 1980, this operation saved DA $3.622 million. The VE Program Manager represented the agency in two high-level, government-industry VE groups: one was the Government Procurement Relations Council and the other was the Electronics Industries Association.

(U) Product Assurance. The Product Assurance Division (PAD) continued to be responsible for quality assurance, test and evaluation, reliability, maintainability, human factors, system safety, production engineering, and environmental quality. In practice, these responsibilities entailed extensive review work in such areas as technical specifications, statements of work, purchase description reviews, acquisition requirements package preparations, and contractor technical proposal evaluations. This work encompassed all but a few USACSA-assigned projects, but particularly DRAMA, ETS, Air Traffic Control, and AN/FTC-31 Enhancement.

Field and Liaison Offices

(U) Field Office-CONUS. The Chief, Field Office, USACSA, as the other field office chiefs, represented the Commander, USACSA by monitoring and coordinating the implementation and installation of major systems and equipment. The liaison interest was the 7th Signal Command, USA CEEIA-CONUS and the other USACC activities throughout CONUS. Due in part to the field office, all major projects in CONUS were on schedule despite cuts in manpower and funding.

(U) Field Office-Europe (EFO). The EFO acted its part in relation to elements of Headquarters (HQ), European Command; HQ, USAREUR; HQ, 5th Signal Command; HQ, USA CEEIA-EUR; and HQ, DCA-Europe. EFO was also the DARCOM Logistic Assistance Office (LAO) with the 5th Signal Command. EFO projects will be discussed in subsequent DPM chapters.

(U) Field Office-Korea (KFO). The KFO acted as primary interface to, and performed active liaison with, the United Nations (UN) Command, US Forces Korea, Eighth US Army, 1st Signal Brigade, and other agencies concerned with CSA Korean projects.

(U) The Automated Multi-Media Exchange (AMME)/Modular AMME Remote Terminal (MART) Project was an advanced, automated telecommunications center designed to tie into the worldwide AUTODIN and automatically transfer AUTODIN traffic to remote terminals in the immediate area of the addressees. MART was the remote communications terminal referenced; it was to provide Defense Communications System (DCS) users with rapid, reliable writer-to-reader service. AMME/MART was a three-phased project. Phase I, completed in August 1978, provided for installation of the AMME facility with an over-the-counter MART service. Phase II provided for the installation of eleven additional MART sites throughout Korea. During fiscal year 1979, six such MARTS were activated. In fiscal year 1980, KFO completed Phase II and began Phase III, which called for the installation of a Front End Processor at the AMME and Modes II and V interfaces.

(U) As per a 1977 agreement, the Republic of Korea (ROK) and the United States formed a Combined Forces Command (CFC), or joint headquarters. ROK built the headquarters building; the United States was to provide its communications. The United States action had two phases. Phase I, completed in December 1978, involved the installation of administrative communications service for the building. Phase II was much more difficult, requiring secure lines to various points in ROK. Fiscal year 1980 actions included the installation of a secure facsimile system to Yongsan and four Wideband Secure Voice Terminals in the CFC building.

(U) The Defense Satellite Communications System (DSCS) Phase II, Stage 1b, began transitioning to Phase II, Stage 1c. This meant the replacement of analog systems with digital capabilities. In Korea, in Phase 1b, Korea had one satellite earth terminal, an AN/MSC-46 at Song So. Phase 1b called for improving this terminal with a Digital Communications Subsystem (DCSS), two 500 kW generators, an uninterruptible power supply (UPS), and a new AN/GSC-39 to replace the AN/MSC-46. Complementing Song So, KFO was to oversee the installation of one AN/TSC-86 satellite earth terminal at TANGO and another positioned for Joint Staff Communications (JSC). By the end of fiscal year 1980, the Song So improvements were well along; the DCSS and the two 500 kW generators were in place; and site preparation was underway for the AN/GSC-39, the TANGO AN/TSC-86, and the UPS installations. A contract was also let for site preparation for the JCS terminal.

(U) In June 1980, the Combined Field Army (CFA) Command Control and Communication (C^3) Bunker Project was one of the most ambitious CSA Korea projects ever. Part of a joint ROK/US agreement to form a CFA headquarters, this project called for a new hardened command bunker with supporting communications. CSA was responsible for the latter, which involved ten major communications subsystems. KFO had already procured much materiel and was engaged in letting contracts by 1 October 1980.

(U) This project for the Korean Administrative Telephone System (KATS) called for a contract to install nine Electronic Private Automatic Branch Exchanges (EPABXs) at sites throughout Korea. Page Communications received a contract to furnish the GTD-1000 PBX, and eight of the nine installations were completed during fiscal year 1980.

(U) KFO also carried out numerous other projects. Most were modernization efforts which included: an upgrade of manual technician control facilities, called the Technical Control Improvement Program (TCIP); modernization of two Army airfields, one was Camp Stanton, with an AN/TSQ-117 Control Tower and the other, Camp Humphreys, with a Terminal Very High Frequency (VHF) Omni-Range (TVOR) Set; replacement of worn-out or obsolete AUTODIN equipment; and improvements in the USAINSCOM and AUTOSEVOCOM communications systems.

(U) Field Office-Pacific (PFO). The PFO interfaced with the Commander-in-Chief, Pacific (CINCPAC), the Defense Communications Agency-Pacific (DAC-PAC), the Pacific Air Forces (PACAF), the US Pacific Fleet (PACFLT), the US Army Western Command (WESTCOM), the USACC WESTCOM, the US Army Japan (USARJ) and the USACC Japan.

(U) During fiscal year 1980, PFO coordinated and assisted in the call-out, movement and control of Depot Level Maintenance (DLM) Teams for two projects. One concerned the AUTODIN Digital Subscriber Terminal Equipment (DSTE), which employed nine DSTE DLM teams from Tobyhanna Army Depot (TOAD); the other involved the AUTODIN Switching Center (ASC). Both sets of teams performed scheduled and unscheduled maintenance at a variety of Pacific points.

(U) Engineering, installation and test efforts continued on the digital communication subsystem throughout fiscal year 1980. PFO's support to this subsystem included tri-service and interagency coordinating of the site survey and engineering, installation and test teams; monitoring and expediting bills of materials (BOM) shipments; providing administrative and logistics support; arranging inter-service equipment loans; and calibrating and maintaining control and shipment of TMDE and DCSS van spreader bars. One example of a problem, and its resolution, surfaced by such work, included the investigation of, and initiation of corrective measures for the noise and intermodulation problems common to AN/MSC-46 terminals. Future projects included such items as modifications to AN/GSC-39s and the incorporation of new subsystems into the DSC System (DSCS).

(U) Acting as PM, USACSA convened two major Project Status Reviews for the DCS Voice Orderwire System. The purpose of this system was to provide standardized voice orderwire capability and equipment for all 125 DCS tri-service sites in the Pacific. Other USACSA support to this area included monitoring BOM shipments, interfacing with Navy and Air Force engineering elements and a revision of connections for the Pacific sites.

(U) On 1 October 1979, the Modular AUTODIN Terminal Equipment (MATE) at Schofield Barracks, Hawaii, switched to live traffic. A standard remote terminal (SRT), MATE suffered the normal amount of reprogramming, or corrective actions during the year. PFO oversaw the correction of these problems, and began work on the implementation of a new computer format for fiscal year 1981.

(U) Another major project concerned the SCT-21 Satellite Terminal on Okinawa. This project entailed site surveys and site selection, site preparation, unpacking and inventorying, installation, logistic support, shakedown and system tests, training, de-installation, packing and crating, and shipment preparation. Tasked in July 1979, the terminal was ready by 20 December 1979, 11 days early. The terminal then began tests.

(U) The PFO executed a variety of other tasks, as well. These included the expedition of repair parts to correct a hazardous condition at some of the Pacific AUTODIN Switching Centers; the implementation, with Air Force coordination, of a Pacific AUTODIN and DSTE Operational Readiness Float (ORF) for AUTODIN Switching Center and DSTE Sites; and assistance in the location of lost or misrouted TMDE throughout the Pacific.

(U) Field Office TCN-Spain. The Territorial Command Network (TCN)-Spain was a major telecommunications project in support of the Spanish Army and Navy. Requiring engineering, acquisition and installation, it provided the Spanish High General Staff in Madrid with connections to Army and Navy General Headquarters and to bases located on the Spanish mainland and adjacent islands. The connections consisted of radio in the form of tropospheric scatter and line-of-sight microwave links which served telephone and typewriter service on both a dedicated and a common user basis.

(U) In May 1980 the system began operations. At that time, tests concluded on the message switch software, thus ending the acquisition and installation phase. The Spanish began operating and maintaining the systems. Later, in September, as per a July 1980 US-Spanish agreement, an Operations and Maintenance Management Assistance (OMMA) Team began a not-to-exceed, one-year action.

(U) USACSA Liaison Office-Washington, DC. The USACSA Liaison Office (LO) acted basically as a listening post and intermediary. In the former role, it gathered information on trends and proposed policies, directives, plans and programs. In its latter stance, the office represented USACSA on panels and at meetings when direct agency representation was not feasible.

Communications Projects and Equipments

(U) DPM-Command Control Systems. DRAMA, or Digital Radio and Multiplexer Acquisition, provided for the obtainment and use of common digital multiplexers and radios by the Army, Navy, Air Force, and National Security Agency (NSA). There were two major pieces of equipment involved. One was a first-level multiplexer, TD-1192, now called the AN/FCC-98(V), which accepted 3, 6, 12, or 24 voice channels and combined them into a single high-speed digital signal. In June 1978, the Army accepted the first production units of the AN/FCC-98(V). The second level multiplexer, TD-1193(P)/F, now called the AN/FCC-99(V), operated in tandem with a radio, the AN/FRC-170, to accept up to eight AN/FCC-98(V) high speed inputs and other high speed data and combine them into a higher rate digital signal. The radio could accept up to two AN/FCC-99(V) signals, or a grand total of 384 voice quality circuits. TRW, Incorporated, was the contractor for both multiplexers and the radio.

(U) The Defense Communications Agency (DCA) established the requirement for the Low Speed Time Division Multiplexer (LSTDM) in 1977. This was a Tri-Service required multiplexer/demultiplexer that could accept incremental port rates from 36 bits per second (BPS) up to 32 kilobits per second (KBPS) and that could provide incremental combined channel output rates ranging from 1.2 KBPS to 256 KBPS. Initial requirements were for 1,200 units, to be acquired in three years, with the last two years each being one-year options. Data Products of Wallingford, Connecticut, won the contract late in fiscal year 1979.

(U) The Fulda Army Airfield (AAF) was a NATO project to modernize that airfield so that it would be capable of instrument flight rule operations. Required were a control tower, more radios, a radar system, navigational equipment, meteorological equipment, a cable distribution system, ETS, and extra housing space to accomodate the new equipment and men to operate it. After some legal delays over land acquisition in the German courts, the OFD Frankfurt could not start construction actions until 19 March 1980. By the year's end, land acquisition was in the negotiation stage.

(U) Also a NATO project, the Grebelstadt AAF program meant building a high activity AAF, to include hangars, a control tower, a remote communications building, a nondirectional beacon building, a communications center building, a dial central office, and space for a future microwave terminal. The purpose was to support a battalion of Army attack helicopters. By 1 October 1980, about 100 items of major equipment were installed, and the project was about 90 percent completed.

(U) There were also three major projects underway that would benefit several airfields. One was the Terminal Very High Frequency Omni-Range (TVOR) Project, which would affect 26 sites -- 23 CONUS, two Europe, and one Korea. TVOR consisted of a transmitter, an

antenna, a monitor, a shelter, and automatic terminal information service equipment, the aim of which equipments was to provide azimuth bearing information to aircraft. E-Systems was the contractor, and TVOR installation began in June 1979. By late fiscal year 1980, 15 of 26 sites had TVOR.

(U) The second was the Air Traffic Control Communications Switching System. The province of the 15-year old AN/FSW-8, the purpose of this system was to integrate the radio communications of the pilot, the control tower, the air traffic controllers, the other air services and the Federal Aviation Administration (FAA). As the AN/FSW-8 could not do all of this, it had to be supplemented by independent subsystems. In April 1979, USACSA began the purchase of off-the-shelf consoles in order to replace the AN/FSW-8 and its subsystems with a single console system. USACSA expected to buy about 40 systems in the next five years.

(U) The third project was the Standard Modular ATC Tower. This project called for the replacement of obsolete or inadequate control towers at eight AAFs with a six-story modular tower, plus cab. The Corps of Engineers was to do the construction work and USACEEIA would install and test the equipment. By the end of fiscal year 1980, three towers were in operation at Ansbach, Polk, and Wheeler. Work was underway at three other sites -- Forney, Marshall, and Godman. Libby and Coleman, Germany, were the other two targeted AAFs.

(U) DPM-Consolidation of Telecommunications Centers. The consolidation of Telecommunications Centers Project aimed at the establishment of a single standardized, integrated and automated telecommunications (TCC) system in place of the separate TCC centers of the JCS; the Pentagon; the Headquarters of the Army, Navy, and Air Force; the Arlington Annex; the Headquarters of the Commandant of the Marine Corps and the Chief of Naval Personnel; and of other subscribers in the National Capitol Region. This standardization project involved development, engineering, acquisition, installation, test and cutover phases. Most of the physical work involved the Pentagon and Fort Ritchie, Maryland.

(U) On 22 June 1980, Phase I of the project concluded with the establishment of full terminal subscription service for all but the JCS. Phase two then began with the installation of the Multiple Automated Printing System (MAPS) in the Arlington Annex. MAPS offered an automated message reproduction and collating capability; it alleviated the most labor intensive aspect of message handling. Phase II worked toward improvements to the Pentagon's commercial and auxiliary power, an action accomplished by airlifting four transformers and one chiller plant to the roof of the Pentagon.

(U) The purpose of the European Telephone Systems (ETS) Project was to replace the 40-year old switching equipment serving United States forces in Europe with modern electronic digital switching equipment. Originally set to begin in 1976 with international solicitations, the project, at the request of the German Minister of Defense, used instead the offices of the Federal Minister of Posts and Telecommunications. The result was a November 1978 United States-German Memorandum of Understanding which set a ceiling price of 186.2 million Deutsche Marks (DM) for the procurement of 112 US Army switches.

(U) Actual ETS agreement followed in Bonn on 15 April 1980. Siemens AG, Munich, was the prime contractor for manufacturing and installing the switches. Siemens developed the KN-101 electronic switch for the ETS, offering such modern advantages over the outdated RP-40 electro-mechanical equipment as microprocessor control and no internal blocking within a trunk line group. The KN-101 was also more reliable and easier to install and maintain.

(U) Deputy Project Manager (DPM)-Research and Development Systems. The Access Area Digital Switching System (AADSS) Project was an attempt to develop a telecommunications system that would provide for a more cost-effective 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, thus saving money by eliminating costly access circuits between DOD installations and the DCS backbone networks.

(U) In fiscal year 1980, the DPM prepared an SOW for AADSS Concept Definition. Set to encompass several DOD installations, AADSS offered several possible alternatives. These included the provision of integrated, multimode traffic from installations to the DCS, or the elimination of the backbone network via the use of satellites.

(U) The Adaptive Antenna Control System Program was to develop an adaptive antenna system that would maximize the received radio frequency (RF) signal and minimize the effects of deep signal fading in diffraction and tropospheric scatter radio links. In June 1976, Signatron, Incorporated, Lexington, Mississippi, received a contract to design and build such a system. The Air Force tested an advanced model of the system, with good results. The DPM issued a final report and prepared to transition the item to the Air Force.

(U) The Digital Data Modem MD-918( )/GRC Project consisted of the development, fabrication, test and evaluation of eight ED models of a digital modem MD-918 ( )/GRC for the transmission of digital

signals over DCS tropospheric radio transmission links. In August 1979, the developer, GTE Sylvania, Incorporated, Needham Heights, Massachusetts, won a contract to modify the ED models to interface with DRAMA equipment on two operational tropospheric links in Europe as part of the Digital European Backbone (DEB). Operational Testing II (OT II) was to check the Bocksberg to Berlin tropospheric link after GTE completed the modifications.

(U) The Future DCS Line of Sight (LOS) Radio Family Program had as its objective the development of a digital LOS radio family which was survivable, reconstitutable, tuneable, antijammable, spectrum efficient and cost-effective to build, buy and own. This program was two-phased: first, to enhance DRAMA: and second, to develop the next generation DCS LOS radio family. The DPM expected to award RDTE contracts for system design support, tuneable radio, combiner/equalizer, switch selectable data rate modem, solid state amplifier and fabrication of LOS radio prototypes.

(U) The Future DCS Multiplexer Family Program anticipated the development of a digital multiplexer family for the DCS in the 1990s. As LOS, it would be two-phased: first, evolutionary, and second, next generation development. Planned RDTE contracts were for a 50 Kb/s card to replace the costly CV-3034, an 0-20 Kb/s card for synchronous operation, a 16/32 Kb/s card to interface with TRI-TAC digital loops, a tandem card for a direct digital connection between one AN/FCC-98 to another, and a modification of the AN/FCC-98 to interface with the ETS and advanced multiplexer techniques.

(U) DPM-Static War Headquarters. Dating from December 1979, the DPM, Static War Headquarters (SWHQ) was responsible for communications and electronic design activities for the construction of a NATO SWHQ. The US Army European Division of Engineers was to help build the headquarters as part of a construction consortium. Congress, however, refused to authorize the $64.4 million in military construction (MILCON), stating that the project should be funded under the NATO Infrastructure Program. The SWHQ's future appeared limited.

(U) DPM-Switched Systems. The initial objective of the fiscal year 1978/79 AUTODIN Upgrade Program was to replace worn out or obsolete equipments with modern items to make the AUTODIN Automatic Switching Centers supportable through 1985. By fiscal year 1980, however, USACSA had modified the program to include the concurrent development of the OPS 12 software program with an integrated hardware and software approach. This modification would enable the system to interface with the AUTODIN Packet Switching Nodes in the 1983 time frame and be supportable throughout the 1990s.

(U) Due to incremental funding, the program was two-phased. Phase I, completed, was the design and implementation plan. Phase II, underway, covered design engineering, hardware installation, design verification, hardware purchase, test and acceptance, and installation of a set at Fort Detrick.

(U) The Automatic Secure Voice Communications I (AUTOSEVOCOM I) System was designed to provide secure voice service to subscribers world-wide through 1977. By 1980, spares were no longer available to support eleven AN/FTC-31(V) sites and the follow-on system, the Secure Voice Improvement Program (SVIP), was delayed. After some study, USACSA decided to remedy the situation by improving the AN/FTC-31 switch. In December 1977, the Ford Aerospace Communications Corporation received a contract to add the latest technological improvements to the switch. By June 1980, Ford had completed the changes, which involved power, control logic, and regenerator-repeater subsystems. Remaining efforts centered on residual software, hardware and logistics problems.

(U) The Wideband Trunk Applique program involved the production engineering, fabrication, documentation, test and acceptance of 62 Wideband Trunk Applique Units, initial repair parts and publications. Incorporated into the AUTOSEVOCOM I Program, the new units would be able to monitor wideband trunk signals at secure voice switchboards and provide status indicators and automatic supervision, not then available at SECORD switchboard locations. In September 1978, West Electronics, Incorporated, won a small business 8A set aside award. The firm built three prototypes which successfully completed FAT. By the close of fiscal year 1980, the firm had shipped all but 12 units, these being readied for shipment.

(U) The Secure Voice Improvement Program (SVIP), stated as an improvement on AUTOSEVOCOM, would service up to 10,000 subscribers and would eventually replace the AUTOSEVOCOM system. In this form, SVIP was to consist of a modified version of the civil terminal STU-II which would work in tandem with the DOD SST terminal to share the Key Distribution Center (KDC). SVIP would use the Automatic Voice Network (AUTOVON) to provide improved secure voice service, to include Automatic Key Distribution.

(U) Besides the AUTOSEVOCOM modifications, there were a host of other improvement programs. These included a Base Telecommunications System Upgrade, which would replace that system's obsolete electromechanical equipment with digital switches and its cable facilities with digital carrier equipment; the KATS Upgrade, which replaced nine manual switchboards at nine Korean sites with Digital EPABXs; the Call Director System CD-134 Project, which would not only enable six conferencing subscribers to use one wideband secure voice KY-3, but also offer the number one subscriber a ruthless preempt capability; and two Management Information Processing actions, one, known as Standard Network Front End (SNFE), to relieve host computers communications via AUTODIN II by acting as a minicomputer interposed between the host computer and a communications network; the other, called the Vertical Force Development Management Information System (VFDMIS), to link 73 computers located at world-wide commands and installations with two computers located at the US Army Management Systems Support Agency (USAMSSA) in the Pentagon. Each of the 73 locations was to

have a Remote Access Device (RAD) which would connect into the AUTODIN II system. On 24 January 1980, RAD procurement and installation actions began.

(U) DPM-Telecommunications Automation and Control Systems. Noted earlier in the KFO, in this text, AMME or Automated Multi-Media Exchange was a record communications system designed to replace and enhance systems, not just in Korea, but at eleven other sites world-wide. AMME consisted of four subsystems: the AMME subsystem, the Patch and Test Facility subsystem, the Remote Terminal subsystem, and the Data Processing Installation subsystem. It was to provide a store-and-forward message switching system between remote subscribers and AUTODIN, an automated supervision of communications and a capability to connect AMME's remote subscribers with local data processing installations.

(U) Actual activiation of AMME began in October 1974 at Oakland Army Base, California. The ninth AMME site, Stuttgart, Germany, came on line in April 1980. Atlanta, Georgia, and Frankfurt, Germany, were in the installation and implementation phase, and Berlin was to receive an advanced communications system, the UNIVAC 9400. The AMME contract called for 27 systems and an option for eight more.

(U) Another long-term, widespread DPM effort was, also, the aforementioned Technical Control Improvement Program (TCIP). Begun in 1971, TCIP consisted of 84 projects at 68 separate global locations. TCIP equipments included orderwire, wideband patch, subscriber low-leveling, wideband secure voice, digital patch and test bays, and uninterruptible power supply; the Army portion, of which, covered upgrading such areas as fault isolations in circuits and equipment to a computer assisted mode. The TCIP goal was to automate manual functions. The DPM was eventually to oversee these enhancements to 67 Army and 149 Air Force and Navy sites world-wide. As of 1 October 1980, work was completed at six European and seven CONUS sites and was underway at 43 Korean locations.

(U) DPM-Transmission Systems. In Phase II, Stage 1C, the DSCS, or Defense Satellite Communications System, had as its eventual goal the expansion and digitalization of the World-wide DCS. Stage 1C was to consist of four operational and two standby families of satellites and about 50 earth terminal complexes deployed throughout the free world. Fiscal year 1980 saw the completion of Digital Communications Subsystems (DCSS) installations at 16 installations sited from Panama to Berlin. DPM also monitored the redeployment of five existing satellite earth terminals at various locations.

(U) Berlin was the recipient of a transmission device, the MSC-46 S/10, a device moved first from Navy hands in Guam to Hughes Aircraft for rehabilitation, then to Berlin where it underwent installation and testing under USACSA-USACEEIA direction. The AN/MSC-46 S/N 10 replaced an AN/TSC-54 S/N5 at Berlin; the Army moved

the displaced equipment to Augsburg, where USACEEIA installed and tested it. This, in turn, spurred another move; a contingency AN/TSC-54 was already at Augsburg. After yielding some of its parts to the newcomer from Berlin, this contingency AN/TSC-54 made its way to Coltano for installation.

(U) The German substitutions experienced some problems. The overall problem was that the actions occurred in winter. Augsburg had a further difficulty, a lack of stable power. USACSA alleviated this power shortage by adding two 50 to 400 Hz rotary converters.

(U) In February 1980, the Navy requested USACSA installation of an Interim Digital Communications Subsystem (IDCSS) at the Naval Communications Station (NAVCOMSTA), Diego Garcia, British Indian Ocean Territory. Using an AN/TSC-54 with an analog communications subsystem, the NAVCOMSTA was due to receive an AN/GSC-39 and a DCSS. In view of the Navy's request for JCS validation of IDCSS installation urgency, the Army decided that it would be best to install a prototype DCSS, a van model MSC-66. By the year's end, the van was in place and joined to pertinent subsystems. Only a power fluctuation problem remained.

(U) One of the Philippines Military Assistance Programs (MAP-PHIL) was the MAP-PHIL Fixed Communications Project. It encompassed the joint communications for all of the Armed Forces of the Philippines. From fiscal year 1977 to fiscal year 1980, the project used about $13 million to support the Teletype Multiplex Project, now completed; the Teletype Relay/Terminal Project, also completed; and three on-going projects.

(U) One of these, the Mindanao Microwave Communications System (MMCS), involved the acquisition of 672 channel digital microwave radios with ancillary multiplexers and antennas, which the AFP was to install at eleven sites on the island. MAP also included in-plant and in-country training, full logistical support and one man-year of contractor technical assistance. All training was completed by July 1980.

(U) Another project, the Visayas-Bicol Communications System (V-BCS), involved the same 672 channel system as the MMCS Project. The V-BCS covered 18 locations from the largest island of Luzon in the northern terminus to the second largest island of Mindanao in the southern. V-BCS was in delivery to the AFP in the MMCS acquisition.

(U) The last project, Mindanao-Visayas Spin Links (MVSL), was to provide local subscribers at 29 sites with toll quality communications when integrated into the digital MMCS and V-BCS backbones. MVSL was to include two GHz radios and ancillary equipments, with full logistical support, training and contractor technical assistance for one year. Future MAP-PHIL projects included Western Visayas Spin Links, Technical Control Facilities Phase I, and a small, 30-line headquarters EPABX.

(U) Project Indonesian Military Assistance Program (INDOCOM) began in 1970. The objective was to provide the Indonesian government with an effective Military Command and Central System using low cost, commercial high frequency (HF) radio networks. MAP used commercial equipment because it was readily available on the world market. INDOCOM was a joint service project consisting of 37 subprojects. USACSA's share was five. These were: KKK (Kodam, Korem, Kodim); Direct Support Maintenance Facility; General Support Maintenance Facility; Radio Cable Switching Integration System; and High Frequency (HF) Rehabilitation.

(U) DPM-World-wide Military Command and Control Systems. The JRSC Program had two purposes. One was the provision of an increased communications capability to dedicated user commands. The other was the provision of interconnect facilities to provide interconnect point-to-point communications circuits. No development was necessary; using then current equipments, the DPM was to provide the increased capabilities by providing Jam Resistant Secure Communications commectivity, rapid DCS extension, an alternate communications means for crisis and alert situations, and electromagnetic pulse (EMP) protection. The DPM did, however, intend to add Secure Voice and Graphics Conferencing (SV/GC) equipment in the mid-1980s.

(U) USACSA established a JRSC Project Managers Steering Group to coordinate JRSC planning and information efforts, and to provide advice and recommendations to the PM. The Group met in December 1979 and June 1980. A JRSC Implementation/Installation Plan evolved, and work began both on program requirements and production contract awards.

(U) The goal of Joint Crisis Management Capability (JCMC) was to provide Command, Control, Communications and Intelligence (C^3I) capabilities for rapid deployment as an extension of the World-wide Military Command and Control System (WWMCCS). This extension, JCMC would provide both airborne and ground communications between a crisis scene and the National Command Authority (NCA). There were four capabilities required: One, a minimum communications capability, transportable by many means, including commercial airlines, for such matters as hijackings; two, an airborne capability, immediately responsive to the unified and specified commanders, and designed to collect information and provide a relay between the crisis and NCA; three, an air and ground transportable capability designed to provide C^3I for a limited Joint Task Force (JTF) Headquarters, or for a crisis action staff; and four, an air and ground transportable capability designed to augment the C^3I capability of a large crisis management force.

(U) The four capabilities found expression in a May 1979 Assistant Secretary of Defense (ASD) C^3I Memorandum. ASD C^3I subsequently combined tasks two and three and tasked DA to implement them. No implementation decision was made on capabilities one and four.

(U) The DPM conducted alternative approach studies to tasks two and three in fiscal year 1980 and presented them to ASD C^3I. On 29 July 1980, ASD C^3I approved a modular configuration that would permit a graduated deployment. Four complete systems, plus additional communications modules and appropriate support equipment were to be acquired. By the end of fiscal year 1980, the project had reached the Acquisition Requirements Package stage and DPM had completed and distributed the Implementation/Installation Plan.

(U) There were two High Frequency (HF) Radio Upgrade Actions underway in Europe. One action was the Mid-Term HF Upgrade (Regency Net) Project which would effect the replacement of the US-operated and maintained radio net used by the Theater Nulear Forces in Europe. A two-phased project, it included the procurement of 31 fixed and 173 transportable terminals that would provide secure record and voice communications for the transmission of Emergency Action Messages (EAM). It awaited a system definition plan and necessary funding.

(U) The other action was the US European Command (USEUCOM) HF Radio Upgrade Program. It was to provide, in 1980 through 1981, an improved HF radio capability at the Net Control Station (NCS) and Communications Relay Control Stations (CRCS) of the EUCOM cemetery net; it would, also, provide for the implementation of one new CRCS south of the Alps, in Europe. The upgrade was also a support action to the Theater Nuclear Forces in Europe.

(U) Two contractors were busy on the upgrade. One, the Harris Corporation of Rochester, New York, provided its HF radios and ancillary equipments, to include antennas. The other, the TechDyn Systems Corporation of Alexandria, Virginia, had a Small Business set-aside contract to engineer, test, and make operational the HF single sideband radio station with new radio facilities, consoles, and antennas to upgrade and reconfigure the EUCOM net.[3]

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3 PM DCS Annual Historical Summary, FY 80.

CHAPTER VI

MATERIEL READINESS

(U) During fiscal year 1980, the Army maintained programs to emphasize upgrading its ability to go to war -- today and tomorrow. While the Soviet threat to Western Europe was considered paramount, it was recognized that since Soviet power was no longer bound by continental limits, the United States must be increasingly concerned with its global projection.

(U) Army force modernization, including support of the NATO Long Term Defense Program, continued to be fundamental as a basis for effective deterrence. The ratio of heavy to light battalions was improved through the addition of fourteen tank and eighteen mechanized battalions by the end of the fiscal year.

(U) As General Edward C. Meyer, Army Chief of Staff stated, "The second challenge (of the three major challenges facing the Army, today) is to produce the modern weapons and equipment the Army needs to fight effectively, if called upon to do so. Nearly one-half the investment account in this (FY 1981) budget is devoted to the purchase of such weapons and support systems."[1]

(U) In order to assure the essential, rapid reinforcement of NATO, constrained strategic lift assets required more emphasis on prepositioning of equipment and supplies for selected early deploying combat, combat support and logistical units through the POMCUS program (Prepositioning of Materiel Configured to Unit Sets). During the fiscal year, the forward deployed United States ground force of five division equivalents and two armored cavalry regiments were augmented by one more division equivalent to the somewhat more than two division equivalents supported by POMCUS.

(U) Elimination of excessive depot maintenance, combat-vehicle, and ammunition renovation backlogs were emphasized since they had caused equipment distribution shortfalls in prior years. The Reparable Secondary Item Recovery Improvement Program (RSIRP) was expected to improve the unserviceable return rates to 75% by the end of fiscal year 1980.

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[1] Statement by General Edward C. Meyer, Chief of Staff of the Army, before the committee on Armed Services, House of Representatives, Second Session, 96th Congress, 1 Feb 80; "Military Posture" Hearings, Part 1, p. 730.

Materiel Management

Personnel Changes

(U) Major General Patrick M. Roddy served as Director of Materiel Management from January 1979 through 13 November 1979. Mr. Marion Hinson, Deputy Director, served as Acting Director from 14 November 1979 until 27 January 1980. Brigadier General, later Major General, Benjamin F. Register, Jr., became Director on 28 January 1980 and served in that capacity for the duration of fiscal year 1980. The Associate Director for Supply and Distribution, Colonel O. C. Grummt, departed in April 1980 and was replaced by Colonel G. C. Ogden, Jr., in May 1980. The Associate Director for Requirements and Resources, subsequently redisignated Materiel Programs, Mr. E. Greiner, was promoted to become Assistant Deputy for Materiel Readiness in the Office of the Deputy Commanding General for Materiel Readiness in January 1980 and was succeeded by Mr. R. E. Heinbach in September 1980. The Associate Director for Evaluation, Mr. Grover C. Cox, Jr., was assigned to the Headquarters DARCOM Realignment Study during a substantial portion of the fiscal year. The Associate Director for Maintenance, Colonel H. Boone, served in that capacity during the entire fiscal year. The Chief, Programs and Projects Office, Colonel J. M. Gray, departed in February 1980 and was replaced by Colonel B. Helms in the same month.

Key Supply Performance Trends

(U) During fiscal year 1980, a continuance of positive performance trends, begun in fiscal year 1979, were seen in two primary supply performance indicators: stock availability and back orders outstanding. Overall stock availability increased to 83 percent in comparison with 78 percent during fiscal year 1979. Back orders were reduced by 48k to 191k at the end of fiscal year 1980, in contrast to 239k at the end of fiscal year 1979. Individuals throughout the entire supply system contributed to this improvement, which was also assisted by a constant flow of newly procured materiel. Availability of a few reparable items still remained significantly below the overall level, and procurement leadtimes continued to increase, especially for those items requiring rare metals such as chromium and titanium.

Depot Maintenance Selective Management Program

(U) This program established a single method to deal with intensive management of items undergoing depot maintenance at Depot System Command (DESCOM) depots. DARCOM Regulation 750-6, Depot Maintenance Selective Management Program (RCS DRCMM-333), established the program, effective 1 January 1979 and was revised in March 1980. The system, as established, functioned satisfactorily during fiscal year 1980. Expansion of the system to improve management of selected secondary items was planned for fiscal year 1982.

Army and Joint Oil Analysis Program (AOAP)

(U) During fiscal year 1980, the AOAP continued its expansion. In a 24 August 1979 message, DA approved the inclusion of numerous items of nonaeronautical equipment that had not previously been entered in the AOAP. These items were as follows: Tactical Wheeled Diesel Powered Vehicles, 2½ tons and larger; transmissions used in combat vehicles; hydraulic system for the M578 recovery vehicle; generator sets, 15kw and larger, diesel and gasoline powered; construction equipment, diesel powered; and materiel handling equipment, diesel powered.

(U) During fiscal year 1980, approximately 860,000 oil samples were analyzed. This represented an increase of 63 percent from fiscal year 1979. Approximately 54 percent of these samples were from nonaeronautical equipment. Program effectiveness continued to be high. Of 1,647 feedback reports received, 1,451 were "hits" (correct diagnosis by laboratory) and 196 were "misses" (incorrect prognosis by laboratory). The cost avoidance for fiscal year 1980 was approximately $41.3 million.

(U) To accomodate the expanding workload faced by the 12 existing laboratories, two additional laboratories were opened in fiscal year 1980 at Camp Carroll, Korea, and Fort Bragg, North Carolina. Funds were acquired to install CDC 18-05M computer terminals in the balance of nine planned CONUS laboratories during fiscal year 1981.

Reliability Centered Maintenance (RCM)

(U) This program, whose goal was to reduce the cost of maintenance while retaining equipment reliability, was initiated for the M110 Vehicle. Ten were overhauled during fiscal year 1980, and the results were being evaluated through field testing. Other systems were being revived and a training contract to teach this program to DARCOM MDCs, MSCs, and depots was completed during the fiscal year.

Initial Provisioning

(U) Developments in this area were found in the preparation and revision of several publications. These included the revision of Army Regulation 700-18, Provisioning of US Army Equipment; Technical Manual 38-715-1, Provisioning Techniques; and DARCOM-P 700-10, Handbook on Sample Data Collection-Guidance in Selection on Samples. The Skills Performance Aids (SPAS) Joint DARCOM/TRADOC Program to improve maintenance by integrating development of equipment manuals and extension training materials for a defined audience saw new specifications for OMG/DS/GS and operator's manuals being developed,

as well as revisions to Army Regulation 310-3. Another program to aid initial provisioning was the Technical Manuals Specifications and Standards (TMSS) Program, which was a DOD program with the Department of the Army being the lead service. The program included standardization of specifications, handbooks, and data item descriptions provided cost savings, increased effectiveness, and inter-service usability of technical manuals.

Storage

(U) DOD Standard Warehousing and Shipping Automated System (DWASP). OASD (MRA&L) continued to energetically press the development of a DOD-wide standard depot system to perform the receipt, storage, issue, transportation and related management functions for general supplies at DOD distribution depots. The OSD DWASP Steering Group was expanded at Service request to include senior-level representation from each of the Services; the Assistant Director for Supply Management, HQDA ODCSLOG, DALO-SML-C, was the Army member. The DWASP Functional Description/Management Overview (FD/MO) was published and coordinated; the Detailed Functional Description was moving towards final development and a DWASP Concept Test plan was initiated at Ogden, Utah by the DWASP Central Design Activity. The DWASP Program Management Office (PMO) hired a contractor, TRW, Inc.; to perform an Architectural Concept Study and a Transition Study. The PMO planned to include these, when completed, as part of a Systems Decision Paper to be submitted to OSD requesting Milestone I approval for DWASP. As more details of the proposed system became available, the Army identified a number of areas where DWASP appeared more costly or less effective than our existing Standard Depot System (SDS). Army concern about such deficiencies were raised repeatedly, but were still unresolved at the end of fiscal year 1980.

(U) Care of Supplies in Storage (COSIS). The COSIS Program continued to enjoy a low priority for funding at DOD/DA level. The case for COSIS investment was again brought to the personal attention of the Vice Chief of Staff, Army, by General Guthrie. Briefings were again provided to OSD budget examiners and to the GAO examining program applications in DARCOM depots. As a result of those efforts, approximately $6 million was restored to the fiscal year 1980 COSIS program, in the face of a $45 million requirement. It is expected that the matter of COSIS funding for fiscal year 1981 and beyond would require approval by the Select Committee for Resources Management. In anticipation of this, the COSIS methodology was reviewed and significantly strengthened prior to the scheduled presentation to the SELCOM in late December 1980.

Transportation

(U) Over Ocean Cargo Forecasting. During 3d quarter fiscal year 1980, the DARCOM Logistics Control Activity commenced distribution of an automated report which compared the volume of cargo shipped via air or surface to that forecast by each materiel readiness command. It was anticipated that this report would result in improved accuracy in forecast of requirements to the Military Airlift Command and Military Sealift Command. The accuracy of these forecasts was important because of the direct impact on transportation costs and transit times.

(U) Safe Transport of Munitions (STROM). During 1980, reports for all tasks were submitted to the STROM coordinator. The final STROM quarterly meeting was held at HQMTMC in December 1980, during which there was general agreement that the main objective of the program had been met. Within the time and funding limitation imposed, all areas outlined in the study were examined as extensively as possible. The study reached 13 conclusions from which 9 recommendations were submitted.

(U) Hazardous Materials Data System (HMDS). This system was designed for the purpose of standardizing the data elements required for the shipment of hazardous materials. The data base contained those items of production or supply that contained hazardous materials. Each entry identified the specifics needed to legally ship hazardous material. Initially, the system provided an in-the-clear microfiche product available to all command levels. Additional phases would include automated exchanges of hazardous data between CDA, CCSS and SPEEDEX.

(U) MILSTAMP Improvement Program. Efforts to improve the Military Standard Transportation and Movement Procedures (MILSTAMP) were initiated by the Services through the MILSTAMP Improvement Program. The objectives of this program were to simplify procedures and reduce work effort for the user in the field. A multi-year effort was envisioned during which a new MILSTAMP regulation would be developed. DARCOM fully supported the efforts of HQDA and the other Services in improving MILSTAMP and, through HQDA, participated in discussion and development of recommended improvements to MILSTAMP.

(U) CONUS Installation Mobilization Outloading and Receiving Capability Study. As the result of Exercise Nifty Nugget/MOBEX 78, a study was initiated in March 1979 and completed in February 1980 and was subsequently forwarded to HQDA. In addition to providing a detailed assessment of outloading and receiving capabilities, the study recommended that improved reporting formats should be developed and that study data should be updated using the new format. A new report format was developed in September 1980.

(U) Control of Premium Transportation. DARCOM Regulation 55-8, Control of Premium/High Speed Transportation, 13 September 1979, established policy and procedures on the control of premium transportation by DARCOM shipping activities, ARRCOM, MICOM and the LCA (Army Air Clearance Authority). Procedures established in this regulation required that certain Hi-priority shipments be challenged for the requirement of premium transportation (Airlift). Shipments destined overseas were challenged by ARRCOM, MICOM and the LCA; while for shipments destined to a customer within CONUS, the individual shipping activity challenged the premium transportation requirement directly with the requisitioner. As a result of these challenges a transportation cost saving was realized in Overseas Shipments of $37,901,742 and in Domestic Shipments of $3,939,535.

Packaging

(U) The 9th Annual DARCOM Packaging Seminar. This seminar, held in Fort Worth, Texas, from 18-20 November 1980, had approximately 90 attendees. Its theme was "The Military/Industry Packaging Interface" and it focused on an area that had received increased attention and emphasis from OASD over the past year.

(U) LOGMARS (Logistics Applications of Automated Marking and Reading Symbols). In fiscal year 1980, LOGMARS was in the prototype test phase. Tests were being performed in assigned functional areas by each of the component Services and were due for completion by 30 June 1981.

(U) DRMS (Discrepancy Report Monitoring System). DARCOM initiated the DRMS at the DARCOM Packaging, Storage and Containerization Center on a test basis. The first semi-annual report covering the period January-November 1980 was prepared. This report recorded over 6700 ROD (Report of Discrepancy) actions completed during this period and recorded MRC responsiveness in completing RODs, actual dollar losses, the relationship of RODs to shipments, and gave a breakdown on the specific discrepancies reported.

Conventional Ammunition

(U) Ammunition Management. Several actions to improve overall management procedures were begun in fiscal year 1980 and were continued. These included: ammunition lot criteria changes designed to reduce the number of lots in storage; obtaining other service acceptance of procedures to delete ownership identification in igloos; identification of "unserviceable" ammunition that could be used "as is" for training or war; development of an automated ammunitions suspension/release system; and a COSIS reporting system.

Toxic Chemical Munitions

(U) Toxic Chemical Munition Maintenance. Minor maintenance operations continued to be performed at Anniston and Tooele Army Depots, Umatilla and Pueblo Army Depot Activities, Pine Bluff Arsenal, and Newport Army Ammunition Plant. Items processed included 105mm GB and HD cartridges, 8" GB projectiles and ton containers of GB, HD, and VX projectiles.

(U) Toxic Chemical Movements. Planning continued for the last 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 was held up by the problems of minor leakages of the bombs within the containers. OPLAN SETCOM II had been completed, involving movement of the Toxic ID sets remaining in CONUS installations from the SETCON I move.

(U) Toxic Agent Security. One-ton container weighing operations began at Tooele Army Depot, and Pine Bluff and Newport Arsenals.

(U) Toxic Chemical Maintenance and Lab Facilities. The "interim" facility at Anniston completed operations processing 105mm GB projectiles into cartridges after which building changes were made to begin uploading 155mm projectiles. Operations were to restart in May 1981. Tooele building modification was nearing completion and was also to begin operations in May 1981. Minor MCA programs for facilities at Lexington-Blue Grass, Umatilla Depot activities and Pine Bluff Arsenal were being staffed. Work at all three activities was expected to begin in fiscal year 1981.

(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 fiscal year 1979. Additional items needed to support operations scheduled at all installations were procured in fiscal year 1980.

(U) Toxic Chemical Rewarehousing Operations. Operations at Pine Bluff Arsenal were completed. Operations at Tooele awaited acceptance of new igloos, since construction deficiencies were still being evaluated at the end of fiscal year 1980.

Inventory Accounting

(U) Inventory Management Review. DARCOM conducted Inventory Management Reviews (IMRs) at the following during fiscal year 1980: Anniston, Letterkenny, Red River, Sierra, Sharpe and Tooele Army Depots, Crane Army Ammunition Activity, Hawthorne Army Ammunition Plant, TACOM, and the Single Manager for Conventional Ammunition.

(U) Revisions of Regulations. Revision of DARCOM-R 740-17, Inventory Accounting, was published 2 November 1979 and contained only descriptions of policy and responsibilities. To solve delays in published revisions, procedures were extracted and included in the functional operating instructions (FOI) of the central design activities, which were updated concurrent with changes to the system.

(U) Revision of Army Regulation 708-1. Changes to AR 708-1, Cataloging and Supply Management Data, involving changes to sets, kits, and outfits, were planned to be published 1 April 1981, but Materiel Readiness Commands were requested to implement the policy change in advance of publication. Other regulations updated in fiscal year 1980 were AMCR 725-3, Receipts, which became DARCOM-R 725-3, 7 November 1979; AMCR 725-4, Requisition Processing and Issues, became DARCOM-R 725-4, 2 January 1980; and AR 740-26, Physical Inventory Control, 1 July 1980.

(U) Item-By-Item Count of Toxic Chemical Munitions. The item-by-item count of toxic chemical munitions was completed at Lexington-Blue Grass Army Depot Activity, Pine Bluff Arsenal, Rocky Mountain Arsenal, and Umatilla Army Depot Activity. It was anticipated that the item-by-item count would be completed at the remaining installations (Anniston and Tooele Army Depots, and Pueblo Army Depot Activity) prior to the end of fiscal year 1983.

(U) Inventory-Property Accountability Seminar. The annual seminar was held 6-8 November 1979, and was hosted by the DARCOM Materiel Readiness Support Activity in Lexington, Kentucky. The seminar provided an opportunity for the inventory community to: Review effectiveness/efficiency of the fiscal year 1979 inventory program; discuss the impact of changes planned for the inventory-property accountability area; provide cross fertilization of ideas and methods for improving the inventory accounting process; and relate common problems and their solutions for a mutual exchange of ideas. There were approximately 60 attendees representing HQ, DARCOM, HQ, DESCOM, the Materiel Readiness Commands, depots, ALMSA, and LSSA.

Equipment Distribution.

(U) Total Army Equipment Distribution Program (TAEDP). Army-wide implementation of TAEDP was initiated in 1980. This automated data system was designed to reflect the official Army equipment distribution plan for use at the executive, command and/or installation level. Its data base incorporated equipment requirements, authorizations, on-hand assets and priorities for all Army claimants (units and nonunits) in the force through the Program Objective Memorandum (POM) years. TAEDP forecast the distribution of major items to the total Active Army,

the National Guard and the Army Reserves. It also provided managers at all levels with the capability of controlling, directing and influencing those Army programs relative to the force structure; priorities within the force; and equipment to be procured, distributed, maintained and supported to sustain the force. Army-wide implementation culminated an effort that began in June 1975, when the office of the Vice Chief of Staff-Army issued a memorandum requesting that a management information system be developed to reflect the proposed distribution of equipment through the budget and POM years

Secondary Items - Management and Budgeting

(U) During fiscal year 1980, the execution of the DARCOM Division (Wholesale) Army Stock Fund continued to improve. The fiscal year 1980 program was approved at $1280.0 million and $1290.9 million was obligated for a 100.9 percent program accomplishment rate. This was attributed to a sound stock fund program for fiscal year 1980 and management emphasis on program execution.

(U) Procurement Appropriations for Secondary Items continued to show dramatic growth even considering the impact of inflation. This was illustrated as follows ($ in thousands):

FY 77 - $230,484
FY 78 - $285,440
FY 79 - $317,749
FY 80 - $470,566

Growth was primarily due to the introduction of new or modified weapon systems such as the BLACKHAWK, AAH, CH-47 mods, XM-1, M60-A3, FVS, ITV, PATRIOT, ROLAND, PERSHING II, plus myriad communications-electronics systems/equipments. Not only did the dollar value of programs grow, but the number of PAA-financed items also expanded.

(U) Program execution had progressed apace with program growth. For the fiscal year 1980 program, a 97.4 percent commitment rate was achieved, although full funding programs were not released until January 1980, the beginning of the second quarter of the fiscal year. Other disruptions, such as close review and directed program reductions to support other than procurement highest priority requirements for the DOD, had an impact on MRC program managers. However, the MRCs were still able to achieve a successful commitment rate against fiscal year 1980 funds.

(U) Procurement Appropriation, Army (PAA) financed spares/repair parts programs continued under close scrutiny at DA and OSD/OMB levels of management and review. Initial provisioning requirements were

subjected to extremely critical review, both in the budget presentations and in the POM/FYDP reviews. OSD managers had become most insistent that Army provisioning requirements were to be austere and that they be computed under the provisions of DODI Regulations.

(U) Replenishment, or peacetime operating stocks (POS) requirements were also continuing to be subjected to close analysis. OSD/OMB analysts, while still focusing on the Repair Cycle element of the Requirements Objective, were questioning, in detail, the Army's return rates of unserviceable reparable PAA secondary items/repair parts, the continuing growth of the Production Leadtime element; and to a lesser degree, Administrative Leadtimes and inventory transactions. DARCOM had been successful in countering the OSD/OMB reviews and continued to have stated requirements recognized.

(U) The past three years had seen full incorporation of PAA secondary requirements into the POM/FYDP processes. HQ, DARCOM staff representatives and MRC personnel prepared and defended requirements for the FYDP period. These forecasts covered requirements for POS, provisioning and war reserve. Requirements, particularly for the budget year, plus one (BY+1) segment of a given FYDP, were developed and defended in almost as much detail as for the regular Apportionment Year Request - Budget Estimates. Because of this need, program development for PAA secondary items continued to be a year-round function.

(U) Supply Depot Operations - Fiscal Year 1980. In fiscal year 1980, program obligations were $339,096,000 and depots and arsenals received 2,048,674 line items and 1,138,509 short tons, and shipped 6,498,189 line items and 1,712,383 short tons. At the end of fiscal year 1980, the most critical unfinanced requirements were in the functions of COSIS, inventory, rewarehousing, and Single Manager for Conventional Ammunition functions, based on reductions in funds made at the Department of the Army level.

(U) Depot Materiel Maintenance and Support Activities. Fiscal year 1980 experienced the same difficulties that prevailed in the previous year, i.e., constraints on the resources (manpower and dollars) required to meet the ever increasing requirements and the 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 continued constraints on dollars and manpower, the P7M Program again experienced a situation which required constant reprogramming actions and changes in order to meet the overall program requirements. Major changes included the completion of the transfer of USAREUR Calibration mission to PE 732207 and the reduction by DA of the M113 program, early in fiscal year 1980, by $18 million, which was increased by $9 million at year-end resulting in an increased carry-over in Combat Vehicles.

(U) The fiscal year 1980 direct funding guidance of $1,085 million was approximately $27 million more than fiscal year 1979 in equivalent dollars. This increase was reflected in an equivalent decrease in the Depot Maintenance Backlog (PE 732207); however, the Maintenance Support Activities unfinanced requirement continued its growth pattern by increasing approximately $40 million over fiscal year 1979 to $184 million.

The Logistic Control Activity (LCA)

(U) The LCA was reorganized during fiscal year 1980 and the streamlining of the organization supported the RESHAPE program by using personnel to their fullest extent. The reorganization included the development and staffing of a deputy position. Dependency on the LCA Logistic Intelligence File (LIF) reports and special analysis continued to increase. As repair parts migrated to the Defense Logistics Agency, program and equipment managers leaned on LCA/LIF reporting to determine the parts support in the logistic pipeline. Management of POMCUS items and the fielding of new equipments were examples of programs depending on LIF reporting. A program to accomplish a "bottoms up" reconciliation between SAILS ABX and the sources of supply with the LCA acting as intermediary was developed and tested. This program was to be implemented world-wide during fiscal year 1981 and 1982.

(U) The LCA successfully participated in the Exercise Proud Spirit/MOBEX 80. Follow-on actions to develop report requirements for contingency operations were accomplished. During the exercise, LCA demonstrated its ability to mass cancel shipments.

(U) The Materiel Returns Data Base (MRDB) was developed to provide information on the status and movement of materiel that had been reported as excess. The same benefits enjoyed by users of the LIF were available to users of this data base. It was a single source of visibility for returns through the transportation and supply pipeline. Monthly reports provided output to the MACOMS and sources of supply assisting in managing program dollars.

(U) The LIF entry and exit communication lines had been secured. This was accomplished as a result of an INSCOM evaluation made during MOBEX 80. The Army Airlift Clearance Authority challenge actions of shipments and their subsequent diversions to lower priority shipments achieved a $30,455,478 cost reduction in fiscal year 1980. Individual line cancellations by the LCA also resulted in savings of $12,918,779 during fiscal year 1980.

(U) The LCA Readiness Assistance Visit -- Extended, greatly assisted the logistics manager at all levels. The rapid turnover of personnel dictated that these efforts continue during fiscal year 1980. A total of 34 visits were made to posts, camps or stations, and major

geographical areas including Europe, Korea, Alaska, Hawaii and Japan. The remote query program initiated in fiscal year 1978 is ongoing with 127 terminals in operation and an additional 48 approved. The LCA continued to have outstanding Equal Employment Opportunity and Upward Mobility Programs. In fiscal year 1980, 20 billets were retained as upward mobility positions; additionally, 45.9 percent of the LCA employees were minorities and/or women.

Air Line of Communication (ALOC)

(U) ALOC provided resupply by airlift to selected supply support activities using the Direct Support System (DSS) procedures. All air eligible Class IX repair parts and maintenance related Class II materiel was routinely resupplied to the SSAs by military airlift. Materiel was consolidated using 463L pallets at the area oriented depot for direct delivery to the supply support activity.

(U) Alaska. On 1 April 1980, an ALOC was established to Alaska with a pipeline OST objective of 27 days. As of 30 September 1980, the ALOC reduced the average OST to Alaska from 49 to 36 days.

(U) Europe. During fiscal year 1980, the number of ALOC DODAACs rose by 2 to 98. The order ship time for IPD 09-15, ASL, non-backordered Army materiel averaged 25.0 days during fiscal year 1980, with a minimum record low of 21.8 days in June 1980 and a maximum of 30.3 days in January 1980. During fiscal year 1980, a monthly average of 1,326 short tons of materiel was lifted to ALOC-E DODAACs against a forecast of 1,278 short tons per month.

(U) From the commencement of ALOC-E in 1977, the percentage of Air Force 463 L pallets constructed by New Cumberland Army Depot consolidation and containerization point (NCAD CCP) for a single ALOC DODAAC (throughput pallets) was approximately 40 percent. The remainder contained materiel for more than one DODAAC (breakbulk pallets). Throughput and breakbulk pallets followed the same route from NCAD CCP via Dover AFB to either Ramstein or Rhein-Main AFBs in Germany. However, on arrival in Germany, throughput pallets were moved intact to their destination while breakbulk pallets were broken down at the aerial port and then the materiel was moved loose to its final destination.

(U) DARCOM undertook a project to develop CCP processing procedures to improve the throughput pallet ratio without any degradation in the overall ALOC-E order ship time. The Logistic Control Activity conducted an analysis of the cargo generation rates of each ALOC-E DODAAC. The rates fell into three categories: (1) Big volume customers (29 DODAACs) who generated sufficient cargo to build a throughput pallet in the NCAD CCP within the normal ALOC maximum hold time of two days; (2) small volume customers (53 DODAACs) who did not generate sufficient cargo within reasonable timeframes; and (3) the fourteen midvolume customers, who generated sufficient cargo to build throughput pallets, were placed on a successful six-month test from

1 October 1979 to 31 March 1980, during which hold cargo times varied from three to six days. The HQDA then approved the Group 1-4 Table as standard procedure. Use of throughput pallets increased as follows:

	PALLETS CONSTRUCTED	PERCENT THROUGHPUT
FY 1979 (Pre-Test)	7395	44
Oct 1979-Mar 1980 (Test)	3719	76
FY 1980 (Total)	7634	79

The advantages of using throughput pallets were that they cleared the Ramstein or Rhein-Main AFBs in 6-12 hours, while breakbulk cargo took up to 24 hours; reduced Army and Air Force touch labor costs; and were less susceptible to pilferage and misrouting.

(U) Hawaii. On 1 April 1980, an ALOC was established to Hawaii with a pipline OST objective of 27 days. As of 30 September 1980, the ALOC had reduced the average OST to Hawaii from 52 days to 30 days. During fiscal year 1980 a monthly average of 36 short tons of materiel was lifted to ALOC-H DODAACs against a forecast of 47 short tons per month.

(U) Korea. The ALOC-K began as a test in December 1978 and evaluation of the test was conducted in December 1979 by a DA evaluation team. The test results were summarized as follows: (1) Order Ship Time was reduced from 72 to 30 days; (2) inventory reductions were better than projected; (3) the Direct Support System Safety Level was eliminated; (4) unit readiness was improved; (5) it met peacetime and wartime support requirements; and (6) supply support, including medical, improved. ALOC-K was implemented within the Military Airlift Command structure which allowed better use of available cargo space. Increased user confidence in the supply system permitted intensive clean-up of inventories, resulting in large amounts of usable materiel being returned to the system.

(U) In February 1980, HQDA revised selected ALOC-K pipeline segment objectives and reduced the total order ship time objective of 35 days to 31 days. The revised objective was implemented 1 April 1980. The ALOC-K performance for fiscal year 1980 was an average of 26.9 days order ship time and a monthly average of 292 short tons of cargo shipped against a forecast of 300 short tons per month.

Improvement of EW/SIGINT Support

(U) A Joint Army-Air Force study was conducted during fiscal year 1980 by DARCOM and the Air Force Electronic Security Command to determine the feasibility and resource savings recognizable through establishment of a single manager for EW/SIGINT. The study reviewed item commonality (Class VII and IX) workloads associated with management of

EW/SIGINT, interface requirements among the services and with the National Security Agency, and the resources required/saved. The study was completed 1 May 1980 and concluded that a single manager should not be established.

(U) In coordination with the Communications Electronics Materiel Readiness Command (CERCOM) and the Electronics Materiel Readiness Activity (EMRA), delivery of new EW/SIGINT systems and washout of old systems was reviewed for possible improvement of readiness for Reserve Component units. DARCOM's capability to continue support to older equipments, cost for rehabilitation/overhaul, and the value of retaining older equipment for training purposes were considered in this effort. Input to the Army Electronics Warfare and Intelligence Committee's Management Action Plan for Reserve Components was provided in the fourth quarter of fiscal year 1980. Final decisions on the plan, including retention of items for the Reserve Component, had not been announced by the committee at the end of fiscal year 1980.

The Direct Support System CONUS (DSS-C)

(U) This system provided resupply of materiel direct to CONUS supply support activities from the wholesale CONUS depots using containerized throughput service. In fiscal year 1980, the DSS was extended to 150 US Army Reserve activities so that all active and reserve activities were operating under DSS. Following a successful test, DSS began to be extended to the Army National Guard and during fiscal year 1980 it was expanded to 18 states. When completed, all active USAR and Army National Guard activities would be supported using the DSS, thus facilitating transition to mobilization. A test of DSS was successfully completed with the CONUS installation facility engineer during fiscal year 1980.

Maintenance Interservice Support Management

(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 achieve increased interservicing of depot level maintenance support among the Services.

(U) During fiscal year 1980, the Service Interservice Liaison Officers (ILOs) continued to concentrate 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 future candidates for interservicing. In December 1979, a status briefing was presented to the JLC by the Maintenance Interservice Support Group (MISG) during the JLC meeting at the Oklahoma City Air Logistics Center.

(U) On 25 March 1980, the MISMOs met at the Joint Aeronautical Depot Maintenance Action Group (JADMAG) Office to be briefed on JADMAG efforts to date and their procedure for developing the DOD Aeronautical Depot Master Plan. During this meeting the MISMOs and the JADMAG developed a Joint MOU which defined the relationship and interface between the groups on Aeronautical Depot Maintenance.

(U) The Joint Policy Coordinating Group for Depot Maintenance Interservicing (JPCG-DMI) met five times during fiscal year 1980. On 1 April 1980, Brigadier General M. A. Johnson assumed the chairmanship for the JPCG-DMI. Brigadier General B. F. Register, Director of Materiel Management, DARCOM, replaced Major General P. M. Roddy as the Army member on the JPCG-DMI. Brigadier General Leo Marquez, AFLC, replaced Major General E. T. O'Loughlin as the Air Force member.

(U) On 14 August 1980, the MISMOs met with representatives from the Defense Audit Service (DAS) to review and discuss the results of the DAS audit of DMI. The MISMOs identified to the DAS several initiatives that were underway which would strengthen the interservicing procedures and policies.

(U) Reconstruction and reconciliation of the Defense Integrated Materiel Management/Nonconsumable Item Subgroup (DIMM/NIS) continued to be undertaken with DMI program records to: (1) insure the Federal Files were 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. In conjunction with the reconciliation effort, DMI data automation requirements were defined and documented for a meeting with appropriate computer systems personnel at Tobyhanna Army Depot to establish an automated DMI information file with remote access capability.

(U) During fiscal year 1980, the MISMOs approved 86 new start studies which offered a potential cost avoidance to DOD of approximately $21 million. As of 30 September 1980, 203 DMI new starts had been documented from all sources and approved by the MISMOs. These studies represented a potential savings of $138 million.

The Container System Development Office (CSDO)

(U) This office was established within the Directorate of Materiel Management, 1 October 1979, following the termination of the separate Office of the Project Manager, Army Container Distribution System (ACODS), 30 September 1979.[2] The basic office mission was to serve as the "executive agent" and focal point of contact for "planning,

[2] HQ, DARCOM, Permanent Orders 63-2, 16 Aug 79.

coordinating, integrating and monitoring the development of materiel requirements and procedures" of the ACODS and its users.[3]

(U) While the JCSG of the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) was responsible for overall program management and policy guidance, the Department of the Army was the "Lead Service" for the Containerized Ammunition Distribution System (CADS). Within the Army, the Chief, Container System Development Office (C,CSDO), DARCOM, acted as the Army's Chief Executive Agent and focal point for "planning, monitoring, coordinating and integrating CADS development among government departments, services and the commercial sector."[4] The CSDO Funding Program for ACODS Hardware was $32.5 million for fiscal year 1980, and the Hardware status report on the program was to be issued in January 1981.

(U) Deprojectization actions continued during fiscal year 1980, with the final closeout of the Pentagon liaison office becoming effective 31 July 1980. By 31 December 1980, the original staff of six military and ten civilians had declined to two military and seven civilians. The Project Manager, Lieutenant Colonel L. J. Cook, was promoted to Colonel and continued as chief of the office throughout the fiscal year.

Joint Aeronautical Depot Maintenance Action Group (JADMAG)

(U) The formation of JADMAG in March 1980 developed from the Joint Logistics Commanders' Aeronautical Depot Maintenance Study. Proper management of Aeronautical Depot Maintenance (ADM) within DOD had been a controversial subject over the past decade and most recently as a formal issue in a report issued by the General Accounting Office (GAO) in July 1978. This report was highly critical of the Services' depot maintenance configurations as structured to support the aeronautical inventory. Specifically, the report alleged that existing capabilities were redundant and that no effort had been made to eliminate duplication. The GAO proposed that DOD appoint a Single Manager for all aeronautical depot maintenance operations. The Services, while in agreement on some of the GAO's findings, considered that the GAO proposal would place operational readiness and the ability to be responsive in jeopardy in a crisis. The Joint Logistics Commanders (JLC) acted to initiate their own authorized study of the ADM facilities on 14 December 1978.

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[3] DARCOM-R 10-2, June 1980, para 18-5.

[4] Program Management Plan for Containerized Ammunition Distribution System Development Conventional Munitions, Dir for Transportation and Warehousing Policy, Office of the Assistant Secretary of Defense Manpower, Reserve Affairs and Logistics (MRA&L), May 1978. Revised January 1980., p. 9.

(U) Phase I of the JLC "Aeronautical Depot Maintenance Study" (ADMS) was completed by a joint Service working group and briefed to the JLC on 11 December 1979. Certain problems highlighted by the GAO were acknowledged: Existing depot maintenance capacity was redundant in some cases; the Services did not use the same or consistent approaches for computation of maintenance requirements; and the Services' mobilization planning was based on different concepts of force employment. Further, workforce planning for mobilization varied from Service to Service, as did cost data and the methodology to compute depot capacity. Basic to the entire situation was the lack of a DOD Master Plan for depot maintenance requirements.

(U) The working group, recommending against further study of aeronautical depot maintenance problems, strongly advocated immediate joint action to solve problems identified within the Phase I report. Essential to this proposal was the creation of a permanent, joint management group which would operate under the auspices of the JLC and report to a flag level Steering Group. It would have three basic responsibilities. First, it would initiate and implement joint policies designed to resolve depot maintenance interservicing problems identified by GAO and JLC studies. Second, it would continue its aeronautical depot workload and capacity analysis using methodology developed during the Phase I ADMS. This would permit valid comparisons of depot level capacity calculations across Service lines for the first time. Third, the organization would develop and update, periodically, a DOD Master Plan for both wartime and peacetime, encompassing workloads, capacity equipment, and manpower.

(U) At their December 1979 meeting, the JLC endorsed the recommendation of the ADMS Steering Group proposal to establish a permanent Joint Aeronautical Depot Maintenance Action Group (JADMAG). The JLC activity sought OSD support and after a series of discussions and meetings, formally briefed the case to Robert B. Pirie, Jr., Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics, on 1 February 1980. He endorsed the JADMAG at that time with an assumption that the "JADMAG will be given both sufficient responsibility to expeditiously establish a common data base and conduct economic and other analyses, and sufficient authority to assure that workloads are assigned to aeronautical depots on the basis of cost effectiveness to DOD."[5] Assistant Secretary Pirie requested, on 22 February 1980, that

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[5] Memorandum for Assistant Secretaries Army, Navy, and Air Force, from the Assistant Secretary of Defense MARLOG, subj: Joint Logistics Commanders Study of Aeronautical Depot Maintenance, dated 23 Feb 80, Signed Robert B. Pirie, Jr.

the JADMAG explore the potential benefits to be derived from a study of helicopter and aircraft engine maintenance under single management. This requirement was passed to the JLC on 27 June 1980 by joint memo from the assistant Service Secretaries asking the JADMAG to study the proposed consolidation of helicopter maintenance.

(U) Concurrently, under the supervision of a flag level Steering Group, detailed recommendations for the JADMAG Charter were formulated by an ad hoc interservice working group located at the Washington Navy Yard. As interservice positions on JADMAG role and organization were worked out, and priorities established, an acceptable proposal for chartering the JADMAG was arrived at and endorsed by the Services.

(U) The JADMAG was established by the JLC on 19 March 1980 as a permanent organization consisting of an initial compliment of 19 full-time assigned personnel. An Executive Coordinator with the rank of Colonel (or Navy Captain) was designated to head the group, reporting to the JPCG-DMI Steering Group. While the staff was being assembled, the JLC's ADMS Working Group actually initiated implementation action of the JADMAG's Charter.

(U) The purpose of the new group, as stated in its charter, was "to develop and recommend, for JLC approval and implementation, policy and actions necessary to assure effective and efficient aeronautical depot maintenance in support of Service missions."[6]

(U) During the remainder of fiscal year 1980, the JADMAG became organized with a tri-Service staff. An Air Force Colonel was designated as the Executive Coordinator. Coordination was effected with the Service Staffs and the interservicing network previously established by the JLCs.

(U) The JADMAG accomplished several significant tasks during fiscal year 1980. First, it obtained agreement between the Services on common mobilization planning factors, which would ensure consistency in aeronautical depot maintenance mobilization support planning. Second, JADMAG developed an initial draft of a standard methodology for determination of a peacetime DOD aeronautical depot maintenance base to support mobilization requirements. The JADMAG also began to prepare a plan for study of the helicopter situation, in anticipation of a tasking from the JLC during the first quarter of fiscal year 1981.

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[6] Charter for Joint DARCOM/NMC/AFLC/AFSC Commanders on Aeronautical Depot Maintenance (ADM), Signed 19 Mar 80.

Readiness

Personnel Changes

(U) During the period of October 1979 to 30 September 1980, the Directorate for Readiness underwent several key personnel changes. Major General George S. Patton retired as the Director on 31 August 1980, and the Deputy Director, Mr. Henryk J. Bukowski, served as Acting Director through the end of the fiscal year. The position of Associate Director for Integrated Logistic Support was established as a Colonel (06), in lieu of a Supervisory General Engineer (GS-16). The Acting Associate Director since April 1979, Colonel Robert M. Reynolds, was appointed Associate Director on 22 February 1980. The position of Assistant for ILS Development/Deployment was established as a Supervisory Logistics Management Specialist (GS-15), in lieu of a Colonel (06). Mr. Robert J. Winklarth was promoted to this position on 29 June 1980 and replaced Lieutenant Colonel Lark Murray who retired on 1 May 1980, after previously serving as Executive Officer in early 1979 and Project Officer for TMDE during the fiscal year.

(U) This action provided the military leadership required at the Associate Director level, especially since the GS-16 position was never filled, and it provided the continuity required at the Assistant level, but never achieved, due to the frequent rotation of military and civilian personnel in that position.

(U) When the ILS Data Application Office was formed, its staff was a mix of both logistic and technical positions. As the office evolved and job requirements became more definitized by experience, it was realized that engineers with logistical training and background could best perform the function. Consequently, a concerted effort was made, as each position came open through attrition, to convert to and fill each position with engineers. This changeover from multiple disciplines to engineering only in the ILS Data Application Office was completed during fiscal year 1980.

(U) JLC Logistics Engineering Classification Ad Hoc Group. The ILS Associate Directorate also served as the Army panel member in a Joint Logistics Commanders (JLC) Ad Hoc Group, established to investigate the need for improved career management for the ILS workforce. The Ad Hoc Group determined improvements were needed in both the engineering (800 series) and logistics management (346 series) job classifications. The Office of Personnel Management (OPM) was working to revise the 346 series job classification standards to accomodate the ILS workforce and was investigating the need for a new Logistics Engineering Standard.

(U) A new office, that of Force Modernization, was established 26 November 1979, and the first Associate Director, Colonel John J. Tedesco, was replaced by Colonel Richard L. Nidever, 18 August 1980. Colonel Tedesco became the successor to Colonel Gerald W. Kirklighter, as Commander, Military Readiness Support Activity (MRSA), at Lexington, Kentucky.

(U) Effective 11 January 1980, Mr. Daniel J. Hamernik, Associate Director for Equipment Improvement, retired. During the period of 14 January 1980 to 14 March 1980, Mr. Walter Duggan was Acting Associate Director, and from 17 March 1980 to 4 April 1980, Mr. Franklin J. Kozisek acted in this capacity. On 7 April 1980, Mr. Ralph Thompson was appointed the new Associate Director for Equipment Improvement. Colonel Pierre V. Brunelle was assigned as Associate Director for Force Status/Customer Assistance, taking the place of Colonel E. F. Mason on 10 March 1980. Mr. Vernon Tart became Assistant Associate Director for Customer Assistance, succeeding Mr. Robert Rosen, effective 4 May 1980. On 21 April 1980, Mr. Douglas Driskill became the Assistant Associate Director for Force Status, taking the place of Mr. Charles C. Hazelett. On 5 September 1980, Lieutenant Colonel Laud R. Pitt, Jr. reported in as the Executive Officer and Lieutenant Colonel Donald V. Celata was assigned to the Directorate for Security Assistance. Colonel P. D. Haun served as Associate Director for POMCUS during the entire fiscal year.

Equipment Improvement

(U) Improvements in the Equipment Improvement Recommendation (EIR) Program. The ALMSA designed ADP program was tested at HQ, DARCOM. After minor changes, the system, called Deficiency Reporting System (DRS) was adopted by the Joint NMP/QA Functional Coordination Group (FCG). Implementation at all MSCs was completed in February 1980. Full use of the system by all MSCs was delayed until the 1st quarter fiscal year 1981, due to lack of remote terminals. Limited input was attempted by punch cards; however, this method was time consuming and defeated the concept of rapid access to the data base. Changes were made to TM 38-750 to clarify and simplify submission procedures. Publication of these changes was projected for 2d quarter fiscal year 1981. DARCOM-R 750-3, Control of Equipment and Maintenance Improvement, was in the final stages of revision prior to publication. All reasonable comments that were received were to be included.

(U) Implementation of the Modification Work Order Record/Status System (MODWORS). The development of MODWORS was completed in mid-1980. Implementation at the MSCs was then initiated after the Logistics Systems Review Committee (LSRC) officially approved release of MODWORS on 28 May 1980. A functional training course was presented by ALMC to key MSC representatives who returned to their commands to train additional personnel. Then, the MSCs reconciled their MWO data bases with MRSA's MWO Master Index File to insure that the two files were compatible. When the reconciliation was completed, MRSA could then start accepting new kit application data.

(U) Modification Application Program. Throughout 1980, the DARCOM MSCs continued to improve their accomplishment of modification kit applications even though the program increased 20 percent over fiscal year

1979. To insure that the improved management of the modification application continued, guidance was furnished to the field, emphasizing the need for increased command attention on the modification program. Headquarters staff reviews were conducted at MRSA, TACOM and CERCOM.

(U) Readiness Reviews. Two Readiness Reviews were conducted by the DARCOM Materiel Readiness Support Activity (MRSA) in 1980 (M60 Tank Air Induction System and the AN/TLQ-17 Countermeasures Set). This office served as the Headquarters proponent for Readiness Reviews and handled the Headquarters staffing and follow-up responses. In addition, 36 system assessments were reviewed and comments provided to the Director of Product Assurance.

Force Status and Customer Assistance

(U) DARCOM Readiness Evaluation System (DRES). The focus of DARCOM's readiness evaluation system had been oriented upon DARCOM's readiness to go to war, now. DARCOM readiness goals clearly emphasized the wartime aspects of DARCOM's mission. Previous DRES readiness reporting devoted significant efforts to measuring DARCOM's readiness to carry out its peacetime mission. Revision of DRES continued. In fiscal year 1980, significant improvements had been made in the areas of personnel, inventory readiness, and industrial preparedness reporting. The revised DRES procedures provided more detailed planning guidance to allow a commander to better measure the overall readiness condition of his command. The major contributing cause for DARCOM's unsatisfactory Readiness Condition (REDCON) continued to be insufficient funds and additional funds were needed for DARCOM to perform its mission satisfactorily.

(U) Total Logistics Readiness/Sustainability (TLR/S) Analysis

Total Logistic 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 consistent with approved DA scenarios. In support of TLR/S-Army Operational Analysis (OMNIBUS) 80, DARCOM was tasked by DA-ODCSLOG letter, dated 5 December 1979, to provide TLR/S OMNIBUS 80 logistics data to the Logistic Evaluation Agency (a field support activity of DA-DCSLOG) for the TLR/S analysis. HQ, DARCOM, by letter dated 26 December 1979, tasked DARCOM Materiel Readiness Commands/Activities to furnish requirements and asset data for all classes of supply, except Class IV (barrier materiel), Class VI (personal items), Class VIII (medical materiel and peculiar parts), and Class X (non-military support items) to the Logistic Evaluation Agency for the TLR/S OMNIBUS analysis. In addition to TLR/S OMNIBUS 80 data furnished by DARCOM MRCs/Activities, Headquarters, DARCOM provided LEA an analysis of the capability of the DARCOM workload forecast to be generated under conditions of mobilization for the TLR/S OMNIBUS 80 analysis. DARCOM made a significant contribution to the success of the TLR/S OMNIBUS 80 analysis by furnishing logistics readiness data requested by DA ODCSLOG for the analysis.

(U) Logistic Support of Reserve Components. The Reserve Components (RC) submitted Unit Status Reports semi-annually, as of 15 April and 15 October. During the period 1979 through April 1980, the RC units reflected improvements in EOH. The RC EOH improved from 51 percent to 54 percent; the increase was due to redistribution and expedited supply actions by all levels of management. EOH for Pacing Items improved from 85 percent to 91 percent during the same period. All indications were that this favorable trend would continue.

(U) Readiness of Missile Systems World-wide. 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. 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. The revised AR 750-40, published 15 January 1980, required the missile units to furnish Missile Readiness Reporting to MICOM on a new DA Form 3266, Army Missile Materiel Readiness Report. MICOM then provided MRSA the missile readiness data formerly required by TM 38-750. While revisions to AR 750-1 and TM 38-750 were scheduled at later dates, implementation of the new Missile Readiness Reporting System began 15 January 1980.

(U) Command Logistics Review Team/Command Logistics Review Expanded (CLRT/CLRTX) Logistic Assessment and Assistance Team (LAAT). Force Status personnel participated in Command Logistics Review Team/Command Logistics Review Team Expanded (CLRT/CLRTX), and Logistics Assessment and Assistance Team (LAAT) visits conducted by major commands and the National Guard Bureau pursuant to provisions of AR 11-14, Logistic Readiness. During 1980, Force Status personnel provided Unit and Materiel Readiness assistance during CLRTX/LAAT visits conducted by FORSCOM and DA to Active and Reserve Components in CONUS and overseas.

(U) US Support to United Nations Peacekeeping Forces. The majority of the requirements requisitioned from October 1979 to September 1980 were repair parts and major assemblies. Approximately 1,372 single line requisitions were processed in fiscal year 1980. The UN support was entirely furnished from CONUS. Materiel was moved from an 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 (LAP).

(U) Quality of Life. Major initiatives were begun in fiscal year 1980 to improve the quality of life issues to provide additional incentives to retain highly skilled Logistic Assistance Program personnel. Regulatory changes were proposed to offset financial and

personal burdens generated by the mandatory mobility of personnel in the program. As a result of quality of life issues that adversely affected mobile civilian employees, the turn-over rate in the LAP averaged 15 percent which is triple the DARCOM-wide norm. Major initiatives included additional home leave, increased educational travel for dependents, authority for an advance to cover front-end expenses, extension of time authorized for temporary storage of household goods, a terminal move, and a request for government leases for LAP personnel in Europe.

(U) Regulatory Changes to Logistic Assistance Program. Policy and procedural changes prescribing responsibilities for executing the provisions of DARCOM-R 700-19, Logistic Assistance Mobility Program for Logistic Assistance Personnel (Civilian), were written into a revised DARCOM Regulation 700-24, Mobility Program for US Army Logistic Assistance Offices. Annex E, Logistic Assistance Program Monthly Report to DARCOM-R 700-100 was revised to reduce and simplify statistical requirements for LAP personnel. The report was also designed to provide uniformity of reporting, furnish pertinent information regarding weapon/equipment/logistics system performance, and serve as an information-type report.

(U) Establishment of LAO -- Fort Irwin. A subordinate Logistic Assistance Office at the National Training Center, Fort Irwin, California, would become operational on 1 July 1981. Required resources would consist of four Officer/Logistic Management Specialist/Administrative personnel to provide full-time, on-site technical assistance to active Army units stationed at Fort Irwin.

(U) High Technology Test Bed (HTTB). In 1980, the Army Chief of Staff established the HTTB in the 9th Infantry Division at Fort Lewis, Washington. The mission of the HTTB was to expeditiously plan, conduct, and evaluate tests of new operational and organizational (O&O) concepts that would both lighten and enhance the combat capability of the light infantry division. The O&O concept testing was conducted using both US and foreign equipment that had already been fielded, was in development, or was off-the-shelf. The HTTB was composed of representatives from FORSCOM, TRADOC and DARCOM. The Commander, 9th ID was Director of the HTTB. TRADOC's Combined Arms Center had overall responsibility for preparing the test program, and DARCOM was responsible for providing materiel systems and support packages for items to be evaluated. In June 1980, DARCOM established a High Technology Task Force under the Director of Readiness. The purpose of this task force was to accelerate planning and coordination of DARCOM logistical support to the HTTB.

Integrated Logistic Support

(U) Study on Single Manager for Test, Measurement and Diagnostic Equipment (TMDE). In July 1979, LTG J. M. Heiser, Jr. (USA Retired), was tasked by HQ, DARCOM to conduct a management overview assessment of TMDE to determine the feasibility of assigning a single activity for the overall management of the DARCOM TMDE Program. The results of LTG Heiser's assessment were provided to the DARCOM Deputy Commanding General for Materiel Readiness in February 1980, who then directed an additional study by US Army Management Engineering Training Activity and US Army Materiel Systems Analysis Activity. Final results of this effort, with a recommendation, were provided the Commanding General, DARCOM in September 1980.

(U) Single Automatic Test Equipment (ATE) Concept. In December 1979, HQ, DARCOM established the AN/USM-410 Electronic Quality Automatic Test Equipment (EQUATE) as the single ATE system to support the maintenance of electronic components at the GS and depot level in the Army. During fiscal year 1980, the Project Manager, Test Measurement and Diagnostic Systems (PM, TMDS) developed a comprehensive implementation plan with the assistance of other PMs and DARCOM major subordinate commands having responsibility for materiel systems with an ATE interface. This plan highlighted the need for prompt development of software, especially Test Program Sets (TPS), to enable electronic components of those materiel systems to be checked out on the AN/USM-410. This effort would continue into fiscal year 1981 and beyond.

(U) New Initiatives in Integrated Logistic Support (ILS). To further improve and productively intensify ILS efforts throughout DARCOM, the Associate Directorate for ILS took the following initiatives in fiscal year 1980: establishment of the Logistics Status Review (LSR) Program; development and implementation of an ILS Lessons Learned Program; development of improved procedures to improve QQPRI/BOIP processing; and provision of major assistance to DCSLOG in accomplishment of revision to AR 700-127.

(U) Logistics Status Review (LSR) Program. The LSR program provided an independent evaluation of the "planning for" and "development of" the logistics support for selected acquisitions. This produced a third party, or "honest broker's" detailed assessment which was briefed to the acquisition manager and to the Readiness Managers at HQ, DARCOM. This program was incorporated into DARCOM-R 700-15, Integrated Logistic Support, 20 November 1979, and the pending revision to DARCOM-R 1-41, Logistic Command Assessment of Projects (LOGCAP).

(U) ILS Lessons Learned Program. In April 1980, US Army DARCOM Materiel Readiness Support Activity (MRSA) was tasked to consolidate information from available sources on ILS lessons learned during the development and deployment of new materiel systems in recent years. This information was subsequently prepared for publication in a pamphlet

and distributed to all major subordinate commands and project managers so that they could benefit from the past experience of others in resolving ILS problems. Plans for the periodic issue of an updated pamphlet were under consideration.

(U) QQPRI/BOIP Processing Flow. In fiscal year 1980, a backlog of 1,023 QQPRI/BOIP was eliminated through the combined efforts of HQDA DCSOPS (DAMO-RQR), HQ, TRADOC (ATCD-OS) and HQ, DARCOM (DRCRE-I and EARA). This was a labor-intensive undertaking that brought the process up to date. Efforts continued to build checkpoints into the process to preclude future backlogs of mission documentation. If proven effective, the checkpoints would be incorporated into regulations and eventually would become computerized functions.

(U) ILS Policy Improvements. DARCOM-R 700-15, Integrated Logistic Support, was published in November 1979, superseding the DARCOM Supplement to AR 700-127 and updating DARCOM ILS policy. DARCOM was the principal participant with DA ODCSLOG, in the revision of AR 700-127 (ILS). The draft regulation was staffed throughout DARCOM with over 800 comments resulting. HQ, DARCOM responded to HQDA with 237 consolidated comments. This office worked with DA, ODCSLOG in consolidating all comments received from throughout the Army and contributed constructively to many of the significant aspects of the revised AR.

(U) Logistics Command Assessment of Projects (LOGCAP). Under the provisions of DARCOM-R 1-41, twenty-six LOGCAP briefings were scheduled in DARCOM Circular 700-5 (LOGCAP). An additional five briefings were scheduled for various reasons for a total of thirty-one briefings. Of this total, nineteen briefings were accomplished, the remainder being postponed or cancelled because of improper scheduling or slipped acquisition milestones.

(U) ILS Management Meetings. The DARCOM Annual ILS Meeting was held at Corpus Christi Army Depot, 26-28 February 1980. Hosted by DESCOM, the meeting focused on the theme "ILS Contract Requirements" and was attended by representatives from throughout the DARCOM community. Agenda items included: a review of contract services and data requirements with statements that must be contained in solicitation and contract documents; role, needs, concept of operation and problems anticipated by ILS offices in generating contract line items and scope of work for accomplishment of ILS; and opportunities available through contract scope of work for Logistic Supportability Demonstration, Test and Evaluation.

(U) Integrated Logistic Support Milestone Reporting System (ILSMRS). Design was completed and testing begun on CCSS Subcell 4M66 in September 1980. When installation is completed in mid-fiscal year 1981, HQ, DARCOM and the DARCOM developers and readiness commands would have a completely automated, terminal access management information system for scheduling and tracking milestone events. The system was

also planned for use in the DARCOM milestone reporting to the Modernized Army Research and Development Information System (MARDIS).

(U) LSA/LSAR Documentation. Two new LSA/LSAR documents had been published: the LSA/LSAR Review Team Guide (DARCOM-C 700-7), and the LSA/LSAR Tailoring Procedures Guide. The LSA/LSAR Review Team Guide provided procedures and techniques that could be used by all Materiel Developers for establishing and implementing the LSA/LSAR Review Team process. The LSA/LSAR Tailoring Procedures Guide provided information on developing an LSA/LSAR Procurement Package that satisfied the LSA requirements contained in AR 700-127. In addition to these two publications, all of the LSA/LSAR publications had been reviewed and updated during the past year.

(U) ILS Primer. To provide a brief, but comprehensive, explanation of ILS principles, the mechanics of ILS implementation, and the subtleties of the ILS terminology, the ILS Primer was developed and published by the US Army DARCOM Materiel Readiness Support Activity (MRSA) during fiscal year 1980. The publication concisely explained the many ILS interrelationships among the events of the acquisition life cycle.

Fill of Prepositioned Organizational Materiel Configured to Unit Sets (POMCUS) (C)

(C) The Associate Director for POMCUS, Directorate for Readiness functions included accomplishing and/or coordinating actions required of DARCOM, in support of DA plans to rapidly reinforce NATO, through increasing prepositioning of materiel configured to unit sets. OSD and DA guidance was to fill POMCUS and Division Set-4 (DS-4) to C-1 Readiness condition by the end of fiscal year 1980 or as covered storage for DS-4 became available. This deadline was subsequently changed to the end of calendar year 1980.

(C) During late fiscal year 1979, it was recognized that there was insufficient equipment available to fill POMCUS and DS-4. In early, fiscal year 1980, HQDA directed the first large withdrawal of equipment for DS-4. It was recognized that this would only partially fill DS-4 and that future withdrawals might have to be made. As this was the first time a withdrawal of this magnitude was attempted, it was plagued with many problems. Some equipment received in DARCOM depots required maintenance. To accomplish this maintenance, additional resources were requested and received from DA ($1.9M). These funds were used to upgrade the equipment withdrawn for DS-4 to meet HQDA directed serviceability criteria. On three occasions during the 1st quarter fiscal year 1980, this office informed HQDA the withdrawal program was behind the established schedules and that this would result in not meeting the OSD/DA goal of filling POMCUS and DS-4. Because construction of storage space was not meeting established schedules, a decision was made to store mechanized equipment to level A. Additional resources ($1.7M) were requested and received for this extra effort. Other items were "fenced" to preclude issue to lower priority claimants, pending availability of storage space. The phased delivery program (initiated in fiscal year 1979) allowed

USAREUR to "call forward" unit sets of equipment based on beneficial occupancy dates of storage space availability, forecast by personnel constructing the DS-4 storage facilities. Many problems were encountered in the execution of this program; USAREUR "called forward" equipment that was not available, nor expected to be available in the foreseeable future. In addition, in some cases, USAREUR "called forward" some items that were not on valid requisition.

(C) Construction of DS-4 POMCUS storage facilities was expedited largely through political pressure exerted on the German Government. This accelerated schedule eliminated another potential six-month delay in the construction of the storage facilities and saved many United States dollars. The requirement for level A packaging/preservation was eliminated because warehouses became available sooner.

(C) Another large withdrawal (known as the 1980 withdrawal) was directed by HQDA in April/May 1980. Equipment from this withdrawal was to be used to fill shortages in both POMCUS and War Reserves in USAREUR. The 1979/1980 withdrawals totaled 5,168 pieces of equipment. Out of DAMPL, issues made to various high priority units affected overall issues to POMCUS.

(C) Changes in POMCUS unit alignments and changes to the POMCUS, TAADS documents (resulting from MTOE changes) led to a severe decrease in the measured C-1 readiness status of all units in POMCUS.

(U) Monitorship of the first 15 days of Prepositioned War Reserves for USAREUR was volunteered by the Associate Direcotr for POMCUS, because the requirement for War Reserve equipment was competing with requirements for POMCUS. This monitorship allowed greater visibility of all assets destined for POMCUS/War Reserves.

(U) Fill of the 24th Infantry Division as part of the Rapid Deployment Force (RDF). The Associate Director for POMCUS was charged to monitor and assist in having the 24th Infantry Division reach C-1 Readiness Standards prior to the end of fiscal year 1980. C-1 Readiness for the 24th Infantry Division was reached.

(U) Enhancements/Improvements Accomplished During Fiscal Year 1980 by the Associate Director for POMCUS. In January 1980, a GEL/TCN report was added to the POMCUS Logistics Intelligence File Report. This report provided intransit visibility of POMCUS assets destined for USAREUR and was used extensively to monitor movement of assets.

(U) In February 1980, War Reserve data was added to the POMCUS Logistics Intelligence File Report, which assisted the monitoring of War Reserve shipments to USAREUR. In April 1980, tonnage data was added to the POMCUS/War Reserves Logistics Intelligence File Report, providing short ton data by project code, for monthly shipments made to POMCUS and War Reserve accounts.

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POMCUS READINESS PROFILE

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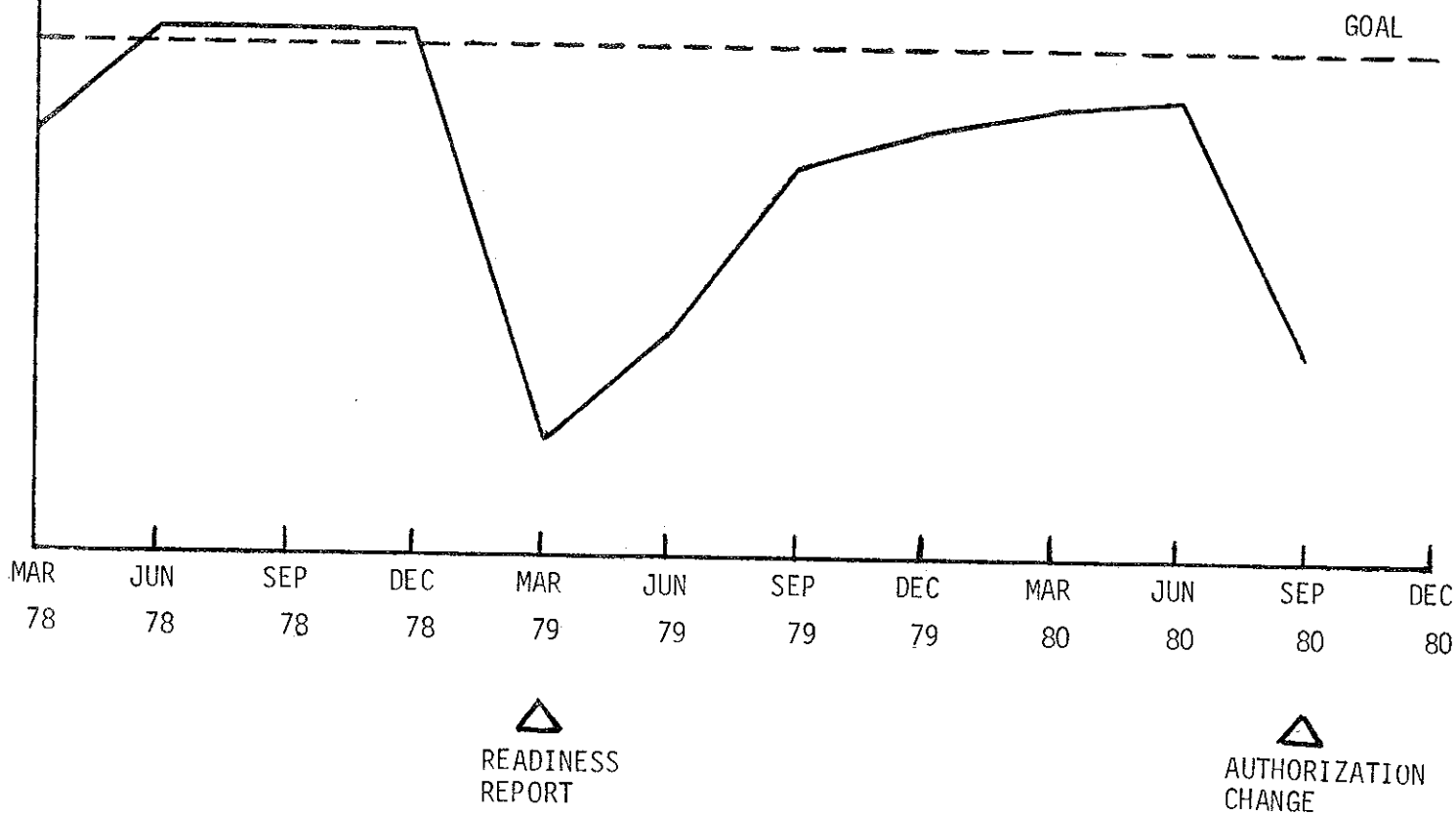

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POMCUS READINESS PROFILE

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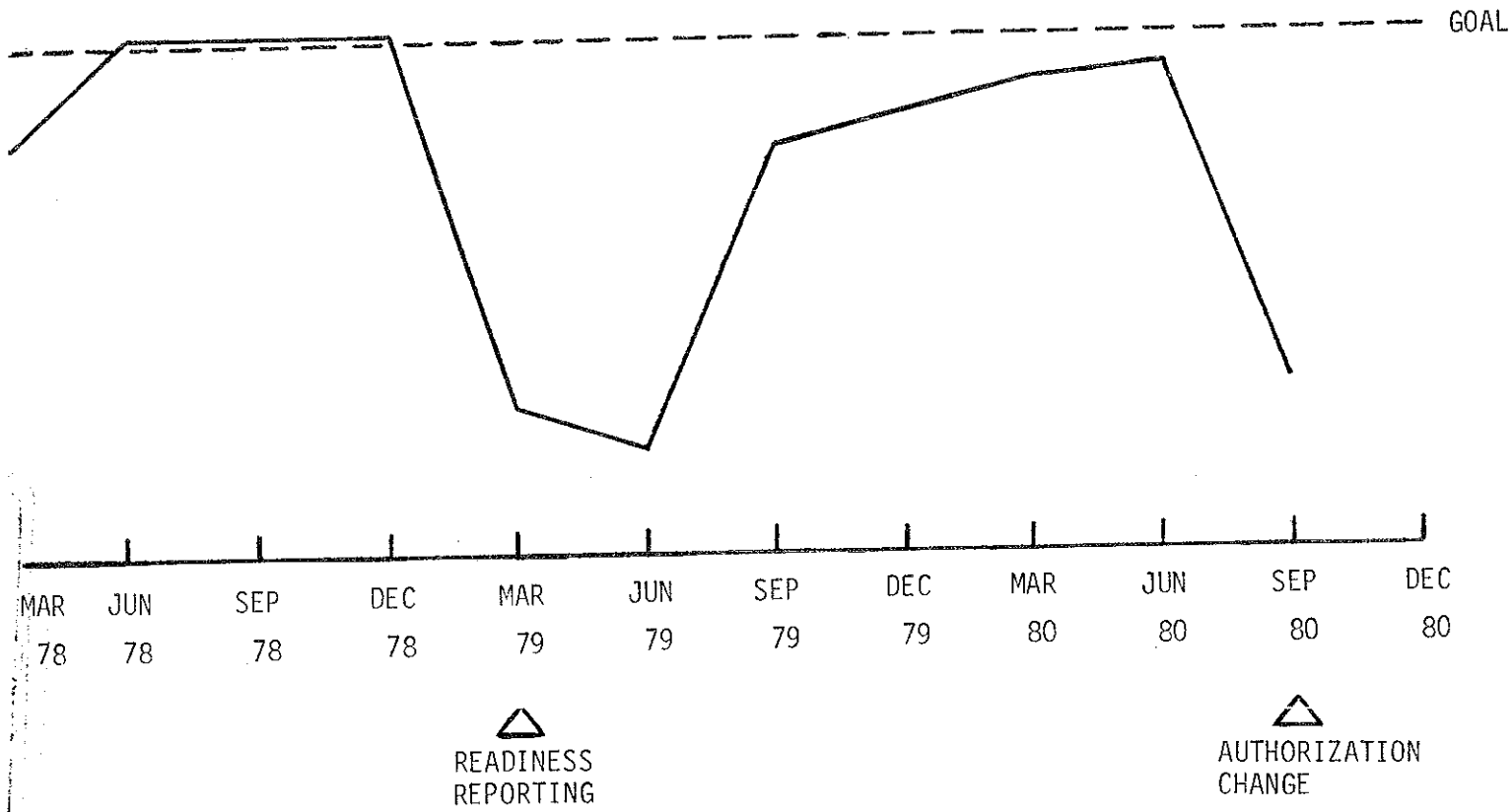

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POMCUS READINESS PROFILE

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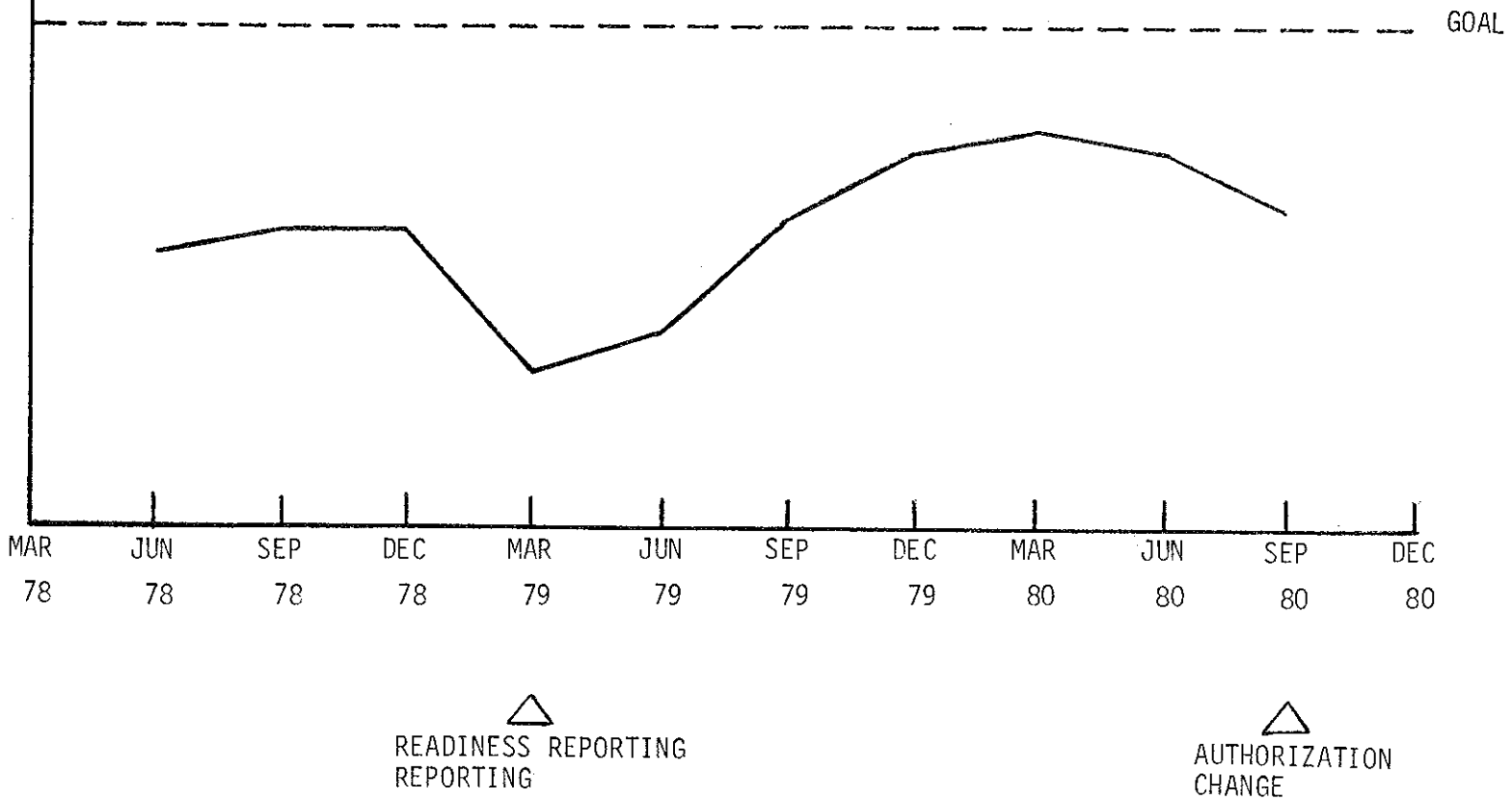

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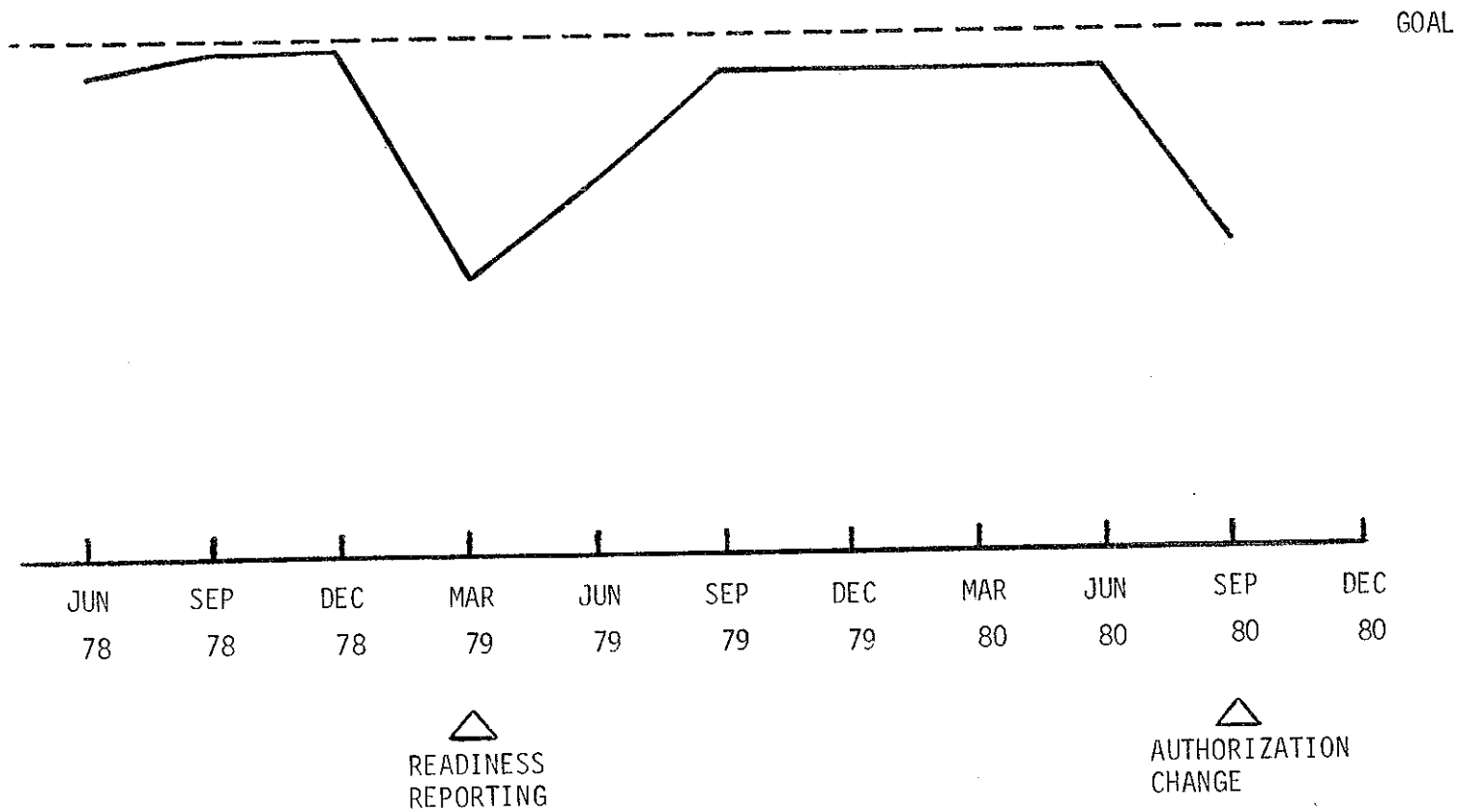
POMCUS READINESS PROFILE

MEDICAL AUGMENTATION



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(U) P7 funds were offered in the amount of $15.5 million to the Ammo to Europe program, because it was recognized that insufficient time and equipment was available to use the entire allocated resources of $29.3 million. These P7 funds were also offered because there were empty ammunition storage facilities in USAREUR and HQDA informed this office that the funds would be replaced for POMCUS use in fiscal year 1981.

(U) During June/July 1980 the "first-ever" review of USAREUR War Reserves was accomplished. During this review, requirements were identified, assets on hand were applied against the requirements to identify shortfalls, and based on available data, forecast fill dates of equipment were made. The DARCOM portion of the proposed Army Regulation concerning POMCUS was prepared and forwarded to HQDA. This draft regulation encompassed DARCOM's responsibilities on every phase (requisitioning, receipting, packaging/preservation, storing and distributing) of POMCUS. A policy was established for painting vehicles destined for POMCUS.

(U) During August 1980, HQ, DARCOM recommended to USAREUR and HQDA the elimination of the phased delivery program, and to allow requisitions to be filled as received. USAREUR agreed to the recommendation, except for weapons, because USAREUR lacked secure weapons storage facilities.

(U) USAREUR indicated that the application of assets to POMCUS or War Reserves was different than HQ, DARCOM's interpretation of the priorities within the DAMPL; USAREUR's position was challenged. This challenge led to a reversal of USAREUR's priorities and freed additional assets for application to the POMCUS program.

Force Modernization

(U) On 26 November 1979, the office of Associate Director for Force Modernization (FMO) was organized under the Directorate for Readiness, Headquarters, DARCOM. The DARCOM FMO participated in conjunction with the Headquarters, DARCOM elements and HQDA AFMCO in identifying materiel systems to be given special emphasis/intensive management. The FMO also assisted the Headquarters, DARCOM elements in developing appropriate guidance to be used by all DARCOM elements in preparing their PARRs, COBs, and other programming/budgeting tasks relating to force modernization, and had the monitorship mission regarding progress of the program.

(U) Force Modernization Milestone Reporting System (FMMRS). In April 1980, the DARCOM FMO sponsored a meeting between elements of the DA staff (ODCSOPS, ODCSLOG, ODCSPER), MILPERCEN, Europe, FORSCOM, and TRADOC, to review the need for a management system to enhance the modernization planning for new systems throughout the Army. During this meeting, the FMMRS was agreed upon as a much needed management tool. A Memorandum of Agreement (MOA) was prepared to consumate the agreements reached during the meeting. The FMMRS provided the

capability to track 56 key scheduled and accomplished milestones for new systems being fielded, and improved management of these systems. HQDA (ODCSLOG) was responsible for assuring compliance with the prescribed reporting procedures. DARCOM, through the Materiel Readiness Support Activity (MRSA), maintained the system data base.

Procurement and Production

Personnel Changes

(U) Major General J. W. Sharp served as Director of Procurement and Production during most of fiscal year 1980 and departed Headquarters, DARCOM on 17 June 1980. Mr. G. E. Dausman, Deputy Director, served as Acting Director for a short interim period until 30 June 1980, when Major General Robert L. Herriford, Sr., became the Director.

(U) In contrast to several other Directorates, all Associate Directors served throughout the fiscal year: for Cost Performance Reporting, Colonel R. E. Frye, Jr.; for Industrial Base, Colonel W. F. Williams; for Procurement, Mr. W. L. Clemons; and for Programs, Colonel W. L. Wright. In the office of the Special Assistant for Small Business, Mr. J. W. Shepard was removed from the Directorate at the end of the fiscal year. Although other personnel changed significantly due to retirements, reassignments and long-term training requirements, the basic structure of the offices did not change. To accomplish the assigned mission, this staffing pattern had proven to provide efficient and effective program management.

Industrial Preparedness Operations (IPO)

(U) A record amount of funds ($93.8 million) was obligated for Industrial Preparedness Operations (IPO) in fiscal year 1980. This funding was sufficient to finance high priority, annual maintenance at laidaway GOCOs and laidaway portions of active GOCOs. Also $10.6 million was applied to correct the $28 million of deferred maintenance deficiencies which resulted from prior year's underfunding. Through a combination of funding and validation of projects, the amount of deferred maintenance deficiencies which remained at the GOCOs and GOGOs at the end of fiscal year 1980 was $16.4 million. These deficiencies would have to be corrected before M-Day.

(U) Funding for Depot Maintenance Plant Equipment (DMPE) was transferred to the Production Base Support Program in fiscal year 1980. A briefing was prepared to acquaint MRC and DESCOM personnel with the new programming procedures for DMPE. The briefing was given at the subordinate commands by personnel from the Directorate for Procurement and Production and IBEA during April and May 1980.

(U) The Production Base Support (PBS) program by appropriation for fiscal year 1980 was as follows:

Appropriation	$ Millions
Aircraft	$14.595
Missiles	14.046
Weapons and TCV	105.125
TCV	(50.910)
Weapons	(54.215)
Ammunition	348.884
Other	28.882
Tactical	(.770)
Comm/Electronics	(11.412)
Other Support Equipment	(16.700)
Total	$511.532

(U) Support of Executive Level Committees (FY 1980). The DA/DARCOM Liaison officers were Mr. Clark Winner and Mr. Charles Peterson for the National Academy of Sciences, National Materials Advisory Board (NMAB), Committee on Technical Aspects of Critical and Strategic Materials and the DOD/Inter-Agency Materials Availability Steering Committee.

(U) Joint Logistics Commanders (JLC) Areas of Interest. The Materials and Priorities group continued support of various JLC efforts during fiscal year 1980, as follows: Subpanel on Lengthening Leadtimes, Chairman -- Clark Winner; Subpanel on Diminishing Manufacturing Sources and Materials Shortages (DMS/MS), Member -- Charles Peterson; Ad Hoc Group Forgings/Castings, DARCOM Contact -- Clark Winner; Ad Hoc Group -- DOD Priorities and Allocations, Chairman -- Charles Peterson; and Manufacturing/Production Management Panel, DARCOM Contact -- Colonel William F. Williams with Alternate -- Charles Peterson.

(U) Diminishing Manufacturing Sources and Materials Shortages (DMSMS). Implementation efforts in the DMSMS area were nearing completion. The Joint Logistics Commanders Subpanel for DMSMS expected to recommend termination of the subpanel effort early in fiscal year 1981. DESC continued to experience the majority of the problems due to older electronics technology phaseout and the need for such technology in support of aging military equipment and Foreign Military Sales requirements.

Defense Materials System (DMS), Defense Priorities System (DPS) and Special Priorities Assistance (SPA)

(U) As a result of extensively lengthened leadtimes, DARCOM emphasis had been concentrated on assuring up-to-date command knowledge on the DMS, DPS and SPA. Briefings, training sessions and technical discussions had been held with field operation personnel on a continued basis throughout fiscal year 1980. Problems

still existed at the end of the fiscal year, in the area of personnel, due to retirements, reductions-in-force, reorganizations, lack of training and inadequate funding which had eroded DMS/DPS/SPA capabilities. It was expected that many of the shortcomings in capabilities would occur during the exercise (MOBEX 80 was scheduled for 1st quarter fiscal year 1981). SPA requests remained steady with most problems occuring in the areas of forgings, castings, connectors, micro-circuits and exotic materials industries. To facilitate training in the DMS/DPS area, video tapes and films were prepared and distributed accordingly to the MSCs and associated activities for familiarization and training for DMS, procurement and contractor personnel.

(U) Master Urgency List (MUL) Nominations. Complete technical evaluation of DARCOM MUL nominations was performed throughout fiscal year 1980. Recommendations were submitted to higher echelons, relative to establishing priorities in the Brick-Bat (DX) and Cue-Cap (DO) sectors. Official approval/disapproval of the complete MUL had not been received during fiscal year 1980, since many nominations were still being considered at the Secretary of Defense and Presidential level. Two additional Army items were approved by the President as items of the "highest national priority", thereby qualifying for use of the Brick-Bat (DX) industrial priority rating throughout the commercial contractor, subcontractor, supplier/vendor support structure. The MUL nominations were found only in a classified listing which could only be obtained or reviewed on a "need-to-know" basis.

(U) Controlled Materials Requirements and DARCOM Compliance Reviews/Audits. Controlled materials requirements continued to be updated on a quarterly basis, while a concerted effort had been initiated by DARCOM to perform compliance reviews, as required by DOD guidance. These areas had been neglected in the past. In the future, plans were to attempt to perform approximately 20 to 25 compliance reviews per year, in lieu of the 3 or 4 per year performed in fiscal year 1980. Achievement of this high goal would be dependent on available manpower and adequate funding.

(U) National Defense Stockpile of Critical/Strategic Materials. Extensive analysis of stockpiling requirements had been a continuous effort. While DARCOM normally performed 4 to 6 materials studies per year, over 50 studies were conducted during fiscal year 1980, as well as a careful evaluation of Army requirements methodology. Most of this effort was related to growing United States dependency on foreign sources for many materials, such as cobalt, chromium, and titanium. While there had been very little stockpiling activity over the last 20 years, it appeared that genuine interest existed at the Executive level regarding United States needs under mobilization conditions during the fiscal year. Revitalization of activities supporting development of the National Defense Stockpile was expected during fiscal year 1981.

(U) XM-1 Tank Production Facilities. The Army obligated $559 million through fiscal year 1980 for facilities to produce the XM-1 tank. Of this amount, $386.7 million was used by production engineering and tooling; while $312.1 million went to construction and plant equipment costs. The total cost of XM-1 tank facilities would be $916 million. With the facilities now in use, Chrysler could produce 30 tanks per month. Additional investments through fiscal year 1982 would provide added capacity to the Lima Army Tank Plant and new capacity at the Detroit Arsenal Tank Plant which would increase production output to 60 tanks per month using one shift, and 150 tanks per month with three shifts in operation.

(U) Modernization of Cannon Producing Facilities at Watervliet Arsenal. Project REARM, the REnovation of ARmament Manufacturing, would more than double Watervliet Arsenal's production capacity of 650 cannon and spare tubes per month to 1500. Construction and renovation had begun and was scheduled to be completed in 1983. The second phase, a construction project of $11.4 million MCA was pending, awaiting congressional approval at the end of fiscal year 1980. In addition to the construction program, $135 million would be invested over a six-year period to rehabilitate existing equipment or purchase new plant equipment. A total of $31.0 million was obligated for this purpose in fiscal year 1980.

(U) Modernization and Expansion of the Ammunition Production Base. A total of $262.7 million was released in fiscal year 1980 to continue the Army's effort to modernize and expand the ammunition production facilities. The funds were divided into three major categories: $6 million for the establishment of initial production facilities; $242.1 million for expansion for the production base; and $14.6 million for modernization of obsolete, antiquated and worn-out production facilities.

(U) Data Item Description for Industrial Preparedness Planning. 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). The 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. The DID allowed the Government to reimburse the contractors for supplying IPP information as a required contract delivery item. The Program/Project Manager for the system, working closely with the appropriate Readiness Command, supervised the initial development of the Industrial Preparedness Plan for the system and, with continued use of the DID, monitored and updated the data throughout the production phase of the weapon system. The new DID was unique to the Industrial Preparedness Program since it supplied comprehensive, contractor-generated IPP data without the use of the often cumbersome and inaccurate "1519" planning process. Additionally, 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 obtain a comprehensive, in-depth analysis of the total production base for all the complex 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 published on 10 September 1980 in DARCOM Circular 700-8.

(U) US 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 used, in Phase 1, to produce the Production Base Plan (PBP) and, in subsequent phases, to produce other reports which would enhance overall IPP management efforts. Maximum use was made of existing IPP information already available in automated format by using 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 dramatically reduced the manpower needed to produce the present PBP, while it increased the timeliness, accuracy and availability of all IPP reports generated by the system. The ASAPP was planned to be used to produce the first automated PBP in April of 1981.

(U) Guidance. A complete revision of the Cost/Schedule Control Systems Criteria (C/SCSC) Joint Implementation Guide was prepared in fiscal year 1980 by DARCOM, AFSC, and NMC, and coordinated with the field and with industry. Guidance was added on application of C/SCSC To production, Subsequent Application Reviews, and variance thresholds.

(U) Progress in Applying C/SCSC. The number of accepted implementations of the DOD C/SCSC, involving DARCOM-led reviews, increased at the end of fiscal year 1980 to 139, with 13 accomplished during the fiscal year. There were 53 more applications of C/SCSC in various stages of the implementation process at the end of fiscal year 1980. Of the 139 accepted implementations, 11 related to in-house activities and 8 to Government-Owned-Contractor-Operated (GOCO) Army Ammunition Plants.

(U) Training and Orientation. Support for 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) continued in fiscal year 1980. This support involved soliciting and screening applicants, review and advice concerning course content, and presentation and panel participation during classes. This Directorate also provided representatives to participate in industry/Government meetings and seminars on the subject of C/SCSC.

(U) Independent Assessment of Contracts in Project Managed Programs. Despite a severe personnel shortage, the Directorate continued to perform independent analyses of cost/schedule performance and projections on major acquisition, presented to DCGMD four times during the year, and that office received the same type of information an additional four times as a result of this Directorates quarterly reviews of Selected Acquisition Reports on seventeen programs. The procedures for the presentation to the DCGMD were revised, and the number of contracts displayed through use of charts was expanded from ten major contracts to an average of twenty-six.

(U) In fiscal year 1980, DARCOM accomplished 113.8 percent of its Army Procurement Appropriation execution goal:[7]

TOTAL AVAILABLE PROGRAM	$10,166.9 million
OBLIGATION GOAL	7,369.1
OBLIGATION PERFORMANCE	8,386.5

This excellent record of performance was achieved by the DARCOM Commands in spite of the fact that delay in passage of an appropriation act necessitated in operating under continuing resolution authority for the full first quarter; Department of the Army directed withdrawals from DARCOM's programs totaled nearly $400 million; while nearly $180 million was released back to DARCOM, the majority was not received until well into the third quarter; and almost $600 million remained defferred by OSD and/or DA through August 1980.

Application of Time-Sharing Computer Technology to the Army's Procurement/Pricing Function (Copper Impact Program)

(U) To improve the Army's pricing capability the application of computer technology was made to the procurement/pricing process during the 4th quarter of fiscal year 1977, when the General Electric time-sharing system was installed at three DARCOM major subordinate commands. During fiscal year 1980, terminal capabilities were upgraded with equipment that operated at four times the speed of the initial equipment at nine of the twelve user locations. The updated terminal equipment was planned to be installed at DARCOM and three other locations during fiscal year 1981. The cost for rental of the improved terminal equipment was essentially at the same rate as the initial equipment.

(U) During fiscal year 1980, MSC made greater usage of the COPPER IMPACT Network; an increase of 17 percent over the previous fiscal period. Greater use was expected to be made in fiscal year 1981 through greater application of computer techniques to the

[7] DARCOM FY 1980 Army Procurement Appropriation (APA) Performance Snapshot, as of COB 30 Sep 80.

evaluation of contract cost, pricing financing, and management (contractor and government) reports.

(U) Secretarial Determination and Findings (D&Fs). During fiscal year 1980, the Office of the Assistant for Policy of the Directorate for Procurement and Production, received and staffed for Secretarial Approval (normally at the Assistant Secretary of the Army level), 341 RDT&E D&Fs under 10 U.S.C. 2304(a)(11), which had an estimated value of $1,815,613,287 and 43 Procurement Appropriation D&Fs under 10 U.S.C. 2304(a)(13); (14) and (16) which had an estimated value of $9,853,397,564.

(U) Staff Surveillance Visits. In accordance with DARCOM PI 1-481, Staff Surveillance visits were made to eight purchasing activities for which the Director, Procurement and Production, DARCOM, acted as Head of Contracting Activity (HCA). These visits evaluated the management control and operational effectiveness of the organizations and were also performed in order to provide guidance and assistance. The findings and recommendations achieved organizational streamlining, competent personnel placement, increased productivity, better responsiveness, and increased efficiency and effectivity in the procurements placed.

(U) Review and Analysis of IG and Other Reports to Determine Trends. Analysis of reports which covered activities for which the Director of Procurement and Production was the Head of Contracting Activity (HCA) indicated that most IG findings appeared to be due to lack of file documentation of actions taken. Also, inspection findings appeared to be caused, in part, by the shortage of personnel at some HCA activities. This manpower shortage resulted in excessive workloads and lowered morale for personnel trying to meet short time frame award schedules. In addition, the indicated manpower shortage was was, in part, caused by an inability to retain experienced and promotable personnel at HCA activities because of the lower grades at these activities versus higher grades available at either MSCs or at other Departments.

(U) DARCOM Procurement Support to US Army Training and Doctrine Command (TRADOC). A review of the procurement support supplied to TRADOC by DARCOM activities showed it to be increasing and was, for fiscal year 1979, a total of 13.5 manyears. These procurement services were covered by various Intraservice Support Agreements which provided funds, but not personnel spaces. The DARCOM procurement workload had reached such a level that the additional requirements being provided to TRADOC adversely affected mission programs, procurement lead times, obligation rates and administrative requirements at some of DARCOM's activities.

(U) TRADOC was made aware of this situation and decided to establish a central procurement group at Fort Eustis to accomplish the work being performed by DARCOM. This TRADOC central procurement group was expected to begin phase-in by the 2d quarter fiscal year 1982 and would provide relief to the procurement organizations at

US Army Electronics Research and Development Command, US Army Missile Command, White Sands Missile Range and Sacramento Army Depot.

(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 predicted on engineered and statistical standards. A structural analysis was prepared and furnished to ALMSA on 1 August 1980. The targeted date for implementation of PAMUPS was May 1982.

(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 were obligated by the central procurement offices. During the past few years central procurement had not had sufficient resources to adequately perform its mission. Historically, the sole workload indicator used for determining manpower requirements under central procurement had been the number of procurement actions accomplished. From a functional point of view, DRCPP was not satisfied that manpower requirements could not be tied solely to the measurement of number of procurement actions (PA) accomplished. A more appropriate indicator of workload accomplishment was weighted PAs. A model had been developed to measure productivity of DARCOM's central procurement offices. It incorporated the concept of measuring the procurement function by other than the total number of PAs. The amount of man-effort to award a Procurement Work Directive (PWD) was explained as a function of dollar amount and method of procurement in procurement and production directorates throughout DARCOM. The total number of weighted PWDs accounted for the procurement output. This weighted output of procurement operations lent more credibility to productive output than simply the total number of PAs. This measurement assigned weighted values for various types of PAs based upon the complexity of variable factors involved in the PA. Using this indicator as a measurement of workload, DARCOM was able to accomplish a 26 percent increase in fiscal year 1980 over fiscal year 1979, even though PAs alone did not indicate this increase in accomplishment.

(U) Procurement Automated Data and Document System (PADDS). PADDS was the mini-computer based system designed to automate the procurement solicitation process, the contract award and modification process, and produce selected management reports. This system was scheduled to be installed at our MRCs by October 1980.

(U) Acquisition Planning and Tracking System (APATS). 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 provided the MRCs with the ability to develop planning milestone

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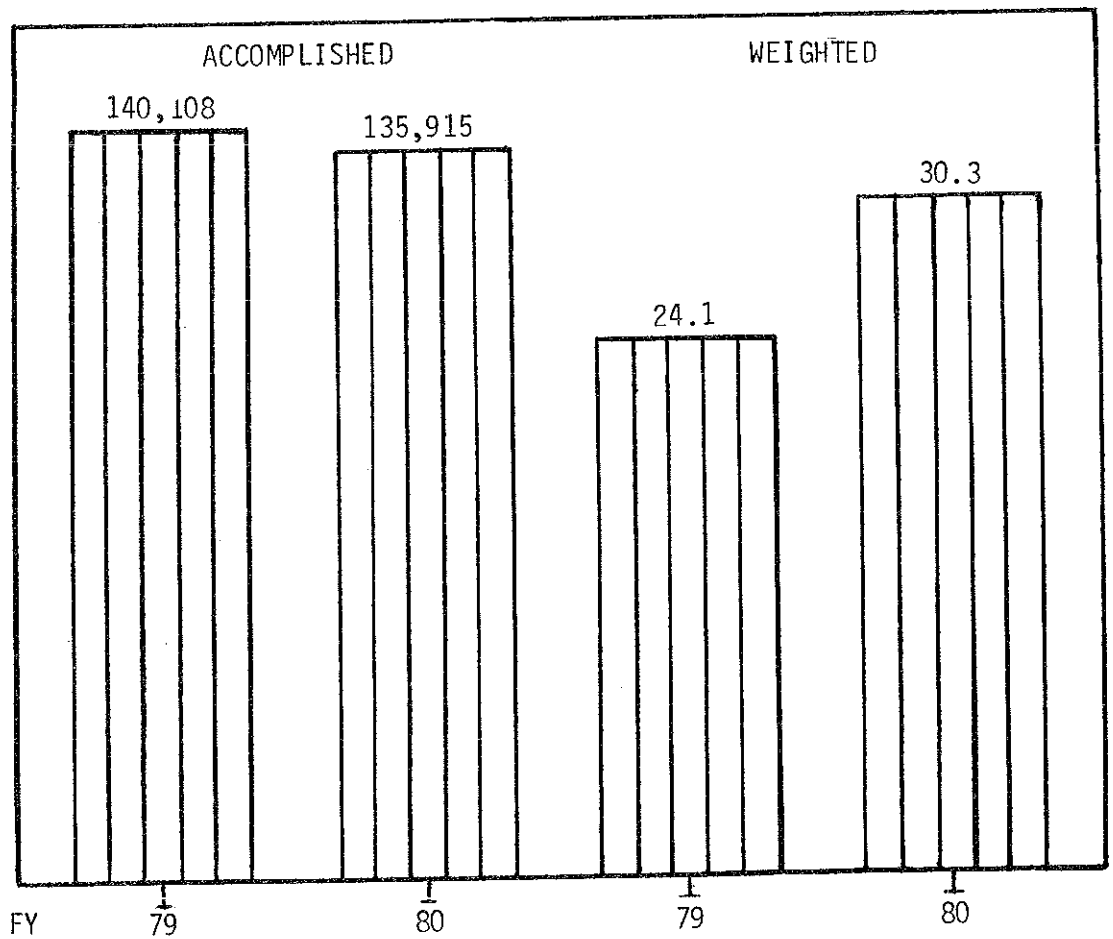
WEIGHTED WORKLOAD PER PAs ACCOMPLISHED



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schedules and reporting procedures for use of management for selected items and also satisfied the various forecasting and report needs of the MRCs. This system was scheduled for installation at the MRCs by May 1981.

Small and Disadvantaged Business Utilization

(U) Major among the changes which took place within the Office of the Special Assistant for Small Business was its removal from the aegis of the Directorate for Procurement and Production and its placement under the Deputy Commanding General for Materiel Readiness, LTG H. F. Hardin, Jr., at the end of the fiscal year, to be effective 1 October 1980. This action was in consonance with Defense Acquisition Circular (DAC) 76-19, 27 July 1979, instructions, which required that the Small Business representative report directly to the commander or his second in command at all agencies.[8] In regard to other personnel actions, Mr. Roy Arnold, who had been detailed to the office since September 1978, returned to the office of the Associate Director for Industrial Base in March 1980. In mid-September 1980, Mr. John Shepard, then Special Assistant, indicated that he was leaving DARCOM after the end of the fiscal year.

(U) Final goals for Small Business were not negotiated by the Department of Defense and the Small Business Administration until 21 April 1980. After evaluation by higher authority, these goals were transmitted to MSC Depots and other DARCOM SUBCOMs in a letter written by General Guthrie, dated 24 July 1980. They represented an unprecedented challenge, and all activities put forth olympian efforts to meet or beat these goals.

(U) Public Law 95-507 (24 October 1978), relating to Small Business, had its sophomore year in fiscal year 1980. The Army, designated as participating agency by President Carter, for the Pilot Program (Section 8 (a) (1) (b) of the Small Business Act) found that, by and large, the projects demanded by the SBA were somewhat ambitious for the minority contractors they selected. However, command-wide, 15 contracts were either awarded or about to be awarded at the end of fiscal year 1980. Total dollar values were unavailable due to estimates, multi-year contracts, and other factors precluding hard-dollar data.

(U) As indicated in the accompanying table, there were four major categories of goals. Accomplishments were achieved as follows: In "Small Business," a total of $1,504.3 million was awarded. While this was $12.7 million more than that achieved in the previous fiscal year, it was $178 million below the goal of $1.681 million set in the 24 July final goals. In the category of "Small Business Set Asides,"

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[8] CDAC, 19-27 Jul 79, para 1-704.3 amended by DAC #76-24, 28 Aug 80.

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FY 1980

FINAL SMALL BUSINESS GOALS
(DOLLARS IN MILLIONS)

READINESS COMMANDS	TOTAL BUSINESS DOLLARS	SMALL BUSINESS	SMALL BUSINESS SET-ASIDE	DISADVANTAGED/MINORITY 8(a) SET-ASIDE	DIRECT	COMBINED
ARRCOM	1,745.0	450.5	119.0	25.950	21.110	47.060
CERCOM (EMRA)	351.9	153.6	64.0	14.013	15.747	29.760
TARCOM	1,332.3	287.9	144.0	11.245	3.485	14.730
TSARCOM	597.4	140.6	52.0	47.402	6.748	54.150
SUB-TOTAL	4,026.6	1,032.6	379.0	98.610	47.090	145.700
R&D COMMANDS						
ARRADCOM	464.5	82.0	8.8	3.460	3.120	6.580
AVRADCOM	659.1	7.5	2.9	.050	0	.050
CORADCOM	426.2	80.0	20.2	22.490	.260	22.750
ERADCOM	750.0	64.0	1.5	2.422	.438	2.860
MERADCOM	263.9	36.9	7.5	10.380	1.910	12.290
NARADCOM	12.0	6.4	1.5	.692	.348	1.040
TARADCOM	400.0	15.4	10.0	.180	0	.180
SUB-TOTAL	2,975.7	292.2	52.4	39.674	6.076	45.750
OTHER COMMANDS						
DESCOM						
ANAD	9.4	6.4	1.9	.173	.017	.190
CCAD	5.4	3.9	.6	.346	.019	.365
LEAD	26.0	18.3	1.9	2.249	.106	2.355
NCAD	13.0	12.8	6.3	.692	.123	.815
RRAD	20.0	13.2	3.3	1.298	.212	1.510
SAAD	40.0	17.9	5.0	1.211	.439	1.650
SHAD	2.8	2.5	.4	.433	.132	.565
TOAD	19.0	15.5	3.5	.346	.139	.485
TEAD	20.0	16.6	5.0	.173	.162	.335
SUB-TOTAL DESCOM	155.6	107.1	27.8	6.921	1.349	8.270
MICOM	1,909.0	143.8	57.6	7.266	3.114	10.380
TECOM	135.0	80.6	16.9	5.363	1.387	6.750
SUB-TOTAL	2,199.6	331.5	102.3	19.550	5.850	25.400
OTHER ACTIVITIES						
AFRTS	4.0	3.2	2.0	0	0	.000
ARO	4.8	1.3	0	0	0	.000
MMRC	9.9	2.9	.8	0	.050	.050
USMA	25.0	17.3	2.5	.735	.165	.900
SUB-TOTAL	43.7	24.7	5.3	.735	.215	.950
DARCOM TOTAL	9,245.6	1,681.0	539.0	158.569	59.231	217.800

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$58.2 million was awarded. This was $35.5 million more than fiscal year 1979, but $20.8 million less than the goal of $539 million. "Set Asides Minority" Business totaled a healthy $134.67 million, but failed to reach the fiscal year 1980 goal of $158.569 million, even though the amount exceeded similar awards in fiscal year 1979 by $12.361 million. "Direct Minority" Business Awards contracts amounted to $43.882 million, which was $20.869 million in excess of the previous fiscal year, but $15.349 million short of the goal established for fiscal year 1980 of $59.231 million.

Plans, Doctrines and Systems

Personnel Changes

(U) During fiscal year 1980, the Directorate for Plans, Doctrines and Systems was stable in its management. The Director was Colonel F. E. Elam. The Associate Directors were: Concepts and Doctrines, Colonel R. W. Guren; Systems, Colonel V. B. Hammond; and Military Plans and Operations, Colonel R. H. Hitchcock. These continued throughout the entire year. The Deputy Director, L. W. Hochheimer, retired on 31 August 1980 and the position was not filled until November 1980. A new office, entitled the War Reserve Office, was established on 18 February 1980 under Mr. D. Waybright.

DARCOM Rapid Deployment Task Force

(U) On 14 April 1980, the Commander, DARCOM established a DARCOM Rapid Deployment Task Force under the Direction of Colonel Fred E. Elam, Director of Plans, Doctrine and Systems (DRCPS). The Task Force mission was to accelerate planning and coordination of DARCOM logistical support of the Rapid Deployment Force (RDF) under the overall mission of the Rapid Deployment Joint Task Force (RDJTF), Headquarters, MacDill AFB, Florida. The primary objectives of the RDF Task Force were to act as focal point on all RDF matters for DARCOM, participate in RDJTF planning and to provide RDF related information to DARCOM elements and subordinate commands/activities, as required. The formation of the RDF Task Force enabled DARCOM to respond quickly to planning requirements from HQDA, Headquarters, FORSCOM, and Headquarters, RDJTF.

Rapid Deployment Force-Army (RDF-A) Class V Requirements

(C) On 18 March 1980, FORSCOM had requested that DARCOM evaluate consolidation of Class V basic loads of ammunition by depot, to evaluate the capability of the depots to outload, and to furnish detailed information in ADP format, identify the munitions, their location, assigned project code and shipping data. Capabilities did not exist to provide all of the data required. DARCOM subsequently held a meeting with FORSCOM, MICOM, and ARRCOM representatives to discuss the problem on 24-25 July 1980. At that meeting all parties agreed that DARCOM depot structure was adequate to support the RDF-A requirements; that a specific project code be assigned to enhance

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handling and shipment of RDF requirements, thereby obviating need for special project codes. It was determined that DARCOM depot handling procedures were adequate to handle RDF-A workloads. It was also determined that, with data provided from FORSCOM, ARRCOM, and MICOM, the ADP reports requested by FORSCOM could be produced. Additional discussions included ALLOCATION of MISSILES (basic load). It was agreed that a logical approach would be to ship all missile types to Europe in the event of OPLAN 4102 implementation. The Conference served to highlight a number of problems, and cooperative discussions recommended a number of solutions enhancing RDF-A deployment.

Priority Mobilization/Full Army Mobilization (PRIMOB/FAM)

(U) PRIMOB/FAM was that materiel required to raise Reserve Component Units from ALO-3 to ALO-1. DESCOM computed PRIMOB/FAM requirements and provided them to the MRCs and SICCs on 1 October 1979. MRCs and SICCs placed these requirements into appropriate data repository files and took actions to fund, procure, store, and maintain assets for the support of PRIMOB/FAM requirements.

Exercise BOLD EAGLE 80

(U) BOLD EAGLE 80 was a JCS coordinated, CINCRED sponsored readiness exercise conducted from 19 October until 28 October 1979. DARCOM MRCs were directed to provide simulation of logistics actions to the 1st COSCOM enabling the COSCOM TO PLAY REQUISITIONING of supplies during the exercise. Requisitions were handled during normal duty hours requiring no additional funds or manning.

Exercise PRIZE GAUNTLET

(U) Headquarters, DARCOM participated in Exercise PRIZE GAUNTLET, a JCS sponsored exercise, during the period 24 through 28 March 1980. Details were SECRET; for additional data, see reference J-3 106-78, 19 January 1978, and JCS EXPLAN 0016.

Exercise POSITIVE LEAP

(U) Headquarters, DARCOM participated in Exercise POSITIVE LEAP during the periods 12 May to 17 May 1980 and from 2 June to 6 June 1980. The major objective of Exercise POSITIVE LEAP was to analyze and evaluate procedures and components of the World-wide Military Command and Control System (WWMCCS) and other systems used in the planning and deployment of forces to the Middle East. Major Exercise features included participation of the newly formed RDJTF as a supported command, use of the Joint Deployment System (JDS) for planning and deployment of the RDJTF, and planning for United States deployments where neither United States nor Host Nation facilities were adequate for the support of military operations.

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DARCOM LOGPLAN 77AD

(C) DARCOM LOGPLAN 77AD supported forces derived from the XVII Airborne Corps, Airborne "D" Package Plans, as a high priority, immediate response, force in support of unified command operations plans world-wide. This plan was published on 22 October 1979. Support would be accomplished through the provision of unit accompanied supplies and coordinated preplanned supply available on-call for shipment and demand support requisitioning. DARCOM computation of coordinated preplanned supply for XVIII Airborne Corps was not completed by the end of fiscal year 1980. DARCOM awaited a Time-Phased Force Deployments List (TPFDL) from the XVIII Airborne Corps upon which to base computations for preplanned supply requirements.

DARCOM LOGPLAN 5027

(C) DARCOM LOGPLAN 5027 supported CINCPLAN 5027 and EUSA OPLAN 5027, Defense of KOREA. LOGPLAN 5027 was finalized for publication on 26 October 1979, and provided for logistics support of elements of the US Army, land forces of the Republic of Korea (ROK), and for common item support of USAF, USN and USMC elements committed to defense of Korea. Support would be accomplished through a combination of prepositioned war reserve stocks, operational project stocks, in-country operating assets (to include assets in the supply pipeline at the time the plan was to be executed), unit accompanied supplies deploying with augmentation units and DARCOM/EUSA coordinated preplanned supply for US Army and limited preplanned supply for ROK Army forces made available on an on-call basis. Preplanned supply would be supplemented by EUSA MMC to CONUS ICPs. Requirements had been computed and supply and transportation documentation had been prepositioned at the responsible DARCOM activities.

TPFDD Refinements

(U) DARCOM planners participated in three Time-Phased Force Deployment Data (TPFDD) conferences. These conferences were conducted by the Joint Deployment Agency for the purpose of refining and finalizing TPFDDs for OPLANs 4102P, 7120, and 2200.

Combat-to-Support Balance Analyzed

(U) During fiscal year 1980, the Associate Director for Concepts and Doctrine served as the focal point for DARCOM participation in the joint Department of Defense and Army Combat-to-Support Balance Study Group. The purpose of the study was to determine the effects of differing assumptions about workload, productivity, and amount of host nation support on the size of organic United States combat service support forces for a European conflict.

(U) The report covered ammunition handling; maintenance; petroleum, oil, and lubricants support; services; supply; transportation; military police; and engineers. It recommended more accurate

estimates or expected wartime workloads based on the latest logistics doctrine; improved tables of organization and equipment to reduce manpower requirements; and increased use of host nation support, particularly in the early days of European conflict. The final report of the Combat-to-Support Balance Study was published by the US Army Concepts Analysis Agency in September 1980.

USAREUR/DARCOM Umbrella MOU

(U) The TRADOC Management Plan for implementing the 21 Logistics Concepts established a number of tasks that required two to four years for completion. DARCOM could not afford to wait that long to identify the many logistics support agreements and recurrent interfaces between subordinate elements of DARCOM and USAREUR. There were at least 33 existing agreements whereby DARCOM elements rendered in-theater support in USAREUR with annual DARCOM commitments of 4,000 personnel and $150 million.

(U) The Associate Director for Concepts and Doctrine proposed an Umbrella MOU, designed to improve Headquarters, DARCOM and CINCUSAREUR management control of the recurrent interfaces between DARCOM and USAREUR elements and to establish improved procedures for guiding and documenting future agreements.

(U) The MOU was signed by the Commanding General, DARCOM, on 1 August 1980 and authenticated by CINCUSAREUR on 28 August 1980. Following authentication of the MOU, DRCPS developed an implementing policy, DARCOM 80-2, which was signed by the Commanding General, DARCOM on 3 October 1980 and distributed to all DARCOM subordinate activities.

Passage of NATO Mutual Support Act of 1979, PL 96-323

(U) Subject legislation was signed into law by President Carter, 4 August 1980. This law provided a means of exchanging logistic goods and services between United States Forces and other NATO elements through the use of support agreements rather than contracts which required clauses that were objectionable to NATO governments and subsidiary bodies. DOD Directive 2010.9 entitled, Mutual Logistic Support Between the United States and Other NATO Forces, and DOD Instruction 2010.10 entitled, Mutual Logistic Support Between the United States and Other NATO Forces-Financial Policy, had been published. The DODD was the implementing regulation required by PL 96-323. It was submitted to Congress on 25 August 1980 and became effective on 24 December 1980. DA DCSLOG prepared, staffed, and submitted AR 12-XX, Mutual Logistic Support Between the United States and Other NATO Forces, to OSD, MRA&L. These documents were the legal and regulatory basis for DARCOM to acquire wholesale logistic services from NATO Maintenance and Supply Agency (NAMSA) in support of USAREUR.

(U) The Associate Director for Concepts and Doctrine served as focal point for NAMSA implementing procedures. DRCPS provided substantial input to HQDA to assure that the implementing DODD, DODI,

and AR 12-XX directives allowed DARCOM to make effective use of NAMSA capabilities.

DARCOM Depot Support to Europe (DDSE)

(U) Headquarters DESCOM was tasked by the DCGMR to conduct an in-depth study on one of the follow-on actions -- "A DARCOM Forward in USAREUR." The Associate Director for Concepts and Doctrine participated in the formulation of the study and provided substantial input to the study process. The study had a four-fold objective: (1) To determine whether the need existed for a DARCOM forward element in Europe; (2) To determine how best to establish a DESCOM command and control element to manage all depot level maintenance activities in Europe; (3) To develop a ten year action plan to facilitate the location of depot organizations in Europe; and (4) To determine how Headquarters, DESCOM could be organized to manage future depot facility and equipment modernization efforts. The first IPR for this study was scheduled for 6 February 1981.

Rationalization, Standardization and Interoperability (RSI)

(U) During fiscal year 1980, the Associate Director for Concepts and Doctrine continued its basic Materiel Readiness RSI thrust of pursuing and stimulating users of materiel to identify and validate candidate items/areas of opportunity that would further enhance "battlefield" interoperability of fielded materiel in the near time-frame. In furtherance of the RSI objectives, the initiatives which follow were accomplished by DRCPS.

(U) USAREUR was provided assistance in developing and implementing an RSI annex to the REFORGER 1980 Exercise Directive. DRCPS recommended changes to and assisted in the revision of the RSI annex for inclusion in the REFORGER 1981 Exercise Directive.

(U) Headquarters, DARCOM was represented at the NATO Land Force Logistics Working Party (LOGWP) and Supply Systems Subcommittee Meeting. Headquarters, DARCOM proposals to NATO working parties were accepted and were being acted upon by member nations. These were: Allied Logistics Publications-US, Logistics Support Panel (LSP), Supply Support Panel (SSP), and Selected Item Characteristics Booklet. The latter item had been requested by NATO member nations, so that the United States could expand this effort to include other commodities.

(U) Action was taken to integrate RSI logistics support requirements early in the acquisition and Integrated Logistics Support (ILS) process into pertinent directives (e.g. DODIs 5000.1, 5000.2 and 5000.39; AR 700-127 and AR 1000-1; LOGCAPS and RECAPS). RSI was incorporated as a separate line item for consideration in the ILS process.

(U) Progress continued in structuring and formalizing a system to permit routine reporting of items. USAREUR was assisted in developing command letters, messages and regulations requiring users of materiel

to identify RSI requirements. DCGMR-approved RSI changes to Readiness Directorates' mission statements were included for incorporation in the next revision of DARCOM-R 10-2.

War Reserve ADP Systems

(U) The War Reserve ADP Systems project was established by Headquarters, DARCOM on 13 June 1980. The purpose of the project was to develop a standard automated capability to compute requirements and produce output products for the full range of war reserve and mobilization planning actions. During fiscal year 1980, AMSAA was tasked, and initiated action to develop a concept for the computation of secondary item requirements for DODI 4140.47, LOGPLANS and TLR/S. Progress in development of the concept was monitored by a Headquarters, DARCOM Study Advisory Group chaired by Deputy Director, Plans, Doctrine and Systems Directorate.

Standard Army Maintenance Systems (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 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 accomodate the Interim System, it was determined that some data elements of the Equipment and Maintenance Performance Data Collection/Reporting System could be made compatible with the data elements available from retail automated systems, and would be incorporated into CCSS. Data emanating from the retail system would be processed through a "Bridge System" at the Materiel Readiness Support Activity (MRSA). This bridge would place the data collected from the automated retail systems into SAMS format for transmission to the appropriate readiness command. The SAMS functional coordinating group completed the Functional Description (FD) for subcell 3E02-1 (which was that portion of 3E02 necessary to process data from the "Bridge System") in December 1979. The FD was staffed with the Readiness Commands and Headquarters, DARCOM during January 1980. The project was briefed to the LSRC during IPR II Release 58.00 on 29 January 1980 and, as a result, the project was approved for incorporation into CCSS during Release 62.00.

(U) The Maintenance Data Management System (MDMS) portion of SAMS was being administered and developed by the Maintenance Management Functional Coordinating Group (MMFCG). The FDs for the four subcells of MDMS were completed in April 1980 and staffed through the readiness commands and Headquarters, DARCOM during May and June 1980. The project was briefed to the LSRC during a special meeting held at Headquarters, DARCOM on 17 July 1980 and was included in the ALMSA Work Plan for Release 64.00. The MMFCG completed this project one month ahead of schedule.

SIMS-X (Update)

(U) During fiscal year 1980, design and development continued on the Selected Item Management System-Expanded (SIMS-X). In the 2d quarter, an IPR attended by HQDA, MRCs and ALMSA was held at Headquarters, DARCOM to determine criteria for SIMS-X item selection. In the 4th quarter, testing began with a DA Interface Test designed to confirm the SIMS-X compatibility with the communications system (Defense Automatic Address System (DAAS)), and with the retail ADP system (Standard Army Intermediate Level Supply Subsystem-Expanded (SAILS-ABX)). Army Regulations 725-50, 710-1, 708-1 and 740-26 were updated to include new data concerning SIMS-X.

Total Army Equipment Distribution Program (TAEDP)

(U) During fiscal year 1980, training packages were developed and ALMC took a team out to train user unit representatives at several central sites. These representatives in turn served as trainers at their own activities. In April 1980, a Memorandum of Agreement was signed by both the Director of Plans, Doctrine and Systems and the Director of Materiel Management which turned over responsibility for TAEDP to the Directorate for Materiel Management The Directorate for Plans, Doctrine and Systems retained responsiblity for monitoring enhancements to the system.

Logistics Systems Review Committee (LSRC)

(U) The Logistics Systems Review Committee (LSRC) conducted four In Process Reviews (IPRs) of CCSS Releases during the fiscal year. IPR I for Release 58 was conducted at the Automated Logistics Management Systems Agency (ALMSA) on 5-6 December 1979. The results of Division Level Tests were presented by the Functional Coordinating Group Chairman (FCG) and recommendations were made for prototyping. IPR II for Release 58 was conducted at US Army Armament Materiel Readiness Command (ARRCOM), 29-30 January 1980, for the purpose of reviewing the prototype results. The results were briefed to the LSRC by the FCGs and release was approved for proliferation.

(U) IPR I for Release 59 was conducted at ALMSA on 14-15 April 1980 and IPR II was conducted at US Army Troop Support and Aviation Materiel Readiness Command (TSARCOM). This release was also approved for proliferation upon completion of IPR II.

(U) There was a special meeting conducted at Headquarters, DARCOM on 17 July 1980 to discuss items that could not adequately be discussed during IPR II. Those items were: Integrated Logistics Support Milestones Reporting System (ILSMRS); Logistics Network; Maintenance Data Management System (MDMS); and Major Item Data Base (MIDB). This meeting resulted in a number of directed actions to improve the system. Most of the actions were accomplished immediately. Remaining actions were expected to be accomplished/implemented within the coming year.

(U) Minutes of each meeting were provided to the primary members of the LSRC within the week following the meeting. These provided all concerned with events of the meeting, plus a record of the key decisions and directed actions.

War Reserves

(U) DOD directed efforts to balance world-wide war reserve stocks in fiscal year 1980. This effort, due to the high priority of war reserves for USAREUR, resulted in an improved asset position for the USAREUR war reserve account.

(U) Continuing improvements in the Direct Support System (DSS) and increased use of the Air Lines of Communication (ALOC) had decreased pipeline time and thus the number of lines and quantity of each line required in the overseas prepositioned war reserve.

(U) Efforts to develop a standard DARCOM system for computing war reserve requirements were intensified, resulting in the development of alternate courses of action. Selection of the optimum course for action, development of system concept and initiation of system design was expected in fiscal year 1981.

Security Assistance

Introduction

(U) The magnitude of the Security Assistance Program could be measured in broad terms. At the end of fiscal year 1980, DARCOM was concerned with 80 countries, for which 7,920 Foreign Military Sales cases were still open. The total dollar value of materiel involved was $40.8 billion, of which $24.4 billion was undelivered as of 30 September 1980. USASAC was also concerned with co-production projects in several countries.

Personnel Changes

(U) The Directorate's organization was relatively free from turbulence during the year and reflected a slight increase in personnel at the year's end. Major General J. R. D. Clealand served as Director for Security Assistance, and Commander, Security Assistance Center, New Cumberland Army Depot, Pennsylvania, until 1 September 1980, when he was succeeded by Major General T. F. Healey. The Deputy Director, Mr. R. Bean, continued throughout the fiscal year, but his Assistant Deputy for Plans and Management, Mr. R. E. Haag, retired on 30 August 1980, and the position was abolished. The Deputy for Operations at New Cumberland, Pennsylvania, Colonel R. H. Lucas, also served throughout the fiscal year.

(U) Most major offices at Headquarters, DARCOM reflected continuity for the entire fiscal year. These included Colonel G. Jones, Europe; Colonel C. Marshall, Asia-Pacific; and Colonel Jensen, Mideast,

Africa/Americas. The Chief, Republic of Korea Indigenous Tank Office (ROKIT), continued to be Mr. J. C. Thomas, Jr. A major change took place, however, on 5 March 1980, in regard to the Comptroller function. The former Director, Financial Management Directorate, Mr. C. Kuderna, became Comptroller on the organizational level co-equal with the positions of Deputy for Plans and Management and the Deputy for Operations. The position of Comptroller at New Cumberland became Deputy Comptroller reporting directly to the USASAC Comptroller. The two organizations, Financial Management Directorate at Headquarters, USASAC and the comptroller operational functions at USASAC, New Cumberland, were also combined into a vertical realignment which created a more cohesive organization. Plans, Systems and Analysis continued to be directed by Mr. F. Brott during the entire fiscal year. The vertical organization was split during April 1980 into Plans and Systems and Systems Analysis, with two major divisions: Systems Division and Plans Division. The Program Management Directorate was headed by Colonel G. Todd, Jr., from July 1979 through November 1979; by Colonel P. Sposito, from December through June; and by Colonel J. H. McAllister, from July 1980 through the end of the fiscal year.

Personnel Strength

(U) The personnel strength of USASAC increased during the fiscal year from a total of 20 military positions and 541 civilians, as of 1 October 1979, to 21 military and 576 civilian positions on 30 September 1980. This increase reflected the overall DARCOM concern that "the workload resulting from the growth of FMS missions of this command was generating a requirement for manpower which could no longer be satisfied by available manpower without seriously impacting on DARCOM's mission in support of United State's requirements."[9]

Creation of the Egyptian Task Force in USASAC

(U) The size and the political sensitivity of the Egyptian Program dictated that a special management effort be focused on the program. In December 1979, pending the necessary organizational change that would establish an Egyptian Division in USASAC, and Egyptian Task Force was organized. The Task Force, headed by Colonel Todd, consisted of four action officers and supporting administrative help. During the remainder of the year, this team monitored the Army Egyptian program, which included the preparation of 75 Letters of Offer and Acceptance providing for $1.2 billion worth of equipment and services.

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[9] Memorandum, DRCPT-SA, For Director of Manpower Plans and Budget, ODSPER, HQDA, subj: DARCOM Security Assistance Manpower Problems, 25 Apr 80, Signed Brigadier General William H. Schneider, USA, Director of Personnel, Training and Force Development, HQ, DARCOM.

Equal Employment Opportunity (EEO) - DMIS

(U) During the period 1 October 1979 through 30 September 1980, difficulty was experienced in attempting to hire qualified journeymen programmers. As a result, the Directorate for Management Information Systems opted to acquire five computer programmer trainees through the Upward Mobility Program. Two of these positions were subsequently filled by minority (female) personnel. Formal training and continuing OJT enabled these employees to be assigned specific programming tasks supervised by a lead analyst.

Grant Aid Termination

(U) On 4 January 1980, the Secretary of Defense advised that Section 516(A) of the Foreign Assistance Act of 1961 terminated authority to deliver articles and perform services after 30 September 1980 at MAP expense under Military Assistance Programs for fiscal year 1977 and prior year programs. This delivery deadline applied to all recipient countries except Jordan, Philippines, Portugal and Spain.

(U) During the period 11 January 1980 through 1 May 1980, termination instructions were implemented to all supply sources and reviews were conducted with DARCOM Materiel Readiness Commands (MRC) to finalize shipment terminations. Reviews included personnel visits to DARCOM MRCs to review open requirements which could be shipped prior to 30 September 1980.

(U) Financial stewardship for the MAP (Grant Aid) was established on 7 February 1980 in the USASAC Comptroller. This assigned responsibility for management, control and distribution of funds for MAP programs.

(U) On 29 May 1980, the Secretary of Defense advised that a proposed amendment to extend the delivery deadline to 30 September 1982 had been accepted by committees of both houses of Congress. Actions to clear the MAP pipeline were continued despite the apparent relief from the 30 September 1980 deadline.

(U) On 25 September 1980, USASAC was advised that legislation to extend delivery termination would not be approved prior to 30 September 1980. Based upon this information, USASAC-NCAD initiated action to suspend shipments for terminated countries: i.e., designation of assembly Army depots (New Cumberland and Sharpe), instructions for pick, pack, and hold and reporting requirements.

Special Assignment Airlift Missions

(U) The Transportation and Traffic Operations of Program Operations and Regional Management Division was involved in the coordination of expedited materiel movements by Special Assignment Airlift Missions (SAAMs) inland/ocean transportation modes and Freight Forwarders for the following countries: Saudi Arabia, El Salvador, United Kingdom, Sweden, Oman, Tunisia, Turkey, Egypt, Morocco, Thailand, Zaire, and Cameroon.

(U) The MILSTRIP/MILSTAMP/MAPAD (6 hour) orientation was given to 719 personnel at various CONUS locations, including: DLA Defense Depots, Transportation School, NSC Oakland, DCAS activities, GSA, Freight Forwarders, Carrier Representatives, Army depots, foreign country personnel, interns, and USASAC-O personnel. The training consisted of lecture, blackboard, slides, quizzes, and extensive classroom discussion and participation.

(U) A cost savings/avoidance of $5,282,922 (representing 515 shipments) was realized through actions redirecting misdirected and frustrated G/A and FMS materiel in the hands of carriers, Freight Forwarders, MAAG's mission and foreign customers.

(U) A total of 227 visits were made by the Freight Forwarder West to various Freight Forwarder/Country Representative activities. Additionally, 41 visits were made to DCAS activities and MTMC representative units.

Africa

(U) Cameroon. While several LOAS were prepared during the fiscal year, the only completed action was that a USASAC Quality Assurance Team monitored the successful turnover of 56 M825 ¼-ton carriers for the M106 Recoilless Rifle to the GOC in mid-August 1980. FMS procedural problems were also explained/discussed/resolved with country officials and the US Defense Attache, at this time.

(U) Kenya. The first major review of the FMS Program for the Government of Kenya took place on 14-18 July 1980. Representatives from USCINCEUR, OSD/ISA, DA, USASAC, TSARCOM and Hughes Helicopter Company attended. A "turn-key" ceremony took place, highlighting delivery of the first Hughes 500 M-D Light Attack Helicopter. Although non-standard to the US Army Inventory, this aircraft was equipped with the TOW Anti-Tank Missile System. The program was valued at approximately $46 million.

(U) Somalia. At the request of DSAA, Price and Review Data were provided in June 1980 for four categories of equipment for the Government of Somalia. Equipment consisted of Air Defense, Communications, Transportation, Engineer and Training Packages for a total value of $45,290,749.

(U) Sudan. Planned materiel support to the Government of Sudan in fiscal year 1980 included 8 VULCAN Gun Systems; 80 M113A2 Armored Personnel Carriers; and major items of materiel for two combat engineer companies. During the period 21-25 September 1980, 29 Letters of Offer and Acceptance (LOA) comprising Engineer, Armor, Signal and Air Defense equipments, including associated training, were discussed by a USASAC Team with Government of Sudan Ministry of Defense officials. US Team members were representative of respective equipment/service commands. Case values totaled approximately $32.5 million. In view of approved FMS 1980 loan financing of $25 million and anticipated approval of an additional $30 million for fiscal year 1981,

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numerous changes were made and additional LOAs for new requirements were surfaced. Presentation to the Government of Sudan for consideration/acceptance was planned for the week of 28 October. All costs associated with the team visits were paid by the Government of Sudan under an FMS case accepted for this purpose at an estimated value of $32.6 thousand.

(U) Zaire. The Government of Zaire accepted a Letter of Offer around 9 April 1980, for 50, 2½-ton Cargo Trucks, and 50, ¼-ton Utility Trucks, spares and ancillary equipment valued at $2.8 million.

(U) Zimbabwe-Rhodesia Cease-Fire. In response to White House, Washington Memorandum 6651, 17 December 1979, subject: Executive Order for Zimbabwe-Rhodesia Cease-Fire Airlift Assistance, the Secretaries of State and Defense were to provide 350 tons of materiel on a reimbursable basis in coordination with the United Kingdom. At 1600 hours, 17 December 1979, USASAC-NCAD was notified that the United Kingdom had a requirement for tents, pegs and pins for peacekeeping forces in Rhodesia. This materiel was required to be at Gatwick International Airport, Scotland, by 23 December 1979. USASAC-NCAD personnel processed the requisitions, contacted the supply source and had availability, weight, and pieces by 1930 hours, 17 December 1979. Materiel was in a pick, pack, hold status by 0800 hours, 18 December 1979. USASAC Transportation Division then proceeded to coordinate the movement of this materiel with the USAF Military Airlift Command. The materiel was in Scotland by the morning of 23 December 1979. The United State's success in supporting this emergency requirement and in moving the materiel so rapidly was outlined in a letter along with United Kingdom appreciation for the efforts extended by all personnel involved.

Asia-Pacific

(U) Indonesia. In response to a United States Mobile Training Team, Indonesia's immediate requirement for Red Smoke Grenades and with cooperation from the USAF, 10 boxes were shipped from Clark Air Force Base, Phillipines in late August, to arrive in Indonesia by 1 September 1980. The Team was in the country, under the auspices of an FMS case, to train Indonesians in Military Free Fall/Halo.

(C) Japan. Representatives of the Government of Japan visited USASAC on 18 and 19 October 1979 and conducted a reconciliation of FMS/SSA cases and ROIDS to the satisfaction of both USASAC and the Japanese representatives. Coproduction of several missile systems had been completed, and three Japanese-produced I-HAWK missiles were successfully fired at White Sands Missile Range during December 1979 to accept the Phase I production missiles. During November 1980, five more Japanese-produced I-HAWK missiles were similarly fired to accept Phase II production missiles. A production decision by the US Army for I-HAWK PIPs could result in a potential training problem for the Japanese Ground Self-Defense Force. This problem was not resolved at the end of fiscal year 1980.

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(U) Korea. United States-Korean relations during 1980 included Foreign Military Sales (FMS) cases, consideration of additional programs and coproductions.

(U) The ROKG requested an FMS case for the AN/TSQ-73 Missile Minder System in April 1979, at a value of $26 million. It was formally released to the ROK Embassy in January 1980 and was accepted on 4 August 1980 with a proposed delivery schedule of 1st quarter fiscal year 1983. The FMS case provided for four AN/TSQ-73s and ancillary equipment.

(U) Eleven FMS cases, comprised of NAMSA NIKE solid state and angle and range encoder modifications, were presented to ROK Embassy officials on 29 November 1979. The cases had a total value of $36.33 million. A review was to be conducted 22-25 September 1980 at MICOM and Western Electric Company, Burlington, North Carolina.

(U) During fiscal year 1980, the Government of Korea requested Planning and Review Data for I-CHAPARRAL and ROLAND II and for future operations of a Korean Theatre Readiness Monitoring Facility (TRMF). A Request for Technical Data Package, for a total of 93 line items, was also put in for and was being staffed in DARCOM prior to the command's furnishing comments to the Department of the Army. Purchase of over 11,000, 2.75-Inch Rockets and three C12D Aircraft were also under consideration.

(C) P&D Data for 20,000, 155mm Projectiles, at an estimated cost of over $88 million, was forwarded in a USASAC message, dated 15 April 1980, to the ROKG. Similarly, Data for PIP Kits and associated CSPs, training technical assistance for I-HAWK was provided to CJUSMAAG Korea for release to the ROK at an estimated cost of $76.5 million. This was made at the same time as personnel from the MICOM HAWK support office were in Korea presenting briefings to senior officials in the Republic of Korea Ministry of National Defense.

(U) As a result of the Korean FMS credit shortfall, on 21 August 1980, DSSA requested a DA review of all active ROK LOAs and to prepare modifications to reduce all cases of $1 million in value. On 15 September, DSAA was advised that 24 cases were being modified, resulting in a refund of $21.24 million to the ROK trust fund, and that payments in the amount of $6.62 million were being deffered. In early September, USASAC Policy Statement No. 80-41 indicated that loan financing of FMS cases were being negotiated on a case-by-case basis, and that sale of materiel or services was to be offered as cash in advance or as a dependable undertaking.

(U) The second ROK/US M1M1-SAR took place on 19-21 March 1980 at Headquarters, USASAC. The ROK Delegation was headed by Brigadier General K. Won, Director of Requirement and Acquisitions ODCSLOG. Following this meeting, he visited USASAC-NCAD, TARCOM and ARRCOM before returning to Korea on 29 March. The third ROK/US Security Assistance Review Conference was to be held after the end of fiscal year 1980, on 6-11 October in Seoul, Korea. Approximately 48 topics were expected to be discussed during this conference.

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(C) In the area of co-production, production of the M16 Rifle and manufacture of training ammunition continued during this period. On 30 September 1980, Amendment No. 3 to the 1971 Memorandum of Understanding, approved the Korean request to increase total production from 972,000 to 1,036,000 rifles, through CY 1981. In 1980, 80,000 rifles were delivered and about 155 million rounds were produced.

(U) New Zealand. HQDA approved diversion of 37,020 hand grenades from US Army stocks, in early August 1980, since a minimum procurement quantity requirement was not anticipated until fiscal year 1982.

(U) People's Republic of China. The Department of State announced in Munitions Control Newsletter, No. 81, March 1980, that they were prepared to consider on a case-by-case basis, license applications for export of certain items and technology to the People's Republic of China.

(FOUO) The only indicated action in this regard was the request by Under Secretary of Defense (Research and Engineering) Memorandum, 21 August 1980, to the Department of the Army to review performance limits for authorizing export of digital computer equipment. The DARCOM reply, which non-concurred with the proposed performance levels, was forwarded to HQDA on 10 September 1980 for final evaluation prior to submission to USDRE.

(C) Philippines. The only continuing co-production project in the Philippines was based upon the prior establishment of a rifle facility to manufacture and assemble M16 rifles with major assistance given by the United States manufacturer and technical assistance being received primarily from the United States Army.

(C) About 6,900 rifles were delivered from the Eli-Tool plant and accepted by the Armed Forces of the Philippines under Phase III of the project from 1 January through 31 May 1980.

(U) New MAP materiel orders for $1.4 million were received on 11 July 1980 from DSAA.

(U) Singapore. Subsequent to a site survey conducted by representatives of MICOM, TRADOC, and Raytheon, the Government of Singapore requested an LOA for purchase of a modified-hybrid version of the I-HAWK System. This system consisted of three Improved Assault Fire Units (IAFU) and three Modified IAFUs. The case had been prepared and handcarried to Headquarters, DARCOM and DSAA for approval to release on 30 January 1980. The MICOM team handcarried the case, valued at about $65 million, to Singapore on 2 February for review and acceptance with authorization to make pen and ink changes.

(C) Taiwan. During fiscal year 1980, previous FMS cases were implemented and co-production continued, based upon earlier agreements. Two representatives from the coordination council for North America visited USASAC on 19 and 20 November 1979 and satisfactorily resolved specific problem areas in ten MS cases and five ROIDs. As of 31 December 1980, there were FMS obligations of approximately $90.6 million.

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(C) Co-production resulted in 1,123, ¼-ton trucks being produced in CY 1980 and 1,000, LD141 engines manufactured from July through June in fiscal year 1980. The majority of activities involved in the granting of export licences for Nightvision goggles, engines and transmissions, hydraulic presses, and for modernization of M24, M41 and M48 tanks.

(U) The USASAC Policy Statement 80-31, provided general policies and procedures regarding transportation support, specifically indicating that at least two commercial ships per year would be available that would expedite moving hazardous, classified and sensitive equipment to Taiwan.

(U) Thailand. During fiscal year 1980, a variety of materiel was supplied to Thailand. On 29 September 1979, 30 M101A1 Howitzers were airlifted to Thailand with the balance of 17 released to Transportation for shipment by sea. Public Law 96-92, authorizing a no-cost transfer of the final increment of AIT stocks, was signed on 29 October 1979. The dollar value of the materiel transferred on 9 November was approximately $10 million and represented the final increment on an FMS case whose total value was 41.3 million.

(C) At the end of May 1980, 30 DRAGON Trackers and 589 DRAGON Missiles had been delivered to Thailand. An MTT conducted training for Royal Thai Army Gunners and the RTA successfully fired 10 training missiles against stationary armored targets to Thai satisfaction.

(U) During 2-5 July, 18 105mm Howitzers, 38 106mm Recoilless Rifles, 1,000 M16A1 Rifles and 800,000 50-caliber cartridges were airlifted by six United States funded C141 missions to Thailand.

(U) During July and August 1980, 35 M48A5 Combat Tanks with ancillary equipment and spare parts were assembled for shipment to Thailand. The tanks were assembled at Anniston Army Depot while the ancillary equipment and spare parts were directed into and assembled at New Cumberland Army Depot. Acceptance of the applicable sales case (USL) was effected by Thailand immediately after Congressional approval of the sale in early August. The 35 tanks were booked on the vessel Ruth Lykes which sailed from New Orleans on 28 August 1980. The ancillary equipment and spare parts assembled at New Cumberland Army Depot were forwarded to the country's freight forwarder for shipment to the country on the vessel Wonis Jim which sailed from Baltimore on 28 August 1980. The 35 tanks arrived in good condition at Bangkok on 28 September 1980. The Wonis Jim with the ancillary equipment and spare parts arrived on 5 October 1980.

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Europe

(U) Austria. A meeting was held at the Austrian Embassy in Washington on 22 January 1980, to discuss the MILSTRIP interface between USASAC-O and Austria. With emphasis on materiel interchangeability and substitutability, complete and mutual understanding was accomplished.

(U) At the end of January 1980, Austria formally requested an LOA for 18 M109A1B, 155mm Howitzers and equipment and services, at an estimated cost of $13.1 million. Congress was advised on 11 June 1980 and the LOA was released to Austria on 18 July 1980. The source of supply was to be from procurement with an estimated availability of 58 months.

(U) Austria also considered purchase of 50 M60A3 tank chassis, separately, in February 1980, but did not take further action during the fiscal year.

(U) An LOA for 120 M60A3 and 80 M60A1 tank turrets was forwarded to Austria on 8 September, at a cost of $117.6 million, but, since Congress was involved action could not be completed by 30 September 1980.

(U) Denmark. On 6 August 1979, the Government of Denmark requested a Letter of Offer for 62 TOW Launches and 840 missiles at a final value of $8.6 million. Statutory Notification to Congress was made on 14 January 1980 and the LOA was forwarded to Denmark on 5 March; being accepted by Denmark on 30 May 1980, with a price increase going to $9.1 million.

(U) France. The Government of France considered an LOA for purchase of 5,000 or 10,000 105mm, M735 cartridges on 14 May 1980, valued at $4.8 to $9.2 million, but following congressional approval, informally advised, in late July, that neither option of the case would be accepted.

(U) Germany. The importance of the German program could be seen in the dollar value of $983.9 million for the 444 Foreign Military Sales (FMS) cases, reviewed by a combined USASAC/SAAC team in Germany, between 5 and 9 May 1980. The review encompassed supply, open ROIDs, billing and close-out status for 216 Army, 221 Air Force and 7 Navy cases. As a result of this review, the dollar amount ceiling to be refunded or transferred, prior to case closure, was raised from $10,000 to its prior ceiling of $100,000.

(U) The following paragraphs indicate significant actions which took place during fiscal year 1980.

(U) In July 1979, the Government of Germany initiated action to purchase M48A2/A2C Tanks and M88 Recovery Vehicle Repair Parts, which was accepted by the Government of Germany in early November and implemented on 21 November 1979 at a case value of $32.05 million.

(U) On 4 January 1980, German Army Depot Maintenance was placed under FMS and for CY 1980 amounted to $33 million.

(U) Between 12 and 23 May 1980, a German Army delegation visited ARRADCOM, ARRCOM and Letterkenny Army Depot to be briefed on the conversion of M109G Howitzers to United States configuration M109A3 Howitzers. This was part of the process of consideration of possible conversion of all of the 586 M109G Howitzers (German version) in inventory that were expected to be in use beyond the year 2000. Additional assistance was to be found in the projected LOA for conversion of each M109G to M109A3 and an M109A3 Technical Data Package for information and maintenance processing.

(U) From 19 through 21 August 1980, a United States/German Logistics Conference was held at USASAC, New Cumberland, Pennsylvania and included American representatives from USASAC, the materiel readiness commands (MRCs) and the Adjutant General Center (TAG).

(U) In addition to FMS considerations, co-production involved Modular Thermal Imaging Systems (MODELIR) and their components, for which United States firms served as the technology transfer partners with German Firms. The original MOU was signed on 3 March 1978, an MOU supplement was signed on 26 March 1979 and an Implementing Arrangement was signed on 28 August 1980. Approximately $219.6 million had been spent in the United States on this project as of 31 December 1980.

(C) Greece. Military assistance during fiscal year 1980 involved purchase of recovery vehicles and consideration of purchase of other items of materiel.

(C) The Government of Greece received planning and budget data for I-HAWK Battery and Missiles on 24 April 1980, valued at $1.2 million. No further action in fiscal year 1980 occurred. Proposed purchase of 20,000 M106 Projectiles, 6 M60 Launches and 6 scissor bridges was pending at the end of the fiscal year.

(U) By a message, dated 16 May 1980, JUSMAG Greece forwarded an LOA request to the Secretary of State/DSAA for 16 line items of equipment /materiel. The request was approved by DSAA message, dated 23 May 1980. One of these cases was for eight AH-IS Helicopters (COBRA/TOW) with an estimated case value of $34.1 million. Required data for statutory notification to congress was submitted to HQDA on 5 September 1980 and the 30-day congressional period began on 15 September 1980, as authorized by a DSAA message dated 16 September 1980. The source of supply would be procurement with a leadtime of 29 through 32 months.

(U) A TARCOM/CERCOM Quality Assurance Team (QAT) deprocessed and monitored the successful turnover of 20 of 24 MAP M88A1, Full-tracked Recovery Vehicles to the Government of Greece during mid-August 1980. The remaining four vehicles were due to be delivered in Greece about 13 September 1980. Based upon experience gained by the Hellenic Army (HA) in assisting the deprocessing of the first 20, the HA had advised that a QAT for the remaining four vehicles would not be required.

(U) Israel. During the fiscal year, United States assistance to Israel continued at a high level to support a buy American Foreign Policy Objective.

(U) In the area of missiles, about 3 October 1979, the Government of Israel accepted a letter of offer for 93 I-HAWK Missiles at a cost of $9 million, that had originally been produced for Iran. About 14 May 1980, the Government of Israel purchased 150 CHAPARRAL Missiles. This was implemented on 27 June 1980, at a total cost of about $12 million. Purchase of 100 additional missiles was considered, but not implemented during the fiscal year. In regard to DRAGON Missiles, technical problems relating to late ignition surfaced. In September 1979, the DRAGON Project Manager briefed the Israeli representatives on its cause and effect, and presented a tentative work schedule and the estimated transportation costs. The Project Manager again prebriefed Headquarters, DARCOM on 11 February 1980 and brought the subject up to date in a presentation to Israeli Ministry of Defense representatives in New York on 12 February 1980.

(U) In another problem area, the United States Government assumed liability for the rework of some 29,610 defective LAW Rockets sold to the Israeli Government. The rockets had been in process at the Lone Staf Army Ammunition Depot since receipt in February 1979 and the final quantity of 9,916 awaited return to Israel in early November 1979.

(U) About 30 October 1979, the Government of Israel accepted an LOA for 45 conversion kits to convert M48A1 tanks to the M48A5, which had a case value of $1.5 million. In mid-February 1980, amendments were made to an earlier sale of M60A3 tanks, which resulted in a reduction of the case value from $317 million to $226 million.

(U) On 23 May 1980, an FMS case for five C-120 Beech Fixed-Wing Cargo Aircraft, which had a final value of $7.1 million, was implemented with the contract executed by TSARCOM on 11 July 1980.

(C) From early November 1979 through the end of February 1980, negotiations were conducted regarding possible sale of the Guardrail IV System, which ended in a decision to lease the system. The Guardrail IV System was accompanied by two associated cases; one for training by the US Army and the other for the refurbishment of the Aircraft and mission equipment, valued at about $6 million.

(C) With approval of HQDA, DARCOM was requested to resume preparation, about 20 August 1980, on a case suspended in March regarding 100 rounds of the XM712 COPPERHEAD. The case had been suspended until the DARCOM position was stated, which was that the standard model should be provided to Israel and that the NATO Laser Loding did not preclued the sale. HQDA concurred in DARCOM's position.

(U) Italy. Italy continued several co-production projects during 1980. Co-production of the last of 208 M548 cargo carriers was completed by the end of December 1980. Production of 300 modified M113A1 Vehicles was begun with completion dates to start in March 1981 through February 1982. Production under the contract with OTO Melare for the last group of 36 M109G Howitzers (gun and mount) was delayed, pending resolution of a proposal to modify the cannon by relocating the torque key and key way; this was not resolved in 1980. The five AROGS-10 Radar Systems were in various stages of co-production, delivery, and successful acceptance testing during 1980. The Italian Management Review was held in Rome, Italy from 19 to 26 May 1980 and the United States Team was composed of Army, Air Force and Navy personnel.

(C) Netherlands. On 14 February 1979, the Government of the Netherlands accepted an LOA for six M240 LANCE Nuclear Training War Heads to be available in October 1980. The Government of the Netherland's Initial Operational Capability (IOC) was in early 1981. The slippage in delivery, indicated on 20 December 1979, was coordinated by USASAC to return to the original schedule by 6 March 1980.

(U) On 5 October 1979, the Government of the Netherlands purchased seven Mortar Locating Radars, AN/TPQ-36, valued at 18.5 million. Due to the complexity of the Radar System, the first semiannual review was conducted in the Netherlands on 11-13 February 1980, with representatives of the Firefinders Project Manager's office and USASAC in attendance. In early July 1980, HQDA approved diversion of seven AN/TPQ-36 Mortars with delivery to be: one in October 1981, three in June 1982, and three in September 1982. Payback to the Army from production would be at a rate of one per month, beginning in October 1982.

(U) On 20 December 1979, the Government of the Netherlands requested an LOA for about 1,600 DRAGON Missiles. This was accepted as 1,654 missiles on 21 January 1980, prior to the ending of the contract. About $1,200 was saved per missile by this action, valued at $6.8 million, and was the third such purchase of these missiles.

(U) On 15 January 1980, a request was received from the Netherlands for an additional quantity of 415 TOW Heat Missiles. The LOA was forwarded to the Netherlands Embassy on 26 March 1980, and on 6 May 1980, the Government of the Netherlands accepted the LOA valued at $2.4 million. This action increased the total of TOW Missiles purchased to date as over 11,000.

(U) In February 1980, an informal request was received for price and budget data for the 8-inch SP M110A2 Howitzer. On 26 June 1980, Congress was provided notification that the Government of the Netherlands intended to purchase 37 8-inch Howitzers. On 30 June 1980, an unsigned copy of the LOA was forwarded, and on 15 August 1980, the Government of the Netherlands accepted the LOA, less winterization kit, sprocket wheels, and track shoes; valued at $27.5 million.

(U) On 20 May 1980, a request was received from the Government of the Netherlands for an LOA for 144 155mm Towed M198 Howitzers. The Government of the Netherlands had obtained one M198 Howitzer on a lease agreement for testing during the period of May through November 1979. A Government of Netherland's representative visited DSAA on 18 June 1980 to discuss possible co-production of the M198. Congress was formally notified regarding the LOA, which had a value of $67.8 million, on 15 September 1980. Acquisition was expected to be completed in fiscal year 1981.

(U) The ongoing co-production project involved the M109A2 SP Howitzer for which the United States sold the chassis, turret and technical assistance. The cannon mount and cab interior components were produced in the Netherlands and final assembly and testing was also completed there. In the 4th quarter fiscal year 1980, the United States shipped 3 chassis and 21 cannons to the Netherlands and technical assistance was provided by ARRCOM during the year. The project dollar value was estimated at $61 million.

(U) North Atlantic Treaty Organization (NATO). The HAWK European Limited Improvement Program (HELIP) with NATO continued to develop in several separate aspects of the program during fiscal year 1980. The basics to the Improved HAWK Conversion Program of Missile Production were completed in October 1980. The separate Belgian program for six active and one training battery was scheduled to be converted and 252 missiles were produced during the period March 1980 to March 1981. Production of the I-HAWK Product Improvement Program (PIP) began on 14 March 1980 with installation of PIP to start in October 1981. The first delivery of the Operational Training Simulator (OTS), produced in Europe, was made in April 1980.

(U) Norway. Under the 1968 Tripartite Technical Agreement, Phase III, now only between the United States and Norway, sales of the LAW Rocket were made to other NATO and United States allied countries, based upon the United States furnishing the launches and warhead metal parts. During CY 1980, deliveries were made of: 600 to NAMSA; 3,300 to the Netherlands; 650 to Luxembourg; and 18,240 to Belgium.

(U) Portugal. The Annual Grant Aid review took place in Portugal from 11-15 February 1980. Additional materiel MAP orders amounting to $2.1 million were received on 11 July 1980 from DSAA.

(U) Spain. In regard to the Territorial Command Network (TCN), personal observations made by the TCN Project Manager, on his fall 1979 visit to Spain, revealed that the TCN was performing and was essentially free of operational and maintenance problems, and that the US Army and maintenance team could be reduced in numbers.

(C) During the year, efforts continued to mediate United States-Spanish issues involving the TCN program, and the TCN Mediation Agreement was signed on 24 July 1980 by representatives from the United States and Spain. By the end of the fiscal year, a mediator, Dr. Wiederbehr, had been selected and was expected to begin his tasks in mid-October 1980.

(C) Planning and budget data were furnished regarding the possible purchase of I-CHAPARRAL by the Government of Spain in December 1979. The total estimated cost for 24 fire units, 432 missiles, associated support items, and services was $81 million.

(C) In June 1980, Spain requested an LOA for 96 I-CHAPARREL Fire Units and 1,728 Missiles. By the end of August 1980, preparation of an LOA in response to this request was ongoing. The Advance Notification, then being staffed, reflected an estimated cost of $350 million.

(U) On 7 May 1980, members of the Spanish Army, using US Army-owned, refurbished equipment, successfully fired two I-HAWK missiles at McGregor Range, Texas, destroying both targets. In June 1980, consideration was given to Spanish complaints on the condition of the I-HAWK System furnished by the United States, but further action awaited confirmation from Spain that all of the questions Spain raised had been resolved to Spanish satisfaction.

(U) Sweden. Expedited actions were taken in late September to assemble all available materiel relating to case ULJ, which was located on a Swedish C130 aircraft, first at New Cumberland and then at Dover Air Force Base on 1 October 1979.

(C) On 22 January 1980, representatives of USASAC met with representatives of the Swedish Embassy and discussed purchase of TOW Launchers from Emerson Electronics and TOW Missiles through FMS. About 14 May 1980, the Swedish Assistant Military Attache advised that the Government of Sweden had signed a contract for 120 TOW Launchers at a value of 6.85 million. USASAC prepared an LOA for 2,100 TOW Missiles. Approval of the first shipment of launchers export license was recommended about 27 May 1980.

(C) Switzerland. The Swiss Security Assistance Program, during fiscal year 1980, involved both purchase and co-production. The first interrelated project involved the DRAGON Missile. Co-production of the Tracker, Tracker Test Set and Monitoring Set resulted in First Article Testing of these components, being completed by October 1980. In regard to co-production of the missile itself, three cases involving a Technical Data Package (TDP), royalty charges, and technical assistance for a study TDP were picked up by the Swiss on 24 July 1980. A Memorandum of Understanding was in negotiation at the end of the fiscal year and co-production of the missile was expected to begin in 1983.

(C) Switzerland had also accepted an FMS case for 6,200 DRAGON training missiles, valued at $22 million, at the end of December 1979.

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(C) In addition, about 20,500 purchased missiles were delivered in Switzerland between June and December 1980, at an estimated value of $200 million, based upon earlier agreements.

(C) A second interrelated project was that for the purchase and co-production of the 155mm, M109A1B Howitzer. On 17 December 1979, the Government of Switzerland accepted an FMS case for 207 Howitzers to a configuration designed by them, valued at $79.8 million. It was a companion case for long leadtime items which had been accepted in July 1979, valued at $47.2 million. The case was implemented on 12 February 1980, and called for supply of 207 Howitzers and 207 50-caliber machine guns, with delivery expected to commence in August 1982 at a rate of ten of each weapon per month. Completion of the delivery was expected in April 1984.

(C) This project involved the production of certain cannon components at Watervliet Arsenal, which were then shipped separately to Switzerland. There they were to be incorporated into a Swiss-produced cannon for subsequent assembly of the total vehicle, with certain chassis and cab components also to be produced in Switzerland. Discussion continued throughout 1980, regarding aspects of future-planned production and delivery of chassis and cannon parts. On 30 June 1980, Switzerland signed a case for a Technical Data Package for the 109A2 Howitzer.

(U) An FMS Management Review was held in Berne, Switzerland on 5 through 8 May 1980. Swiss attendees included representatives from the Embassy of Switzerland, DRAGON Project Office, Aircraft Maintenance, Ordnance, contract aircraft, communications and ammunition offices. The United States was represented by Headquarters USASAC, USASAC-NCAD and SAAC. The review was considered beneficial with good cooperation achieved. The Fifth Progress Review meeting for the missile program was held in Berne on 2 June 1980 and the sixth meeting was held at MICOM from 4 to 7 November 1980.

(C) In regard to other matters, on 14 January 1980, the Departments of State and Defense, as an exception to policy, approved the release of P&D data on the XM-1 Tank to Switzerland, but pointed out that the United States could not commit itself to its foreign sale now.

(U) On 28 April 1980, the Department of State disapproved the Chrysler Corporation's applications for license to export unclassified technical data to the Government of Switzerland for discussion on co-production of the XM-1 Combat Tank; its parts, components and/or related equipment.

(U) In early August 1980, work was proceeding on a draft Statement of Accord, which would be one of the major topics in meetings with the Swiss in Detroit, planned for 25-26 August 1980.

(U) On 18 January 1980, the Swiss Embassy indicated that it had contracted with FMC for the purchase of M548 carrier vehicles and, as a result, on 10 March 1980 they cancelled the similar FMS case for 160 vehicles. Switzerland ordered the same number directly from the

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manufacturer, with modifications, and cancelled another FMS order for 225 M113A1ADS, which was expected to be delivered earlier than the FMS case order.

(C) Turkey. During the period 15-17 October 1979, a meeting was held at TARCOM that reconciled the status of the Turkish MIMEX program. After the release of the Turkish Arms Embargo in September 1978, 2,338 vehicles/trailers were undelivered. Since that time, 1,326 vehicles/trailers had been shipped to Turkey, leaving a balance of 1,012 that would be filled if suitable MIMEX assets were generated. This was followed by a subsequent Turkish visit to USASAC-NCAD for the same purpose.

(C) In January 1980, Turkey obtained one M48A5 tank and one conversion kit, which allowed conversion of an M48A1 to an M48A5 tank at the Anniston Army Depot. In April 1980, Cadillac Gage Division, Ex-Cell-O Corporation requested an advisory opinion regarding a proposed technical assistance agreement with the Governments of Turkey and Taiwan for the modernization of M24, M41 and M48 tanks, for which approval was recommended to USDRE on 15 April 1980. In addition, a free lease of one set of Location/Inspection Fixtures, to support the tank conversion program, was processed between the end of April and 4 June 1980.

(C) In late January 1980, CERCOM released for shipment an AN/GLQ-3AEW System, being the last of the major grant aid materiel effected by the Arms embargo. In July 1980, a QAT returned from Turkey which marked the end of major deliveries. All that remained to be shipped were some electronic items, repair parts and one AN/GLQ3A and associated test sets, then being used for training 12 Turkish Army students at Fairchild Corporation. These would be forwarded following completion of training, after August 1980.

(C) Further assistance was discussed at a conference that was held 11-13 June at NAMSA-HQ, Capellen, Luxembourg. At this conference a USASAC/MICOM team developed procedures for the funding of Turkish requirements by use of US-FMS credits.

(C) Major General Dogu, Chief of Logistics, Turkish Land Forces Command, visited several DARCOM facilities and held meetings, ending at Headquarters USASAC, regarding the proposed Turkish Tank Upgrade Program.

(C) In early August 1980, the Government of Turkey requested authority to ship five M48 tanks to Germany for use as prototypes in a tank upgrade program similar to the United States M48A5 Modification Program. The tanks were previously furnished to Turkey under the Military Assistance Program (MAP). The action would be the first step in a large, in-country rebuild program funded by Germany, which could become a significant contribution to the Turkish Force Modernization Program.

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(U) The Defense Industrial Cooperation Executive Committee was expected to meet in Ankara on 16 and 17 October 1980. Major General Thomas Healey, Director of Security Assistance, was to be DARCOM's representative.

(U) By December 1980, contracts had been awarded which completed procurement of all rocket components and chemicals required for co-production of the 2.75-Inch Rocket. Delivery would be completed by August 1981.

(U) United Kingdom. In August 1979, plans began at a meeting in the Pentagon for the participation of two United Kingdom battalions in Exercise Trumpet Dance I and II, with the 101st Airborne at Fort Campbell, Kentucky. This exercise was scheduled for early 1980, with United States support totaling approximately $400,000.

(U) In October 1979, General Sir Hugh Beech, United Kingdom Master General of Ordnance, discussed the purchase of eight M578 Recovery Vehicles and 155mm, M109A2 Howitzers with General Guthrie, during his visit. By 23 January 1980, the FMS case FMG had been prepared for the M578 vehicles, and the case FMF for the Howitzer was almost completed. On 13 February, case FMG was accepted by the United Kingdom at a value of $5 million, and was in time to add these vehicles to the production contract which was due to expire.

(U) The case VMF, valued at $32 million, was accepted on 31 March 1980, following clearance through the State Department and Congress on 22 March 1980. The delivery commitment for the 57 Howitzers made to the United Kingdom by the US Army Chief of Staff was scheduled for calendar year 1981.

(U) The only co-production project in fiscal year 1980 was for the procurement of the TOW helicopter, launched anti-tank guided missile system and the manufacture in the United Kingdom of 120 roof-mounted sight and associated missile control systems (and spares). Through a United States-United Kingdom contractor, three experimental and twelve preproduction articles were completed and accepted in September 1980.

(C) Yugoslavia. The second meeting of the United States-Yugoslav Joint Military Committee was held in Belgrade, Yugoslavia from 16-20 June 1980. Its objective was met to further United States-Yugoslav cooperation and strengthen the bilateral relationship. During the next week, the Deputy Chief of the General Staff, Colonel General Duson Peku, visited the United States and talked with General Guthrie, Commanding General, DARCOM, on 23 June 1980.

Latin America

(U) Argentina. On 9 April 1980, Lieutenant Colonel Mataloni, the new Assistant Military Attache, visited USASAC to review the status of FMS cases. The objective of this visit was to expedite closures of cases initiated prior to 1 October 1978, when the program was suspended in accordance with Public Law 95-92.

(U) Bolivia. By message on 18 July 1980, SECDEF announced that STATE had directed: (1) all deliveries of FMS and MAP materiel were suspended until further notice; (2) no new Letters of Offer would be issued; (3) all new requests for LOA, P&A and P&R data would be referred to DSAA for approval; (4) no new releases of materiel would be made to the Government of Bolivia; (5) all shipments of materiel still under United States control would be diverted and held, pending further disposition instructions; (6) details of ongoing contractual actions would be reported to DSAA; and (7) students in training on 18 July 1980 would continue, but no students would commence training after 18 July 1980. Implementing instructions were issued by USASAC on 18 July and confirmed by message on 21 July 1980. Value of the suspended program was approximately $1.4 million, almost entirely under MAP.

(U) El Salvador. In fiscal year 1980, support for El Salvador began on an expedited basis on 7-9 November 1979. An LOA, received on 7 November in USASAC-NCAD, for protective masks, body armor and teargas grenades, resulted in a shipment weighing 11,000 pounds being delivered to Charleston Air Force Base, South Carolina, by 2400 hours on 8 November 1979. The C-141 Mission Aircraft departed from Charleston Air Force Base at 0745 hours and arrived in El Salvador at 1119 hours on the due date, which was 9 November 1979.

(U) Four FMS cases, including protective masks, CS grenades, generators, radios and other communication equipment, at a value of $1.4 million, were implemented on an emergency basis on 23 May 1980.

(U) At the direction of DSAA, two FMS cases for 700 body armor sets and 21 ambulances, all valued at approximately $406,000, were developed, processed and implemented on an expedited basis within eight days, in June 1980.

(U) Honduras. Delivery of ten UH-1H Helicopters, leased to Honduras by an agreement dated 25 April 1980, was completed on 24 May. Ten FMS cases, including communications items, grenade launchers, machine guns, mortars and rifles, as well as associated training services, were estimated at $3.7 million. Formal ceremonies, turning over the helicopters, took place on 30 May 1980.

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(U) Nicaragua. Security Assistance, which had been suspended on 17 March 1979 by the Secretary of Defense, was reinstated on 21 November 1979. A military liaison office was planned to be reestablished in the country about mid-January 1980.

(U) Venezula. On 25 January 1980, the Government of Venezuela opened a blanket, open-end training case comprising a variety of CONUS training courses for the period of 25 January 1980 to 10 April 1981, valued at $478,915.

Middle East

(U) Bahrain. On 20 November 1979, the Chief of Staff of the Bahrain Defense Forces visited USASAC and signed two LOAs for 14 ½-ton truck mounted TOW Systems with ancillary equipment, spare parts, and an MTT valued at $5.9 million. The first increment, comprising two complete systems and 30 missiles, were airlifted from Norfolk to Bahrain on the weekend of 12 January 1980. The remaining systems were scheduled to be shipped prior to the end of the fiscal year.

(C) An Air Defense Survey was conducted in October 1980 and two or three I-HAWK batteries were recommended as being possible additions to Bahrain's defenses.

(U) Egypt. During fiscal year 1980, the Egyptian Foreign Military Sales program was defined and cases supporting the program were negotiated. The program, a direct out-growth of the Camp David Middle East Peace Accords, was designed to assist the Arab Republic of Egypt in satisfying defense needs in the wake of withdrawal of monetary support by affluent Arab neighbors. From the outset, both the United States and Egypt agreed that the United State's role should be limited to providing a portion of the total Egyptian requirement. Initially, a loan of $1.5 billion had been approved as the level of commitment. The year 1980 was marked by a series of conferences and services that determined how best to apply that sum to the Egyptian defense requirements. In order to provide an immediate demonstration of support, the first FMS cases were signed in mid-1979 for 50 M113A2 Armored Personnel Carriers and 12 M113A2 Mounted TOW Missile Anti-Tank Systems. Expedited deliveries made these items available for the "Sixth of October" Parade, an important Egyptian holiday marking the Arab Republic of Egypt's successful recapture of the Suez Canal in 1973. This event carried great national significance, as they considered it a vindication of their armed forces for the military defeat suffered in 1967.

(C) On 1 October 1979, the Government of Egypt accepted an LOA comprised of 11 batteries of I-HAWK with the supporting command and control system, plus a Supply Support Arrangement (SSA). The case was valued at $439.7 million and the initial SSA was valued at $6.9 million. The Government of Egypt reserved the right to reconsider the FMS case, should studies prove that I-HAWK and their IFF could not be made compatible.

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(U) During 1-14 May 1980, the first I-HAWK Program Management Review was conducted by the I-HAWK Program Manager, Colonel (P) Whittaker. The USASAC representative was Mr. H. Edwards.

(U) In March 1980, a United States Team went to Egypt to negotiate the sale of an M60A3 Tank package. The package included 244 M60A3 Tanks, 43 M88A1 Recovery Vehicles, basic and training loads of ammunition and associated training, repair parts, and support equipment. The negotiated Letters of Offer and Acceptance were restructured and presented to the Government of Egypt over the next nine months resulting in a total program of $582 million. In September 1980, Egypt purchased an additional 67 M60A3 Tanks.

(U) In April 1980, a joint United States/Government of Egypt conference was held in Washington, DC to review the status of the Defense Production Assistance Program. The meeting was chaired on the United States side by the Deputy Under Secretary for Defense, Research and Engineering, Mr. Dale Church and on the Egyptian side by the Special Assistant to Minister of Defense for Requirements and Acquisitions, Major General Gamal El Sayed. The meeting reviewed twenty-two proposed projects, determining priorities, funding, and approaches for each project. As a result of the review, six projects were cancelled and six were deferred.

(U) During May 1980, a United States Team surveyed the track vehicle field maintenance support capability of the Egyptian Army to identify any areas overlooked in the structuring of LOAs for maintenance support of United States track vehicles sold to Egypt. The results of that team's effort were provided to the Egyptians with appropriate recommendations for action.

(U) Problems arising during earlier negotiations for the tank program as well as for a program to deliver 1,200 to 1,500 M113A2 type vehicles surfaced in May and June 1980. Issues developed over proposed nonstandard modifications to the M113A2 Family Vehicles. Additionally, the Egyptians had not finalized decisions concerning whether to buy additional M60A3 Tanks or to rebuild M48 and M60 Tanks captured during the 1973 war. Finally, the Government of Egypt had "second thoughts" about a proposed purchase of M578 Medium Recovery Vehicles. Visits from the Egyptian Task Force to Egypt followed by a June visit by the Director of the Armor Department to the United States, resolved these issues. The result was the finalization of Letters of Offer to provide a total of 1,214 M113 Vehicles (including ambulance, command post, mortar carrier, recovery and maintenance vehicle configurations). The Egyptians opted to buy an additional 43 M88A1 Recovery Vehicles, in lieu of the M578 Recovery Vehicles.

(U) The Government of Egypt also approached the United States Government expressing serious concern over their ability to resupply their airborne troops during airborne operations. Some of the heavydrop and rigging equipment that they had obtained from the Soviet Union exceeded shelf life. In response to an urgent request to provide

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replacement equipment a $3 million program was assembled and provided to the Egyptians. The program not only included expedited delivery of materiel, but also a 90-day training effort to teach the Egyptian Airborne force how to use the United States equipment and how to rig airdrop loads using a combination of United States and Soviet equipment. Required equipment was delivered in-country within six weeks of the signing of the cases and training began on 17 July 1980.

(U) In general, the approach agreed to by both governments, for Defense Production Assistance programs, required initial feasibility/planning surveys. The US Army Armaments Command conducted a survey to extend the service life of the Soviet Air Defense Gun Systems. The Armament Command Team was followed by a Missile Command Survey Team to extend the service life of the Soviet Missile Air Defense Systems. The Egyptian capability to support co-production of tank ammunition and MK80 Series Bombs were also surveyed. As the year closed, teams were gearing up to survey co-production for the M113A2 Personnel Carriers, TOW Missile Systems, 2.75-Inch Rockets, and Night Vision Devices.

(U) During the fiscal year, numerous Egyptians visited the United States for professional discussions and tour of military installations and contractor facilities. The Egypt Task Force prepared and coordinated the itineraries of 79 Egyptian personnel. Of this number, 46 were general officers.

(C) India. About 14 November 1979, DSAA approved preparation of a TOW Missile System LOA for 3,724 HEAT Missiles, 630 Practice Missiles, 60 Launchers, 8 TOW Field Test Systems, 10 M-70 Trainers, 20 Simulator Rounds, 10 Battery Chargers and 12,600 Blast Simulators. This LOA was expected to require congressional approval.

(U) About 5 October 1980, a military delegation from the Government of India arrived in Washington to begin discussions regarding this LOA. On 11 October 1980, the Indian Defense Secretary, Mr. H. K. Menon was expected to arrive to continue discussions and to sign the LOA on 17 October 1980. The value of the LOA was $38.5 million. While other LOAs were forwarded to the Government of India, no decision was reached on them by the end of the fiscal year.

(U) The Government of India did, however, test an M198 Howitzer and an M813A1 cargo truck (prime mover) in mountainous plains and desert environment. They were tested within India for 90 days, following arrival in Bombay, India, on 11 April 1980. The program totaled about $945,000 and consisted of two, ninety-day lease agreements and four supporting FMS cases which included MTT, maintenance teams, CAWs project manager technical services, ammunition, supporting items, and air shipment costs.

(U) Iran. Relations between the United States and Iran remained strained. The Islamic Iranian Republic Ground Forces (IIAGF) requested four BOE cases for a total value of $3 million, and two FMSO cases in early October 1979, that were prepared for submission by late November.

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(U) On 20 October 1979, a ten-man, Iranian I-HAWK factfinding team completed its ten-day tour of the United States Government and contractors facilities to determine the status of the Iranian I-HAWK Program. An out-briefing was provided by the Iranian Team to Lieutenant General Graves, Director DSSA, on 26 October 1979.

(U) About 5 December 1979, however, the Department of State formally directed the resumption of the temporary suspension of the Security Assistance Program for Iran.

(C) Jordan. In fiscal year 1980, Jordan initiated requests for 53 Foreign Military Sales, Letters of Offer (LOA) for various equipment services and training. During fiscal year 1980, 40 new or prior year LOAs with a total value of $305 million were also accepted. Significant items were the 20mm and 155mm ammunition and 100 M60A3 Tanks. The tanks were scheduled for delivery from June through October 1983.

(C) In the Jordan Air Defense Program, the final shipment of 100 Vulcan Systems was completed in December 1979. The last of 14 I-HAWK Missile Batteries was delivered in August 1980. Shipment of support equipment, services/training, and program management continued during fiscal year 1980.

(U) Biannual United States/Jordanian Joint Military meetings were held in Washington in October 1979 and in Amman, Jordan in April 1980. The United States delegation to Jordan, in April 1980, was headed by Under Secretary McGiffert. Both meetings were highly successful and resulted in the continued friendly relations with the Jordanians.

(U) In May 1980, representatives from DRSAC-M and DRSAC-O visited Jordan and conducted an in-depth country requisition review. The representatives also visited Jordanian field locations and provided Jordanians at these locations instructions and guidance on the purpose and use of logistic reports.

(C) Kuwait. LOAs totaling $40.3 million for 240 M800 Series Vehicles, 103 M113A2 Family Vehicles, and 20 TOW Launchers were offered to the Government of Kuwait. During fiscal year 1980, the Government of Kuwait accepted LOAs for two-year, I-HAWK Missile follow-on support, including 32 I-HAWK Missiles, with a total value of $92.1 million.

(C) Lebanon. The Lebanese Government continued the modernization of its Armed Forces via the FMS Cash and FMS Credit Programs during fiscal year 1980. During this time, requests for 29 new FMS cases were initiated. At this same time, Lebanon accepted new or prior year LOAs that had a total value of $30.8 million. Equipment items involved were: trucks, wreckers, shop vans, ambulances, 69 M113 APCs, 27 M125A2 mortar carriers, and M577A2 command post carriers. The weapons included 18 M825 ¼-ton trucks, 18 M40A2 106mm Recoilless Rifles, 18 M101A1 Howitzers, and 6 114A1 155mm Howitzers. On 29 November 1979, an expedited supply action involved the airlift of 3,000 (of the 17,000 purchased) M16A1 Rifles,

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86 M80 Machine Guns and 18 M67 90mm Recoilless Rifles. In addition, ammunition was purchased and CONUS training was arranged.

(U) Morocco. During fiscal year 1980, United States assistance to Morocco involved Hughes 500MD Helicopters, air defense systems and tanks.

(U) An In-country Management Review of the Moroccan and Tunisian FMS programs was conducted from 29 November through 10 December 1979, which resulted in identification of almost $44 million coverage in Moroccan case cost estimates. This permitted consideration of application for new requirements.

(U) As a result of the 17 January 1980 briefing given at the Pentagon to the Moroccan Air Force Chief (Kabbaj), the Government of Morocco requested an LOA for 24 Hughes 500 MD Helicopters. Twelve were to be equipped with the TOW weapon system and twelve to be configured with the 2.75 Rocket/7.62mm Gun System, at an estimated cost of $48 million.

(C) Following the 11 May underwriting by Saudi Arabia, the LOA was accepted by the Government of Morocco with support and training to be provided by Hughes Helicopter Company. On 13 June, a USASAC/TSARCOM Team was deployed to Morocco to make a survey of facilities and availability of equipment in support of the Hughes helicopter. Changes were then made to case requirements in order to insure "a total package support concept."

(U) Air Defense of Morocco comprised the VULCAN and CHAPPARAL Systems and the supporting Forward Alert Acquisition Radar (FAAR). inal delivery of the VULCAN System was completed in April 1979, but in August 1979 CHMUSLO advised that problems had arisen and that the Moroccan Government was critical of the system. A team sent on 19 October 1979, for 30 days, assured that the system was returned to operational status. In March 1980, an FMS case of $1.5 million for calibration services for all systems was accepted.

(U) The first Moroccan Annual Service Practice (ASP) firing of their CHAPARRAL Missile System was conducted during the period 24 June-1 July 1980, in-country. This initial firing of ten missiles against Ballistic Aerial Target Systems resulted in direct hits. Four missiles were fired by Moroccan troops under supervision of the US Army Mobile Training Team (MTT). The remaining six were fired without MTT assistance, but the latter was available, if required. This performance reflected both excellent application of training received and support provided by MICOM/TRADOC personnel.

(C) On 13 November 1979, SECDEF approved the exchange of 26 M48A5 CONUS assets for 26 M48A3 tanks in-country. Following placement of 26 M48A5 tanks in Morocco from United States stocks, a like number were to be shipped to CONUS for rebuilding and return to the United States tank inventory. The Government of Morocco accepted this case on 18 January. The first installment of thirteen Moroccan tanks were

shipped in mid-September 1980, via sealift from Casablanca to Charleston, South Carolina, for rebuilding at Anniston Army Depot, at an estimated cost of $5 million.

(U) In January 1980, consideration was given within DOD for approval of Moroccan purchase of fifty Dragon 300 Series Armored Vehicles, with equipment from the Arrowpointe Corporation at a cost of $17 million. Final purchase did not appear to have been made in fiscal year 1980.

(C) About 7 May 1980, the Government of Morocco requested an LOA for 116 M60A3 tanks and 8 M88 Recovery Vehicles at a cost of $190 million, but further action was not completed during fiscal year 1980.

(C) Oman. In mid-April 1980, the desire was expressed by the Government of Oman for six M60A3 tanks, that would be driven by trained Omani drivers in the National Day Celebration in November 1980. This request was implemented following acceptance of four FMS cases, that had a total value of $12.8 million, by the Government of Oman on 29 May 1980. The materiel involved included the six tanks, six heavy equipment transporters and trailers, related support equipment, basic load and training ammunition, and training. In June 1980, an expedited surface shipment of the six M60A1 tanks and three heavy equipment transporters was accomplished.

(C) Oman ordered, under the FMS program, additional items that included one M88A1 Recovery Vehicle, 12 M198 155mm Howitzers and ammunition, Nightvision Scopes and supporting equipment.

(U) Pakistan. On 3 January 1980, due to the Soviet threat to Pakistan, DSAA released all outstanding Pakistani requests for LOAs and Price and Budget Data. On 24 January, nine LOAs for a total dollar value of $14.8 million were submitted to the Government of Pakistan for approval. Though no further action appeared to have been accomplished, a Pakistani Defense Production Assistance delegation was to be in the United States from 24 August to 4 September 1980, to review excess DOD plant equipment.

(U) Tunisia. During the period 29 November through 10 December 1979, an In-country Management Review of the FMS program was made by a team comprising of representatives from six security assistance agencies. This joint program review highlighted problem areas in both Morocco and Tunisia and stimulated their resolution. The reviews were deemed very beneficial.

(U) On 25 January 1980, Major General Cleland hosted a luncheon for Major General Balma, Chief of Military Security-Tunisia, and his party. During this combined protocol and working, lunch meeting, the Army Security Assistance Program was reviewed.

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(U) On 1 February 1980, DSAA/DA directed USASAC to prepare two LOAs comprising 30 Armored Personnel Carriers (APC), related machine gun, radios, ammunition, tool sets, training aids, concurrent spare parts, as well as a Mobile Training Team and Quality Assurance Team. The LOAs were offered/accepted and credit funded on 2 February 1980. Ten APCs with support personnel and equipment were airlifted via 2 C-5As and 1 C-141 MAC aircraft on 5 February and off-loaded in Tunis on 7 February 1980. The remaining 20 APCs, with associated equipment, arrived by commercial American Flag Vessel in Tunis and off-loaded on 23 March. APC deprocessing was completed and all equipment turned over to the Government of Tunisia by the Quality Assurance Team on 25 March 1980.

(U) The first delivery of two Bell 205 Helicopters arrived in Tunisia on 30 June 1980. The US Quality Assurance Team (QAT) witnessed off-load of the helicopters which proceeded without incident. Deprocessing of the aircraft began on 1 July 1980. Two additional helicopters were scheduled for delivery in late July with final delivery of two scheduled for late August 1980. Total value for these commercial helicopters purchased through FMS procedures was $10,502,728.

(C) United Arab Emirates (UAE). The UAE was studying the possibility of modernizing their Armed Forces with US equipment during fiscal year 1980. Price and Availability data with an estimated $150 million value was prepared and provided the DOD and State Department for discussions with the UAE. Significant items were: M60A3 Tanks, M113A2 APCs, Improved TOW Vehicles, VULCAN Systems, Self-Propelled and Towed Howitzers, ammunition, and services/training.

(C) In addition, an Air Defense Survey was conducted in the United Arab Emirates in July 1980, and possible quantities of I-HAWK batteries, recommended by the survey team, were up to seven batteries for the United Arab Emirates. No further action took place in fiscal year 1980.

(C) Yemen Arab Republic. In late March 1979, thirty-two M60A1 Tanks were expedited to the Yemen Arab Republic, to meet a crisis situation, without sufficient combat ammunition. In mid-January 1980, the Department of the Army authorized withdrawal of 384 rounds of HEP-T ammunition for surface shipment from Army stocks to provide supply.

(C) Yemen advised that the first YAR Armor Brigade, which was trained by a Jordanian MTT, had begun live-range firing on 16 January 1980. The results were exemplary and 80-90 percent of the rounds that were fired were target hits. All M60A1 Tanks were expected to be zeroed on or about 20 January 1980. It was also known that the M60A1 Tank had won many converts in the Republic, from the Soviet equipment which had previously been in use.

(C) In late January 1980, the Saudi Arabian Government requested expedited delivery of all undelivered items of equipment for the Yemen Arab Republic by 31 March 1980. As of 23 January, major items still

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to be delivered included 52 M105 Howitzers, 77 50-Caliber Machine Guns, and machine gun and tank ammunition.

(C) In late April 1980, SECDEF surveyed potential customers to determine interest in possible redistribution of the fifty-two M101A1, 105mm Towed Howitzers from new production, programed for Yemen. Lebanon indicated a desire for thirty-eight of the Howitzers, but apparently, no final action regarding their disposition was completed.

(C) Saudi Arabia. During fiscal year 1979-1980, the two major programs involving the Saudi Arabian Land Forces (SALF), and the Saudi Arabian National Guard (SANG) under the Program Manager (PM) SANG, continued their progress. On 29 September 1979, the Phase II Amendment (ZAC-5) to the SANG Modernization Program was signed in Saudi Arabia. It had a case value of $1.2 billion. On 3 October 1979, USASAC processed initial instructions to DARCOM MRCs, which facilitated case implementation. During the period 3-5 October 1979, representatives from the SANG PMO visited USASAC-O to discuss the Freight Forwarder contract and to review the overall SANG program. It was mutually agreed that an intensive effort was to be made over the next several months to close out cases prior to the implementation of Phases I and II of the SANG Modernization program.

(C) On 16 October 1979, Headquarters SANG issued an order officially activating the Logistics Support Battalion (LSB), with activation date scheduled for 5 November 1979 and training to commence on or about 10 November 1979. As this reflected a delay of approximately 35 days, the master training program required adjustment, but no severe training impact was created.

(C) During the period 20-22 October 1979, a SANGTEP (Saudi Arabian National Guard Training Evaluation Program) was administered to the 4th Combined Arms Battalion (CAB) and an evaluation made of the 2d CAB, with both units performing successfully. A total of 15 SANG officers participated as evaluators both weeks.

(C) The SANG Repair Parts Committee drafted new issue procedures intended to provide increased responsiveness for repair parts supply. These procedures delegated authority to the Repair Parts Stores Manager to release repair parts that were available without further approval from the logistics chain of command. This initiative was seen as a major breakthrough in the modernization of the SANG supply system.

(C) The OPM SANG study of the SANG logistics system was completed. Headquarters SANG approval of recommendations was reflected in a revision to the Project Manager's Master Plan (PMMP) for Phase I of the Follow-On Modernization Program.

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(C) By 31 October 1979, HQDA had authorized diversion of five AN/VRC-64 and seventy-seven AN/VRC-12 radio sets for the 32 M60A1 Tanks on FMS case VZ1.

(C) In November 1979, all SANG elements were placed on alert in response to the 20 November seizure of the Grand Mosque in Mecca. Some modernized elements of the 2d CAB and individuals from Headquarters SANG were deployed to Mecca and participated in the suppression of the dissidents. The OPM and contractors joined with SANG during the alert for a maximum effort toward bringing the CABs to the highest possible state of readiness. Materiel readiness was particularly stressed, and contractor maintenance facilities worked considerable overtime. By direction of HE Sheikh Tuwaijiri (Deputy for Financial and Administrative Affairs), the usual SANG Supply procedures were set aside, and spare parts were issued immediately, either from stock or local purchase. By 25 November, most outstanding requisitions in the three graduated CABs had been filled.

(C) Headquarters SANG's preoccupation with the Mecca disturbance caused the postponement of necessary SANG/OPM consideration of other important issues: a meeting to review progress in reducing the V-150 maintenance backlog was deferred; a joint review of the Phase II PMMP was postponed twice; SANG delayed setting a date for the 4th CAB graduation; acceptance of OPM's recent study of the SANG logistics system was deferred; and efforts to fill and equip the new logistical support battalion came to a standstill.

(C) During November 1979, OPM and Headquarters SANG reached an agreement on how contractor employees should be selected and hired and began acting on that agreement. Joint OPM-Headquarters SANG teams visited Amman, Jordan, and Bangkok, Thailand, to screen and hire new contractor employees, and another joint team screened re-hire applications of existing employees. The successful function of the joint hiring teams showed the positive results of delegation of authority by Headquarters SANG.

(C) Five additional Foreign Military Sales (FMS) cases (or amendments) were requested for Phase I of the Follow-On Program under Amendment 4 to the Master FMS case ZAC (ZAC-4) to support the equipment requirements for the Replacement Training Detachment of the Combined Arms School.

(C) The Logistical Support Battalion was activated on 5 November 1979, and reception and screening of personnel had begun.

(C) Investigation and groundwork was being conducted on the establishment of a close air support, air-ground control capacity in SANG battalions. This capacity did not exist in the Royal Saudi Air Force.

(C) During a meeting in Riyadh on 24 November, Brigadier General Bartlett, Project Manager, briefed Secretary of the Treasury Miller and party on the SANG Modernization Program.

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(C) The crisis in Mecca ended on 5 December 1979, however, the SANG modernized units remained on alert for the remainder of the month. All indications were that the modernized elements of SANG involved in recapture of the Grand Mosque performed well.

(C) On 6 December, a briefing was given to Brigadier General Rasheed, SANG Vice Deputy for Operations, on the SANG school modernization effort. The problem areas were identified as requiring Headquarters SANG assistance were shortages of instructor personnel, facilities and equipment.

(C) The start of the basic soldier skills training for the LSB on 15 December was preceded by meetings between OPM and Headquarters SANG on 11 and 12 December, concerning the LSB's needs and shortages. At the 12 December meeting, the PM and Brigadier General Rasheed agreed that the Direct Support Maintenance Company would continue its training separate from the LSB and would be redesignated as the General Support Maintenance Unit (GSMU).

(C) Major General John Cleland visited OPM SANG on 17-19 December 1979. During that period, he met with HRH Prince Abdullah and HE Sheikh Abdul Aziz Tuwaijiri, SANG Assistant Deputy Commander. He also toured the SANG training area in Khashm Al An and the new SANG Headquarters complex.

(U) On 19 December 1979, a graduation ceremony was conducted in Saudi Arabia for the fourth SANG CAB. The ceremony was attended by HRM King Khalid, a number of members of the Saudi Royal Family and by the American Ambassador and other key United States representatives. Graduation of this battalion represented the successful and on-schedule completion of the first phase of the Modernization Program. Following the graduation, the United States commenced training under the first of two phases of a follow-on program to further modernize the SANG. Phase I of the follow-on effort would modernize a logistics and training base, and establish additional support units required to sustain the first four modernized battalions. Phase II, scheduled to commence in January 1982, would train four additional combat battalions.

(U) The readiness condition of the CABs was hampered due to the lack of qualified personnel, a condition which would not be resolved until personnel qualification was accomplished.

(U) The SANG Director of Plans and Operations, Brigadier General Maashi, agreed to provide the manpower and equipment required to commence full-scale training of the Artillery Battalion Headquarters on 1 January 1980.

(U) By the years end, all Letters of Offer and Acceptance for FMS cases for Phase I had been received from USASAC.

(U) The Seventh and Eighth SALF Program Review Conferences were held in fiscal year 1980. SALF VII was held at Orlando, Florida, from 7 through 11 January 1980 and SALF VII was held at New Cumberland, Pennsylvania, from 19 through 23 May 1980. These semi-annual conferences on mechanization of Saudi Arabian Forces were attended by members of the Saudi Arabian Army, US Military Training Mission (USMTM) personnel, DSAA, DA, DESCOM, TRADOC, Materiel Readiness Command, SAAC and USASAC personnel. The agenda consisted of formal briefings as well as a detailed informal review on a line-by-line basis of all FMS open cases associated with the program. A total of 18 after actions at SALF VII and 94 after actions at SALF VIII resulted from the reviews. These conferences have helped promote better relations between the United States and Saudi Arabian Governments as well as helping to promote more effective in-depth management of the total mechanization program. This had been a major undertaking that totaled approximately $2 billion.

(U) Captain Al-Harbi Rufaye, Director Base Maintenance, AL-KHARJ, visited USASAC-O and NCAD on 20 and 21 January 1980 to discuss high priority requisitions, open FMS case items and become informed on procedures.

(U) Phase I of the Follow-on SANG Modernization Program officially began on 1 January 1980. A two-day readiness conference involving Headquarters SANG, CAB commanders, OPM SANG, and the training contractor occurred on 15-16 January 1980. This was the first such session and was successful in highlighting personnel, training, and materiel readiness issues. A number of decisions were made and announced at the meeting by General Rasheed. In the future, these meetings were expected to occur on a monthly basis.

(U) The first of several Instructor Training Courses (ITC) began on 16 January with 18 students attending. The ITC was the initial phase of the instructor training program which was aimed at producing qualified instructors. The first Instructor Training Course graduated 15 students on 27 February 1980.

(U) Headquarters SANG agreed to assign the Supply and Maintenance Control Point (SMCP) to the LSB, effective 20 January 1980. The SMCP was redesignated the Supply and Maintenance Control Office (SMCO) and became a subordinate TOE unit of the battalion.

(U) Headquarters SANG granted authority to survey the entire SANG Military and Technical School facilities. The survey was the first step to gaining a real grasp of total office and classroom requirements. This survey was essential to progress in the modernization effort and had top priority.

(U) Planning began for a major, multi-battalion, field training exercise (FTX), "SUNRISE," to occur in March 1980, involving all four of the modernized battalions, the recently formed brigade, Headquarters and logistics support elements. Preliminary coordination was made with the Royal Saudi Air Force (RSAF) to seek their support.

(U) On 25 January 1980, a communication was received from the Commander USASAC supporting the PM SANG proposal for obtaining freight forwarder services through the Vinnell Corporation.

(U) In Saudi Arabia, efforts by OPM to modernize the SANG logistics base brought an active response from Headquarters SANG on 2 February 1980, when an important meeting was held at OPM SANG. HE Sheikh Tuwaijiri (Assistant Deputy Commander) and all SANG deputies met with the PM and staff to determine the best SANG organization for logistics. The meeting also resulted in establishing new and augmented responsibilities for the Deputy for Military Affairs (DMA), HE Sheikh Abdul Aziz bin Ayyaf, to facilitate logistics modernization. Throughout February 1980, OPM coordinated closely with the DMA and his staff.

(U) The LSB TOEs were forwarded to Headquarters SANG for approval, the Signal Company's draft TOE had been finalized and was being staffed within OPM SANG. The PM SANG and the DMA concluded an agreement for the modernization of the SANG automotive repair parts store, the SANG vehicle store, and SANG POL operations.

(U) During the period 26-28 February, a conference was held at New Cumberland, Pennsylvania, to discuss the status of SANG FMS materiel actions and related issues. Officers from the Materiel Management Branch and Program Management Office attended for OPM SANG. The meeting was chaired by Headquarters USASAC. Those in attendance included representatives from all DARCOM Materiel Readiness Commands, SAAC in Denver, Procurement Agency Europe, HQDA ODCSLOG (IL), NCAD-Procurement, COE, TRADOC, TRADOC/SATMO, and USASAC Operations at NCAD. The status of case closure actions on all open cases was reviewed. The status of preparation of ZAC-4 amendments and ZAC-5 cases (i.e., cases for Phase I and II) was reviewed to resolve problem areas and determine when cases could be made available. OPM SANG provided several requests for amendments to ZAC-5 cases which were necessitated by changes to SANG TOEs and other desires of the SANG. This was the first such meeting and was considered quite useful and successful.

(U) Headquarters SANG accepted and signed two FMS cases, both of which were CERCOM non-standard cases for Racal communications equipment. Two other FMS cases were rejected by Headquarters SANG (TSARCOM generators and compressors). The SANG intended to furnish these items either from on-hand quantities in SANG inventory or from local procurement. The OPM SANG furnished extensive assistance to Headquarters SANG in identifying and providing specifications for the items on those cases. Efforts in this regard were continuing.

(U) At the request of OPM-SANG, representatives from Fort Sill and White Sands Missile Range joined the Training Management Division to assist in planning the spring multibattalion FTX. They remained with OPM SANG until the exercise was completed.

(U) While OPM SANG had 111 personnel assigned against a Table of Distribution and Allowance (TDA) authorization of 112 spaces, the

program had a serious shortage of action officer personnel. As of 29 February 1980, the program was short five military personnel and twenty-five GS action officer personnel (GS-9 and above). To compensate for this shortage of action officer personnel, a total of 37 additional lower grade local hire administrative personnel were assigned to temporary positions. Recruitment efforts for the 25 vacant positions had been severely hampered by the highly publicized activities in the Middle East.

(U) In Saudi Arabia, modernization efforts for the Repair Parts Store began in early March 1980. New storage facilities were obtained, occupied and prepared for receipt of parts from the old store.

(U) The four Modernized Battalions, Brigade Headquarters, Artillery Battalion Headquarters and a Forward Area Support Base (FASB), participated in FTX "SUNRISE" during the period 15-28 March. All units executed zone reconnaissance movement to contact, screen/delay, hasty attack, night attack, active defense and tactical road march. Results indicated that participation in the exercise had created an acute awareness of future training requirements, high morale, confidence, and closer coordination relationships between modernized units. The exercise was a success. HRH Prince Abdullah visited the units on 26-27 March.

(U) During March 1980, an OPM SANG Modernization Planning Directive for Phase II of the Follow-on Modernization Program was developed and approved. The directive provided instructions on updating the PMMP, simultaneous development of the Statement of Work (SOW) for contractor requirements and updating PERT networks for Phase II Modernization.

(U) On 8 April 1980, at the direction of PM SANG, a consultant of the Vinnell Corporation visited USASAC-O and New Cumberland Army Depot to review the overall concept, regulatory guidelines and the functions and services to be performed by the freight forwarders involved in the Saudi Arabian Programs.

(U) In Saudi Arabia, a series of Joint Modernization Committee meetings were held during the period 9-16 April 1980. The purpose of these meetings, headed jointly by the PM and Brigadier General Maashi, were to discuss sole source versus competitive bidding for the Phase II Training Contract. No decision was made at this time by Headquarters SANG. Also, the LSB was assigned a permanent garrison area, one of the three unmodernized areas being constructed at Khashm Al An.

(U) During 21-25 April 1980, the first program review for the SANG was held at Fort Monmouth, New Jersey. The purpose of this meeting was to bring all United States elements involved with the SANG program together to reconcile, on a line-by-line basis, requirements, delivery schedules and on-going actions. Representatives of the Materiel Readiness Commands; OPM SANG, SAAC, and USASAC attended.

Although closure of completed cases was an important part of the discussions, the focus of the conference was on planning and execution of Phase I and Phase II of the follow-on program. The success of this meeting was expected to lead to others which would include Saudi Personnel.

(C) During April 1980, action was underway to upgrade 150 M60A1 tanks to the A3 model to include thermal night sights; 1,106 M113A1 family of vehicles to the A2 modes; and 93 M109A1B SP Howitzers to the A3 model. Plans were made to purchase the PIP kits from the United States and perform the modifications in Saudi Arabia using Saudi assets. This major undertaking required construction of a modern rebuilt facility in Saudi Arabia. LOAs were prepared for the PIP kits costing in excess of $150 million with deliveries ranging from two to four years in the future.

(U) During the period 22 May to 2 July, Lieutenant General Pixley, US Army Surgeon General, and a four-man DA Team conducted a survey of SANG medical requirements. At the conclusion of the survey, Lieutenant General Pixley and the PM SANG conducted separate discussions with HRH Prince Abdullah and Ambassador West. The survey team recommended a 12-man medical planning team be sent on TDY to Saudi Arabia to write a detailed US Government (USG) concept and master plan for assumption of the SANG Medical Modernization Program. The plan, when approved by the USG, would be submitted to SANG as the US proposal. The Program Management Office of OPM was in the process of developing procedures to assist the medical planning team with its requirement to write a master plan.

(U) The Corps of Engineers accepted the new Headquarters SANG complex on 26 May as scheduled, however, electrical, mechanical, water and sewage systems still had to be accepted and tested. Operation and maintenance personnel contracted by SANG were on site. Personnel of Headquarters SANG would be expected to move in during August 1980. Experts from the United States arrived to conduct a physical security survey in May for the Headquarters SANG complex at the request of HE Sheikh Abdul Aziz Al Ali Al Twaijiri.

(U) A Country-to-Country Review of the SANG Modernization Program was conducted in Saudi Arabia in June 1980. This review, required by the Memorandum of Understanding signed between the Governments of the United States and Saudi Arabia in 1973, provided SANG Commander, Prince Abdullah, a summary of the status of the program as well as a detailed plan for the modernization of units throughout the remainder of the program. Prince Abdullah advised that he was extremely pleased with the progress of the program to date, and particularly appreciated the efforts of the US Army and the Project Manager, SANG, in general. The United States was represented by Major General John R. D. Cleland, Commander, USASAC.

(U) The revised LSB TOE was approved and signed at this meeting, and Headquarters SANG approved the personnel portion of the GSMU TOE and directed development of the equipment portion.

(U) As of the end of June 1980, 58 SANG personnel had attended training in the United States. All personnel would be used within the modernization program upon their return to Saudi Arabia. On 3 June 1980, a joint memorandum agreeing on the organization and training for the signal company was signed by the SANG Director of Plans and Operations and the SANG Director of Signals. A study committee composed of OPM SANG and SANG representatives began an intensive review of training ammunition allocations on 25 June 1980.

(U) Headquarters SANG and OPM SANG jointly agreed to the formation of a Joint Supply Management Committee to oversee the development of supply policies and procedures for SANG.

(U) A 12-man medical planning team arrived in Riyadh, Saudi Arabia, on 10 July to study the SANG medical system and facilities and prepare a draft PMMP for modernization of the SANG medical system under the auspices of OPM SANG. As of the end of the month, the team had put the final touches on their draft PMMP and planned to return to CONUS the first week in August, where the team chief was scheduled to brief the DA Surgeon General, DSAA, and the State Department.

(U) Headquarters SANG requested that OPM SANG consider an accelerated schedule by which the First Engineer Company could be formed. A plan was developed to begin training the unit in November 1980 and to complete training in December 1981. This plan would advance the original schedule by approximately one year.

(U) During May 1980, experts from the United States had conducted a physical security survey for the Headquarters SANG complex. Their final report was forwarded by MERADCOM to OPM SANG on 29 July 1980.

(U) The contract for Signal Company training equipment was signed in July with delivery expected on 15 August 1980.

(C) In the United States, in July 1980, USASAC was processing letters of offer for the sale of 256 AN/TAS-4 (TOW), 385 AN/TAS-5 (DRAGON) and AN/TAS-6 (Night Observation Device Long-Range Nightsights). These were to be delivered in 30 months at an estimated cost of $56.3 million.

(C) On 30 July 1980, the 30-day congressional notification period began for an FMS case to provide product improvement kits for upgrading 150 M60A1 Tanks to the M60A3 model at an estimated cost of $97.2 million.

(U) The United States Government Medical Planning Team from the Surgeon General's Office completed its study in Saudi Arabia on the SANG hospital/medical requirements in early August. Prior to departing for CONUS for United States Government briefings and approval, Ambassador West was briefed, and approved the concept for the SANG Medical Program.

(U) A check for $30 million, the second payment toward Amendment 5 to the FMS Master Sales Case ZAC (ZAC-5), which funded Phase II of the Follow-on Modernization Program, was received on 27 August 1980.

(U) The final FMS case for Phase I was prepared by ARRCOM and was hand-carried to OPM SANG on 27 August 1980. The case was then to be translated and presented to Headquarters SANG.

(U) Five Phase II FMS cases were signed on 2 August 1980. The signed cases included two major cases, one for V-150 armored cars and one for Racal radios, as well as a case for TSARCOM Troop Support Equipment, and two cases for Defense Logistics Agency-General Service Administration materiel.

(U) In September 1980, in Saudi Arabia, construction of the Maintenance Training Facility for the LSB was completed.

(U) On 7 September 1980, the Director of Maintenance and Transportation, Headquarters SANG, requested OPM SANG to initiate a study for modernizing the POL Activity of the Logistics Base. This study was initiated on 14 September 1980 and was still in progression at the month's end. Another study, one concerning the modernization of the SANG subsistence system, was initiated on 16 September 1980.

(U) A two-man team from MERADCOM conducted field research for the SANG Camouflage Project during September 1980. In the course of their 14-day visit, they surveyed 32 different locations. A final MERADCOM report was expected in December 1980 that would recommend patterns and colors for vehicle painting, nets, and uniforms.

(U) On 18 September 1980, training equipment was delivered to the Signal School.

(U) The Modification Review Board approved the expenditures of $1.338 million for the training of the Engineer Company in September 1980. The Statement of Work was in the process of revision.

(U) The PMMP for Phase II of the Follow-on Modernization Program was provided in September 1980 to the Contractor, Vinnell Corporation. The contractor Statement of Work was under review, and it was anticipated that the review would be completed by the end of October 1980.

(U) The Medical Modernization Program's PMMP was rewritten in September 1980 according to DSAA guidance. The DARCOM, HQDA, and OSD staffs were then briefed on the Medical PMMP and gave their approval of the document.

(U) HQDA proposed downgrading five officer and two enlisted positions at OPM-SANG as a result of an Army-wide TDA "Scrub." Defenses against these downgrades, which were in the initial stages of preparation during September 1980, were to be provided to Headquarters, DARCOM by 17 October 1980.

(U) In October 1980, the Saudi Arabian Government requested expedited delivery of key major end items and ammunition required by that government to insure adequate defensive capability in view of the neighboring Iraq-Iran conflict. In response to this request, and as approved by OSD, USASAC expedited tear gas, 155mm Howitzers, 81mm Mortars, M2 Machine Guns, .50 Caliber MG ammunition, and VULCAN dummy ammunition.

(FOUO) In conclusion, the Project Manager, Brigadier General Gerald T. Bartlett, USA, considered that the success of the SANG Program was the result of three factors: "the funding system, the use of a civilian contractor (Vinnell Corporation) and a formal, detailed, comprehensive master plan."[10]

(FOUO) He considered that continuing problems were: slow, United States equipment delivery times; the need to use United States equipment to the maximum; Project Manager Office involvement in necessary projects outside the formal program; the need to expand the modernization program into other areas not in the program; and stimulation of the Saudi Arabian military personnel, comprising the modernized units; with long-range goals of maximum SANG self-sufficiency and responsible participation in the management of the program.

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[10] Project Manager, Saudi Arabian National Guard Modernization Program, July 1979-July 1981, End of Tour Report, n.p., 1981, p1. (FOUO)

CHAPTER VII

HIGHLIGHTS AND TRENDS

(U) As General Guthrie has pointed out, "The Challenge" posed by the several threats to peace ". . .intensify both the magnitude of DARCOM's job and the importance of our efforts to surmount the difficulties encountered as we work to modernize and sustain the Army in the 1980s." As of the end of the fiscal year, ". . .Resources available and projected through the program objective memorandum (POM) years when set against requirements to field and support more than 400 new or product-improved systems--including items new to the reserve components--at an estimated acquisition cost of $38 billion, would not be sufficient."[1]

(U) In fiscal year 1980, DARCOM responsibilities continued to be Research, Development, and Acquisition of Army Materiel, Readiness of Materiel in the hands of troops, the readiness of War Reserve POMCUS (Prepositioned Materiel Configured to Unit Sets) and Operational Project Stocks, the Department of the Army Executive Agent for Security Assistance and Single Manager for conventional ammunition.[2]

(U) The following discussion is made in order to better understand DARCOM efforts and accomplishments during fiscal year 1980 in carrying out responsibilities and overcoming deficiencies indicated by General Guthrie's examination of the three major mission areas for which DARCOM was responsible. These mission areas were Resources and Management, Materiel Readiness and Materiel Development, which reflected the responsibilities of the Commanding General and the three deputy Commanding Generals.

(U) Overall management of resources involved first, available funds; and second, available personnel.

Fiscal Resources

(U) DARCOM's overall performance in obligating fiscal year 1980 funds was considered excellent as the rate of obligation for all direct, reimbursable and revolving funds (106.8 percent) was higher in FY 1980 than that obtained for fiscal years 1978 and 1979.[3] This reflected

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1 Gen John R. Guthrie, "Not a Change in Mission, but a Change in Intensity," Army, Oct 1980, p. 54.

2 Gen Guthrie, CG. DARCOM, Entrance Briefing for DAIG, 24 Feb 1981, Chart 3.

3 HQ DARCOM Comptroller, CMD Summary Analysis 1980, (CSA), Chart 59.

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Chart 1

DARCOM RESOURCES - DIRECT
($ IN MILLIONS)

APPROPRIATION	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82
PROCUREMENT	4,269	5,155	6,065	7,052	8,851	9,874
RDTE	1,829	1,986	2,156	2,417	2,510	2,851
OMA	1,973	2,166	2,227	2,256	2,675	3,094
FHMA	21	22	22	27	29	29
MAP-GA	7	9	7	6	5	5
OMAR	7	8	6	6	6	6
MILITARY CONSTRUCTION*	75	107	112	138	100	85
STOCK FUNDS	1,336	1,099	1,275	1,380	1,536	1,849
FMS-ADM			74	85	67	85
TOTAL	9,517	10,552	11,944	13,367	15,779	17,878

UNCLASSIFIED

intensive management and the cooperative attitude that prevailed at all echelons of DARCOM during September 1980, the last month of the fiscal year.[4] Chart #1 describes direct DARCOM financial resources by major appropriation areas from FY 1977 projected through FY 1982 in unadjusted-for-inflation dollars.[5]

(U) While the chart indicated increased funds, trends were still out of balance during FY 1980 since the RDTE, stock funds and PAA funds increased but the supporting OMA resources of dollars and people did not keep pace with inflation and growing procurement workload.[6]

Personnel Resources

(U) In regard to people resources, Chart #2 compared military and civilian authorizations, from June 1976 through January 1981, which indicated a net reduction of 11,155 civilian spaces and an increase of 1,084 military positions.[7]

(U) In FY 1980, the military decrease reflected termination of support to certain missions and withdrawal by the Department of the Army of CITA associated spaces for redistribution within the Army. From October 1978 through May 1979, civilian manpower data indicated a continued downward trend which reflected major reorganizations of DARCOM, and Congressional, Department of the Army and Department of Defense reductions imposed as annual occurrances.[8] The trend was expected to be reversed, however, as the early 1981 statistics indicated that over 1000 additional spaces were to be added.[9]

(U) While the actual personnel strength during FY 1980 was about 103,600, the base workload requirement for personnel for FY 1979 was considered to be 137,157. That for fiscal year 1980 was considered to be 141,114, reflecting a CITA offset which is shown in Chart #3.[10]

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4 Gen. Guthrie, Entrance Briefing, text, p. 4.

5 Ibid. Chart 1.

6 Ibid, p. 8.

7 Ibid, Chart 2, p. 12.

8 Ibid, text, p. 12.

9 Ibid, text, p. 12, CIPR 4th Qtr FY80, p. 634.

10 Ibid, Chart 13.

DARCOM MIL/CIV AUTHORIZATION
(6-YEAR PROGRAM COMPARISON)

		MILITARY				CIVILIAN	
DA PBG	END FY	O/W	ENL	TOTAL	INCR/DECR	CEP	INCR/DECR
(JUN 76)	1976	3,115	6,436	9,551		114,755	
(OCT 77)	1977	3,396	6,584	9,980	+429	106,271	-8,484
(OCT 78)	1978	3,448	6,957	10,405	+425	106,985	+714
(MAY 79)	1979	3,478	7,099	10,577	+172	102,722	-4,263
(MAY 79)	1980	3,448	6,739	10,187	-390	102,530	-192
(JAN 81)	1981	3,455	7,180	10,635	+448	103,600	+1,070
		FIVE YEAR NET CHANGE			+1,084		-11,155
				OFF/WO	(+340)		
				ENL	(+744)		

Chart 2

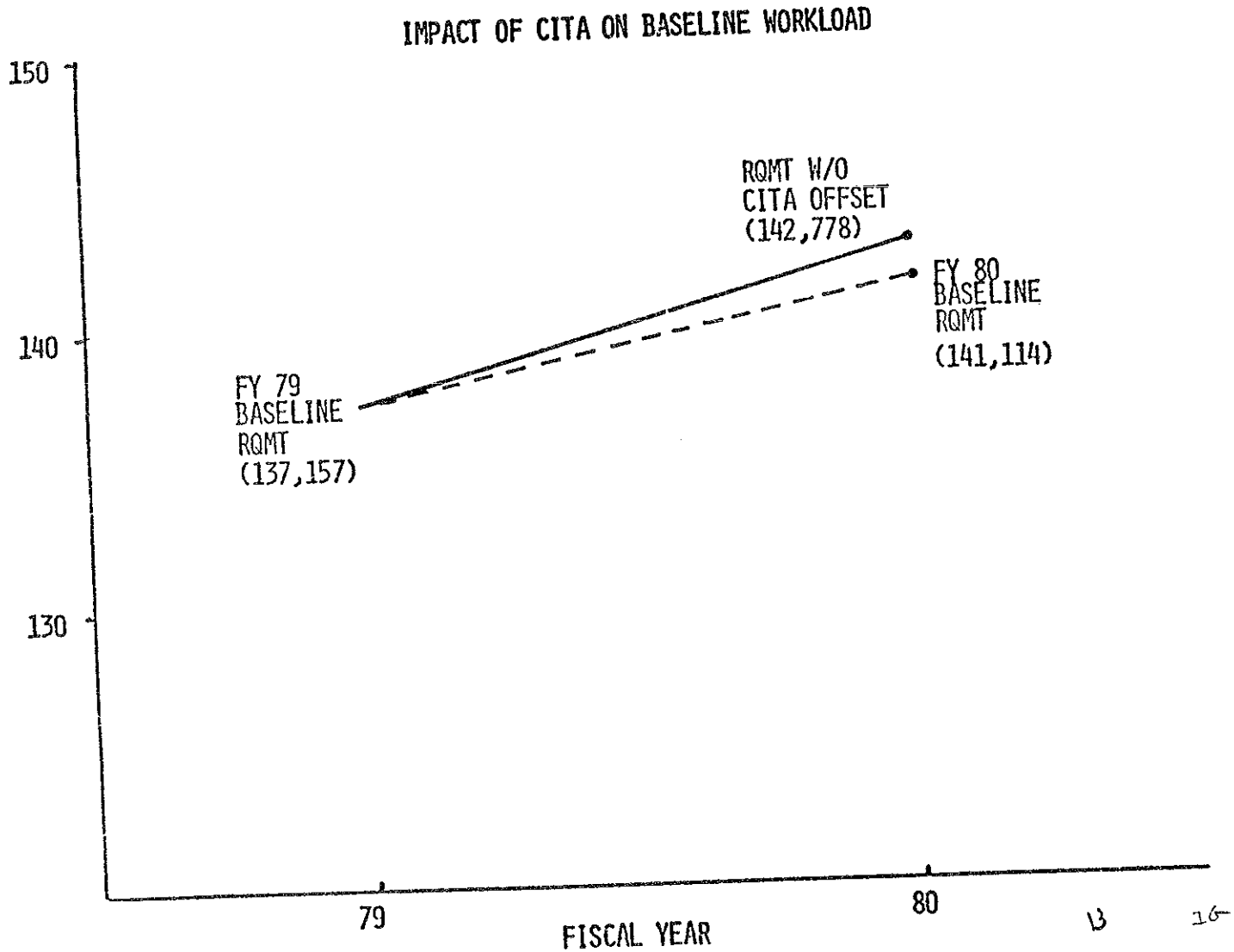
IMPACT OF CITA ON BASELINE WORKLOAD
150
140
130
RQMT W/O
CITA OFFSET
(142,778)
FY 80
BASELINE
RQMT
(141,114)
FY 79
BASELINE
RQMT
(137,157)
79
80
FISCAL YEAR

Chart 3

(U) By the end of fiscal year 1980, a decline in officer personnel actually onboard had taken place, but with an increase in enlisted strength and satisfactory reenlistment rate to partially compensate for this loss. The civilian personnel total remained relatively stable during the fiscal year, but there was a small shortage of senior executives.[11]

(U) General Guthrie considered that the most important way to fill the expanding gap between the increasing demands reflected in increased workload and decreasing manpower resources, even though CITA spaces were awarded, was to maximize the FY 1980 authorized strength by increasing productivity through RESHAPE, and by reducing the number of line items managed as at ARRCOM and TSARCOM.

(U) The Resource Self Help/Affordability Planning Effort (RESHAPE) implementation plans were made to increase productivity, at a rate of 3 percent annually. Emphasis was given to the areas of organizational streamlining and increased capital investment. In the area of personnel, use of overtime and overhire was planned up to the end of the fiscal year, which would match the authorized 10,187 military and 102,530 civilian members of the DARCOM family.[12]

(U) Additional efforts were also made to improve productivity of available personnel in the areas of travel, training, and use of sick leave. Based on a study conducted during the fiscal year, a goal was established to reduce mission related travel to a minimum. Alternatives to travel, such as tele-and video-conferencing, the sending of computer messages, and the greater use of electronic blackboard conferences were carefully examined during the year.[13]

(U) A study was also made regarding use of sick leave by DARCOM employees, which concluded that there was an encouraging decrease in use (9 days) which was approaching the Army goal of 7.8 days.[14] As a result, increased efforts were planned to be made to better control use of sick leave in subsequent years.[15]

(U) Training was also examined and a similar goal to provide only the minimum essential to mission accomplishment was established.[16]

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11 Command Summary Analysis, p. 60.

12 RESHAPE, 12 Feb 1980, Corrected thru 1 May 1980, Guthrie Entrance Briefing, Chart 60.

13 Ibid, text p. 43, Chart 47.

14 Ibid, Chart 48.

15 Ibid, Chart 50; CPIR 4th Qtr FY 1980, p. 630.

16 Ibid, Chart 43.

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THE GOAL OF RESHAPE

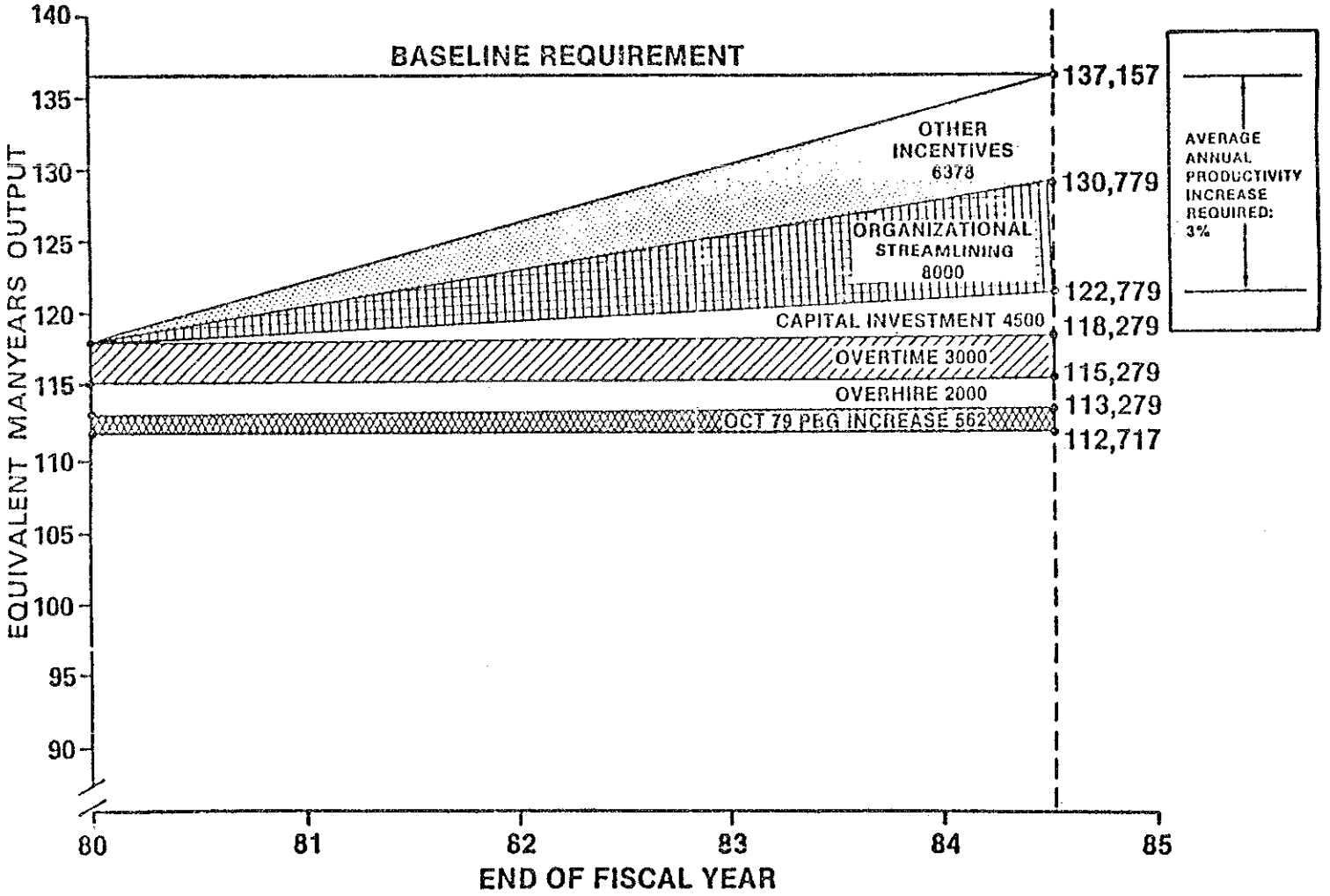

Chart 4

UNCLASSIFIED

(U) During FY 1980, essential training and development of military and civilian personnel had mixed results based upon a small increase in budgeted funds for this purpose. DARCOM ALMC student participation rose from 5,681 to 6,477 individuals, although AMETA student input declined from 5,545 to 5,437 participants, as did Reserve training enrollment from 156 to 122. Mobilization Designees increased to 620, which was still below the Army target of 850. The number of civilian career interns onboard declined from 1,794 to 1,676 which was slightly below the authorized number of 1,823, but MARED participation increased from 285 to 340.[17] In regard to the Project Manager Course, the percentage of project manager participation rose from 29 percent to 35 percent; which course still needed more participation by the majority who had not taken the course.[18]

(U) In the important area of Equal Employment Opportunity, the majority of all DARCOM goals were met, those not met being reasonably satisfactory, with the exception of discrimination complaints which greatly increased from 180 in FY 1979 to 245 in FY 1980. It should be noted, however, that while the number increased, those complaints found to be valid decreased significantly from 14.2 percent at the end of FY 1979 to 2.7 percent found valid during FY 1980.[19]

(U) Within the major mission area of Resources and Management, one of its most important aspects was the management of facilities and equipment resources. In the area of property accountability, performance was 90 percent satisfactory, which was slightly less than a 100 percent target. That for the facilities engineering segment, however, did meet the target of 100 percent satisfactory.

(U) In the area of energy consumption, DARCOM achieved a decrease of 5.9 percent, which was better than the Army goal of a 4.25 percent decrease. Similarly, a 13 percent decrease in DARCOM mileage was achieved bettering the target of a 10 percent decrease. The continued increase in energy costs, however, was a subject to be closely watched to ascertain and control in the future.[20]

(U) In another area of concern DARCOM supported the Army Vice Chief of Staff, General Vessey's, war on operations security (OPSEC) through two directed actions and 15 DARCOM initiated actions during the year.[21]

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[17] Command Summary Analysis 1980, p. 61

[18] Ibid, p. 62.

[19] Ibid, pp. 63-64.

[20] Ibid, p. 66

[21] Gen. Guthrie, Entrance Briefing, text, p. 106.

UNCLASSIFIED

Chart 5

DISCRIMINATION COMPLAINTS

	FY 78	FY 79	FY 80	PERCENT CHANGE FY 78-80
RACE/COLOR	67	84	115	72
RELIGION	5	1	1	-
AGE	27	32	39	45
SEX/MALE	4	4	7	75
SEX/FEMALE	25	22	22	(-) 12
NATIONAL ORIGIN	14	11	18	29
HANDICAPPED	7	21	41	486
OTHER	3	5	2	(-) 33
TOTAL	152	180	245	61

SOURCE: 4QFY80 CPIR

UNCLASSIFIED

(U) In the environmental area, noncomplying installations decreased in number from 25 to 21, as did clean air cases from 5 to 3 and water act cases from 9 to 2.[22] In the safety area, the civilian injury rate of 2.17 continued to be higher than the target of 1.84 injuries per million man hours of work. The decreased military rate of 28.50 injuries per man day was slightly lower than the target of 31.10 injury rate. The conductor injury rate of 1.26 per million man hours, however, was above the target of 1.00 per million. In the area of accidents, that for vehicles was slightly lower than the target of 1.98 accidents per million miles, while that for aircraft accidents per 100,000 flying hours decreased from 4.9 to 0.5 being far below the 5.72 target percentage.[23]

(U) While the number of reportable fires decreased from 36 to 35 during the year, the fire loss rose considerably from $1,205,000 to $1,747,000 in contrast to FY 1979.[24]

(U) In summary, management of obligation of funds, people resources, the environmental program, and that of equipment, facilities engineering, use of energy and plant equipment package continued about even with the requirements placed on these resources during the fiscal year.[25]

(U) In the mission area of Materiel Readiness, requirements and workload would be considered, to be followed by an examination of the resources available, and concluding with consideration of the Management of these resources.

(U) First, the area of workload, procurement requirements rose from $10.3 billion to $13.5 billion during the fiscal year. Central procurement actions, however, declined slightly from 174 thousand to 164 thousand by the end of the year. Funding requirements for depot maintenance rose from about $863 million to $965 million at the end of the fiscal year.[26] The number of requisitions received averaged about 863 thousand for the year for which items not operationally available averaged about 74 thousand. (See Chart 6). Requisitions received for the DARCOM Security Assistance program averaged 63 thousand, reaching a peak of 98 thousand in the third quarter and then declining in the fourth quarter.[27]

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22 Command Summary Analysis, p. 70.

23 Ibid, p. 71.

24 Ibid, p. 71.

25 Ibid, pp. 38, 72, 73.

26 Ibid, p. 38.

27 Ibid, p. 34.

TOTAL REQUISITIONS RECEIVED

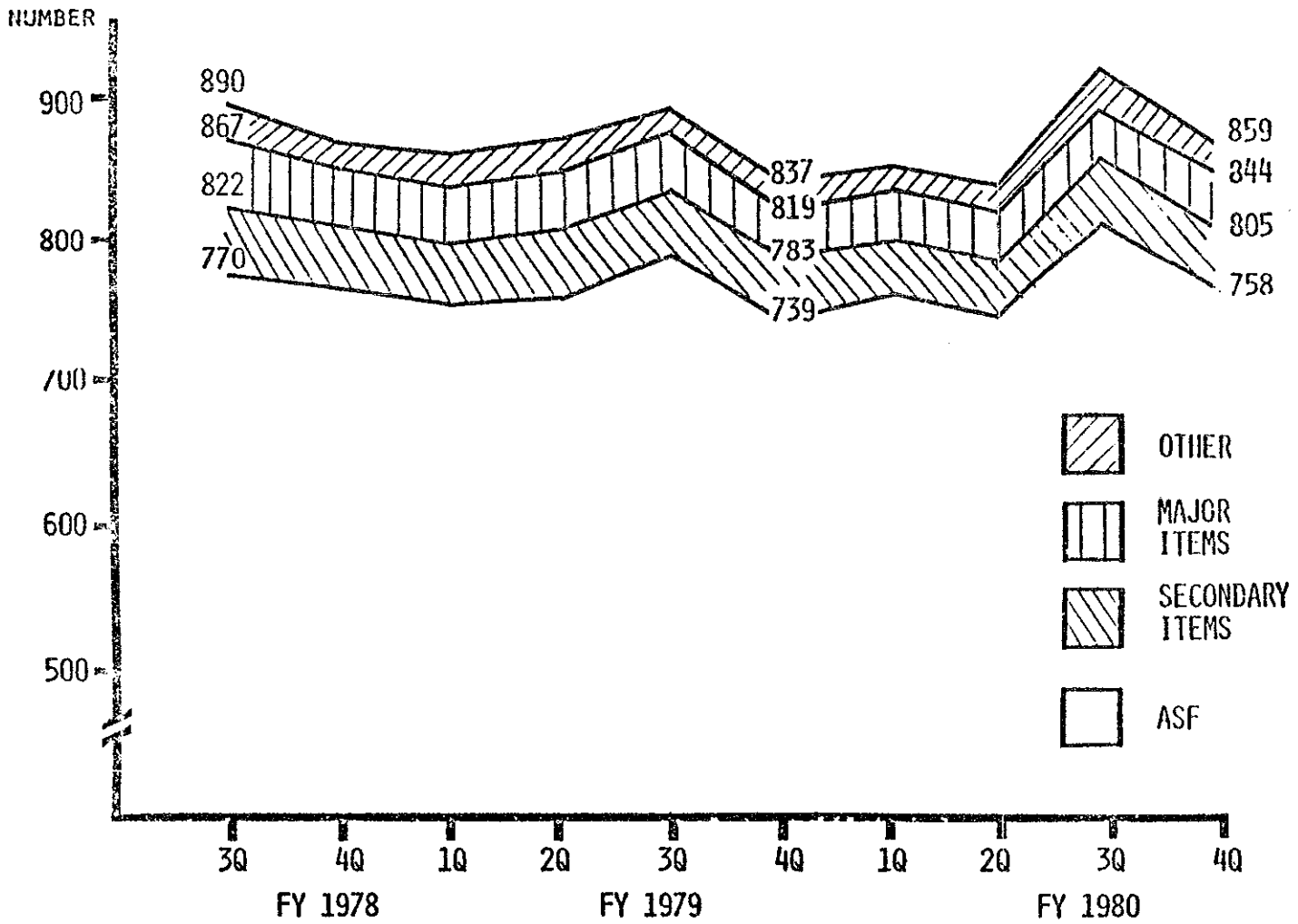

Chart 6

(U) Security Assistance Foreign Military Sales cases still open at the end of the fiscal year rose slightly over those still open at the end of fiscal year 1979 (to 6,341) at the end of fiscal year 1980 in contrast to an Army goal of 4,000 open cases.[28]

(U) One aspect of the above situation was that the FMS workload increased 36 percent in value in FY 1980 dollars and the number of requisitions increased 27 percent; but the end strength personnel decreased from 1,985 to 1,845 spaces which resulted in program accomplishment achieved through division of personnel from other US Army missions.[29]

(U) Resources available for Readiness in the APA Plan showed a decline by the end of fiscal year 1980 from $6.2 billion to $6.0 billion (in constant FY 1980 dollars). Financed Depot Maintenance funds rose from about $688 million to $783 million by the end of the year with Army operations and maintenance funds available increasing to $11.13 billion in 7M funds and $11.49 billion in 7S funds by the end of the fiscal year (in constant FY 1980 dollars). Available personnel also increased slightly from 36,000 to 37,000 by the end of fiscal year 1980.[30]

(U) In the area of management of resources, Army procurement appropriation funds involved direct obligations of 103.4 percent of the original planned funds. In regard to Procurement Administrative Lead Time (PALT), the percentage of contracts meeting materiel release confirmation targets had a quarterly average of about 71 percent in comparison with the Army target of 85 percent. The value of the 107 letter contracts existing at the end of the fiscal year 1980, had risen from $645 million (for 113 letter contracts at the end of 1979) to $1 billiom, $300 million at the end of 1980 (in constant FY 1980 dollars).[31] In regard to the small business percentage of total dollars to all business, it declined from 16.9 percent to 15.6 percent at the end of the fiscal year, being lower than the Army target of 17.5 percent and was also less than the DARCOM FY 1980 goal.[32]

(U) An unsolved burden during fiscal year 1980 was the growing trend in the Federal Government to place greater reliance upon local purchase to procure "nonstandard, not stocked items" which had resulted in a measurable increase in the number of part number requisitions with a corresponding manual workload at organizations below the wholesale level.[33]

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28 Command Summary Analysis, p. 38.

29 Gen Guthrie, Entrance Briefing, text p. 114a.

30 Command Summary Analysis, p. 39.

31 Ibid, p. 42.

32 Ibid, p. 42; Guthrie, Entrance Briefing, Chart 133.

33 Gen Guthrie, Entrance Briefing, text, p. 119a.

DARCOM
SMALL BUSINESS SUMMARY
($ MILLIONS)

	FY 1979 ACTUAL	FY 1980 GOAL	FY 1980 ACTUAL
SMALL BUSINESS AWARDS	1,491.6	1,681.0	1,504.3
SET-ASIDE AWARDS	482.7	539.0	518.2
8(A) AWARDS	122.309	158.569	134.670
DIRECT MINORITY AWARDS	23.013	59.231	43.882

Chart 7

(U) Management of the Army stock fund saw an increase in demands, obligations, materiel on order, receipts and a good Treasury cash balance at the end of the fiscal year in comparison with prior fiscal years. The average reporting on-time receiving rate at Depots (89 percent) [34] was close to the target of 90 percent as was the quarterly average rate of stowage, 83 percent satisfactory in comparison with the targeted goal of 85 percent. The on-time requisition processing rate saw a quarterly average of 90 percent meeting the target set for this indicator. The high priority requisition rate was between 36 and 37 percent and significantly above the target of 25 percent. The effectiveness of secondary item distribution quarterly average of 82 percent was slightly below the goal of 85 percent.[35]

(U) In regard to distribution, ALOC order ship time declined during the fiscal year from 29 days to a quarterly average of 25 days to Europe, which was still above the target of 20 days. Similarly, shipments to Korea in the Pacific, varied from quarter to quarter, but the average time for all quarters was 27 days; measurably less than the goal of 30 days. The processing time for preparation of letters of offer rose at the end of the year and the quarterly average of 75 days to process LOAs was measurably above the target of 60 days. In the area of reports of discrepancy processing (ROD) the backlog of 5,187 reports at the beginning of the year was slightly reduced to 5,093 reports remaining at the end of the year. The percentage completed, however, declined from 68 percent to 64 percent at the end of the fiscal year.[36]

(U) Management initiatives were achieved in the area of integrated logistic support (ILS) which included major collaboration with the office of the Deputy Chief of Staff for Logistics, Department of the Army in accomplishing a revision to AR 700-127 "Integrated Logistic Support" for certain systems "Logistic Status Reviews" (LSR) were established which provided ILS assistance to developers and a detailed independent evaluation of such status to DARCOM. A new semi-annual publication of "ILS lessons learned" provided constructive feedback in problem areas for use by MACOMs and PMs involved in developing new systems. In another area corrective guidance through joint efforts with the Department of the Army and TRADOC were developed to eliminate backlogs in the QQPRI/BOIP processing flow.[36]

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[34] Command Summary Analysis, p. 50.

[35] Ibid, p. 43

[36] Ibid, p. 33.

[37] Gen Guthrie, Entrance Briefing, text, p. 93.

ARMY STOCK FUND

$ Millions

				FY80 CUMULATIVE			
	FY77	FY78	FY79	1Q	2Q	3Q	4Q
DEMANDS	1029	1039	1047	263	558	851	1203
OBLIGATIONS	828	984	1136	274	553	971	1298
MATERIEL ON ORDER	773	1025	1276	1301	1282	1394	1442
RECEIPTS	672	693	835	243	520	807	1082
TREASURY CASH BALANCE	-	-	213	173	137	102	129 1/

1/ $63.7M, 31 Aug 81

Chart 8

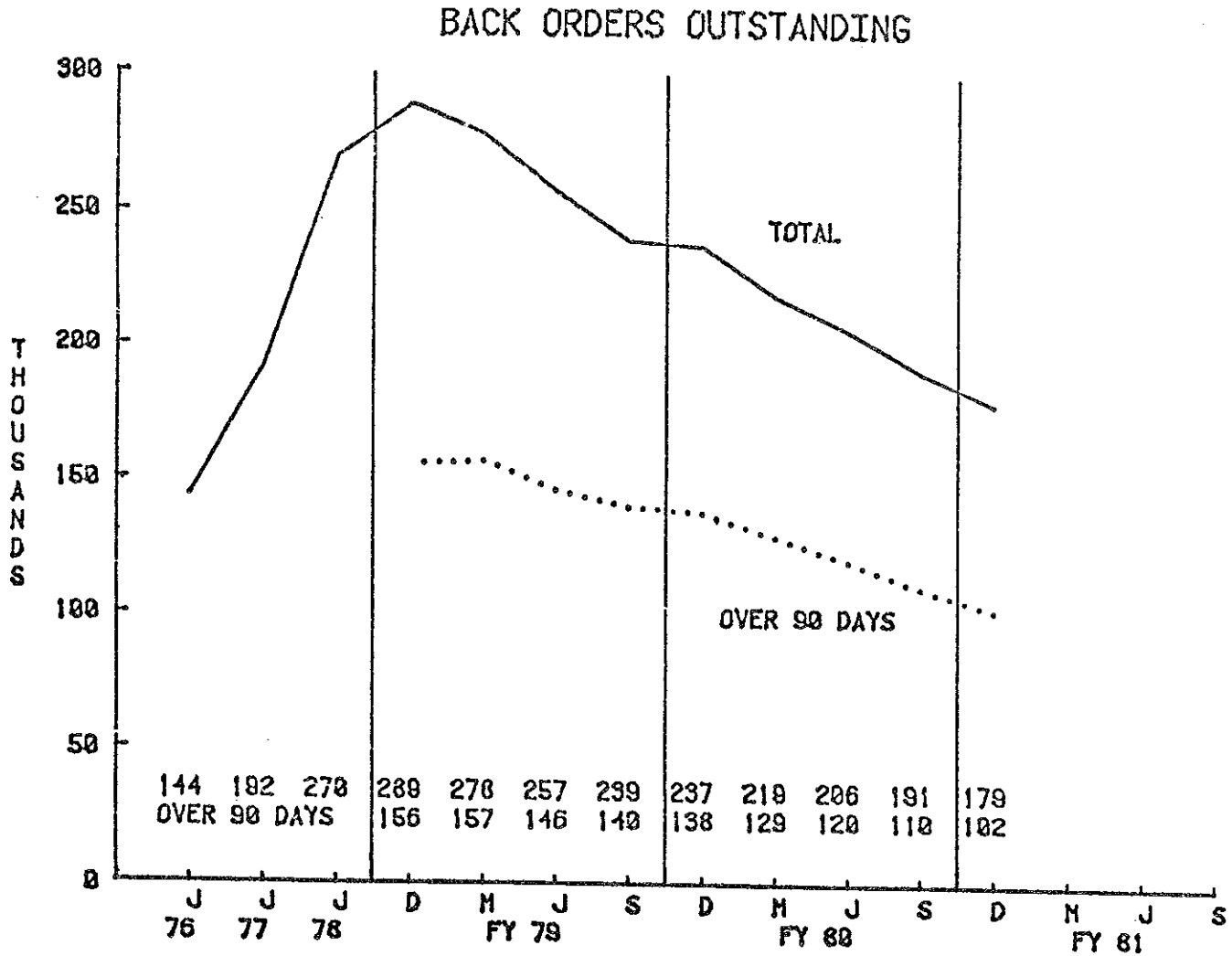
BACK ORDERS OUTSTANDING
THOUSANDS
300
250
200
150
100
50
0
TOTAL
OVER 90 DAYS
144 182 270 289 276 257 239 237 219 206 191 179
OVER 90 DAYS 156 157 146 140 138 129 120 110 102
J J J D M J S D M J S D M J S
76 77 78
FY 79
FY 80
FY 81

Chart 9

(U) In the area of Force Modernization, DARCOM sponsored a meeting in April 1980, between the Department of the Army staff offices--ODCSOPS, ODCSLOG, ODCSPER, MILPERCEN, US Army Europe, FORSCOM and TRADOC which reviewed the need for and agreed upon the Force Modernization Milestone Reporting System (FMMRS) as a management tool. Fifty six milestones were identified in the system which data base was expected to be maintained by the DARCOM Materiel Readiness Support Activity at Lexington, Kentucky. The initial FMMRS report, which included thirty-four critical systems, was published in August 1980. On 18 November 1980, HQ DA, ODCSLOG, in a letter, emphasized the importance of the system and the ongoing efforts to expand it.[38]

(U) Near the end of the fiscal year on 28 August 1980, a USAREUR-DARCOM Umbrella Memorandum of Understanding was signed by General Guthrie and General Kroesen, which improved management control of support relationships and agreements between the two major commands. It also established peacetime/wartime command and control responsibilities for DARCOM's intheatre activities and provided guidelines to be followed by all DARCOM and USAREUR Activities in negotiating future agreements.[39]

(U) In the area of procurement and production to further industrial mobilization planning, DARCOM accomplished the following during the year: DARCOM Circular 700-8 "Logistics", was published as of 10 September 1980; discussions were held with 30 chief executives of major corporations during MOBEX 80; and General Guthrie appeared before the House Armed Services Defense Industrial Base Panel, which resulted in Congressional support for this critical planning area and a Department of the Army prepared Industrial Preparedness planning test was obtained.[40]

(U) In the area of Single Manager for conventional ammunition, work on a charter clarifying the roles and relationships of DARCOM's responsibilities was continuing during fiscal year 1980. Cost avoidances were achieved by transfer of ownership of items from one source to another. Through improved management techniques, internal requisitioning process time was reduced over two days. Through interService coordination, improved forecasting and aggregated peacetime acquisition requirements were achieved as one of several accomplishments in this area.[41]

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38 Gen Guthrie, Entrance Briefing, text, p. 94.

39 Ibid, p. 95a,b,c.

40 Ibid, text, p101a.

41 Ibid, P143-151.

(U) Readiness accomplishments included the rise and maintenance of the stock availability rate during the year from 81 percent to 84 percent by the end of the year, which almost met the goal of 85 percent.[42] The number of backorders outstanding also measurably declined from the beginning of the fiscal year from 237,000 to 191,000 by yearend. Similarly, the segment which was outstanding over 90 days declined from 138,000 to 110,000 items.[43]

(U) In the area of readiness, the following areas did not meet their projected goals. Should cost studies rose in number from 13 to 16 which was below the original number of twenty-one planned. Of these only 9 (56 percent) were completed as against a goal of 100 percent.[44]

(U) Depot customer complaints rose from 5593 to 7164 by the end of FY 1980. Causes for 6,816 of this number have been identified as shown in Chart 10. Such growth reflected an increase from 1.50 to 1.95 per thousand items shipped, which indicator was slightly below the target of 2.00.[45]

(U) Similarly, the percentage of Foreign Military Sales cases closed out declined to 42 percent as against a target of 100 percent. Security Assistance Reports of discrepancy declined over prior years and the number, 3117 was 1.1 percent per thousand items shipped, almost half of the 2.0 percent target.[46]

(U) Two major continuing problems were the shortage of assets in the POMCUS to meet its requirements and the continued backlog in procurement, which amounted to 28,472 actions at the end of fiscal year 1980. It represented about 21 percent of the total accomplished during FY 1980.[47]

(U) While overall trends in the area of Readiness were upward during the fiscal year, in the areas of requirements/workload, resources and general performance, management aspects tended to be less satisfactory than had been anticipated at the beginning of the fiscal year.[48]

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42 Gen Guthrie, Entrance Briefing, Chart 87.

43 Ibid, Chart 91.

44 Command Summary Analysis, p. 46, Guthrie, Entrance Briefing, Chart 48.

45 Command Summary Analysis, p. 52; 4Q1980 CPIR, p. 286, Gen Guthrie, Entrance Briefing, Chart 53.

46 Command Summary Analysis, p. 52.

47 Gen Guthrie, Entrance Briefing, text, pp. 108-109.

48 Command Summary Analysis, p. 54.

SHOULD COST STUDIES
NOT COMPLETE

COMMAND	SUBJECT	REASON
ARRADCOM	RAMMS	TIME CONSTRAINT
ARRCOM	LAKE CITY AAP	CHANGES IN RQMTS, DEL SCH, TECH SPT
AVRADCOM	AAH ORIGINAL CH-47 REPLACED	SUBSTITUTION
AVRADCOM	ACQUISITION STUDY	DID NOT QUALIFY AS SHOULD COST
ERADCOM	AIRBORNE LASER	PROGRAM DIFFICULTIES
ERADCOM	TPQ-37	DELAYED CONTRACT DATA
MERADCOM		LACK OF RESOURCES, TIME CONSTRAINTS
TARADCOM	FVS	CONTRACT DELAYS
TSARCOM	HELICOPTER BLADES	CONTRACT NEGOTIATIONS

Chart 10

DEPOT CUSTOMER COMPLAINTS

REASON	FY 78		1979		1980	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
SHORTAGES	3105	33.2%	2125	37.2%	1906	28.0%
OVERAGES	472	5.0%	345	6.0%	281	4.1%
WRONG MATERIEL	1622	17.3%	1698	29.7%	1804	26.5%
INCOMPLETE	163	1.7%	161	2.8%	155	2.3%
CONDITION	451	4.8%	480	8.4%	1570	23.0%
DAMAGED	221	2.4%	240	4.2%	473	6.9%
SUBTOTAL	6034		5049		6189	
OTHER	3333	35.6%	669	11.7%	627	9.2%
TOTAL	9367	100%	5718	100%	6816	100%

Chart 11

Development

(U) In the mission element of Development Materiel, the requirements and workload for FY 1980 involved $2.5 billion in constant FY 1980 dollars. Development funded projects rose during the year from 243 to 259 and were 254 at the end of the fiscal year. Research, Development, Test and Evaluation contract actions declined from 4.4 thousand at the end of FY 1979 to 3.6 thousand at the end of FY 1980 with their value remaining about $1.4 billion for the entire year. The product improvement program requirements budget for Research, Test, and Evaluation rose from $72.7 million to $92.7 million at the end of the fiscal year (constant FY 1980 dollars.)[49]

(U) The total Development Resources Budget Plan was for $2.3 billion. The Research, Development, Test and Evaluation program was for about $349 million while the Product Improvement Program increased to $90.8 million by the end of the year. The military adaptation of commercial items (MACI) budget declined from $11.9 million to $9.0 million during the fiscal year. Personnel assigned to Research, Development, Test and Evaluation tasks were authorized at 22,600,[50] but rose from 20,100 to 22,700 by the end of the year. This increase in personnel, which was above FY 1980 authorization, was achieved through a RESHAPE action which transferred 2,300 spaces from AIF, BOPS, and PAA to RDTE. This transfer was designed to reflect an increasing and shifting workload from advanced to engineering development and the distribution and capability of scientists and engineers to meet these changing conditions. [51]

(U) In the area of management of development resources, direct obligations of Research, Development, Test and Evaluation funds rose to 102 percent of the original planned funds. Of these funds, 61 percent were costed and 54 percent disbursed at the end of the year, being lower than the Army target of 62 percent. In the area of the Product Improvement Program, however, 100 percent of the funds were obligated by the end of the year.[52]

(U) The TECOM backlog in direct labor hours with contractor augmentation rose from 2.1 million to 2.5 million hours during the course of the year.[53] In another area, the number of chartered program managers decreased from 58 to 54 during the fiscal year.[54]

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49 Command Summary Analysis, p. 6.

50 RDT&E Program Summary, CPIR, 4QFY 1980 Briefing Charts, Dec 80, p. 637.

51 DRCCP-SD, CPIR Summary Analysis, 4 Sep 80.

52 Command Summary Analysis, p. 8.

53 Ibid, p. 12.

54 Ibid, p. 8.

TECOM
TEST WORKLOAD VS CAPABILITY
FY78 - FY86

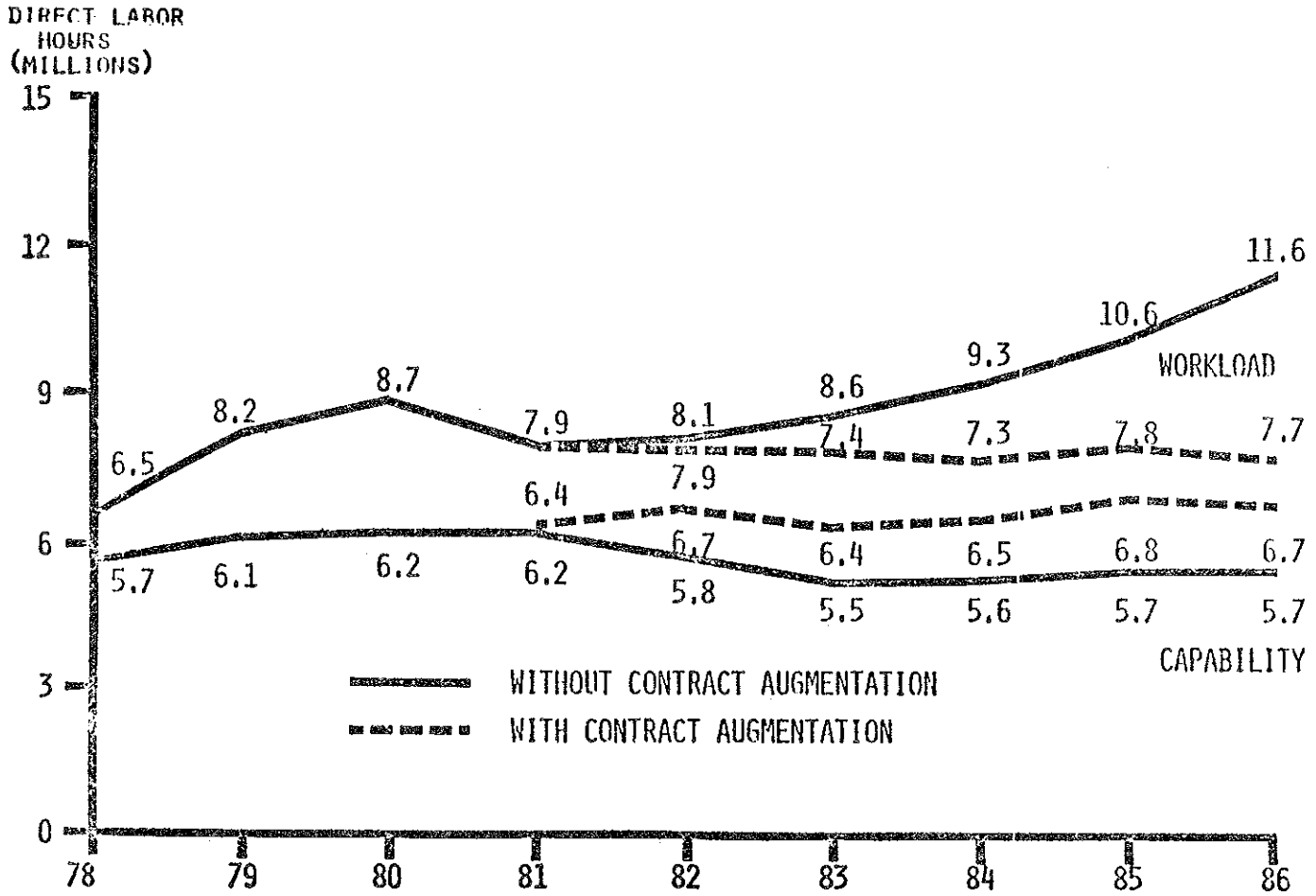

Chart 12

(U) Overall performance of DARCOM in the area of development indicated 82 percent completion of Research, Development, Test and Evaluation projects against an Army target of 100 percent completion. Product Improvement Program milestones rose from 58 percent completion to 63 percent completion during the year; this accomplishment, however, was below the completion target of 100 percent. In contrast, the 16 end items/systems transitioned by the end of the fiscal year, were significantly above the target of twelve items.

(U) Selected acquisition report system item costs (in escalated dollars) rose significantly from $50.7 billion to $61.2 billion by the end of the fiscal year.[55]

(U) In regard to consolidation of calibration and repair operations, the Army Vice Chief of Staff approved their consolidation on 20 November 1978. DARCOM established a TMDE support activity at Pir Masens and took operational control of TMDE for USAREUR on 6 August 1979 with command and control on 1 October 1979. In the Pacific, a TMDE Support Activity was established at Camp Carrol, Korea, and DARCOM took operational control for the Western Pacific on 15 April 1980, and command and control 1 October 1980.[56]

(U) The greatest cost increases, from development estimate to FY 1980 estimate, however, occurred in the Fighting Vehicle System and XM1 Tank programs. In the case of the Fighting Vehicle System the rise from $726.4 million to $7809.4 million constituted a 976 percent increase and comprised 24.6 percent of the total cost increase. That for the XM1 tank rose from $4779.4 million to $13,084.1 million comprising a 174 percent increase which represented 29.1 percent of the total cost increase.

(U) The BLACK HAWK SAR System was the third major system to reflect significantly on the percent of total change. The 160 percent increase from the Development Estimate of $2,307.3 million to the FY 1980 estimate of $5,957.5 million comprised 12.9 percent of the total change.

(U) The increase in these three major programs accounted for two-thirds of the total increase in development funds. Each of all other SAR programs contributed to less than 10 percent of the total change in increased costs.[57]

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55 Command Summary Analysis, p. 8

56 Gen Guthrie, Entrance Briefing, text, Chart 97a

57 Command Summary Analysis, p. 24.

COST
CHANGE BY CAUSE
SAR SYSTEMS
(ESC $)

	1979		1980		
	AMT($M)	% OF TOTAL	AMT($M)	% OF TOTAL	% CHANGE 79 - 80
ECONOMIC	5339	29.3	11747	41.0	120
QUANTITY	7379	40.5	3885	13.5	-47
SCHEDULE	1547	8.5	3557	12.4	130
ENGINEERING	201	1.1	940	3.3	368
ESTIMATING	2874	15.8	6595	23.0	129
SUPPORT	615	3.4	1740	6.1	193
OTHER	249	1.4	212	.7	-15
TOTAL	18204	100%	28676	100.0	

Chart 13

(U) The increase in all SAR systems in escalated dollars indicated that economic factors, increase in quantity produced, schedule changes, and engineering estimating and support costs also were important.[58]

Development Trends

(U) In summary, while requirements and resources were generally the same in FY 1980 as they were in FY 1979, the cost growth in major systems, based in part on inflation, might be expected to result in reduction of the Army's future materiel capabilities. In addition, the backlog at TECOM increased over that existing at the end of FY 1979. An overall downward trend in performance was indicated at the end of the fiscal year.[59]

Summary

(FOUO) Significant accomplishments in each of the major mission areas were achieved during fiscal year 1980 although existing problems were carried over into fiscal year 1980. In the area of resources and management, funds obligations continued at or above their plan and in the area of personnel, there was stability in the manning level and in the programs which improved the quality of the workforce. There was also a rigorous quantification of peacetime and wartime manning requirements and as the result of vigorous efforts, no cuts in civilian high grade positions were made. In the area of command management, the RESHAPE Program was initiated and reunification of CECOM, MICOM, and TACOM were being implemented over a period of time. Consideration of a more efficient realignment of Headquarters DARCOM was also underway.

(FOUO) There was recognition of DARCOM's accomplishments in the area of logistics by the fact that the Commanding General, DARCOM was assigned the lead responsibility for the Department of the Army Logistics Study which was started early in FY 1981.

(FOUO) Problems which remained at the end of the fiscal year included control over programs, added to rising costs, the continued imbalance between OMA and other funds and the deterioration of the production base. In the area of personnel, Foreign Military Sales personnel manpower ceilings caused diversions from other tasks, also the size of Headquarters DARCOM and the lack of technical expertise were matters to be taken up anew in fiscal year 1981. While EEO performance was excellent, the increase in discrimination complaints required more careful watching in the future. Performance in the area of facilities and equipment was improved with the use of energy down, but its cost was increasing rapidly.

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58 Command Summary Analysis, p. 24.

59 Ibid, p. 32.

(FOUO) In the major mission area of Readiness, procurement requirements and resource levels were diverging with PALT, price competition, percentage going to small business, and letter contract areas to be observed in the future. Such procurement management performance was less satisfactory than anticipated. The decline in price competition was expected to have an adverse impact on control of cost growth in the future. In supply management, performance appeared to have been down slightly in the rates of on-time receiving and on-time processing, which was anticipated might impact upon supply performance in the future. Procurement delivery, maintenance and supply performance continued to improve during fiscal year 1980, and was expected to result in good military unit and equipment readiness.

(FOUO) In the maintenance mission area, steps needed to be taken to improve reporting procedures to better evaluate achievements and more clearly identify problems.

(FOUO) In the major mission area of Development, while requirements and resources were generally the same as in fiscal year 1979, the backlog in TECOM increased during fiscal year 1980. The growth in developmental costs for major materiel items indicated earlier could result in reducing the Army's materiel capabilities in the future.[60]

(FOUO) In regard to new developments, one of the more important was the renewal of Defense concern regarding chemical warfare based upon its presumed use by the USSR in Afghanistan. By September 1980, the House Armed Services Committee was in the process of approving authorization and funding of military construction to build a facility "capable of manufacturing 155mm binary chemical artillery rounds," at a cost of $3.2 million.[61] In addition, the Army Chemical Defense School was being reestablished at Fort McClellan, Alabama, "for increased training of combat personnel." The FY 1981 budget for the Department of Defense was expected to include a renewed defensive chemical warfare program which included a Research and Development request for $85 million, a procurement program of $78 million and an operations and maintenance program of $6 million.[62]

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60 Command Summary Analysis, pp.73,74; Gen. Guthrie, Entrance Briefing, p. 175.

61 "Opening Statement by Senator Gary Hart, Presiding," 96th Cong. 2d Sess. Senate Committee on Armed Services Hearing, "Chemical Warfare," 4 Sep 80, (Washington, 1980).

62 "Prepared Statement by Hon. Harold Brown, Secretary of Defense," Ibid, p. 3.

GLOSSARY

ABCA	American-British-Canadian-Australian
ADA	Air Defense Artillery
ADP	Automatic Data Processing
AFLC	Air Force Logistics Command
AFSC	Air Force Systems Command
ALMSA	Automated Logistics Management Support Activity
AMCC	Army Metrology Calibration Center
AMETA	Army Management Engineering Training Agency
AMMRC	Army Materials and Mechanics Research Center
AMSAA	Army Material Systems Analysis Activity
APA	Army Procurement Appropriation
ARRCOM	US Army Armament Materiel Readiness Command
AUTODIN	Automatic Digital Network
AVRADCOM	US Army Aviation Research and Development Command
BMAR	Backlog of Maintenance and Repair
BOIP	Basis of Issue Plan
CACDA	Combined Arms Combat Development Activity
CACDA	Combat Arms Concept Development Agency
CCSS	Commodity Command Standard System
CERCOM	Communications and Electronics Materiel Readiness Command
CLGP	Cannon Launched Guided Projectile
CONUS	Continental United States
CPU	Central Processing Unit
DA	Department of the Army
DAAS	Defense Automatic Addressing System
DARCOM	USA Materiel Development and Readiness Command
DCSLOG	Deputy Chief of Staff for Logistics
DESCOM	US Army Depot System Command
DLH	Direct Labor Hours
DOD	Department of Defense
DSARC	Defense Systems Acquisition Review Council
DT/OT1	Development Test/Operational Test-1
EEO	Equal Employment Office
ES	Equipment Status
FMT	Field Maintenance Technicians
FORSCOM	US Army Forces Command
HEP	Hispanic Employment Program
HEPM	Hispanic Employment Program Manager
IME	International Materiel Evaluation
IOC	Initial Operational Capability
JLC	Joint Logistics Commanders

LAO	Logistics Assistance Office
LSSA	Logistic Systems Support Activity
MAA	Mission Area Analysis
MACOM	Major Army Command
MAP	Military Assistance Program
MERADCOM	Mobility Equipment Research and Development Command
MICOM	US Army Missile Command
MILES	Multiple Integrated Laser Equipment System
MILSTAMP	Military Standard Transportation and Movement Procedures
MLRS	Multiple Launch Rocket System
MOA	Memorandum of Agreement
MSC	Major Subordinate Command
MWDDEP	Mutual Weapons Development Data Exchange Program
NAAG	NATO Army Armaments Group
NARADCOM	US Army Natick Research and Development Command
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological and Chemical
NMC	Naval Materiel Command
OMA	Operations and Maintenance, Army
OPA	Other Procurement Army
OSD	Office of the Secretary of Defense
OUSD	Office of the Under Secretary of Defense
PALT	Procurement Administrative Lead Time
PARR	Program Analysis and Resource Review
PM	Project Manager
POS/NAV	Positioning Navigation
PPA	Priority Problem Area
QSTAG	Quadripartite Standardization Agreements
RAM	Reliability, Availability, Maintainability
RDTE	Research, Development, Test, and Evaluation
RECAP	Review and Command Assessment of Projects
RESHAPE	Resource Self-Help/Affordability Planning Effort
ROAD	Reorganization Objective Army Divisions
RPV	Remotely Piloted Vehicle
RSI	Rationalization, Standardization, Interoperability
SAG	Study Advisory Group
SAR	Selected Acquisition Report
SEAD	Suppression of Enemy Air Defense
SFTS	Synthetic Flight Training System
SHORAD	Short-Range Air Defense
STOG	Science and Technology Guide
TADS/PNVS	Target Acquisition Designation System/Pilot's Night Vision System
TARCOM	US Army Tank-Automotive Materiel Readiness Command

TECOM	US Army Test and Evaluation Command
TRADOC	US Army Training and Doctrine Command
TSARCOM	US Army Troop Support and Aviation Materiel Readiness Command
TTCP	The Technical Cooperative Program
USACC	US Army Communications Command
USACTA	US Army Central TMDE Activity
USAREUR	US Army, Europe
USATHAMA	US Army Toxic and Hazardous Material Agency
WESTCOM	US Army Western Command
WSMR	White Sands Missile Range

HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

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JANUARY 1980

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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 ACTY	2E18	48459	DRXMM-P
CIVILIAN EMPLOYEE HEALTH SVC (Clinic)	1S51	48296	
CLASSIFIED MAIL CENTER	G2W07	49583	DRXAM-AMC
COMMAND CONFERENCE ROOM	10N43	48988	DRXAM-PA
COMMUNICATIONS ELECTRONICS Sys Div	G1C02	48515	CORADCOM
CONFERENCE ROOM SCHEDULING:	1N57	43485	DRXAM-PA
CREDIT UNION/DARCOM	Lobby	48311	
DARCOM MICO-DATA MGT BR	4S51	47322	DRXLS-LHD
DRIVERS SERVICE	G1S01	43091	DRXAM-GD
DSSW, ALEXANDRIA, VA	7N28	48878	
FORMS MANAGEMENT OFFICER	1E06	48151	DRXAM-ABE
GRAPHICS FACILITY	1C22	43491	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	48486	USA-AVC
PRINTING & DUPLICATING	G2C37	49603	DRXAM-ABP
PUBLICATIONS SECTION	1E06	48149	DRXAM-ABE
PUBLICATIONS STOCK ROOM	G3C21	49661/4	DRXAM-ABS
RECEPTIONIST	Lobby	49191	
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SPECIAL SECURITY OFFICE (SSO)	G2C63	48986	MISG-DEC
TELECOMMUNICATIONS CENTER (Mig)	G3C24	49009	CCNC-BHA-OT
TELECOMMUNICATIONS CENTER (DATAFAX)		48601/2	
TELEPHONE Service Control Off.	G3W18	49000	CCNC-BHA
TOP SECRET REPOSITORY	G2W09	49590	DRXAM-AMT
UNCLASSIFIED MAIL CENTER	G2C16	49594	DRXAM-AMU
USA EQUIP AUTHORIZATIONS REV ACTY	9C37	49292	DRXEA-C
USACC C-E SVCS DIV	7N32	48797	CC-OPS-CE
WESTWOOD MANAGEMENT OFFICE Rm G1	Lobby	751-5590	

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SADBU Specialist	MS. E. S. HELLIWELL	9N13	48186	DRCSB

DIRECTORATE FOR PLANS, DOCTRINE & SYS — DRCPS

Director	COL F. E. ELAM	9528	48229	DRCPS
Deputy Director	Vacant	9528	48747	DRCPS
Executive Officer	Vacant	9528	48229	DRCPS
Admin Office	MRS. B. PARDEE	9527	48748	DRCPS
Assoc Director for Concepts & Doctrine	COL R. W. GRUEN	9537	48334	DRCPS-C
Assoc Director for Systems	COL V. B. HAMMOND	9512	48245	DRCPS-S
Assoc Director for Military Plans & Operations	Vacant	4527	49426	DRCPS-M
War Reserve Ofc	MR. D. WAYBRIGHT	9515	49531	DRCPS-MW

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Comptroller	BG J. F. McCALL	3N58 49121	DRCCP
Deputy Compt	MR. A. T. WALKER	3N58 49129	DRCCP
Executive Off	CPT C. J. MITCHELL (Act)	3N58 49130	DRCCP
Administrative Ofc	MRS. L. S. BROWN	3N57 49120	DRCCP-A
Word Processing Ctr	MRS. B. HAGSTROM	3N47 48623	DRCCP-WPC
Cost Anal Div	MR. R. O. WEIDENMULLER (Act)	3534 49080	DRCCP-E
Fin & Acct Div	MR. S. W. LINK, JR. (Act)	3N34 49231	DRCCP-F
Internal Review & Audit Compliance Ofc	MR. M. G. ARTHUR	3526 49020	DRCCP-I
Mgt Review & Anal Div	MR. W. A. CHAVET	3N06 49170	DRCCP-S
Resources & Programs Division	COL J. P. GULLEN, JR.	3E10 49039	DRCCP-R

DIRECTORATE FOR PERS, TNG & FORCE DEV — DRCPT

Director	BG H. DOCTOR, JR.	2E14 48195	DRCPT
Deputy Director	MR. W. S. CHARIN	2E14 48195	DRCPT
Executive Off	MAJ J. D. LLOYD	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 48715	DRCPT-S
Mil Pers Div	COL H. B. DYSON	2556 49325	DRCPT-M
Alcohol & Drug Abuse Ofc	MR. D. J. HELBIG	2N38 49716	DRCPT-H

STAFF SUPPORT ACTIVITIES

Schools Div	COL F. N. OLSON	2N37 48981	DRXMM-E
HQ Mpr Ofc	MR. P. R. ZEKAN	2N46 48974	DRXMM-SM
HQ Mil Pers Ofc	CPT C. G. CONRAD	2N45 49333	DRXMM-MR
HQ Counseling Svcs Ofc	MR. D. J. HELBIG	2N38 49780	DRXMM-AD

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Deputy Director	MR. R. G. SILVEY	4N24	48676	DRCPA
Executive Officer	CPT J. BRAZEALE	4N24	48676	DRCPA
Admin Officer	MR. J. ALLEN	4N09	48945	DRCPA
Mission & Org Div	MR. C. SCHIPP	4518	48549	DRCPA-O
Program, Plans & Policies Div	MR. W. C. KREMANN	4521	48854	DRCPA-P
Resource Analysis & Eval Div	MR. R. G. SILVEY (Act)	4N17	48155	DRCPA-R
Sys Anal Div	LTC B. THOMAS (Act)	4N16	48037	DRCPA-S

DIRECTORATE FOR INSTALLATIONS & SERVICES — DRCIS

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Deputy Director	MR. J. W. BOUCHER	5W12	49041	DRCIS
Plans & Programs Ofc	MR. D. J. MURPHY (Act)	5W18	49026	DRCIS-P
Engineer Div	COL C. H. MITCH III	5N06	49390	DRCIS-E
Energy Office	LTC S. J. CROW	5W11	48636	DRCIS-C
Environmental Quality Division	MR. J. W. BOUCHER (Act)	4W06	48122	DRCIS-A
Services Div	MR. D. W. DIETRICH	5506	49389	DRCIS-S
Housing Mgt Div	MR. W. H. McDONALD	5W20	49282	DRCIS-H
Installations & Services Activity	COL J. G. McNALL, Rock Island, IL	AV 793-5018		DRCIS-RI

MISCELLANEOUS NUMBERS

STAFF DUTY OFFICER	G2C60 49223	
AMBULANCE		
(During Duty Hours, Call the Clinic)	1551 48296	
(After Duty Hours, Call the Guard)	Lobby 9-557-1144	
OSD BLDG ADMINISTRATOR	1534 48099	OSD
DARCOM OPERATIONS CENTER	G2C60 48586	DRCOC
LSSA HQ SUPPORT DIVISION	4N26 48686	DRXLS-LH
DARCOM PERS SPT ACTY	2E18 48499	DRXMM-P
CIVILIAN EMPLOYEE HEALTH SVC (Clinic)	1551 48296	
CLASSIFIED MAIL CENTER	G2W07 49585	DRXAM-AMC
COMMAND CONFERENCE ROOM	10N48 48988	DRXAM-PA
COMMUNICATIONS ELECTRONICS Sys Div	G1C02 48515	CORADCOM
CONFERENCE ROOM SCHEDULING:	1N57 48485	DRXAM-PA
CREDIT UNION/DARCOM	Lobby 48311	
DARCOM EDUCATION CENTER	7515 48484	ANPE-HRS-H
DARCOM MICO DATA MGT BR	4557 49322	DRXLS-LHD
DRIVERS SERVICE	G1501 48091	DRXAM-GD
DSSW, ALEXANDRIA, VA	7N28 48878	
FORMS MANAGEMENT OFFICER	1E06 48151	DRXAM-ABE
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	DRCCO-TS
PHOTOGRAPHIC FACILITY	1C44 48486	USA-AVC
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)	1538 48108	USASCAF
SPECIAL SECURITY COMMAND, DARCOM	G2C63 48986	IASSG-DRC
TELECOMMUNICATIONS CENTER (Msg)	G3C24 49010	CCNC-BHA-O
TELECOMMUNICATIONS CENTER (DATAFAX)	48601/2	
TELEPHONE Service Control Off:	G3W18 49000	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
USACC C-E SVCS DIV	7N32 48787	CC-OPS-CE
WESTWOOD MANAGEMENT OFFICE Rm G1	Lobby 751-5590	

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 J. C. SU-BROWN	7N56	48003	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 J. C. SU-BROWN	7N56	48003	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

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Deputy Director	MR. J. A. SAUM	4E16	48626	DRCMS
Executive Off	LTC C. D. 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

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Staff Chaplain	COL J. A. DeVEAUX, JR.	10529	49432	DRCCH
Chaplain	LTC R. S. BEZANSON, JR.	10529	49432	DRCCH
Chaplain	MAJ J. J. KAISING	10529	49432	DRCCH

OFFICE OF THE SURGEON — DRCSG

Surgeon	COL T. NOWOSIWSKY, M.D	10524	49470	DRCSG
Occupational Medicine	LTC R. J. CHLOUPEK, M.D.	10524	49470	DRCSG-O
Environmental Quality	LTC R. M. CLEARWATER	10524	49470	DRCSG-S
Medical Physics	LTC J. H. BELL, PH.D.	10524	49470	DRCSG-R
Medical Entomologist	MAJ C. W. JOHNSON	10524	49470	DRCSG-E
Industrial Hygienist	*MR. C. J. JORDAN*	*10524*	*49470*	*DRCSG-I*

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Chief	COL R. L. HORVATH	10535 48010	DRCIN
Public Affairs Officer/Industry Relations	MR. J. J. FOLEY	10535 48010	DRCIN
Comd Info	MR. E. DUGGAN	10535 48019	DRCIN-CI
Public Info	MR. J. W. PENTON, JR.	10535 48012	DRCIN-PI
Community Relations & Special Projects	MS. E. P. HANCE	10535 48013	DRCIN-CRSP

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Physical Security	LTC D. L. ADDERLEY	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

Chief	Vacant	10N36	49475	DRCSF
Aviation	LTC B. L. OWENS	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.	10518	49694	DRCSA-JS
Congress Affairs	MR. C. R. SMITH	10532	48263	DRCSA-C
Technical Relations	MR. H. HANDLER	10E14	49630	DRCSA-T

AVIATION OFFICE — DRSTS-X

Chief	COL D. H. SMITH (St. Louis, MO)	AV 693-0624

NUCLEAR-CHEMICAL OFFICE — DRCNC

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Nuc Affairs	MR. R. MILLER	10W18	49554	DRCNC
Chem Affairs	LTC S. L. WORLUND	10W18	49406	DRCNC
Nuc/Chem Affairs	LTC J. STEVENS	10W18	49406	DRCNC
Chem Affairs	MAJ J. PITTMAN	10W18	48194	DRCNC

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SA/US ARNG	COL I. D. KEELING	10549	49670	DRCSA-NG
SA/USA RESERVE	COL J. L. WOHLFAHRT	10538	49689	DRCSA-AR

PROGRAM/PROJECT/PRODUCT MANAGERS

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)			
Vacant	7N45	48939	DRCPM-AAH-WFO
Nuclear Munitions			
MR. E. L. BACOT	8544	49487	DRCPM-NUC-W
PATRIOT			
COL C. C. NEELY, JR.	10N54	48866	DRCPM-MDW
SANG Modernization Program			
LTC S. L. LEISHNER	9N18	49126	DRCPM-NGW
Satellite Communication (SATCOM)			
COL C. C. NEELY, JR.	10N54	48940	DRCPM-SC-W
US ROLAND			
LTC R. M. HIGGINS	10N54	48240	DRCPM-ROL-W
XM1 Tank			
LTC W. R. RITTENHOUSE	2540	49837	DRCPM-GCM-WF
Fighting Vehicle Systems (FVS)			
MR. J. SARAPULSKI, Chief	3N09	49079	DRCPM-FVS-W
BLACK HAWK			
VACANT	7N45	48940	DRCPM-BH-W

OFFICE OF THE INSPECTOR GENERAL & DARCOM IG ACTIVITY — DRCIG / DRXIG

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DARCOM INSPECTOR GENERAL ACTIVITY

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Administrative Officer	MRS. W. K. BEASTON	1514	48079	DRXIG-X
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Eastern Inspection Division	COL E. A. OPSTAD	1524	48084	DRXIG-E
Western Inspection Division	COL J. E. ALEXANDER	Autovon 693-3441		DRXIG-W

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Annual Historical Reviews/Monographs, Studies	MR. M. G. MARKEN, SR	G1W18	48192	DRCHO
Special Studies/Historical Services	MR. A. A. PUTIGNANO	G1W18	48192	DRCHO
Historical Sources/Archives	MR. M. C. COPPOLA	G1W18	48192	DRCHO

DIRECTOR OF COMM ELECTRONICS & US ARMY COMM COMMAND-DARCOM — DRCCE / CCNC

Director	COL E. E. TABOR	3510	49050	DRCCE
Commander	COL E. E. TABOR	3510	49050	CCNC-C
Deputy Commander	Vacant	3510	49055	CCNC-DC
SGT Major	SGM J. HEININGE	3510	49056	CCNC-SM
Operations Div	MR. A. SCHWARTZ	3519	49073	DRCCE-O
Plans Div	MR. J. E. GOTTFRIED	3506	49063	DRCCE-P
Resources Div	MR. A. E. PAIGE	3514	49071	DRCCE-R
Admin Off	MRS. M. CARROLL	3514	49071	DRCCE-R

USA DARCOM SERVICE SUPPORT ACTIVITY — DRXAM

Director	LTC R. E. LEE	1E14 48134	DRXAM
Deputy Director	MR. L. F. KORTUM	1E14 48134	DRXAM
Admin Svc Div	MAJ J. L. TILT	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	MR. F. WELSH (Act)	1S52 49005	DRXAM-G
Space & Sup	MR. F. WELSH	1S58 49093	DRXAM-GA
Equip Mgr	MRS. R. ELSER	1S58 49095	DRXAM-GA
Travel	MR. J. H. BARGET	1S52 49006	DRXAM-GT
HQ Budget & Prog Ofc	MS. M. J. KRUYER	1E18 48128	DRXAM-B
HQ Security Ofc	MRS. B. E. MILLER	1E22 49066	DRXAM-S
Staff C-E Off	CPT T. GRAHAM	G3C20 48061	DRXAM-CE
Staff Librarian	MS. I. O. OMDAHL	7535 48087	DRXAM-L
HQ Tech Library	MR. J. FRAGALE, JR.	7535 48152	DRXAM-TL

DIRECTORATE FOR PRODUCT ASSURANCE — DRCQA

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Executive Assist	MS R. E. SMITH	4W22	48929	DRCQA
Product Quality Div	MR. R. F. TINER	4W20	48899	DRCQA-P
Engineering Div.	MR. A. H. NORDSTROM	4506	48912	DRCQA-E
System Assessment Div.	MR. R. DuBOIS (Act)	4W22	48925	DRCQA-S

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EO Ofcr	VACANT	2555	49138	DRCEE
DARCOM Fed Women's Prog Mgr	MS. A. G. TROUGHTON	10515	49691	DRCEE
DARCOM Hispanic Emp Prog Mgr	MR. R. A. MIRABAL	10515	49692	DRCEE

HQ OFFICE OF EQUAL OPPORTUNITY — DRCEE-H

Chief	MR. R. D. SHANKS	7544	49836	DRCEE-H
HQ Federal Women's Program Manager	MS. C. PAGE	7544	48021	DRCEE-H
HQ Hispanic Emp Prog Mgr	VACANT	7544	49836	DRCEE-H
HQ Equal Oppor Staff Ofcr	CPT R. E. BLAKELY	1W07	49478	DRCEE-H

HQ CIVILIAN PERSONNEL OFFICE — DRCCO

Civilian Personnel Officer	MR. A. HALL	2532 49427	DRCCO-Z
Management-Employee Relations	MR. B. H. FLEMING	2536 49106	DRCCO-ML
Position & Pay Management	MR. D. SHEEHAN	2525 49495	DRCCO-PC
Recruitment & Placement	MR. R. A. LOWELL	2524 49446	DRCCO-RP
Technical Services	MS N. D. HALBERT	2C33 49491	DRCCO-TS
Training & Development	MR. A. D. HYSLOP	2W18 49412	DRCCO-TD
Learning Resource Center	MS. A. COLLIER	1517-48214	DRCCO-TD-(LRC)

ORGANIZATIONAL EFFECTIVENESS OFFICE — DRCOE

Chief	LTC GRAGG	1N20	48532	DRCOE

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Deputy Director	DR. R. L. HALEY	8E08 49493	DRCDE
Executive Officer	COL J. R. TEDESCHI	8E08 49494	DRCDE-X
Associate Directors			
Battlefield Auto Mgmt	LTC J. F. CAMPBELL	8N28 48117	DRCDE-C
Systems Development	MR. D. L. GRIFFIN (Act)	8N54 49850	DRCDE-D
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Cmd & Control	COL G. S. KOURAXOS	8N28 48392	DRCDE-DE
Field Artillery	COL R. A. FADEL	8N48 49870	DRCDE-DF
Ind Sol/Tng Dev/Spt	Vacant	8N48 48605	DRCDE-DG/DS
Aviation	COL H. M. RAMEY	8N28 48392	DRCDE-DH
Spec Munitions	MR. C. RUBEN	8N48 49870	DRCDE-DM
Armor/Infantry	COL T. KEHOE	8N48 49870	DRCDE-DW
Sig/Int/EW	MR. G. MYERS (Act)	8N28 48118	DRCDE-DX
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
Spec Stds & Eng	MR. J. KICAK	8N14 49828	DRCDE-RE
Net Assessment	COL R. HENRY	8N31 49631	DRCDE-RR
Testing	COL G. ROSTINE	8N22 49811	DRCDE-RT
Prog Spt Ofc	MR. G. F. SCORTIA	8N55 48537	DRCDE-S
Admin	MS. B. Y. HEARN	8N55 48537	DRCDE-SA
HQ R&D Budget	MS. D. D. MOLINARES	8N55 48538	DRCDE-SB
WPC	MS. D. F. MAHON	8N41 48832	DRCDE-SW
Independent R&D Mgr	MR. R. A. MLINARCHIK	8557 48978	DRCDE-L
Army RDA Mag	MR. V. L. NAISAWALD	8N23 49586	DRCDE-M
Tri-Svc Ind Info Ctr	ARMY/NAVY/AF	8556 48948	DRCDE-TILO

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Asst Chief	MR. R. L. MICHELLON	10N18	49570	DRCPM
Admin Off	MRS Z. P. COFFEE	10N19	48220	DRCPM
Project Officers				
PM TNG	LTC R. M. OTT	10N19	49572	DRCPM
PM CHARTERS	Vacant	10N19	49572	DRCPM
MGT INT	LTC J. E. HAWLEY	10N33	48372	DRCPM
MGT INT	LTC J. D. LEIDERITZ	10N33	48372	DRCPM
MGT INT	MR. J. H. DAVIDSON	10N33	48372	DRCPM
MGT INT	MR. G. B. LEVY	10N33	48372	DRCPM
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	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
RECAP/DAPR/LOGCAP	MR. C. W. LETSEN	10N19	49579	DRCPM
TACOM	MR. H. C. MELVIN	10W13	48671	DRCPM
TACOM/AVRADCOM	MR. W. F. ABBA	10W13	48671	DRCPM
MICOM/SAR	MR. F. O. ANGEL	10W13	48671	DRCPM

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Asst Chief	MR. R. C. COOK	9W14	48367	DRCIRD-X
Programs & Budget	MR. M. MATSUMOTO	10511	49467	DRCIRD-A
Plans & Analysis	MR. R. B. MAYO	10511	49463	DRCIRD-P
Bilateral Talks-GE	LTC J. R. DALY	9W14	48367	DRCIRD-B (GE)
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
Bilateral Talks-UK/FR	LTC F. H. MURRIL	9W14	48367	DRCIRD-B (UK/FR)

OFFICE OF PRODUCT IMPROVEMENT — DRCPI

Chief	COL G. J. HEHEMANN	3W14	49200	DRCPI
Tech Mgt Div	MR. R. ODELL	3W14	49203	DRCPI
Program Control & Budget Div	MR. S. RICHEY	3W14	49201	DRCPI

OFFICE OF MANUFACTURING TECHNOLOGY — DRCMT

Chief	MR. F. J. MICHEL (Act)	9N08	48298	DRCMT
Electronics	MR. F. J. MICHEL	9N08	48298	DRCMT
Wpns & Matls	MR. J. L. BAER	9N08	48284	DRCMT
Value Engineering	MR. H. S. MLODOZENIEC	9N08	48288	DRCMT
	MR. L. E. DeVAUGHN	9N08	48284	DRCMT
Ammo	MR. R. KOPPENAAL	9N08	48285	DRCMT
OMA Prod Engr	MR. P. CHERNOFF	9N08	48289	DRCMT
APESO	DR. R. R. DELMAR	9N08	48299	DRCMT
Matls Test Tech	MR. R. SPANGENBERG	9N08	48289	DRCMT
Aviation & Msls	MR. G. SCHUCK	9N08	48285	DRCMT

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Chief	MR. J. BENDER (Act)	10N24	49561	DRCLDC
ARRADCOM	MR. T. SHIRATA	10N30	47676	DRCLDC
ARO/ILIR	DR. G. BUSHEY	10N24	49561	DRCLDC
ERADCOM/CORADCOM/MICOM	MR. J. BENDER	10N24	49561	DRCLDC
MERADCOM/NLABS/AMMRC	VACANT	10N30	48059	DRCLDC
AVRADCOM/TACOM/HEL/PM TRADE	Vacant	10N24	49566	DRCLDC
Facil & Equip	MR. C. CLIFFORD	10N24	49565	DRCLDC
Personnel	MR. M. SYKES	10N24	49562	DRCLDC

LIAISON

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*United Kingdom	LTC M. H. CAREY	10S44	49675	BLNO
*Canada	LTC J. C. BEREZOWSKI	10S44	49679	CLNO
*Germany	LTC J. HOSBERG	10538	49684	GELNO
Marine Corps	MAJ M. R. JANAY	10S44	49676	DRCGS-F
TRADOC/Logistics Center	LTC W. E. WHITE	10S44	49678	DRCGS-L
ARRCOM WFO	COL R. P. GALL, Chief	7530	49840	DRSAR-AA
DESCOM	MR. E. G. KILPATRICK	10W16	49620	DRCGS-D
FSTC	MR. J. A. BURT	8N35	48538	DRXST WLO
INSCOM	LTC H. W. ABEHEART	9508	48397	IALD
Munitions Production Base Modernization, Washington Office (MPBM)	MR. V. J. GORMAN, Chief	9508	49361	SARMA-WO

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	AVN 858-5181	DRXFA(SDOA)
**TCATA/Ft Hood, TX	LTC N. BORRICENO	AVN 737-1228	DRXFS
**HQ TRADOC	LTC D. SANDERS	AVN 680-3583	ATCD-SM-LNOD

**FOR MAILING ADDRESS, MISSION INFO, ETC., CALL OR VISIT DRCDE-S, EXT 48537, ROOM 8N55.

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COMMERCIAL 202-274-XXXX
CABLE ADDRESS CDRDARCOM ALEX VA

STAFF DUTY OFFICER
AUTOVON 284-9223
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OPERATIONS CENTER: Administrative: 274-8586/7
Emergency: 274-8660

UNCLASSIFIED

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, 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 PEOPLE GOAL

Provide the Total Army with highly effective and morally responsive soldiers and civilians capable of performing reliably in war; insure equal opportunity for all; provide quality of life support for our soldiers, civilians, 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 MOBILITY 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 by exploiting new technology and concepts.

THE MANAGEMENT GOAL

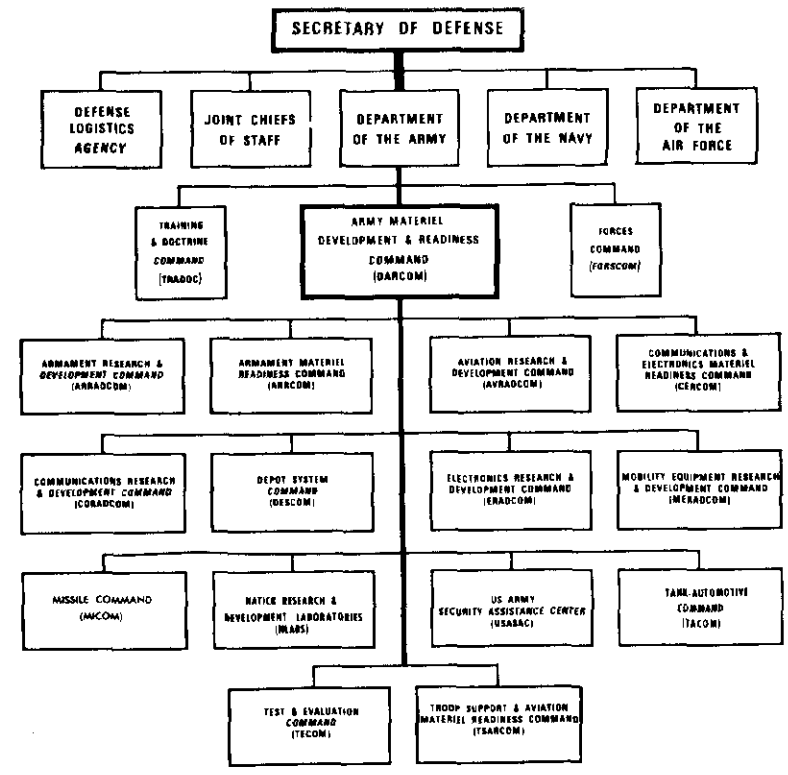
Manage and utilize existing and programmed resources more effectively. Strengthen the Army's resource justification process.

THE SECURITY ASSISTANCE GOAL

Provide weapons, equipment, and services to designated allied/friendly countries in an effective manner on an integrated basis with DARCOM support to the Total Army.

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
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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 1980

*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. LUNN**	**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	**BG W. H. SCHNEIDER**	**10-E-14 274-9638**
DEPUTY CHIEF OF STAFF & SECY OF THE GENERAL STAFF	**COL L. A. HERGENRODER**	**10-S-60 274-9644**
EXECUTIVE OFFICER TO CG	**COL C. W. TIPTON**	**10-E-08 274-9625**
COMMAND SERGEANT MAJOR	**CSM W. B. TAPP, JR.**	**10-S-48 274-8257**

OFFICE OF THE DEPUTY CG FOR MATERIEL DEVELOPMENT

Prin Asst Deputy/Materiel Development	Mr. D. Blanchard	274-9709
Asst Deputy/Science & Technology	Dr. R. S. Westman	274-9560
Asst Deputy/Int'l R&D	Mr. B. R. Dunetz	274-8252
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Asst Executive Officer	LTC D. E. Sullivan	274-9558
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Task Group	CPT C. D. Stratton	274-8657
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Asst Deputy/Materiel Readiness	Mr. E. Grainer	274-9701
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PM Coordinator	Mr. J. D. Kelly	274-9406
Task Group	LTC D. Carey	274-8895

DIRECTOR OF COMMUNICATIONS/ELECTRONICS & US ARMY COMMUNICATIONS COMMAND — DARCOM
COL E. E. Tober 274-9030

OFFICE OF DEPUTY CG FOR RESOURCE MGT
Executive Officer COL W. J. Hennigan 274-9641

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MG S. R. Sheridan 274-9490

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BG J. F. McColl 274-9131

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Mr. J. C. Gilbert 274-8626

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BG H. Doctor, Jr. 274-8195

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COL W. J. Walden 274-9571

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COL H. L. Harrison 274-8675

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COL D. H. Smith Avn 693-2618

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OFFICE OF THE CHAPLAIN
COL J. A. DeVeaux, Jr. 274-9432

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Mr. D. L. Griffin 274-8298

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Mr. F. X. McKenna 274-8046

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COL T. C. Lovenger 274-9041

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COL G. J. Hahemann 274-9200

EQUAL EMPLOYMENT OPPORTUNITY OFFICE
Mr. G. L. Jones 274-9690

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Mr. J. Bender (Act) 274-9566

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Dr. D. Bridell 274-8191

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MG R. L. Hartford, Sr. 274-8159

OFFICE OF THE INSPECTOR GENERAL
COL R. D. Delcoteau 274-8070

SPECIAL ASSISTANTS

Congressional Affairs	Mr. C. R. Smith	274-8243
Joint Activities	COL C. Hanne, Jr.	274-9693

DIRECTORATE FOR SECURITY ASSISTANCE
MG T. F. Healey 274-8380

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COL G. A. Carruth 274-9610

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COL F. E. Elam 274-8229

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COL Richard L. Horvath 274-8010

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BG(P) B. F. Register 274-8175

SAFETY OFFICE
Mr. J. L. Crawford 274-9475

LIAISON

TO HEADQUARTERS, DARCOM

ARRCOM	COL R. P. Gill	274-9840
*United Kingdom	LTC M. H. Carey, REME	274-9675
*Canada	LTC J. C. Barzowski	274-9679
*Germany	LTC J. Hosberg	274-9684
Marine Corps	MAJ M. R. Janey	274-9676
TRADOC/Log Center	LTC W. E. White	274-9678
DESCOM	Mr. E. G. Kilpatrick	274-9620
SR ADV/USARNG	COL J. O. Keeling	274-8895
SR ADV USA RESERVE	COL J. L. Wohlfahrt	274-8895
FSTC	Mr. J. A. Burr	274-8558
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*DARCOM point of contact for all documents and visits is Security Office, DARCOM Security Support Activity, Atlanta, GA — Autovon 797-5543/44

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DARCOM Liaison Office TCATA/Ft Hood, TX	LTC N. Borichono	737-1228
DARCOM RDTE Liaison Office HQ, TRADOC	LTC D. Sanders	680-3383

*For mailing address, mission info, etc., call or visit DRCE-A, 274-8537 Room BN55, 5001 Eisenhower Ave., Alexandria, VA 22333

OFFICE OF GENERAL COUNSEL
COL Charles A. Hammaker, Jr. 274-8010

OFFICE OF THE SURGEON
COL T. Nowosiwsky 274-9470

SERVICE SUPPORT ACTIVITY
LTC R. E. Lee 274-8134

DARCOM FIELD ELEMENTS

OTHER ELEMENTS

US ARMY DEPOT SYSTEM COMMAND, CHAMBERSBURG, PA (DESCOM)

MG J. S. WELCH

Units/Activities
*Anniston Army Depot, Anniston, AL
Lexington-Blue Grass Army Depot Activity, Lexington, KY
*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
*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 R. L. MOORE

Units/Activities
Redstone Arsenal Support Activity (RASA), AL
US Army Metrology and Calibration Center, AL
Contractor Equipment Records Center, AL
US Army Field Service Avtivity/MICOM, 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 T. F. HEALEY

Units/Activities
None

Zip Code 22333
Area Code 202
Telephone 274-8383
Autovon 284-8380

* US ARMY TANK-AUTOMOTIVE COMMAND, WARREN, MI (TACOM)

MG O. C. DECKER, JR.

Units/Activities
US Army Tank Ctr, Lima, OH
US ArmyField Service Activity/TACOM, MI
US Army TARCOM Support Actv, Selfridge, MI
HQ & Instl Spt Actv/TACOM, MI

Zip Code 48090
Area Code 313
Telephone 573-1131
Autovon 273-1132

US ARMY TEST AND EVALUATION COMMAND, ABERDEEN PROVING GROUND, MD (TECOM)

MG J. J. KOEHLER, JR.

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

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
US Army Applied Technology Lab., VA

Zip Code 63166
Area Code 314
Telephone 268-2201
Autovon 698-2201

* US ARMY COMMUNICATIONS RESEARCH AND DEVELOPMENT COMMAND, FT. MONMOUTH, NJ (CORADCOM)

MG 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 Lno/TRADOC Cotc, 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)

MG A. N. STUBBLEBINE III

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 LABORATORIES, NATICK, MA (NLABS)

COL R. J. CUTHBERTSON

Units/Activities
None

Zip Code 01760
Area Code 617
Telephone 653-1000 Ext. 2206
Autovon 955-2206

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 Shools, AL

Zip Code 61299
Area Code 309
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Autovon 793-5111

* US ARMY COMMUNICATIONS & ELECTRONICS MATERIEL READINESS COMMAND, FT. MONMOUTH, NJ (CERCOM)

MG D. N. BABERS

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 TROOP SUPPORT AND AVIATION MATERIEL READINESS COMMAND, ST. LOUIS, MO (TSARCOM)

MG E. L. KONOPNICKI

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
US Army Applied Technology Lab. Ft. Eustis, VA 22604

Zip Code 63120
Area Code 314
Telephone 263-2201
Autovon 693-2201
Autovon 927-3272

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 63103	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	242-7402
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	797-5620
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-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	Yongsan 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 96328	
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 Trg Center, Aberdeen PG, MD 21005	283-4451

PROGRAM/PROJECT/PRODUCT MANAGERS

			Autovon
Advanced Attack Helicopter (AAH)	MG Edward M. Browne	St. Louis, MO	693-1911
Advanced Scout Helicopter (ASH)	COL Ivor W. Rundgren, Jr.	St. Louis, MO	693-1360
Aircraft Survivability Equipment (ASE)	COL Daniel J. DeLany	St. Louis, MO	693-1460
Air Defense Command and Control Systems (ADCCS)	COL David L. Wyatt	Redstone Ars, AL	742-3440
All Source Analysis System (ASAS)	COL Kenneth M. Irish, Jr.	Warrenton, VA	249-6471
Armor Training Devices (ARD)	LTC Harry Meeth III	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 Ronald K. Andreson	St. Louis, MO	693-1800
Cannon Artillery Weapons Systems (CAWS)	COL Robert W. Painter, Jr.	Dover, NJ	880-2572
CH-47 Modernization Program	COL Terry L. Gordy	St. Louis, MO	693-1411
Chaparral/FAAR	COL Harold E. Stubbs	Redstone Ars, AL	746-6130
COBRA	COL Donald R. Williamson	St. Louis, MO	693-0935
Commercial Const Equip & Special Materiel Handling Equipment (CCE/SMHE)	LTC Raymond F. Vachon	Warren, MI	273-2003
Defense Communications Systems (Army)	MG Donald R. Lasher	Ft. Monmouth, NJ	992-5960
Division Air Defense (DIVAD) Gun	COL Charles C. Adsit	Dover, NJ	880-2273
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 Donald P. Whalen	Warren, MI	273-1630
FIREFINDER/REMBASS	COL John S. Chesbro	Ft. Monmouth, NJ	996-5324
HAWK	COL Lynn H. Stevens	Redstone Ars, AL	746-5609
Heavy Equipment Transporter Systems (HET)	LTC Ronald J. Charbonneau	Warren, MI	273-2202
HELLFIRE/Ground Laser Designators	COL Stanley D. Cass	Redstone Ars, AL	746-1117
Improved TOW Vehicle (ITV)	COL James A. Chernault	Warren, MI	273-2069
M60 Tanks	COL Paul C. Boyruns	Warren, MI	273-2720
M113/M113A1 Family of Vehicles (FOV)	LTC James A. Logan	Warren, MI	273-2709
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
Multiple Launch Rocket System (MLRS)	COL Monte J. Hatchett	Redstone Ars, AL	746-1195
Navigation Control Systems (NAVCON)	COL LeRoy White	Ft. Monmouth, NJ	992-4240
Nuclear Munitions	COL William P. Farmer	Dover, NJ	880-5342
Operations Tactical Data Sys (OPTADS)	COL Alan B. Salisbury	Ft. Monmouth, NJ	995-2363
PATRIOT	MG Oliver D. Street, III	Redstone Ars, AL	742-3240
PERSHING	COL William J. Fiorentin	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 II	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 James E. Rambo	Redstone Ars, AL	746-6191
Tactical Airborne Remotely Piloted Vehicle/Drone System (RPV)	COL George F. Christensen	St. Louis, MO	693-1302
Tactical Fire Direction System/Field Artillery Tactical Data Sys (TACFIRE/FATDS)	COL Harold E. Luck	Ft. Monmouth, NJ	995-4864
Tank Main Armament System (TMAS)	COL David A. Appling	Dover, NJ	880-5307
Target Acquisition Designation System/Pilot Night Vision System (TADS/PNVS)	COL Donald P. Wray	St. Louis, MO	693-1992
Test Measurement & Diagnostic System (TMDS)	LTC Joseph C. Marangola	Ft. Monmouth, NJ	992-1759
TOW	COL N. S. Williamson, III	Redstone Ars, AL	746-7194
Training Devices (TRADE)	COL Donald M. Campbell	Orlando, FL	791-5292
US ROLAND	BG Joseph O. Lax, Jr.	Redstone Ars, AL	746-4225
VIPER	COL Aaron J. Larkins	Redstone Ars, AL	746-4266
*XM1 Tank System	MG Dward D. Bell	Warren, MI	273-2284
30mm Ammunition	LTC David W. Logan	Dover, NJ	880-3612

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