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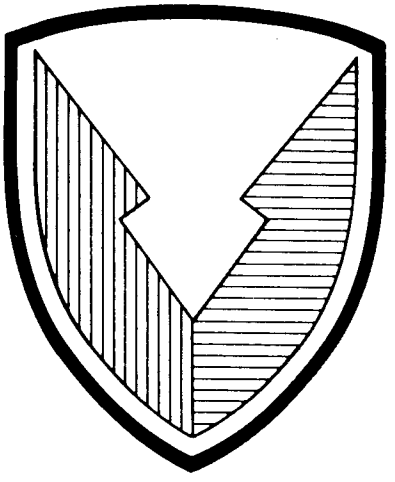
U.S. Army
Materiel Command

ANNUAL HISTORICAL REVIEW FY88



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U.S. ARMY MATERIEL COMMAND

ANNUAL HISTORICAL REVIEW

FISCAL YEAR 1988

(RCS-CSHIS-6 [R3])

Prepared By

Historical Office
Headquarters, U.S. Army Materiel Command

April 1990

APPROVED:

William B. McGrath

WILLIAM B. McGRATH
Major General, USA
Chief of Staff

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Preface

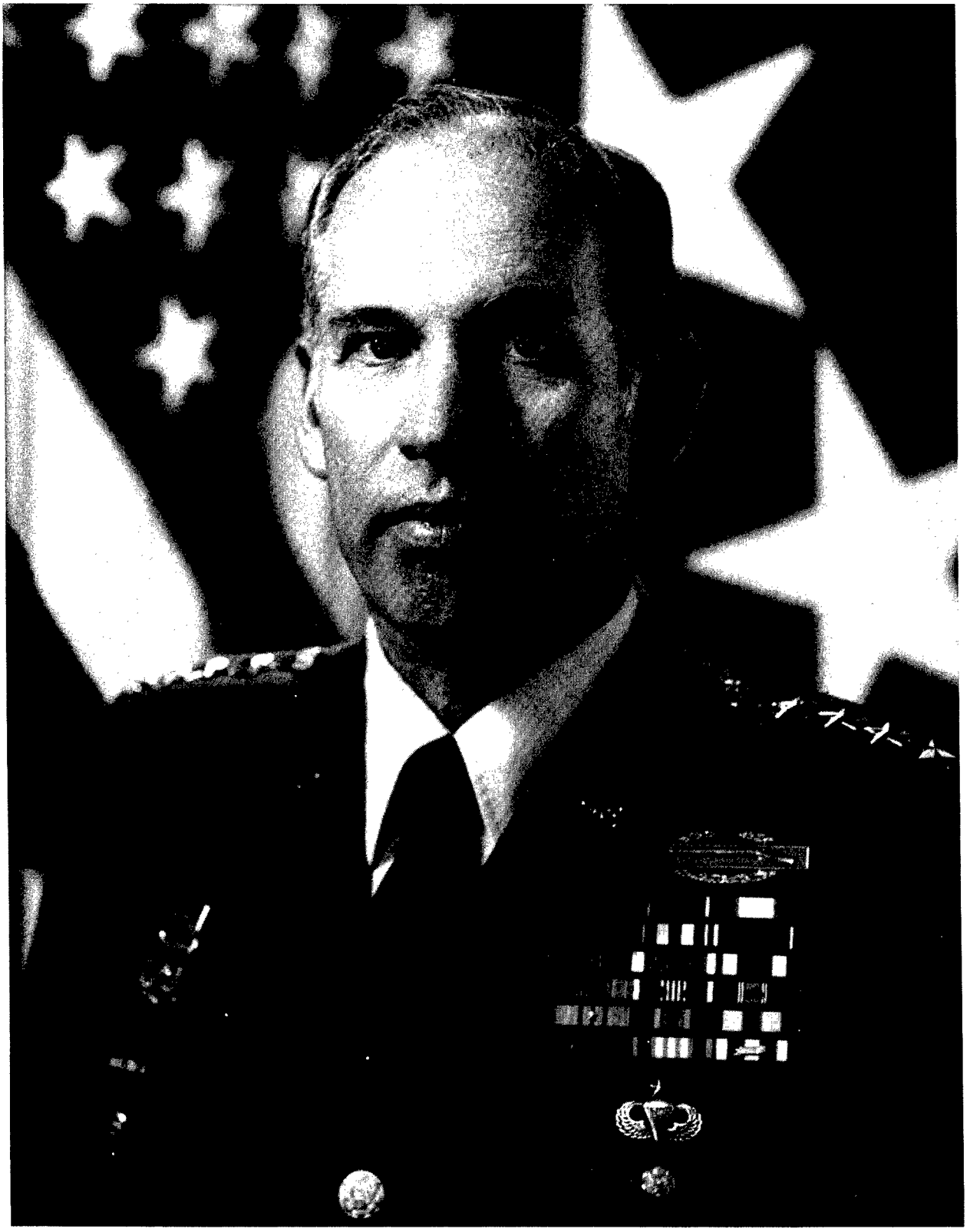
This Annual Historical Review (AHR) of the Headquarters, U.S. Army Materiel Command during Fiscal Year 1988 was prepared by HQ, AMC's Historical Office largely based on submissions from staff elements, supplemented by documents received from them and documents already held in HQ, AMC Historical Office's Archives. This AHR, covering the twenty-sixth anniversary of AMC, prepared according to AR 870-5, owes much to the individuals of the Command who provided the materials and data covering the activities of their staff elements. Without their reports and without the efforts of the historians who used the reports, this AHR could not to have been completed.

The Annual Historical Review serves as a chronicle of the Command, to be used as a statement of the events of the year by those needing to look at the past to better manage the present and project the future. The soldiers and civilians of the Army Materiel Command carry a heavy responsibility at HQ, AMC and in the field in supporting the soldier. This study documents that effort.

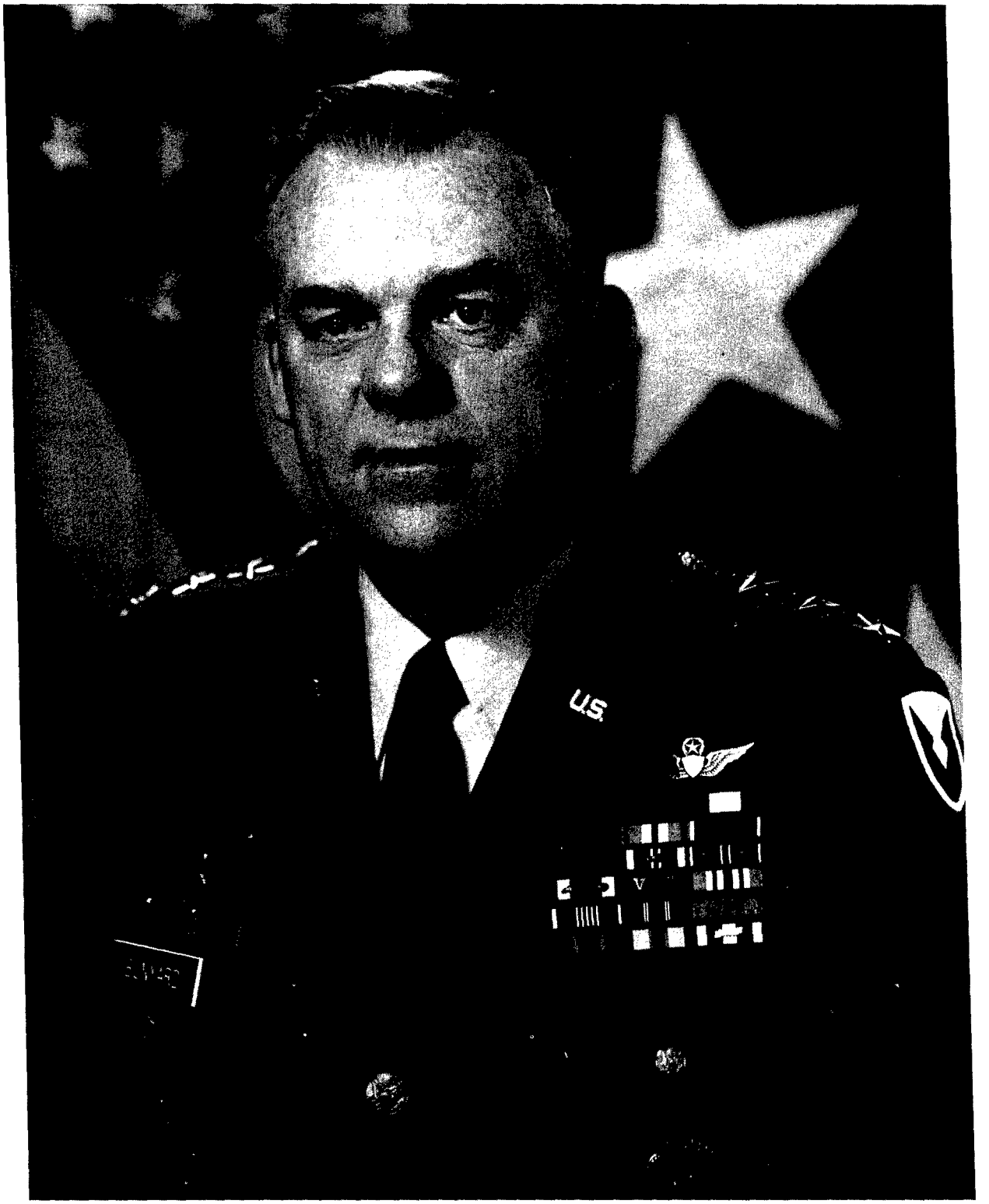
This study uses a white paper issued in 1988 by General Louis C. Wagner, Jr., the AMC Commanding General throughout this period, entitled "Commander's Perspective," and the Command's 1988 stewardship letter issued in 1989 to capture the Commander's views, as he expressed them. For more details on the command/management perspective we refer you to the text of this report.

Preparation of the Annual Historical Review was a team effort, accomplished under the supervision and guidance of the Chief Historian. Assisted by Marcel Coppola, historian-archivist, in utilization of documents, Dr. Herbert Leventhal wrote the chapters on materiel acquisition and readiness, and Dr. Charles Johnson wrote the chapter on resource management. Mr. Marcel Coppola also completed the chapter on security assistance/foreign military sales. Mr. Thomas Mani, writer-editor of this office, completed the preparation of this report.

Dr. Robert G. Darius
Chief, Historical Office

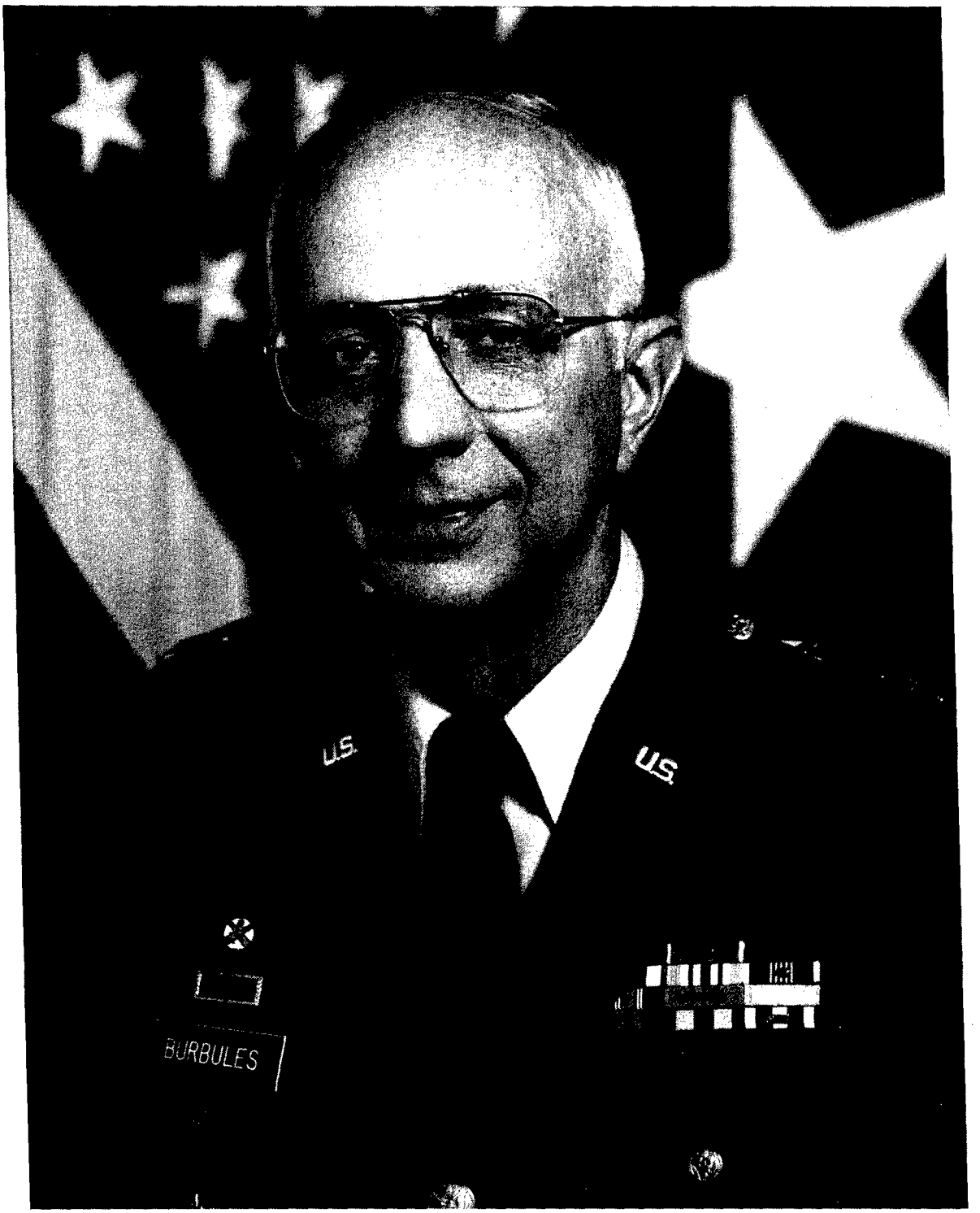


GEN Louis C. Wagner, Jr.
Commanding General



LTG Jerry M. Bunyard
DCG for Research, Development & Acquisition
DCG for International Cooperative Programs
Army Executive Agent for RDA

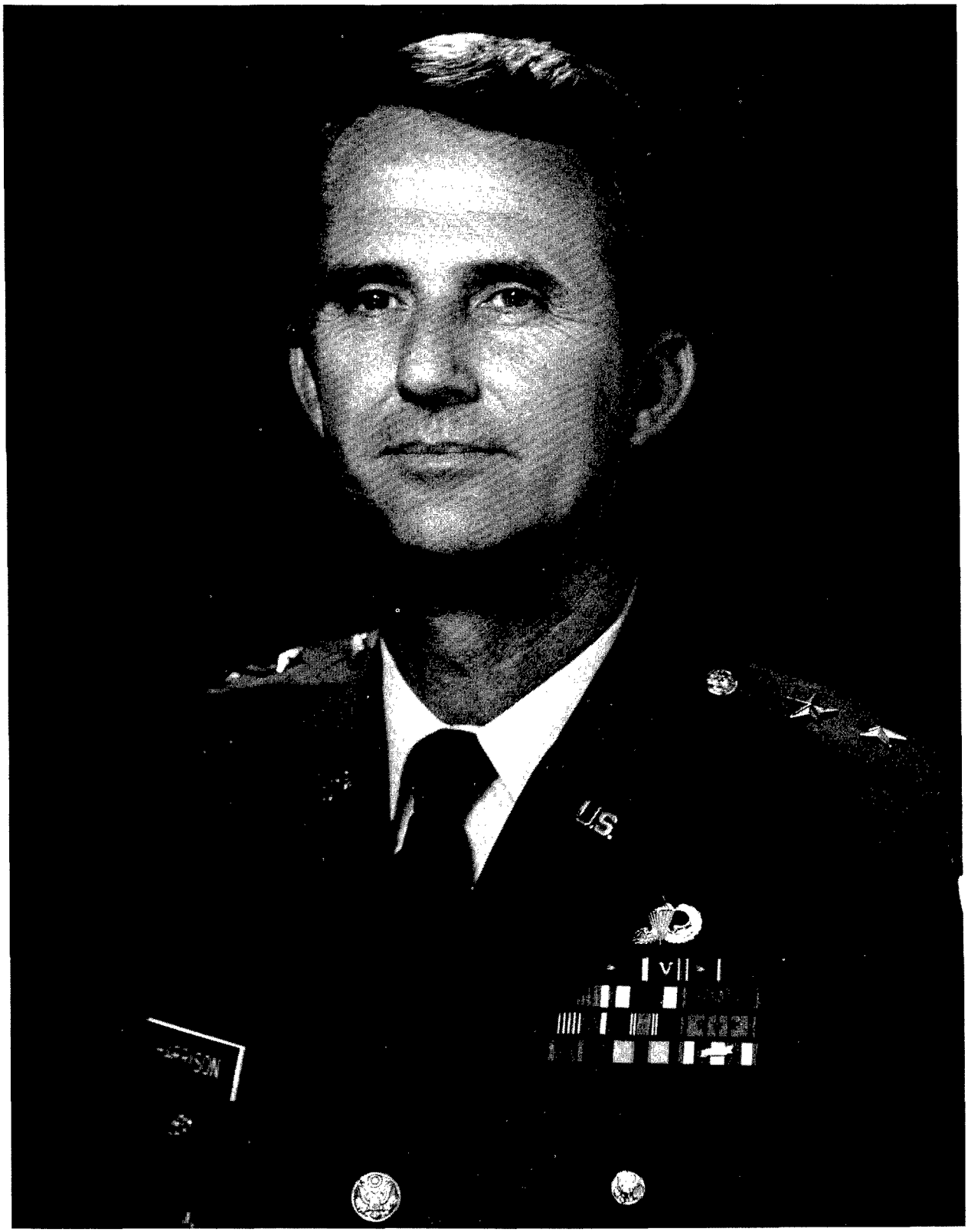
LTG Fred Hissong, Jr.
DCG for Materiel Readiness
Executive Director for Chemical and Nuclear Matters
Executive Director for TMDE
Executive Director for Conventional Ammunition
From 1 November 1987



LTG Peter G. Burbules
DCG for Materiel Readiness
Executive Director for TMDE
Executive Director for Conventional Ammunition
To 31 October 1987

Dr. Robert Chait
Chief Scientist
From 18 July 1988

Ms. Marie B. Acton
Deputy for Management and Analysis
To 31 March 1988



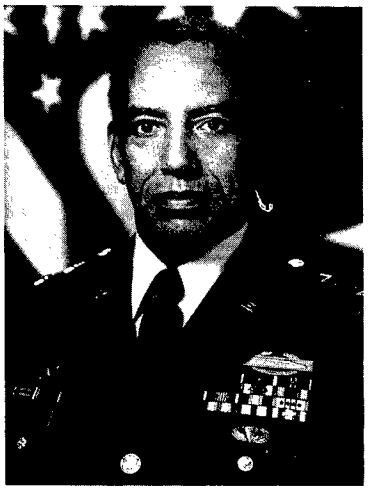
MG Jerry C. Harrison
Chief of Staff

CSM William B. Tapp, Jr.
Command Sergeant Major

BG Terrence L. Arndt
DCS for Resource Management

Mr. Robert O. Black
Principal Deputy for RD&A

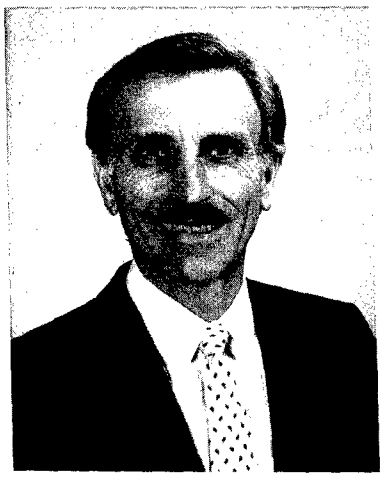
COL John R. Bramblett
Chief, Project Management Office
From 1 July 1988



BG Charles D. Bussey
DCS for Personnel
From 2 October 1987

Mr. Paul Donovan
Assistant DCS for International
Security Partnerships

Mr. Robert K. DuBois
Deputy Executive Director,
Test, Measurement, and
Diagnostic Equipment



Mr. Bryant R. Dunetz
Asst. Deputy for International
Cooperative Programs
From 1 October 1987

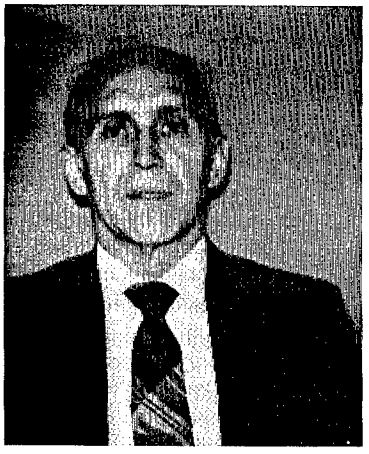
COL William J. Edwards
Inspector General
To 15 August 1988

Mr. Michael F. Fissette
Deputy PEO Ammunition

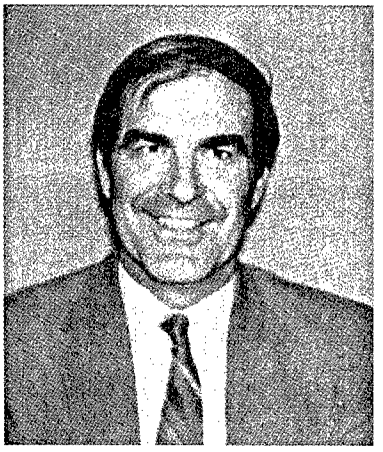
BG Waldo D. Freeman, Jr.
PM, SANG Modernization
From 1 August 1988

COL Donald W. Gover
Chaplain
From 10 August 1988

BG Paul L. Greenberg
PEO Ammunition



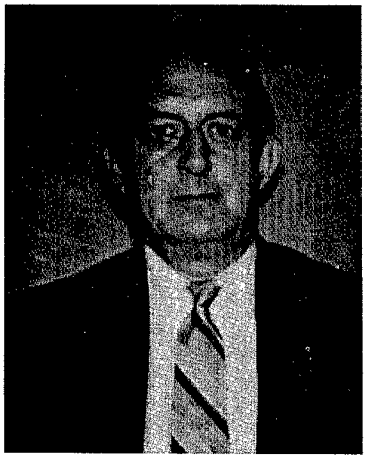
Mr. Darold L. Griffin
DCS for Production



Mr. Richard E. Heinbach
Assistant Deputy for
Materiel Readiness

Mr. James C. Hill
Director for Logistics
Management (DCS for SMT)

Mr. George Jones
Chief, Office of
Equal Employment
To 1 March 1988



Mr. John R. Jury
DCS for Procurement
To 31 March 1988
To 1 January 1988

BG Walter W. Kastenmeier
DCS for Chemical &
Nuclear Matters

MG Thomas W. Kelly
DCS for International
Security Partnerships;
Commander, USASAC
To 1 Janauary 1988

Mr. Edward Korte
Command Counsel
From 4 December 1987

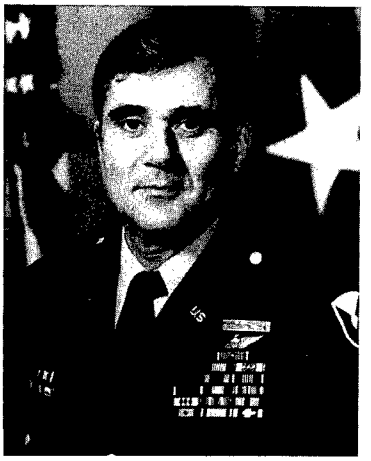
MG Eugene B. Leedy
DCS for Supply, Maintenance
and Transportation
From 14 September 1987

Mr. Seymour J. Lorber
DCS for Product Assurance

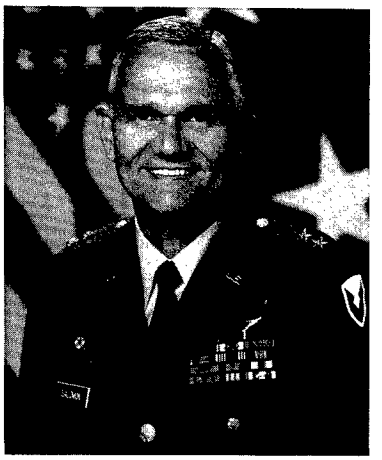
Mr. A. David Mills
Assistant DCS for Supply,
Maintenance and Transportation

Dr. Kenneth Oscar
Assistant DCS (DEA) for
Acquisition Management

BG Malcolm R. O'Neill
DCS for Technology
Planning and Management;
Commander, LABCOM

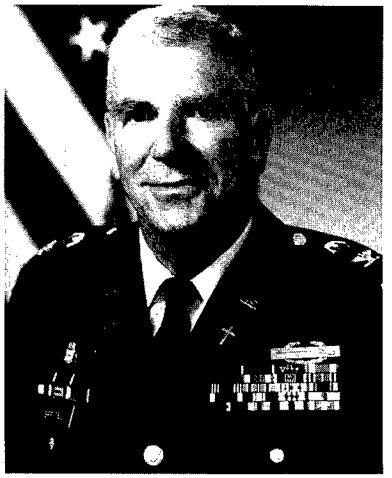


BG Michael J. Pepe
DCS for Readiness
To 29 July 1988

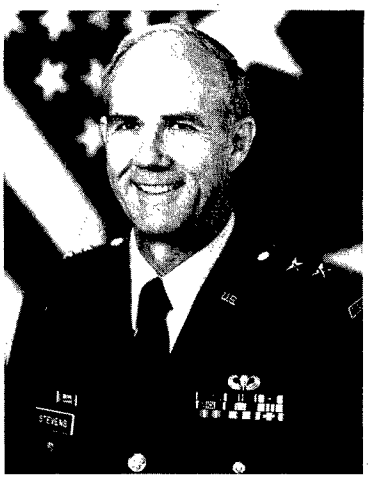


MG Leon E. Salomon
DCS for Readiness
From 15 August 1988

Mr. Michael C. Sandusky
DCS for Program Analysis
and Evaluation
From 1 October 1987



COL Edmund J. Speitel
Chaplain
To 6 July 1988



MG Lynn H. Stevens
DCS for Research,
Development & Acquisition
To 1 July 1988

Mr. Gary Tagtmeyer
ADCS for Resource Management
From 1 October 1987

COL James L. Tierney
Inspector General
From 13 September 1988

Mr. Robert O. Weidenmuller
Assistant DCS (DCS for RM)
for Cost Analysis

Chief, Office of Management and
Analysis
To 3 November 1987
DCS for Management and Productivity
From 3 November 1987

Additional Key Personnel Not Pictured Above:

Dr. Robert G. Darius	--	Chief, Historical Office
COL Jerry A. Hubbard	--	DCS for Engineering, Housing & Installation Logistics
COL James B. Lincoln	--	Chief, Office of Project Management, 14 Sep 1987 -- June 1988
COL Stephen Luster	--	Assistant DCS for Procurement (acting DCS from April 1988)
Mr. Barry W. McDaniel	--	Assistant DCS for Readiness, To 2 January 1988
COL James W. McFarland	--	Assistant Chief of Staff, To 18 July 1988
COL Taras Nowosiecki	--	Surgeon, To 1 September 1988
COL Garry A. Scharberg	--	Assistant Chief of Staff, From 19 July 1988
COL Michael M. Schneider	--	DCS for Intelligence, To 26 September 1988
Mr. Richard Vitali	--	Assistant DCS for Technology Planning and Management

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Chapter I

An Overview

This introductory chapter consists of two documents prepared during FY88. The first was written by General Louis C. Wagner, Jr., at the outset of FY88, his first full year in command of the United States Army Materiel Command (AMC). It capsules the vision guiding the command during this period, something that past AMC histories have attempted to do as part of their narration of past commanders' initiatives and managerial direction. It is followed by a "stewardship letter" summarizing more specifically the ways by which AMC, during 1988, acted "In Support of The Soldiers In The Field." It was prepared by the DCS for Management and Productivity.

THE COMMANDER'S PERSPECTIVE

Introduction

As commander of the Army Materiel Command, I would like to address the role we play in supporting the Total Army. The primary mission of the Army is to deter war and, if that fails, to fight and win. We are a key player in all aspects of that mission. The greatest deterrent to war is our state of preparedness, which we achieve through quality soldiers and civilians, realistic training, good leadership, effective doctrine, superb equipment and proper levels of sustainability. My purpose is to communicate a perspective on the crucial task of fulfilling our part of the Army's mission.

Before I detail how we fit into the big picture, I want to outline a philosophy of what AMC stands for. These are challenging times--times of change in the way we do business and times of ever-diminishing resources with which to get the job done. Such times require decisive action and innovative measures on our part to influence the outcome of those things we can affect. No matter what challenges we face, we must be universally strong in five areas if we are to have the power to influence what happens.

- First, AMC is people. All we do we must do with people. Their selection, professional development and motivation are essential to our success. They are our first priority.

- Second, the key to the future is in research. We need to be pragmatic in our research direction; yet we must retain sufficient freedom to encourage the creativity that leads to technological breakthroughs.

- Third, all of our leaders must understand that to remain flexible in the face of change, everything we do depends on sound priority-setting. Priorities provide consistency of choice and a means to tell what is most important among many important alternatives.

- Fourth, we must develop strategies and plans that are sensitive to the near- and long-term implications of changes in our environment, national strategy and resources.

-Finally, we must communicate, up and down and across AMC and the Army.

As we tackle the challenges ahead, a common set of principles should guide us. I want these maxims to form our corporate ethic:

- Our bottom line is service to the soldier. That is what makes us AMC.

- AMC must stand for quality. Our workforce must be a quality assurance team that is responsible and accountable for its actions.

- The Army trains in peace for war. AMC is at war every day. AMC does in peacetime what it will do if we must go to war.

- AMC takes responsibility for a problem when it arises and solves it willingly, without being bound by the past.

- AMC accepts change. Success mandates flexibility and innovation. We must train for the eventuality of change and manage it skillfully.

- Integrity and credibility are paramount. Accept responsibility for mistakes, correct them and get on with the future.

- AMC is part of the Army. It is also a combination of many diverse parts. AMC is an unbeatable team when we work together.

AMC is the people who share a common purpose based on these tenets. AMC's image--how others see us and how we see ourselves--is crucial because it affects readiness. A soldier who thinks we are "the gang who can't shoot straight" won't have confidence in his or her equipment. We must earn the respect of the soldier by our actions.

The Army Today

The Army Chief of Staff recently shared his vision for the Army in which he stressed the need to maintain momentum in building the quality of the Army today and in years to come. He has identified the present as a critical point in history--a time of change and one of constrained resources, but still a time of continuing commitments to our combatant commanders. The challenge is to act decisively today to ensure a quality force for tomorrow.

Today the Army finds itself in an environment of significant change. Social and economic discontent, coupled with the growing military power of developing countries around the world, continues to create the potential for regional conflicts that we must prepare our forces to deal with. At the same time, we are at the dawning of a new era of significant arms control agreements that will, by their nature, emphasize the need for our conventional forces. Our economy is evolving toward a high technology, multinational service orientation that may further challenge our ability to mobilize. Resources to support the needed modernization of our warfighting capability are being reduced. Closer to home, we are changing the way we manage Army acquisition.

Today AMC is serving the Total Army by "supporting quality force." As an organization, we are changing and evolving as the Army and our environment change. We are adapting to new ways of

doing business under initiatives such as the Army Acquisition Executive/Program Executive Officer (PEO) concept and fostering closer ties with other major commands, especially the Training and Doctrine Command (TRADOC). We are improving our performance to meet the needs of our ultimate customer--the soldier. Where, then, do we go from here?

Supporting The Ready Force

I want to share with you now my thoughts on what we can do to further improve our performance and where we should place our emphasis. I want all of us to make the pursuit and achievement of excellence our goal in everything we do. Let me explain with some specific examples.

Research and Development - AMC's role as the materiel developer begins in our laboratories and research, development and engineering (RDE) centers. Our efforts here must be responsive and focus directly on producing products and on exploiting proven technology that we can apply to systems that meet our warfighting needs. By doing so, we can field systems in a timely manner. At the same time, we must achieve a delicate balance that allows for innovation in our laboratories and RDE centers. We want to attract, challenge and retain quality scientists, engineers, managers and technicians.

We must also remember that we are part of a research and development community that includes industry, academia, our sister services, other government agencies and our allies. We must take full advantage of all opportunities to exchange ideas and share progress. We must not allow ourselves to fall victim to the "not invented here" syndrome or to be perceived that way.

Maintaining a robust research and development program, while simultaneously procuring the systems essential to our country's defense, means making some tough decisions. We must always remember that the research being done today will yield superior weapons and equipment for the Army tomorrow.

Acquisition - One of my goals is to improve the way in which we identify, develop, test and buy equipment for the Army. We have established a close working relationship with the TRADOC community and will work with them to strengthen the requirements definition process. Our priority is to fulfill user needs. I charge you to find new and better ways to reach the user, understand his needs and deliver the best hardware for the job.

Our future system developments must take advantage of the "system of systems" concept that we see in the Forward Area Air Defense System and Deep Operations. By developing several systems that jointly cover a particular mission area, we get maximum efficiency and effectiveness. Preplanned product improvements must extend our systems' effectiveness as long as possible.

A quality force relies on quality equipment to do its job. We must put quality first in the testing that leads to confidence in our products. Quality includes not just meeting certain performance standards but, more importantly, that the equipment be user-friendly, with MANPRINT considered throughout the system, and that it be highly reliable and easy to maintain. I want each of you to feel good about what we acquire and to have confidence in what we are giving to our soldiers. The live fire testing of the Bradley Fighting Vehicle and the Abrams Tank has been costly and time-consuming, but has confirmed, in real terms, just how good our equipment is. At the same time, it has shown us that even the world's best equipment can be improved. We will continue this testing because the soldier must trust AMC and our products. He knows his life may depend on what we give him, and he needs to be able to depend on us.

We must carry acquisition streamlining measures beyond shortening the acquisition process. Our efforts must focus on a unifying approach that includes streamlining requirements, acquisition strategies and the business practices we employ to do the total job. I charge you to make streamlining a way of life in every function and discipline that makes up the acquisition process.

As the PEO/PM concept continues to mature, AMC must remain open to change and must contribute as a full partner with the PEO's and their PM's. We must continue to improve our functional support for them. We are a team that will take equal responsibility for the problems we encounter and solve them together; it is our job. I want each of you to accept responsibility for the actions of our PEO/AMC team--be proud when the team does well and stand accountable when it errs.

Logistics - Acquiring equipment is not enough. The important role that AMC's materiel readiness functions and wholesale systems play is the key to keeping the soldier in the field properly equipped and ready to go to war. AMC must improve support of fielded equipment. This encompasses a modernized support base and excellence in the entire wholesale logistics system. We must embrace productivity enhancements and seek improved sustainment initiatives to ensure that we are able to support our forces to the next century. Our commitment to Total Package Fielding, new equipment training and the Logistic Assistance Program must be complete and consistent. Soldiers are our customers, and their satisfaction comes first. When AMC completes a unit fielding, I want that unit to feel that it has received a quality equipment package from professionals who care about their Army. Demonstrate pride in your service to the soldier in the field.

As weapons systems become increasingly more sophisticated and costly to operate, we must provide ways to train the soldier to use his equipment at a reasonable cost in a realistic environment. The leverage we can achieve through the expanded use of simulators and embedded training devices will conserve valuable resources and, ultimately, allow us to train the soldier better. We must also push industry to improve training support packages and get them into the field more quickly. This support to the training base is essential to a ready force, and a ready force is a deterrent to war.

The AMC "dealership" is more than "new product" sales. We must stand behind our products with consistent and continuous service. Here, too, we must not rationalize; we must be forthright in our dealings with the field, accept responsibility and solve the problems reported to us through an aggressive combination of programs. Put the soldier first, understand his situation and make him know you care. I expect each of our commands to have a working customer service center that keeps our lines of communication open to the wants and needs of the soldier in the field. Make sure that the soldier gets a fast and accurate answer to his problem.

In keeping our forces ready, we cannot ignore the need to plan for the mobilization of the industrial base. This is no small task. We can affect our ability to mobilize by concentrating on up-front producibility. We also must provide incentives to the industrial base to accommodate surge capacity in time of war.

International Programs - As part of our effort to support our warfighting capability, we will forge stronger relationships in the international community. Free world security depends on the strength of our allies and other friendly nations. It is incumbent upon us to support our national security interests through international cooperative programs with them. We will be active participants in cooperative research and development, foreign military sales, cooperative training programs and mutual efforts to improve the rationalization, standardization and interoperability of our respective armies.

Stewardship

We must act as if every dollar were our last. We in AMC are all custodians of vast resources belonging to the American people. We must do everything within our power to earn and retain the public's trust and confidence in how we manage these resources. Pursue smart automation to make more effective use of the public's resources. I cannot emphasize enough the importance of this initiative to our future; so be a part of it. Be innovative--I want people to act on good ideas.

The Human Dimension And Training

AMC's most valuable resource is its people. Adopt an attitude of caring for your work, your command, your fellow workers and yourself. We are a workforce of soldiers and civilians, men and women, with a common goal--the success of our Army. The whole is greater than the sum of the parts. Let this thought be your guide when you consider what AMC means to you.

To maintain the synergy of the total AMC workforce, we must attract and retain the highest quality people. We must train the action officers of today to be the civilian leaders, program managers, PEO's and commanders of tomorrow.

Education and training of the AMC workforce will increasingly be an area of enormous challenge. Good career development will ensure that entry-level employees, whether military or civilian, receive the opportunity to use their training in practical, hands-on applications. We must allow these people to master their current skill levels and prepare for the next. I want supervisors to work side by side with them so that, ultimately, they will be ready to assume your job. AMC's military personnel who have strong scientific skills must remain competitive with their contemporaries in field units. I want commanders to develop programs that not only allow our junior officers to stay current in the basics of their branch and small unit leadership techniques, but also teach them the critical aspects of AMC's important support mission.

Quality of life programs are essential to the morale and ultimate readiness of our workforce. I intend to emphasize those programs for our employees and their families that will deliver the maximum payoff. To the greatest extent possible, I want commanders to enhance the working environment of their employees and the quality of the facilities they work in.

Focus On The Future

The times we face will be challenging, but the framework for what we must do is already in place. From adversity comes strength. This period of austerity and close scrutiny will temper us. We must tap the natural vitality of our workforce. We must reward innovation, flexibility and willingness to take on responsibility. The uncompromising quality that we all stand behind and our absolute commitment of service to the soldier give us the focus we need. This sense of purpose, coupled with planning that is long in range, but flexible in execution, will guarantee that the systems we build will defeat the threat the Army faces.

One thing is totally clear to me. The dedicated workforce of AMC is up to the challenges I have outlined in this paper. As a team with the soldier in the field we will dedicate ourselves to assuring that our country has the finest Army in its history, always prepared to deter war and, if deterrence fails, to fight and win.

THE U.S. ARMY MATERIEL COMMAND, 1988
IN SUPPORT OF THE SOLDIER IN THE FIELD

1. Basic Research.

a. To intensely focus and produce immediate payoff on the battlefield in the near term and into the 21st century, Special Technology Offices have been organized at the U.S. Army Laboratory Command. These offices provide more visible and strengthened management for especially critical and complex technologies that cross discipline and mission-area lines by planning research and development programs, evaluating and assessing technology opportunities, demonstrating advances, providing advice and disseminating information, and facilitating the integration of advances into ongoing research and development programs.

b. An initiative undertaken in 1988 will improve the integration of Research, Development and Acquisition (RDA) programs across mission areas and to help the Army make smarter, better-informed decisions when building the Long Range RDA Plan and when conducting decrement exercises. The effort provides an automated quick reaction capability for use during decision meetings that can expose many of the normally hidden impacts on and among systems that occur when funding changes are made. Continued development will enhance significantly the Army's ability to construct an RDA program, under increasingly severe resource constraints, that can best provide needed warfighting capabilities.

c. A historic effort to bridge the gap between emerging technologies and their impact on the battlefield of the future was undertaken in 1988. A U.S. Army Materiel Command (AMC)/U.S. Army Training and Doctrine Command (TRADOC) meeting was conducted with combat developers, and principals from AMC laboratories and centers. This effort will focus long-range technology base efforts on the most critical technologies.

d. The AMC Field Assistance in Science and Technology (FAST) program continues to provide significant returns. The FAST Program provides an open channel between AMC and the other major commands to facilitate the transition of technological advances to the field. A requirement for a Korean Ground Surveillance Radar generated by the FAST/Korean office was delivered to Korea and brought to operational status in August 1988. Training on this computer-based modern radar was accomplished quickly, and the system was in place in time for the Olympic Games. System reliability has been exceptional for test-bed equipment and troop reviews have been favorable. Another FAST program sponsored the development and demonstration of an Auxiliary Power Unit (APU), which provides electrical power to the M1 Tank while it is in "Silent Watch" mode of operation in lieu of uses of the tank's diesel engine. It is estimated an M1 Tank equipped with an APU will use approximately $40,000 less fuel per year than an M1 Tank without an APU.

e. AMC is actively promoting early user involvement with prototype devices in the field. Using prototypes of tomorrow's equipment to solve today's problems allows engineering changes to be accomplished more cost-effectively, more quickly and with an early consideration of manpower and personnel integration. To resolve the problem of image intensification devices being rendered ineffective by the dense jungle canopy, two prototype manportable thermal imagers and advanced development models of a Thermal Weapon Sight and a Short Range Thermal Sight were successfully used for target acquisition and video documentation of possible enemy activities during training of U.S. soldiers in the Republic of Panama. The devices were used on day and night reconnaissance patrols and off of helicopters.

f. The Vehicle Electronics Crew Station Research & Development Facility became operational in 1988 at the U.S. Army Tank-Automotive Command (TACOM). The facility will define the soldier machine interface requirements for new or improved ground combat vehicles, enabling early establishment of functional requirements and performance specifications.

g. The left half of the first full-scale composite hull was successfully completed in early 1988 followed by the right side and assembly of the two halves with the composite floor and frame later that year. The complex-shape, thick glass replaced plastic composite structure was the largest ever molded, was of excellent quality, and had no apparent defects.

h. The Navy standard round was determined as the best round to use against watercraft targets as the result of an analysis centered around the use of a machine gun mounted on a light helicopter and operational performance of the three candidate rounds: the Army standard round, a Navy standard round, and an industry developmental round.

i. Major technical and development programs advanced for potential delivery to the user in the 1990s are: Smart Munitions, Sense and Destroy Armor, Wide Area Mine, Liquid Propellant Guns, Unicharge and the Lightweight 120mm Tank Main Armament System. Many new concepts are being explored in such areas as acoustic technology, voice activated commands and controls, explosively-formed penetrator technology, enzymatic synthesis of energetic technology, and electromagnetic gun research. There are also significant activities ongoing to develop chemical/biological defense to counter defeating agents; i.e., agents which defeat filters and overgarments and new biochemical agents.

2. Materiel Development.

a. Several improvements have been made to the Microclimate Air Vest which: simplify the design of the item, make the item easier to manufacture, and decrease the overall manufacturing costs (at current projected quantities--annual savings of $400,000). The air vest will be able to be worn by both aviators and ground combat vehicle crewmen, eliminating the need to stock two separate items in the Army inventory. Other significant R&D accomplishments included an exploratory development program for a new aircrew protective mask; and a full scale development contract awarded to develop improvements to the M43 Aviator's Chemical Mask.

b. In response to a request from the 82nd Airborne Division, the Assault Command Post (ACP) mounted in a High Mobility Multipurpose Wheeled Vehicle has been designed and fabricated. The ACP provides the soldier with very high frequency and tactical satellite radios, facsimile, teletype and communications security equipment to support secure voice and data communications at brigade, division and corps levels; is powered from vehicle power or automatically switched to generator power when the vehicle battery reaches a preset low voltage condition; can be air-dropped with the troops and can be rapidly deployed worldwide from airdrop to over-terrain maneuvers; provides a more immediate command, control, and communications facility; reduces command post setup time following airdrop by approximately 75 percent; and provides more work space and more efficient use of personnel.

c. The capability of the CH-47D cargo helicopter for self deployment anywhere in the world has been enhanced with the development of a 29-foot, 9-inch fixed length refueling probe and illumination for night visual refueling. It also enhances special mission capabilities and provides an aerial refueling boom for the MH-47E helicopter. An airworthy release has been issued and the first units have been delivered to the field. Another effort (marinization) determined the modifications and equipment necessary to enable Army helicopters to sustain operations from Naval ships in coastal areas where adequate land bases are not available. Two elements of marinization (corrosion prevention and control

and electromagnetic vulnerability) have inherent value to Army operations and these ongoing programs received new emphasis. Special equipment was deemed unnecessary except for Special Operations Aircraft whose mission includes ship-based operations.

d. Systems type classified in 1988 include the: 155mm Basebleed Projectile; armor tiles to protect the Bradley; major Army components for the new 155mm Nuclear Projectile; M43 Aviator's Chemical Mask; new Autoset Electronic Time fuze; Chemical Agent Monitor; Ground Emplaced Mine Scattering System; 81mm Mortar; Towed and Self-Propelled Product Improved Vulcan Air Defense System; and improved 155mm Self-Propelled Howitzer.

e. A one-time use, one size fits all, expedient respiratory protective device (hood) (designed to provide protection against chemical and riot-control agents) and a new sorbent (provides extended protection against both classical and emerging threat chemical agents) are under development.

3. Testing And Quality (Assurance) Materiel.

a. The Lead-the-Fleet (LTF) Aircraft Testing program is part of TRADOC's safety and quality control effort for the Army. The U.S. Army Test and Evaluation Command (TECOM) has been conducting LTF testing of AH-1F (attack), AH-1S, AH-64A (attack), CH-47D, UH-1H (utility), and UH-60A (utility) helicopters which will lead the fleet in terms of flight time and maintenance experience. The test agency identifies problems and proposes solutions long before field units experience major maintenance or logistical problems.

b. A Live Fire Vulnerability Directorate has been established at TECOM to fulfill the requirement for live fire testing (both vulnerability and lethality) on all combat systems, wheeled, tracked, aircraft and munitions that have been designated "major systems." To date, this team has managed and conducted the very successful live fire test of the Bradley Fighting Vehicle and the Abrams Main Battle Tank and is currently providing support in the writing of the Live Fire Test and Evaluation Master Plan for the Tank-fired XM829E1, 120mm Armor Piercing, Fin Stabilized, Discarding Sabot-Tracer for XM256 cannon; the Forward Area Air Defense System; and the Seek and Destroy Armor missile. The basic Abrams Live Fire Test was completed ahead of schedule, with a supplemental firing completed in July. Test results demonstrate that the Abrams meets its protection and survivability requirements: the armor is not impenetrable, but it stops rounds that it is designed to stop; and the ammunition compartments protect the crew and vehicle. It was also demonstrated that Battle Damage and Repair can restore a large percentage of vehicles to combat capable status and reduce recovery requirements. Potential survivability enhancements were identified and actions are ongoing to develop design modifications for the highest priority survivability enhancements. In addition, training and doctrine proposals were made to increase system survivability and effectiveness.

c. The U.S. Army Depot System Command (DESCOM) Quality Systems and Engineering Center and depots implemented procedures using electronic mail to move quality deficiency reports directly to the responsible Defense Logistics Agency (DLA) center with information copies to the appropriate AMC major subordinate command screening point. The notification time to DLA and the contractor was reduced by as much as 30 days. The procedures preclude additional shipments of similar discrepant material and reduces costs (inspection; transportation; installation, removal, and reporting; and damage) involved with the defective items.

d. The Multiple Launch Delivery System, XM139 completed Operational Test II. Early obscurant countermeasure testing was completed on the Forward Area Air Defense System-Line of Sight-Forward Heavy at White Sands Missile Range, the Advanced Antitank Weapon System-Medium at Redstone Arsenal and the Multi-Sensor Fusion Demonstration at Fort Hunter Liggett. Each of these systems

had unique test goals and objectives which were met in a timely and cost effective manner. These early countermeasure tests provide critical answers to the problems of system susceptibility in a challenging dirty battlefield environment.

4. Production And Industrial Preparedness.

a. AMC is continuing to focus attention on quality management in all areas, particularly hardware development. An example is the Contractor Performance Certification Program implemented by the U.S. Army Missile Command which recognizes contractors that consistently produce high quality products.

b. The qualification of a second source has resulted in the award of a 3-year Requirements Type Contract for Lighter Air Cushion Vehicle-30 (LACV-30) Blade Assemblies which will allow for LACV-30 blade requirements to be met over an extended period. Compared to the procurement history, there will be a Government cost avoidance of $3.6 million over a 3-year period.

c. With the goal of reducing production risks by increased emphasis on production readiness planning, the Army Product Engineering Services Office participates in readiness reviews and prepares an independent assessment on systems preparing to transition to production. This emphasis on production readiness planning offers the potential for smoother transitions into production and lower production costs.

d. The Maintenance Float Program was initiated and implemented at Seneca Army Depot to permit Industrial Plant Equipment deficiencies to be corrected in a more cost effective manner. Thus far productivity has been improved, no production downtime has been experienced, and over $500,000 has been saved in lieu of purchasing new equipment. Previously the rebuild of Industrial Plant Equipment, which was in active production and in need of extensive repairs, was often not practical because of a 9-12 month turnaround time and the resultant significant impact on production. The equipment was either used in a low productivity mode or a new piece was purchased.

5. Procurement.

a. A new manual and training videotapes will provide evaluators with a roadmap of the source selection process. This initiative undertaken by the U.S. Army Communications-Electronics Command (CECOM) ensures that source selections are done correctly the first time, every time and that they will produce the best value for U.S. Army soldiers in the field and for the American taxpayer.

b. By encouraging prime contractors to use their ability to devote management and financial resources to small businesses, the historically high delinquency and termination rates associated with small business contracts are avoided, the Government's contract administration effort is reduced, and greater assurance is provided that the small business base can produce on-time and with acceptable quality. Provisions have been included in the current solicitation for spares for the AN/VRC-12 radio which will encourage prime contractors to subcontract at least 20 percent of the contract value to small businesses (5 percent to small disadvantaged businesses). The prime contractor's subcontracting efforts will be a major evaluation factor in determining the recipient of the award and there will be added profit incentives to exceed the negotiated percentages. The capability to provide spares for the Army's principal radio is also enhanced.

c. A Solicitation Ombudsman position, with authority to cancel, amend, revise or suspend any CECOM solicitation containing improper elements or unnecessary requirements, has been established. Industry is encouraged to contact the Ombudsman if it sees a problem with a solicitation or has a

better idea that satisfies the government's needs. The Ombudsman reviews solicitations of major systems, challenges overstated specifications and Statement of Work excesses and evaluates industry complaints about unnecessary solicitation requirements. An estimated $400,000 in hard savings has been realized through the reduction/elimination of unnecessary requirements; four protests avoided (and a 30 percent decrease in protests to the General Accounting Office in the first 2 months of FY89); a reduction of Congressional inquiries into contracting matters; a 22-percent decrease in Freedom of Information Act requests for procurement-related material; and a greater spirit of cooperation in dealing with industry.

d. TACOM is testing a contracting technique that has been successfully used in industry and other government agencies. The technique involves a contractual right of the Government to terminate a specific quantity and its associated dollars, rather than an entire contract, if the contractor fails to make delivery--leaving the balance of the contract (and the original contract unit price) intact. This concept offers an alternative to the ordinary termination for default process whereby a contractor has failed to correct its unacceptable performance and the entire contract is terminated.

e. AMC is also participating with the U.S. Navy in a program (Computer Integrated Manufacturing) which utilizes newly developed industry standards to minimize spare parts manufacturing response times and costs. When fully operational, overall production system response time will be reduced from average of over 300 days to 30-40.

f. Since the Army Price Challenge Program was established in 1983, the Catalog Data Activity has processed a total of 9,853 challenges. Savings/cost avoidance of $16.4 million in the Army Stock Fund was realized during 1988.

g. The Lighthouse for the Blind in St. Louis will be responsible for providing the total government requirements for the packaging of the Camouflage Support Systems. This program will provide a significant economic advantage to the severely handicapped in the St. Louis Community. It is the largest program the Lighthouse for the Blind has with the Department of the Army.

h. The Logistics Control Activity was presented an award of merit by the California Department of Rehabilitation in recognition of its outstanding public service in support of vocational rehabilitation for the disabled.

6. System Fieldings.

a. Modernizing the forward deployed forces in U.S. Army Europe (USAREUR) continues at a rapid pace with 59 systems fielded in 1988. Major systems first deployed during this year include the AH-64 Helicopter, CH-47D Helicopter, M113A3 Armored Personnel Carrier, M2/M3A1 Bradley Fighting Vehicle, EH-60A Helicopter (Electronic), M1059 Smoke Generator Carrier, and AN/AVS-6 Night Vision Goggle. Additionally, 29 system fieldings completed in 1988 included the M16A2 Rifle, UH-60 Helicopter, Fire Support Team Vehicle, Ground Emplaced Mine Scattering System, and TEAMMATE V(1) Radio Intercept and Direction Finding System.

b. The M1059 Smoke Generator Carrier/M157 Smoke Generator Set fielded in 1988 provides the capability to produce visible obscurants over a large area, on the move, for the first time in history. The M1059 provides mobility and protection for the crew and equipment, enhancing smoke as a combat multiplier on the modern battlefield.

c. In 1988 the Chemical Agent Monitor was produced with first deliveries to the U.S. Navy to meet urgent requirements in the Persian Gulf; the M43 Mask and associated spare parts were issued

to the 2d Battalion/6th Air Cavalry in Germany; and 315 Lightweight Decontamination systems were fielded. A team of technical experts traveled to Germany to demonstrate a loading procedure to minimize stickers in the 4.2" Mortar; the 155mm M864 Extended Range Dual Purpose Projectile was developed quickly in response to the Army's urgent need for the ability to deliver inexpensive antipersonnel/antimateriel artillery fire at very long ranges; the Ground Emplaced Mine Scattering System was released for issue and has been fielded in Europe; and application of the Product Improved Vulcan Air Defense System modification kits started in USAREUR.

7. Logistics Supportability And Maintainability.

a. Beginning in 1988, the U.S. Army Depot System Command began the upgrade of combat vehicles being evacuated from the European theater and subsequent fielding to the National Guard Bureau and the U.S. Army Forces Command. The 4-year M1 retrograde program involves approximately 1,351 tanks. The 5-year M2/3 retrograde program involves approximately 1,107 vehicles. This program provides an economical method for meeting the readiness and training needs of Army and National Guard units through the upgrade and application of outstanding modification work orders to vehicles prior to refielding.

b. During the past year the OCONUS (outside continental United States) Aviation Classification Repair Activity Depot, Brussels, has hosted and trained 180 Missouri Guardsmen; supported Return of Forces to Europe (REFORGER) in Antwerp; accepted Program Budget Decision 731 aircraft being removed from USAREUR; continued the facilitization process; classified 1,500 aviation components; returned $500,000 worth of serviceable components to USAREUR; and processed another $500,000 worth of nonrepairable components to the Defense Marketing and Reutilization Office that were destined for continental United States (CONUS) Depots.

c. In order to develop and maintain an overseas depot maintenance support infrastructure while maintaining a viable and technologically modern organic CONUS capability, existing commercial host country aviation maintenance capability is being capitalized on to provide backup Aviation Intermediate Maintenance support, maintenance of repair cycle float, aircraft preparation for war reserves, performance of transfer inspections, and selected depot level repairs. The selected helicopters include UH-1, AH-1, OH-58 (observation), UH-60 and CH-47.

d. With both the Nahbollenbach Main and VII Corps sites fully operational in 1988 and the V Corps site prepared to begin operations, AMC enhanced European Redistribution Facility (ERF) effectiveness by implementing a central storage concept which includes inventory leveling. Serviceable Class IX (repair parts) redistributed from a single main site. Inventory leveling ensures that only those stocks required by the theater are maintained at the ERF and the remainder evacuated to CONUS. The ERF credit flow process was expanded to provide expedited credit flow to USAREUR turn-in activities. Improvement in ERF order ship time has also been realized.

e. In response to concern that standard logistics policies and practices which support high density systems may not meet the requirements of critical low density systems, a study was initiated in 1988 to improve processes relating to its life-cycle support of low density systems. Eighty systems will ultimately be reviewed to identify specific Integrated Logistics Support gaps, the cost to fill these gaps with alternative capabilities and the remaining life-cycle payback in cost and operational effectiveness. Study recommendations include consolidating maintenance tasks and increasing Reliability, Availability and Maintainability by designing redundancy and Built-in-Test-Equipment into the equipment.

f. The Army now has the methodology to provide combat damage factors to be used in war reserve calculations for systems receiving either direct or indirect fire. Also developed are the appropriate

data files to allow input of these combat damage factors into a special war reserve automated process. This effort is significant in providing an automated means to augment the Class IX war reserves requirements with combat damage requirements.

h. The level and quality of Test, Measurement, and Diagnostic Equipment (TMDE) support for the total Army continued to improve beyond Army goals. Availability of TMDE to using units (in a calibrated and repaired condition) increased from 94.0 percent to 95.2 percent. The modernization program for the AN/GSM-286 and AN/GSM-287 Calibration Sets (which provide calibration and repair support for the Army's inventory of approximately 770,000 items of TMDE) is well underway. With the Army as the lead service, dialogue among the service representatives has led to cooperative buys which should result in significant savings in quantity discounts and other acquisition and logistic support savings and interoperability benefits associated with equipment standardization, thus greatly reducing the logistics support burden.

i. Production ammunition shipments (62,500 short tons of the 95,300 short tons shipped) were moved from plants directly to the customer, rather than to the depot and then to the customer, resulting in a cost avoidance of $11.5 million. In addition 6,500 short tons requested to be airlifted were diverted to surface shipments avoiding the expenditure of another $7.5 million in transportation funds.

8. Logistics Innovation.

a. AMC and TRADOC are relooking at the Army's supply system given today's automation capabilities. The Objective Supply System now under evaluation allows the Prescribed Load List Clerk's request to be routed to the storage location which has the asset on the same day, while simultaneously updating the appropriate retail, wholesale and financial records; provides visibility of assets on post to insure maximum utilization of available stock and minimize the creation of excess; provides immediate notification to the clerk of the action taken on his request. To the user, therefore, the differentiation between wholesale and retail systems is virtually nonexistent. The proof-of-principle demonstration was a success. The average order ship time during the test period was 5.1 days (compared to the prior 12 to 25 day average).

b. Investment in productivity enhancing mechanisms to offset reductions in resources is continuing. Construction of state-of-the-art distribution centers will upgrade outdated facilities and operating technologies; accommodate expected increases in workload without corresponding increases in staff, and will provide a much needed mobilization/surge capability to installations that collectively process over 90 percent of the issues of secondary items made by the Army's depots. Annual cost avoidance is estimated at $651 million. Construction at Sharpe Army Depot was completed and turned over to the government in December 1988. Construction at New Cumberland Army Depot is on track and scheduled to be turned over to the government in May 1990. Construction for the third distribution center at Red River Army Depot will commence in June 1989. Productivity savings generated by the new Power Train Facility completed at Corpus Christi Army Depot should return the Army's investment in less than 3 years. It provides additional space to overhaul helicopter power train components for existing aircraft systems such as the UH-1, AH-1, OH-58, and CH-47, as well as new aircraft systems including the UH-60 and AH-64 helicopters; improves work flow and increases productivity, reducing process time by 10 percent.

c. Units will be better able to maintain their equipment publication library as a result of a Unit Equipment Publication Guide developed in 1988. The guide provides a tailored list of all publications needed to support assigned equipment. Another effort to aid the user in the field is an ongoing analysis of the policy and procedures governing Preventative Maintenance Checks and Services (PMCS)

tables and the existing operator's level PMCS tables. Recommendations will include corrections necessary to ensure that PMCS tables are logically organized, adequate (but not excessive), consistent, and correct in the readiness criteria cited. Revised Combat Prescribed Load List Mandatory Parts Lists were published and distributed to Army major commands in 1988 which updated part support requirements for 316 end items.

d. During 1988 action was initiated to assist the Army National Guard (ARNG) in reversing a 10-year downward trend in fully mission capable rates. The initial effort involved working with the Kentucky ARNG to identify drivers degrading overall readiness and identifying target systems for opportunities of improvement. Tailored readiness products have been provided to all 54 ARNG State Maintenance Managers, who have been kept informed of progress and lessons learned.

e. An innovative contract to acquire spare and repair parts for the AH-64 (not available in the Army wholesale supply system) in an expeditious manner improved the supply availability of the system from approximately 61 percent to 72 percent. In addition, the fully mission capable rate of the AH-64 has increased a solid 10 percent.

f. A methodology to incorporate combat damage in the combat authorized stockage list (ASL) model provides for the least cost selection of combat damage repair parts which satisfy ASL performance goals. Analysis also has indicated that the combat stock could be located up to three days away from the ASL without significant impact on availability. The combat damage ASL methodology will provide the key analytical technique for further evaluation of combat damage requirements and the combat damage stock alternatives within the division, corps, and theater.

g. All Supply Logistics Assistance Representatives (LARs) have been centralized under HQ AMC control making possible the expansion of supply LAR support from 19 supported units to all 34 major Army combat units (division, armored cavalry regiment, separate reporting brigade, and their principal support organizations) and the placement of 14 supply LARs at AMC major subordinate commands to provide a wholesale level interface for the field supply LARs, without any plus-up of personnel. The U.S. Army Aviation Systems Command developed an LAR alignment which provides reserve component unit commanders CONUS-wide (to include Alaska, Hawaii and Puerto Rico) with scheduled and on-call LAR support.

9. Training Support.

a. Construction has begun on two Army High-Tech Regional Training Sites/Maintenance for reserve component soldiers at Tobyhanna Army Depot and Sacramento Army Depot. The 25,000 square foot facilities will enable the depots to provide diagnostic test and maintenance training on the Army's most advanced communications-electronics systems such as laser range finders, multiple launch rocket systems, and satellite communications systems. The program objective is to provide a training environment for transition and sustainment military occupational specialty training so that deployable maintenance units can perform their wartime missions.

b. Four hundred and forty three table top, 4-man portable, gunnery, target acquisition and tracking trainers (Video Disk Gunnery Simulator) in the M60 and M1 tank configuration were fielded in 1988. Initial, advanced and sustainment gunnery training is provided at the institute and unit level. These trainers evaluate gunner proficiency and enable a smooth transition into the Conduct of Fire Trainer. A contract has been awarded for 1,996 Tank Weapons Gunnery Simulation Systems and 964 Precision Gunnery Systems. These systems are used for precision gunnery on tank gunnery tables and provide the capability for use in force-on-force exercises without the expenditure of live ammunition and associated range noise and safety considerations.

c. A contract has been awarded for prototype lots of GUARDFIST I (an M1 tank appended simulator to provide full crew training) and GUARDFIST II (a video disc display system used to train the forward observer). The prototype lots will produce the test items leading to production of 405 GUARDFIST I trainers and 400 GUARDFIST II systems for the National Guard. To meet the need at Regional Training Centers for M60 tank Maintenance Trainers to support Reserve and National Guard training, underutilized equipment from two active duty sites were identified and transferred saving the expenditure of procurement funds.

d. The U.S. Army Logistics Management College, U.S. Army Management Engineering College, and U.S. Army Defense Ammunition Center and School trained over 79,000 Department of Defense (DOD) military and civilian students. Training was provided in such areas as: logistics and acquisition management, management engineering, computer science, quality assurance, manufacturing technology, ammunition, and packaging. Training was provided through various modes: resident, onsite, accredited off campus instruction, satellite education network, correspondence, learning resource centers, and contractors.

e. The Atmospheric Sciences Laboratory placed meteorological sensors at strategic locations around the National Training Center and developed computer models to assist forecasters in tailoring large scale forecasts to the Army scale of operations. Implementation of this system resulted in increased training time and flight safety for helicopter crews flying missions at the National Training Center.

10. Chemical/Nuclear.

a. AMC personnel participated in Service Response Force Exercise-1988 which exercised the Army's response to a simulated accident involving nuclear weapons. Other participants included: the Defense Nuclear Agency, Department of Energy, Federal Emergency Management Agency, and the California State Office of Emergency Services. The exercise provided training for Army Service Response Force personnel, an opportunity to exercise and evaluate plans and procedures, Army interaction with other agencies, and generated an action document based on lessons learned. Planning has been initiated for Service Response Force Exercise-1989 to be conducted at Pine Bluff Arsenal, which will exercise the Army response to a simulated accident involving toxic chemical agents.

b. The program to replace obsolete locking hardware on storage facilities for sensitive munitions has continued. Modification of magazine hinge pins; installation of intrusion detection systems (IDS), security lighting, and fencing for the most sensitive weapons, ammunition, and explosives is ongoing at 11 depots; and, projects to provide perimeter barrier IDS are ongoing at six chemical storage sites, are some of the ongoing initiatives.

11. Hazardous And Toxic Materials.

a. The U.S. Army Armament, Munitions and Chemical Command (AMCCOM) has taken proactive steps to comply with environmental laws and regulations. An executive level training program for headquarters staff and installation commanders ensures that every level of responsibility realizes that environmental concerns are top priority. An Environmental Auditing/Inspection Program has been initiated in an attempt to preclude regulatory violations, and action taken to reprioritize requirements within existing resource programs.

b. An expert computer system is currently being developed as an aid in the identification of hazardous materiel and in accomplishing its disposal. The Toxicological Agent Protective Ensemble, Self-Contained, 1-Hour, fielded in 1988 meets an interim protective clothing and equipment need for use in immediately dangerous to life and health conditions until the Self-Contained, Toxic Environment Protective Outfit becomes available.

12. International Programs.

a. AMC continues to pursue a broad range of international programs with Allies and friendly foreign nations. Major programs include: the identification of candidates for the Nunn Cooperative R&D and Comparative Test Programs; development of a major Army armaments cooperation strategy in support of interoperability and Alliance burden sharing for use with the United Kingdom, Germany, and France; an improved relationship with TRADOC in support of the Army Bilateral Staff Talks; an AMC/U.S. Industry Conference to review policies on armaments cooperation from the perspective of American industry; and a prototype market surveillance system for access to worldwide technology and equipment databases. New initiatives with Japan and Pakistan are underway with Egypt in the planning stages.

b. Assistance was provided the Department of State in modifying six UH-1H helicopters on loan to the Bolivian government for use by their Counter Drug Eradication/Interdiction Program. Assistance was also provided to the Egyptian Technical Assistance Team in developing procedures in preserving tracked vehicles (M60A3 Tank, M109A2 Howitzer, M88A1 Recover Vehicle, and M113 Family of Tracked Vehicles) from deterioration caused by environmental conditions in Egypt.

c. To enhance the expeditious comparison of alternative proposals, AMC designed and constructed an electronic spreadsheet model to facilitate Foreign Military Sales pricing. The model incorporates all significant cost components, accounts for inflation and permits easy, rapid currency conversion. Single entry changes of factors, quantities and/or items keyed for inclusion or exclusion automatically update the entire tabular presentation with revised results.

13. Resource Management.

a. AMC had a very successful financial year in FY88. Obligations for Procurement Appropriation; Research, Development, Test & Evaluation; Operations and Maintenance, Army (OMA); Conventional Ammunition Working Capital Fund, and Army Stock Fund wholesale were $27.8 billion (91.1 percent) against an obligation plan of $30.5 billion (81.6 percent). The OMA program execution was commendable. In spite of beginning the year operating under a continuing resolution, AMC closed out FY88 with an obligation of $4.9 billion, or 99.99 percent of available direct OMA reimbursable customer funding in FY88.

b. Automation of the Operational Baseline Cost Estimate is continuing to foster command-wide standardization and integration of the best attributes of existing procedures, methods, and techniques. An electronic spread sheet data base to study cost patterns among weapon systems, examine cost tendencies and identify potential problem areas between hardware of similar technologies was designed and constructed. Total life cycle costs are extracted from validated Baseline Cost Estimates of major weapon systems.

c. Pine Bluff Arsenal is the pilot site for the Productivity Enhancements, Efficiencies, and Rewards (PEER) Program. The PEER Program is an AMC initiative that allows an installation to share in the hard dollar savings generated by increased productivity. Pine Bluff Arsenal employees will receive equal shares in 50 percent of the personnel (dollar) savings produced by the PEER study. An

aggressive Efficiency Review Program, which develops the minimal staffing requirements and method improvements using recognized industrial standards, yielded an aggregate saving of 24 spaces out of 309 total and a $1.2 million savings in one directorate at AMCCOM.

d. A Resource Factor Handbook was developed to be used by AMC schools, HQ AMC, and HQDA to assist in quickly estimating requirements at the program element and school level based on projected workloads.

e. The U.S. Army Natick RD&E Center exceeded its Value Engineering savings goal of $2.798 million. Efforts included the replacement of the original cotton duck material of the Flyer's Kit Bag with a more durable, lighter weight, less costly, nylon material for the kit bag.

14. Personnel, Our Most Important Resource.

a. The U.S. Army Aviation Systems Command is participating in the design and test of an alternate personnel management system (Gateway 2000). The intent is to provide opportunities for innovative actions by supervisors and employees which will result in greater efficiency and effectiveness in work accomplishment. Delegated responsibility and accountability to the maximum extent with proposed incentives and bonuses available based on performance is an example.

b. The Ammunition Management Career Program continues to do well with 824 members now enrolled. Intern class 10 is currently completing their formal classroom training and will be available for on the job training assignments in March 1989. The overall logistics skill level and civilian career development opportunities available to employees in the broad general area of logistics were reviewed as part of the U.S. Army Aviation Logistics Study. Primary focus was on the existing Supply, Maintenance, Transportation, and Quality and Reliability Assurance Career Programs. As a result of a "developmental gap" at the GS-9, -11, and -12 levels, a structured developmental training program, including career program referrals and designated positions, is in the process of finalization.

c. In 1988 AMC signed a contract with Texas A&M University for the Advanced Engineering Training Program at the U.S. Army Logistics Management College's School of Engineering and Logistics, Red River Army Depot. This expansion of the existing 12-month engineering intern program to 18 months will provide the Army the highly skilled civilian engineers that are necessary to handle the rapidly expanding technology as the Army moves into the 21st century.

d. The CECOM has initiated a comprehensive leadership development program that systematically institutionalizes leadership and promotability assessment and the identification and review of developmental needs. Modeled after an industry program called "Muscle-Building," the program stresses the use of job rotation, speaking engagements, teaching, and special professional development to prepare people for the challenging leadership positions required in the future.

e. Headquarters, AMC is improving its personnel resources for more efficient and effective operation through a Health Promotion Program. The program consists of health risk appraisals, physical examinations, fitness assessments, prescriptions for life-style changes, and interventions designed to change behavior. The initial screening (over 2,500 military and civilian employees in 3 years) phase of the program uncovered a significant number of individuals with high blood pressure, diabetes, coronary artery disease, and elevated levels of cholesterol with many referred for medical treatment and in some cases lifesaving. Currently over 1,700 are regular participants in the screening, educational interventions and physical exercise components of the program.

f. AMC has assumed a leadership role for all of DOD in determining and implementing appropriate civilian guard/police standards for physical fitness, individual reliability, and training. Further upgrades of this vital program includes establishing standards which are expected to be emulated by other major Army Commands.

g. The first AMC "Command Team Performance" was held in December 1988 at Fort Monmouth. Spouses of commanders and command sergeants major from AMC subordinate commands were present. The purpose of the conference was to reinforce the Command Team concept by providing briefings and presentations on current Army initiatives and programs in the Quality of Life area.

h. The Army Communities of Excellence Program is being enthusiastically implemented in AMC with the development of Installation Design Guides which provide guidance in making interior and exterior improvements (style, color, function, features, finishes). The goal-setting high standards for facilities and services--resulting in increased community and organizational pride, improved morale, and increased productivity.

i. All Child Development Services Programs were inspected for compliance with DOD and Army standards. Deficiencies were identified, corrections are in process and waivers requested on high dollar items based on approved Major Construction Army projects. AMC has five new centers and four renovated facilities.

15. Information Management.

a. Information management resources have been restructured into a single organization of two major components, one in St. Louis and the other at Chambersburg. The restructuring provides for better management of computer software for the systems that process requisitions and shipment of supplies, thereby decreasing the time required from time of requisition to time of receipt by the soldier in the field.

b. During 1988, the Army added a supercomputer at TACOM to its inventory. The other two are at the Ballistics Research Laboratory at Aberdeen Proving Ground. The number crunching capability of these computers provides the Army with a faster processing capability during equipment development, thereby providing the Army with a better product in a shorter time.

c. The Digital Storage and Retrieval of Engineering Data System transfers blueprints and technical drawings to optical storage disks, allowing for faster retrieval in multiple formats. Two of seven planned sites are now operational. This system provides AMC quicker access to blueprints, again reducing equipment development and maintenance time. Equipment publications proponents will use the Automated Publications Production System now under development, to integrate the entire publishing process. The process provides for receiving digitized information from contractors, reviewing, correcting and updating publications content, and creating final reproducible camera-ready copy for printing. The automated process improves accuracy and reduces the time of production and delivery to the user.

16. The Future.

AMC is now looking toward and planning for the 21st Century. Providing quality support to the American Soldier will continue to be AMC's mission--with quality being the framework for all endeavors. The challenges brought about by changes in international relations, economics, and critical resource shortages are being met with confidence in AMC's ability to cope with change and capitalize on opportunities.

Chapter II

Resource Management

DCS for Resource Management

Mission and Organization

The mission of the DCS for Resource Management was to provide direction, supervision, and management of the command's "financial management, cost and economic analysis, internal review and audit compliance review analysis, program analysis and evaluation, productivity measurement and improvement, force development, and committee management programs."[1]

The DCS was authorized nine officers and 329 civilians on 30 September 1987. However, some personnel were transferred to the Headquarters Installation Support Activity (HISA), to the DCS for Program Analysis and Evaluation, and to the Deputy for Management and Analysis. Two spaces were received from the Program Budget and Funding Policy Division. Therefore, the DCS was authorized seven officers and 276 civilians at the beginning of FY88. A 10 percent personnel reduction in the headquarters in April 1988 reduced the civilian strength by 10 percent (to 246 in the Resource Management DCS) and the additional transfer of the Information Resource Management Division to the DCS for Program Analysis and Evaluation further reduced the civilian strength to 240.[2]

Realignment and Reorganization of AMC Units

Commandwide, several other significant organizational changes occurred during FY88 that affected the DCS for Resource Management (DCSRM). With the implementation of the PEO concept, 47 PM offices were discontinued. The U.S. Army Survivability Management Office became the AMC staff focal point for coordination of Counter-Countermeasure and Survivability Program and Policies. The U.S. Army Logistics Assistance Program Activity (LAPA) was organized provisionally to represent the Command when AMC supported other commanders. LAPA provided a focal point for all logistics matters and for the exchange of logistic information between supported units and AMC. These changes occurred as a result of a HQ realignment decision briefing.

In November 1987, the U.S. Army Management Engineering Activity (MEA) was transferred from the DCS Management and Productivity to the DCSRM. Subsequently, the DCS assigned the Programs and Projects Office the function of serving as the liaison office for all matters involving MEA, with the exception of the Manpower Staffing Standards System (MS-3). In its liaison capacity, the office

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[1] AMC-R 10-2, Organization and Functions, p. 9-2.

[2] Resource Management FY88 Historical Submission. Hereafter, information in this chapter is from this source unless otherwise indicated.

served as the Command point of contact for the Subject Matter Assessment (SMA) and Efficiency Review Programs conducted by MEA.

Two units were transferred to other major Army commands. The U.S. Army Toxic Hazards and Materials Agency went to the Corps of Engineers, while the U.S. Army Space Program went to HQDA.

Significant permanent orders (PO) issued pertaining to mission, realignment and reorganization within AMC were:

Units Discontinued

Unit	Permanent Order #
Office of the PM (OPM) Mobile Subscriber Equipment	40-1
OPM Mobile Electric Power	40-1
OPM for 155mm Cannon Artillery Weapons Systems	40-1
CECOM Night Vision and Electro-Optics Center	40-1
CECOM Electric Warfare Reconnaissance and Surveillance and Target Acquisition Center	40-1
CECOM Lifecycle Software Engineering Center	40-1
CECOM C3 Systems	40-1
OPM Black Hawk	40-1
OPM for Bradley Fighting Vehicle Systems	40-1
OPM Multi-Service Communication	40-1
OPM Firefinder/REMBASS	40-1
OPM CH-47 Aircraft Modernization Program	40-1
OPM Viper	40-1
OPM Single Channel Ground and Airborne Radio Systems	40-1
OPM for Amphibians and Watercraft	40-1
OPM for M113 Family of Vehicles	40-1
Chaparral/Forward Area Alerting Radar Systems PMO	40-1
OPM for Special Electronic Mission Aircraft	40-1
OPM for TOW Weapon System	40-1
OPM Hawk	40-1
OPM Stinger	40-1
OPM Pershing	40-1
OPM Hellfire/Ground Laser Designators	40-1
OPM for Smoke/Obscurants	40-1
OPM Advanced Attack Helicopter	40-1
OPM Army Helicopter Improvement Program	40-1
OPM Aircraft Survivability Equipment	40-1
OPM Tactical Airborne RPV/Drone System	40-1
OPM Patriot Air Defense Missile System	40-1
OPM M9 Armored Combat Earthmover	40-1
OPM Cobra	40-1
OPM for Armored Combat Vehicle Technology	40-1
OPM for Multiple Launch Rocket System	40-1
OPM for Operational Data Systems	40-1
OPM for Field Artillery Tactical Data System	40-1
OPM Air Defense Command Control Systems	40-1

OPM Position Location Reporting System/Tactical Information Distribution System	40-1
Systems Engineering and Integration Center	40-1
OPM for Commercial and Selected Materiel Handling Equipment	40-1
CECOM Signals Warfare Center	40-1
OPM Modular Integrated Communication and Navigation System	40-1
OPM for Physical Security Equipment	40-1
OPM Light Helicopter Family	40-1
OPM Tank Systems	40-1
OPM Tactical Vehicles	40-1
OPM for Mines, Countermines and Demolition	40-1
PM for Ammunition Logistics	40-1
AMC Support Activity.	68-3
Charleston Storage Activity.	75-2

Unit with Changed Mission

Unit	Permanent Order #
Survivability Management Office	4-3

Unit Organized

Unit	Permanent Order #
Logistics Assistance Program Activity	25-1

Units Reassigned

Unit	Permanent Order #
Special Projects Support Activity	25-2
Research, Development and Standardization Group, Canada	6-1
Research, Development and Standardization Group, United Kingdom	6-1
Research, Development and Standardization Group, Australia	6-1
Research, Development and Standardization Group, Germany	6-1
Rocky Mountain Arsenal	68-2

Units Redesignated

Unit	Permanent Order #
Central Systems Design Activity	17-3
Central Systems Design Activity-East	17-3
Professional Development and Career Intern Register	17-3
Industrial Engineering Activity	4-1
Plant Representation Office Boeing Helicopters	4-2
Charles Melvin Price Support Center	68-1
Liaison Office TRADOC Test and Experimental Command	70-1
259th Military Police Company (Combat Support)	73-1
523D Military Police Company (Combat Support).	73-2

389th Army Band	76-1
Communications Electronic Activity-Vint Hill	76-2
Army Garrison, Fort Monmouth	76-2
CECOM Research, Development Engineering Center	76-2
Plant Representative Office Boeing Helicopters	76-3

Source: Resource Management Historical Submission.

Budget Shortage

This fiscal year began with a shortfall of $192 million, of which supply (P7S) was $80.6 million, maintenance (P7M) was $37.0 million, and research, development, test, and evaluation (RDTE) was $74.4 million. In addition to this shortfall, AMC had to absorb the cost of the federal pay raise, health benefit insurance increase, new missions, and inexecutable non-personnel reductions. An austerely funded program was implemented to combat the severe payroll shortage. It included a hiring freeze, release of non-critical temporary employees, and a reduction in travel, overtime and summer hires. Savings were also generated from voluntary early retirements and voluntary leaves without pay. Congressional reprogramming of funds enabled AMC to avoid personnel actions such as furloughs. However, the level of operation and support dollars were insufficient to support the Army force structure/equipment that existed, and some important unfunded requirements were carried over to FY89, even though Gramm-Rudman-Hollings was not triggered.

Operations and Maintenance, Army

The Command closed FY88 having obligated $4,857.3 million of its available direct Operations and Maintenance, Army (OMA) obligational authority of $4,857.7 million. This 99 percent rate was accomplished despite numerous problems that arose throughout the year, ranging from the execution of OMA missions under a continuing resolution authority to delay in obtaining adequate funding from HQDA. The delay was caused by the need to obtain congressional level reprogramming of appropriated funds into OMA in order to solve OMA problems throughout the Army.

Army Industrial Fund

The cash balance of the AMC Army Industrial Fund (AIF) declined in FY88 from a balance of $224.1 million on 1 October to $107.7 million on 30 September 1988--a 52 percent cash reduction. Cash was required to pay for operational expenditures such as civilian payroll, contractual services, and utilities. In addition, cash was required to pay for purchases of fixed assets such as plant and equipment, minor construction, and automatic data processing equipment. Cash solvency was not only important for AIF to meet its payments on time, but also to avoid the possibility of incurring an Antideficiency Act violation under 31 U.S. Code 1341, 1342, or 1517.

The AMC goal was to maintain a positive cash balance on hand to insure the solvency of AIF. The headquarters monitored the fund to preserve available cash and implemented initiates which stressed management and control responsibilities and fiscal yearend targets. Monthly teleconferences were also conducted to augment the command initiatives. Due to these efforts, the AIF cash position was stabilized during the last quarter of the fiscal year.

Operational Baseline Cost Estimate

The DCS for Resource Management continued the implementation of the automatic operational baseline cost estimate (OBCE) with completion of the final hardware acquisition requisitions. The

software support contractor, Management Consulting and Research, Inc. (MCR), submitted OBCE Beta Test software for AMC evaluation. HQ AMC and MSC Cost Analysis Office personnel attended a preliminary training class and tested the software. They identified problems and issues that required contractor resolution. The Government exercised the second year option on the software support services contract through FY89. A study advisory group consisting of HQ AMC, MSC, and Army Logistic Management Center (ALMC) personnel also met to guide the direction of the enhanced OBCE system.

Wholesale Army Stock Fund

AMC was confronted with a drain of $229.8 million in the Army Stock Fund (ASF). Actions taken to reverse this trend included a reduction in the FY88 obligation authority, reduction of annualized buys to design stable items only, extended materiel delivery dates, early reduction of back orders, delaying contract awards, buying only at the re-order point, and releasing obligation authority on a quarterly basis. Despite these steps, operating cash declined by the end of FY88 to $211.9 million.

Accounting Course

The AMC Accounting Course trained accountant interns in the Command's unique operating requirements and provided concepts and rationale for accounting support to various management and logistical programs. The U.S. Army Finance School did not provide accounting courses that incorporated problems encountered by AMC.

Accountant Awards Program

The fifth year of the Accountant Awards Program saw several personnel recognized for outstanding achievement. The recipients were:

Robert A. Duyvejonck	Outstanding AMC Accountant
Roy T. Bentley	Outstanding Systems Account
Ronald J. Vadala	Outstanding Operating Account
David L. Stevens	Outstanding Staff Accountant
Elizabeth W. Moore	Outstanding Non-Accountant in a Support Role

Finance and Accounting Quality Assurance Program

A program to assist finance and accounting offices (FAO) that were experiencing significant problems, the Finance and Accounting Quality Assurance Program included visits by the DCS to Sacramento Army Depot, AVSCOM, TECOM, DESCOM, Letterkenny Army Depot, and the New Cumberland Army Depot Security Assistance Center.

Foreign Military Sales

The Army Director of Finance and Accounting in FY88 initiated a project to reconcile disbursements and performance of Army foreign military sales (FMS) cases reported to the Defense Security Assistance Agency's (DSAA) Security Assistance Accounting Center (SAAC). The objective was to assure integrity in the disbursement procedure from case origin to the delivery of materiel to the customer. The project was established because of criticisms concerning FMS accounting, including the non-accounting of more than $600 million. By 30 September 1988, the project had identified errors in the Army record, but failed to indicate a solution to the cash imbalance.

Progress in the implementation of a new accounting system in SAAC under Department of Defense's (DOD) Foreign Military Sales Financial Management Improvement Program (FFMIP) was not made during FY88. SAAC, a tenant agency at Lowry AFB, Colorado, had been supported by the Air Force before becoming an element of the USAF Accounting and Finance Center with responsibility for supporting DSAA. Under FFMIP, SAAC was to develop an accounting system to respond to inadequate accounting control criticisms, but the milestones were not met. DOD decided to terminate the system, realign SAAC, add enhancements to the existing system, and establish a new FMS Trust Fund for FY90. HQDA, AMC, and USASAC had developed their systems to interface with SAAC systems.

Program Executive Officer

The Assistant Secretary of the Army for Financial Management and the Army Acquisition Executive (AAE) agreed to test the concept of general operating agencies (GOAs) as one alternative of supporting planning, programming, and budget execution (PPBES) within the new acquisition management structure. Two GOAs were established for the Program Executive Officers (PEOs) that were funded through AMC and located at Fort Monmouth, New Jersey. Allotments were issued to the individual program manager (PM) under the PEOs. AMC nonconcurred with a HQDA proposal to establish separate GOAs for each PEO since a test did not prove it was necessary. The Under Secretary of the Army decided to operate the program in FY89 without any changes.

The Commanding General, AMC explained the roles and responsibilities of the AMC cost analysts in supporting the AAE/PEO concept. He emphasized providing professional cost estimating assistance through matrix support, providing technical leadership, conducting in-process reviews on Baseline Cost Estimates with PEOs/PMs, and performing validation of PEO/PM cost estimates prior to their submission to HQDA.

Foreign Currency Fluctuation Account

AMC identified $101 million in prior year OMA funds to return to HQDA to finance 1988 foreign currency requirements. The shortage in the foreign currency fluctuation account (FCFA) was caused by the difference between budget and execution rates. The use of the OMA funds minimized the requirement to direct FY88 funds to this account.

Status of Funds Reports Data Base

Central Systems Agency-East implemented software procedures that provided AMC with access to the status of funds reports data base located at the Servicing Accounts Office file at Letterkenny Army Depot, Pennsylvania. Files could be queried at the operating agency level or information could be produced from selected information available in the data base. The capability saved manhours while producing automated analyses of reports which analyses had previously been prepared from hard copies.

Program Execution

AMC obligated $14.1 billion of the $16.5 billion in the AMC procurement plan submitted to HQDA. It obligated 55 percent of the program year (PY88) Other Procurement Army (OPA) program against the Office of the Secretary of Defense (OSD) goal of 78.6 percent. The contributing factor for not meeting the goal was the slippage of the Mobile Subscriber Equipment contract award. The command also had $77 million in PY86 unobligated PA funds. The unobligated carryover program

into FY89 for procurement appropriation (PA) was $5.2 million, RDTE was $335 million; and the Conventional Ammunition Working Capital Fund (CAWCF) was $640 million.

Audit Recommendations

At the Summer Senior Commanders' Conference held in August 1988, the Army Staff expressed concerns about audit recommendations which had not been implemented. The Inspector General of the Army reiterated their concerns in a memorandum distributed 13 September 1988. The DCS took action to have the responsible managers implement the appropriate recommendations. The HQ AMC Internal Review and Audit Compliance Office also monitored the followup actions.

Force Development

HQ Manpower Survey Program. The CG on 22 July 1988 reinstituted the HQ AMC Manpower Survey Program which had been suspended in 1978 when manpower survey resources were reprogrammed to meet priority requirements. The reinstituted program was a limited non-cyclical program that validated AMC requirements. The Survey Team reviewed and validated manpower surveys conducted by the MSCs.[3]

Civilian Manpower Management. As noted above, civilian manpower management was complicated by funding shortages and program budget decision (PBD) decrements in key areas, notably P7S and P7M. The PBD reduced AMC by 704 civilian spaces in FY88 in the OMA areas. Another 528 civilian spaces in RDTE and 99 in logistics and supply areas were lost.

Civilian pay problems caused by a reduction in funding levels were overcome through a combination of initiatives which included hiring restrictions, voluntary early retirement, reduction of overtime utilization and travel, and the release of non-critical personnel. On 2 December 1987, MSCs and separate reporting activities (SRAs) were directed to implement a one hire for two losses policy and to release all non-critical temporary employees. The interpretation of "critical" was left to the discretion of the MSCs and SRAs. A loss was defined as a permanent departure (e.g. resignation, retirement, or transfer) of any AMC career or career conditional appointed employee. Employees transferred to other organizations within the command or the departure of temporary employees were not counted as losses.

Red River Depot and the Natick RDTE Center were exempt from the hiring limitation because they were participants in a Managing the Civilian Work Force to Budget (MCB) test that would reduce their civilian pay ceilings. FMS manpower exempted from the hiring limitation on 2 February 1988. AMC lifted hiring restrictions on all customer reimbursable orders, except OMA and RDTE funded orders on 19 April 1988. The one hire for two losses policy was terminated for all programs and appropriations except OMA P7S and Army Industrial Fund (AIF) orders funded by OMA P7S. Hiring restrictions on all positions vacated by early retirement remained in effect until 1 May 1988, regardless of program or appropriation. AMC had 15,363 employees who were eligible for retirement under the early release program but only 2,882 retired.

Civilian Employment Level. The civilian employment level (CEL) target was 104,271. Due to funding limitations, AMC ended the year with a civilian strength of 103,501.

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[3] Memo, DCS Resource Management for Record, 28 Jul 88, subj: Expansion of the AMC Manpower Survey Program.

Military Reductions. HQDA eliminated 1,025 military (39 officer, 18 warrant officer, and 968 enlisted) spaces from AMC in FY88 in the PBD. Aviation spaces lost as a result of the PBD were 25 officer, 18 warrant officer, and 255 enlisted. Although AMC had expected a two percent reduction in FY88 as a follow-on to the one percent reduction directed by the Defense Authorization Act of FY87, HQDA reduced the reduction to one percent, but did not require AMC to implement the reduction.

PEO Resourcing. AMC provided resources to establish 15 PEO organizations that were documented on the MSC HQ Tables of Distribution and Allowances (TDAs). The FY88 PEO authorization required 2,405 personnel. HQDA provided AMC with an increase of only 203 in the civilian employment level, sufficient staffing for the core offices. The summary of the PEO/PM manpower organization for FY88 was:

PEO/PM Manpower Summary for FY88

	Requirements		Authorization		Shortfall	
	Mil	Civ	Mil	Civ	Mil	Civ
PEO	123	496	50	496	73	0
Existing PMs	396	1,843	413	1,511	82	335
New Start PMs	56	363	23	197	33	166
TOTAL	576	2,717	389	2,219	188	501

Source: Resource Management Submission

On 4 August 1988, the AAE announced decisions which affected the structure of AMC PEO organizations. The AAE reduced the number of PEOs from 15 to 11 and directed the merger of PEO Close Combat Missiles and PEO Fire Support (keeping the designation of PEO Fire Support) and PEO Forward Area Air Defense (FAAD) and PEO High/Medium Air Defense (HIMAD) to form PEO Air Defense. PEO Chemical Demilitarization and PEO Ammunition were disestablished. However, PEO Ammunition was converted into the DCS for Conventional Ammunition.[4]

On contracts with cost risk to the Government, DOD Instructions 7000.2, 7000.10 and 7000.11 set forth requirements to be placed on contractors for contract cost and scheduled performance measurement and/or reporting. In particular, DOD Instructions 7000.2 required that on major contracts contractors would use cost/schedule control systems which met Cost Schedule Control Systems Criteria (C/SCSC). For various reasons, some PEOs and PMs refused to include these requirements in their contracts. In addition, some did not justify and obtain HQ AMC approval to waive C/SCSC requirements or to change to an over-targeted cost performance baseline.

The DCS requested MSCs to report each instance where a PEO or PM did not conform to policies and procedures in AMC-R, Cost/Schedule and Information Systems for Use in the Acquisition Process. The intent was to inform the Deputy Commanding General for Research, Development, and

[4] Memo, Army Acquisition Executive James R. Ambrose to CG, AMC, 29 Apr 87, subj: Implementation of the PEO Concept.

Acquisition (DCGRDA) so that he could take appropriate action. By the end of the fiscal year, the Command had not received any reports from the MSCs.

FMS Manpower. As a result of a U.S. Army Manpower Requirements and Documentation Agency (USAMARDA) study and survey of security assistance (SA) staffing, HQDA reduced AMC's FMS/SA effort by 341 spaces. A reclama to the Vice Chief of Staff, Army (VCSA) returned 98 spaces on 25 March 1988, but HQDA planned to resurvey the spaces in FY89. The VCSA also permitted AMC to reprogram other OMA missions. With the exception of U.S. Army Security Affairs Command (USASAC), MSCs and SRAs with FMS missions submitted changes in their Budget Program Resource Review (BPRR). USASAC, however, could not reprogram because its sole mission was FMS/SA. The spaces relinquished by USASAC were distributed to P7S functions in other MSCs.

USAMARDA's study and survey was based largely on FY86 conditions. In FY88, the Army Management Structure (AMS) required 144 civilian spaces for FY89 and beyond to satisfy new FMS requirements. When HQDA granted the spaces, USASAC dedicated 50 spaces for the PM Saudi Arabian National Guard (SANG) Modernization Program and one space for Egypt case work, although PM SANG was not included in the USAMARDA study and survey. AVSCOM received 51 spaces of which 38 were for work on a new Saudi Arabian Land Forces Aircraft Program. The U.S. Army Missile Command (MICOM) had 19 spaces and 23 were distributed to other MSCs and SRAs.

In December 1987, AMC exempted personnel funded by direct FMS dollars in Program 10 (Support to Other Nations, AMS Code 002002) from the one for two hiring policy. However, the exemptions did not apply to FMS administrative and OMA-supported FMS positions. Since FMS manpower was reimbursable through case agreements between the U.S. and foreign governments (customers), restricting FMS manpower would not solve the funding problem in non-reimbursable areas. Therefore, AMC exempted all FMS manpower from the hiring policy in February 1988.

AMC sent a USASAC initiative to HQDA to code all full-time FMS manpower spaces in the Management Decision Package (MDEP) code GFMS into Program 10 (AMS Case 002002). OSD approved the change in September 1988. The significance of the change was the previous rarity of coding direct case FMS/SA manpower 002002. Only two such positions had been so coded previously.

Army Management Headquarters Activities. AMC implemented a CSA-approved 14.9 percent reduction in the Army Management Headquarters Activities (AMHA) that involved 722 spaces. However, this was not a true reduction since HQDA allowed the major subordinate commands (MACOMs) to realign the spaces to non-AMHA accounts. AMC distributed the reduction to the field on 27 November 1987 to permit the MSCs full opportunity to implement changes during the January 1988 to March 1988 management of change (MOC) window provided for updating of TDA documents. Funds associated with this action were withdrawn by AMC in accordance with congressional legislation. Funding for the realigned spaces had to be accomplished within existing resources.

A revised AHMA ceiling was submitted to HQDA on 11 January 1988 that did not enumerate the spaces to be reduced but provided a methodology to use to achieve the reduction. One proposal in the revised plan called for putting Headquarters Installation Support Activity into a non-AMHA status to free its approximately 123 military and civilian spaces for other AMHA use.

HQDA approved a concept plan for the establishment of the Logistics Assistance Program Activity (LAPA). Under the plan, LAPA would consolidate 15 spaces from four Logistics Assistance Offices (LAOs)--CONUS, Far East, Pacific, and Europe. A draft permanent order was prepared with an effective establishment date of 1 March 1989. Additionally, AMC directed the transfer of 69 Supply Logistics Assistance Representative (LARs) spaces from the commodity commands to the provisional

LAPA to provide materiel support to the combat organizations. Although one space was returned, the other 68 spaces were in addition to the manpower authorizations transferred from the LAOs and HQ AMC to LAPA.

Budget Program Resources Review. The Budget Program Resources Review (BPRR) for FY88-FY96 was submitted to HQDA based on information received from the MSCs and SRAs. BPRR included the requirements for 120,927 civilians, of which 103,009 were for funded positions and 17,918 were unfunded positions. The Command Operating Budget (COB) reflected significant civilian decrements sustained as a result of Program Budget Decisions (PBDs) 703 and 731. PBD 703 reduced AMC by 704 civilian spaces in OMA areas, and 731 eliminated 627 RDTE spaces and 99 spaces in logistics and supply areas. The budget also reflected reprogrammed actions, including a HQDA PBD that reduced P7S civilian spaces by 1,212 in FY88 and 522 for FY89. However, HQDA permitted AMC to retain these spaces in funded non-P7S functions. The results of the USAMARDA survey of AMC FMS functions, and the AMHA reduction--both discussed above--were included in the reprogrammed actions.

As related, the Vice Chief of Staff, Army (VCSA) permitted AMC to reprogram 243 of the 341 FMS spaces, identified for reduction by the USAMARDA survey, to other OMA missions. The VCSA also approved a reclama by AMC on 25 March 1988 to restore 98 spaces, subject to a resurvey. AMC also requested approval for civilian manpower space "buyback" of 1,853 positions in FY89 and 1,331 for FY90 and beyond.

Total Army Analysis. In its Total Army Analysis (TAA) submission for FY90-FY96, AMC requested 2,738 additional spaces for FY90, of which 118 were spaces in support of the Intermediate Nuclear Forces (INF) Treaty. AMC's TAA priorities were established through the Resource Action Committee.

ILS Funding Guide

The DCS collaborated with the Materiel Readiness Support Activity (MRSA) to finalize the ILS Funding Guide. The guide interrelated concepts and definitions from the Army Cost Analysis functional area with the logistics community. The guide was published as an AMC pamphlet.

Cost Research

The U.S. Army Cost and Economic Analysis Center (USACEAC) asked the HQDA cost analysis community to submit potential cost research projects for FY89-FY94. AMC cost analysis activities submitted 24 potential projects. USACEAC planned on cataloging the projects for the revised Army five-year Cost Analysis Plan.

The DCS also became familiar with the Cost Analysis Resource Reference System (CARRS) used by USACEAC. CARRS was an Air Force automated catalog for cost analysis with the capability to evaluate and apply existing cost models and data bases to their tasks. After reviewing CARRS, the DCS expressed its concerns on Army cost research shortcomings to the Director, USACEAC.

Revision of MIL-STD-881A

OSD, the three services and the National Security Agency (NSA) served on the DOD Revision Working Group that was revising MIL-STD-881A. The new document was being changed to emphasize software, ILS training devises, automatic test equipment, and initial spare parts.

Materiel Change Management

The Assistant Secretary of the Army for Research, Development and Acquisition revised the Materiel Change Management process for implementation on 1 September 1988. The PEO/MSC commander will be able to approve materiel changes below $25 million.

Total Risk Assessing Cost Estimate for Production

An enhanced automated procedure for standardizing the Total Risk Assessing Cost Estimate for Production (TRACE-P) analysis and report generation was being tested in FY88. It was an interactive computer program that generated input for the U.S. Army Logistics Management College's PC version of the Venture Evaluation and Review Technique. Still in revision, the TRACE-P program was to be implemented by means of a memorandum of instruction (MOI).

Inflation Guidance and Methodology

The Office of Management and Budget (OMB) was responsible for developing inflation rate guidance that OSD then refined for DOD. The DCS for Resource Management served as the Command's focal point for inflation and provided indices to MSCs, PEOs, and other installations and activities.

OSD for the first time issued separate pay raise assumptions for military and civilian personnel. AMC discussed the implications of this with ASA(FM) since the Army inflation tables excluded pay considerations. A methodology was developed to compute inflation indices for entire appropriations by averaging the pay and non-pay escalation and spend-out rates on a weighted basis corresponding to the cost share of the pay and non-pay portions. The Army Budget Office approved both the methodology and the new consolidated tables. However, HQDA did not release the tables for Army-wide application. Consequently, AMC did not release its tables, pending a final resolution from HQDA.

In March a composite Standard Rate for Costing Military Personnel Services, Army for FY88 and new guidance on costing military personnel services were released. The new guidance, explaining how to use the Composition Rates in preparing baseline cost estimates (BCE), was in response to a request from the U.S. Army Cost and Economic Analysis Center.

Efficiency Review

The Management Engineering Activity (MEA) conducted an AMC-wide efficiency review (ER) of MSCs to assess the effectiveness of standard Resource Management organizations and to ensure that the most efficient and effective procedures had been implemented. Extensive comments were provided to MEA concerning its strawman and ER drafts to ensure that the Performance of Work statement, Performance Requirements Summary, and Potential Work Units had accurately reflected the mission, functions, and work of the MSC cost analysis organizations. MEA developed a proposed most efficient organization (MEO) and submitted it to the MSCs. The final evaluation and report was due for FY89 completion.

In developing the analytical standards for AMC MSC resource management organizations, MEA prepared a functional model development plan as a vehicle for gathering data. DCSRM's review pointed up problems with the Potential Workload Factors (PWLFs) for cost analysis; they lacked adequate scope, coverage and definition of use in the model. Therefore, the DCS submitted revised PWLFS based on materiel developed for the MSC Resource Management Efficiency Review. The

model accelerated MEA's staffing standards program by shifting emphasis from the traditional Manpower Staffing Standards System (MS-3) studies to the less rigorous analytical standards.

Cost Analysis Personnel Profile

The AMC Cost Analysis Personnel Profile contained data for each Cost Analysis Office and PM Office having Cost Analysis and/or Selected Acquisition Information and Management System (SAIMS) positions. The profile displayed professional TDA spaces for Cost Analysis, SAIMS, and PM offices with distribution also shown by job series, grade, and female/minority representation. A profile was provided to each MSC.

Cost Analysis Award

The Cost Analysis Award was presented each year to individuals and groups for outstanding achievement. In FY88, the Commanding General presented awards to: Mr. Steven L. Messervy, MICOM, for developing and implementing a comprehensive Missile System Cost Analysis Data Base for use throughout the Army; Ms. Cheryl J. Herrera, TACOM, for developing the Palletized Load System Cost and Operational Effectiveness Analysis and Baseline Cost Estimate; Ms. Christina J. Lins, TACOM, for developing the Family of Medium Tactical Vehicles Program Cost and Operational Effectiveness Analysis and Baseline Cost Estimate.

Cost Analysis for Decision Making

Forty AMC employees gained training in four ALMC Cost Analysis Decision Making (CADM) classes in FY88. The Operational Baseline Cost Estimate (OBCE) was incorporated into the program of instruction on CADM.

Significant Reports

The Selected Acquisition Reports (SARs), Unit Cost Reports (UCRs), Supplemental Contractor Cost Reports (SCCRs) and Defense Acquisition Executive Summary Reports (DAEs) were significant standardized, comprehensive and summarized status reports prepared for management within DOD and for submission to Congress and other governmental agencies. All programs designated as major defense systems identified by the Secretary of Defense which required these reports were:

PERSHING II	ATACMC	BFVS
STINGER	AAWS(M)	ADDS
BLACK HAWK	MLRS/TGW	FAAD C21
AHIP	CH-47D	M1/M1A1
PATRIOT	TOW II	ASAS
MLRS	LOS-R	SINCGARS
HELLFIRE	LOS-F-H	COPPERHEAD
AAH	NLOS	JTIDS
	MSE	

ASARC/DSARC Reviews

AMC reviewed estimates which were developed for support of major system decision reviews by the Army System Acquisition Review Council and Defense System Acquisition Review Council. The decisions reviewed pertained to the SADARM, FMTV, PLS, LHX, NLOS, and LOS-R.

CAIG Reviews

As part of the Acquisition Improvement Program, the OSD Cost Analysis Improvement Group (CAIG) reviewed annually sample estimates from each service to assure that their budgets reflected the most likely cost of materiel systems. Estimates prepared for review by CAIG included these systems: MLRS-TGW, Black Hawk, FAAD C21, AEI, and BFVS.

Baseline Cost Estimates

Cost Analysis Offices at MSCs and HQ AMC reviewed and coordinated Baseline Cost Estimates (BCEs) prepared by PMs. BCEs formed the basis for the audit trail which was tracked throughout the life cycle of a weapon system. AMC assured that reassessments, made at major decision points, were accomplished for the following systems:

Completed		**In-Process**	
NLOS	PATRIOT	AEI	AWS-M
STINGER	LOS-RS	BFVS	APACHE
TOW II	CH-47D	MSE	JSTARS
LOS-F-H	ATACMS	FAAD C21	ADDS
MLRS/TGW	LMRLS	FMTV	M1/MQA1
HELLFIRE	BLACK HAWK	PLS	SADARM
AHIP	LHX		
SINCGARS			

Cost and Operational Effectiveness Analyses

Cost and operational effectiveness analyses (COEAs) required coordination with the Comptroller of the Army, U.S. Army Training and Doctrine Command (TRADOC), MSCs and PMs. The COEAs and abbreviated analyses and other major studies coordinated were:

Completed	**In-Process**
M1A1	MAFIS
POSNAV MASTER PLAN	FIFV
ATCCS CBA	IFTE
ARMOR/ANTI-ARMOR MASTER PLAN	EOTF
IRV	ALBF
BCW	FAADS
LHX	IAAWS
SOF	PATRIOT P31

Audit Compliance Audit Alert Findings

Audit Resolution. The Government Accounting Office (GAO) found in an examination on Responsiveness of Defense Management to Internal Audit Recommendations that management had not implemented auditors' recommendations in a timely manner. Also, followup files did not always contain sufficient documentation.

Recovery of Funds. The DOD Inspector General (DODIG) uncovered DOD-wide systemic problems in the contract debt recovery process. Interest was not always properly assessed and

collected. Improper adjustments were also made and demands for payment were not always issued as required by regulations.

Nonstandard Clauses. The U.S. Army Audit Agency (AAA) disclosed that procedures and controls were not established to obtain DOD approval to use nonstandard clauses in contracts. As a result of its audit alert, three other commands found similar problems and have taken corrective actions.

Internal Reviews

Command-wide Audit of Army Master Data File Pricing for Major Items. The Commanding General, AMC directed the performance of the Army Master Data File (AMDF) be audited because of inaccuracies in prices used in the sales of major items to non-DOD agencies. The principle objective of the audit was to evaluate the accuracy of AMDF prices after they were reviewed and updated by functional personnel at AMCCOM, AVSCOM, CECOM. MICOM, TACOM, and TROSCOM. The auditors generally found that the prices were correct, given the guidance that was in effect at the time of the reviews. However, local audit reports discussed concerns with the adequacy of local guidance, procedures, and control over billings for items.

Chaplains' Fund. At the request of the Chaplain, an audit of the Chaplains' Fund was completed to comply with the biennial requirement contained in AR 230-36. The audit found the fund to be sound with $4,428.23 in its checking account. However, the Chaplains' Fund council had not made the maximum use of its resources. Specifically, the council had used a noninterest bearing checking account that resulted in a loss of interest income. The Auditors recommended the transfer of the account to an interest bearing checking account.

Materiel Internal Control Weaknesses. An audit was performed to verify that actions had been taken to correct materiel weaknesses shown in the FY87 Annual Assurance Statement. Although 66 materiel weaknesses were contained in the statement, 39 were selected for review. The audit revealed that adequate corrective actions were completed as planned. The internal control administrators also had provided meaningful guidance to the action officers who monitored materiel weaknesses.

Commercial Activities

A guide was prepared to assist installation commanders and commercial activities (CA) PMs in identifying the pitfalls and potential problems associated with CA program execution. A checklist and "lessons learned" were also included in the guide to help improve CA effectiveness by reducing the chance of repeating costly mistakes and errors.

Information Exchange with External Auditors

The Commanding General, AMC met with Mr. Richard Davis, Senior Director for the General Accounting Office (GAO), on 17 March 1988 to discuss mutual cooperation efforts between AMC and GAO, the GAO audit of the Aquila Remotely Pilot Vehicle, and the increased number of requests from congress for ammunition audits.

IG Report to Congress

The Internal Review and Compliance (IRAC) Office prepared two reports highlighting the Command's efforts during the fiscal year to emphasize prevention of fraud, waste, abuse, and mismanagement. IRAC offices operated at a cost of $10.6 million, issuing 851 reports that contained

recommendations which could result in monetary benefits totaling $105.4 million. Other recommendations were designed to improve internal controls, efficiency, and the effectiveness of AMC operations.

Semi-Annual Followup Status Report

AMC received 46 USAAA reports with $70 million in potential monetary benefits. Twenty-nine million dollars were realized by the closing of 53 reports. IRAC offices issued 378 reports with an estimated monetary savings of $112 million.

Manpower Staffing Standards System

The Manpower Staffing Standards System (MS-3) program was an Armywide effort to quantify and document the relationship between the assigned mission, workload and manpower required to accomplish the task. MS-3 employed work measurements, industrial engineering, and statistical techniques to develop staffing equations that determined resource requirements for any given grade level or workload.

Under the direction of the DCSRM, MEA was responsible for conducting standards development studies within AMC. The studies were independent elements of a common Army effort, addressing functions performed by two or more MACOMs. After the studies were completed and the standards approved, the Staffing Standards Application Division assumed responsibility for the application and use of the standards as tools to determine and justify manpower requirements.

During FY88, standards were applied to a variety of functions with a total manpower requirement of approximately 9,000 manyears. Among the standards added were those for functions in transportation, procurement, equal employment opportunity, facilities, engineering, military personnel, and safety. MEA also finalized standards for logistics data management (cataloging) and selected provost marshal/security functions which should be applied in early FY89.

Concurrent with efforts to develop traditional MS-4 standards, MEA initiated a "functional models" concept. Employing historical workload and manpower data, MEA developed staffing equations at a summary level. The DCS received models for procurement, materiel testing, readiness, product assurance, maintenance, and materiel management that covered over 18,000 TDA requirements.

Two initiatives were instituted to offset the workload increase. First, the standards application process was automated. The second involved the establishment of a formal training program for standards application procedures, designed for both manpower managers and their functional components.

Resource Management Executive Workshop

The Resource Management Executive Workshop provided intensive instruction in the management of financial and manpower resources. The course was designed for senior AMC managers with previous experience or training in these areas. Since 1980, when the program began, 460 students have attended this course.

Resource Management Evaluation Survey

The Resource Management Evaluation Survey (RMES) began in 1973 as the Comptroller Evaluation Survey. Revived in March 1987, the RMES sought to review the overall effectiveness of

all MSC Resource Management Offices every two years and provide professional evaluations to MSCs to aid in the improvement of their management of resources. On-site reviews were conducted at DESCOM and LABCOM.

Program Execution Report

The DCSRM was responsible for analysis and preparation of the monthly Program Execution Report. Having ascertained in January 1988 that the Commanding General and the Command Group relied on other more timely reports for the same information, the DCS recommended that the report be terminated as an unnecessary and time consuming activity. The Command Group concurred, and the requirement to produce the report ended with the '87 issue.

Resource Management Bulletin

The Comptroller of the Army (COA) featured one MACOM in each issue of *Resource Management* during FY88 and FY89. Articles pertaining to resource management within AMC were published in the July 1988 issue of the journal. The theme of the issue was "AMC: Supporting the Soldier and the Total Army."

Management And Productivity

Mission and Organization

The Office of Management and Analysis gained three missions at the beginning of the fiscal year and on 3 November 1987 was redesignated the DCS for Management and Productivity. The three missions expanded the size of the organization from 84 authorized spaces to 106 spaces. Toward the end of the year, as part of an overall decrement, the DCS took a cut of 10 spaces effective 30 September 1988, ending the year with an authorization of eight military and 88 civilian spaces.

COL Gifford D. Wilson assumed the position of Deputy Chief of Staff for Management and Productivity. The Assistant DCS for Management and Productivity was Mr. William M. Ferron.[5]

The reorganized DCS had the following structure:

DCS and Assistant DCS
Administrative Office
Productivity Management Division
(mission and 18 spaces taken from the DCS for Resource Management)
Plans and Projects Division
(formerly Analysis Division, expanded by four spaces from the DCS for Readiness with addition of long range planning and AMCLOG 21 missions/program; the division also gained two spaces from the Review and Analysis Division with transfer of the internal control function and gave up a space to the Organizational Management Division)
Review and Analysis Division

[5] Management and Productivity FY88 Historical Submission. Hereafter, information in this chapter is from this source unless otherwise indicated.

Studies Management Division
Technical Library
Organizational Management Division
(formerly Resource Evaluation Division, subdivided into branches)
Management Efficiency Branch
(combined from elements of
Resource Analysis Branch and
Resource Efficiency Branch on
on retirement RAB chief)
Management Studies and Evaluation Branch
Mission and Organization Branch

The mission of the DCS for Management and Productivity was to manage HQ AMC Commercial Activities Program; HQ AMC Study Program; the establishment and publication of Command goals, objectives, and priorities; headquarters realignments, reductions, closures, and consolidations (RRCC) actions; and the development and distribution of responsibilities and procedures for life cycle management. The DCS exercised operational control over the Defense Logistics Systems Information Exchange (DLSIE), provided support for management of the Analytical Support Services Program, and ensured that the Command used the most effective and efficient analytical resources. The DCS had proponency for AR 5-1, *Army Management Philosophy*, Strategic Long Range Planning, and AMC Logistics Mission Area Analysis. It managed AMC Productivity and Improvement Programs, such as the AMC Management Engineering Activity (AMCMEA). It also managed the Command Review and Analysis System, the Management Analysis Program, the Independent Indepth Analysis Program, the Command Internal Control Program, and the Technical Library.[6]

Long Range Planning

AMC was a major participant in the Army's increased long range planning activity under the direction the Army Chief of Staff (CSA), General Carl E. Vuono. Mr. Richard Vitali, for example, assigned to the DCS for Technology Planning and Management, briefed 100 participants at the Army World Wide Long Range Planners' Conference on the emerging technologies for the 21st Century.

The AMC Long Range Planning staff, transferred from the DCS for Readiness to the DCS for Management and Productivity's Plans and Projects Division, submitted comments on a number of draft plans: the Army Long Range Planning Guidance 1998-2008, the Army Long Range Logistics Plan, and the Army Long Range Training Plan. As part of a long range stationing study, AMC headquarters and field staffers identified the essential elements of analysis for AMC facilities, provided extensive data on AMC facilities and operations, and on technology levels. This information became part of the model that the Army planned to use to reduce the range of alternatives pertaining to such requirements as stationing, equipping, and sustainment under different scenarios through the year 2020.[7]

Also related to the stationing study, the Deputy Commanding General for Materiel Readiness (DCGMR), LTG Fred Hissong, Jr., represented AMC on the Long Range Stationing Study Advisory Group chaired by the HQDA DCS for Military Operations and Plans (DCSOPS). AMC staff members reviewed the scenarios for the DCGMR, including a War College manuscript that DCSOPS was

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[6] Draft AMCR 10-2, Organization and Functions, 1 Jul 88.

[7] More on this under "Long Range Stationing Study" below.

interested in, "Alternative World Scenarios for Strategic Planning." The draft was reviewed, commented on, and recommended for publication by the AMC staff.

AMC was a member of the HQDA functional working group established to develop means for implementing Competitive Strategies, a Secretary of Defense initiative. The Plans and Project Division coordinated AMC's participation and preparation of material for the proposed Army white paper to be released by the CSA.

At the direction of the CSA, Colonel Steve Kempf, who was assigned to TRADOC's Combined Arms Center, briefed the Command Group and headquarters staff on the AirLand Battle Future Umbrella Concept paper, which proposed new doctrine through the year 2004 and will serve as the basis for Army decisions on the capabilities required. AMC provided extensive comments to TRADOC for incorporation into the next draft.

In July 1988, General Wagner directed the DCGs to conduct a long-term strategic assessment of the Command. The objective was to develop a vision of the AMC mission, functions and organizational structure 20 years later to provide the AMC community with a reference point for planning and for the allocation of resources. It also aimed at providing the Total Army with information needed for synchronization of all Army long range plans. The DCGs established a working group consisting of themselves and their deputies, the Chief of Staff and his deputy, the CG's Science Advisor, the DCS for Program Analysis and Evaluation, and the DCS for Management and Productivity, who also supplied staff support. The working group met three times to review briefing papers prepared by the Plans and Projects Division; it developed material for a meeting with the CG in FY89.

AMC Internal Controls

During the year, AMC continued to support the redirection of Army's Internal Controls Program and to assist in the development of Army Internal Control Review checklists. Support was provided to the HQDA program effort in the areas of training and program development. AMC met periodically with personnel from the Army Internal Control Office and such HQDA functional proponents as the DCS for Logistics and the DCS for Research and Development, fostering working relationships. AMC also continued to work closely with the Army staff in identifying and correcting material internal control weaknesses and to build on the administrative foundation of the HQDA program. Valuable administrative policy guidance, operating instructions, and informational issuances were distributed, and an active interchange of information between the HQ AMC and the field was maintained.

AMC developed or assisted in the development of Army Internal Control Review checklists such as the OSA Checklist for Procurement Function and the following Army regulations:

AR 005-004	AR 058-001	AR 708-004	AR 700-084
AR 030-001	AR 070-038	AR 710-002	AR 700-090
AR 030-005	AR 070-072	AR 750-001	AR 700-135
AR 030-016	AR 600-038	AR 750-043	AR 708-001

AMC administrators reached an estimated 3,564 assessable unit and senior managers throughout the Command with an aggressive internal control training program. Training was provided by a wide range of personnel, including Army Internal Control Office staff, AMC Internal Control Office staff, and Internal Control administrators at all levels of the command. Primary emphasis was placed on explaining changing program requirements and practical benefits, how the system operated, and

managerial responsibilities. Internal control information was also included in a wide variety of other training.

Several initiatives were undertaken by the Command to improve internal controls. These initiatives involved:

* Implementing an electronic mail network for AMC Internal Control administrators by using the Defense Data Network. This system allowed extremely fast communications between all command elements.

* Conducting four VENUS video teleconferences on the Internal Control program. These conferences permitted multi-level organizational interaction, provided direct and timely information on the latest changes to the Internal Controls system, and advised Internal Controls Administrators of current and future program developments. Although these conferences were originally initiated in response to travel fund constraints, their success and acceptance were proved as a worthwhile media device.

* Participating in regulation reduction and consolidation. AR 70-61 and AR 70-28 were consolidated into AR 70-1, and AR 750-25 was consolidated into AR 750-43. AMC also participated in the review and consolidation of the AR 95 series. After a review of AMCR 700-24, the command regulation was consolidated into AMCR 700-19.

* Precluding multiple staffing of the same audits, inspections, and/or reviews. The Internal Review and Audit Compliance Division included a standard statement when staffing these actions which stated that "a determination should be made as to whether the findings of this audit constitute a material weakness as specified by AR 11-2, *Internal Controls.* Material weakness reports should be provided to AMCMP-P (ATTN: Internal Controls)."[8]

Actions to strengthen the AMC Internal Controls Program further were taken in the areas of program administration, training, written guidance to the staff and field, briefings to staff principals, and followup audits of corrective actions. Accomplishments under the program were tracked throughout the year by quarterly reports and normal staff overview.

AMCLOG 21

Proponency for AMCLOG 21, like long range planning, was transferred in November 1987 from the DCS for Readiness to the DCS for Management and Productivity in order to consolidate the planning mission of HQ AMC into a single office. AMCLOG 21 tracking procedures, which require Command Group involvement, began in early FY88, and forty-seven issues were removed for various reasons. In May, the tracking procedures were put on hold when the Inspector General (IG) was directed by the CG, AMC, to review the program and determine whether AMCLOG 21 was necessary. The IG report was submitted on 1 August 1988, and it concluded that AMCLOG 21 program should continue if the program was properly managed.

The second iteration of the AMCLOG 21 Mission Area Analysis (MAA) began on 21 March 1988 with a Command-wide conference. A validation scrub of all previously submitted issues and an identification of new issues were completed by all participants by September 1988. The total number of issues in the FY89 Mission Area Development Plan was expected to be much smaller as a result

[8] AR 11-2, *Internal Control.*

of easing previously dictated guidelines on submissions, lessons learned from the first iteration, and new guidance from the Command Group as a result of the IG report. This was expected to make the program more manageable and the objectives more viable.

Several efforts were made to interface AMCLOG 21 with TRADOC's Mission Area Analysis (MAA). The DCS participated in the U.S. Army Logistics Center's Combat Service Support (CSS) workshop where LTG William G. T. Tuttle, Jr. requested that LTG Fred Hissong, Jr. provide an AMC wholesale base appendix to the CSS Mission Area Concept. AMCLOG 21 will be one of the prime sources of input to this appendix. AMC was also working with the TRADOC Analysis Command at Fort Leavenworth to develop an alternative to the Long Range Research and Acquisition Plan (LRRDAP) prioritization process which would give more weight to logistics issues.

Another step in institutionalizing AMCLOG 21 was achieved with the publication of AMC-P 11-29 on 14 December 1987. This pamphlet detailed procedures for conducting an AMCLOG MAA.

ROBUST Army and AMC Task Forces

The CSA established the Redistribution of BASOPS/UNIT Structure within TDA (ROBUST) task force to examine the Army TDA to ensure that it was structured to met the requirements of the future. The Chairman of the HQDA Task Force steering committee was General Arthur Brown, but the Task Force director was Major General John Mitchell who requested and received data from AMC regarding mission, functions and organization of the Command. The task force reviewed all mission essential tasks within AMC in an effort toward maximizing organizational efficiencies, eliminating unnecessary functions and redundancy, and redistributing uniformed, civilian, and contracted manpower within the Army. The HQ AMC Task Force was headed by Colonel Gifford Wilson, DCS for Management and Productivity.

The HQDA Task Force also conducted on-site visits, during August and September 1988, to selected AMC installations, including HQ AMC. Preliminary reports on these visits indicated that no major changes were contemplated for AMC's current method of doing business.

The Organizational Management Division was the focal point for data input from all AMC units identified as a Unit Identification Code (UIC) organization. Each AMC UIC submitted data on each TDA paragraph within its organization pertaining to the assigned mission, number of authorized spaces, and description of how the UIC supported combat commanders in the field. HQ AMC submitted its ROBUST report to HQDA in September 1988, and HQDA decisions were expected early in FY89.

Command-Staff Relationship "Power Down" Project

The "Power Down" project was initiated in January 1987 with a request for recommendations to get as much authority and responsibility as possible down to subordinate commands, installations, and activities. Originally scheduled for termination on 31 December 1987, the project continued through FY88 with the submission of additional recommendations from the field. At the end of FY88, over 400 recommendations had been received and nearly one third of them had been approved. The program resulted in higher approval thresholds, the elimination of successive approval requirements and reports, and greater freedom of action for lower level commanders. The critical element to the success of the "power down" project was the stipulation that all disapprovals required the signature of the AMC Commanding General or Chief of Staff. At the end of FY88, subordinate elements were instructed to submit all future recommendations through the Army Suggestion Program or the Model Installation Program (MIP).

Matrix Support for Program Management

Matrix support of program/project/product managers was initiated in AMC in 1985. The objective of conserving resources by sharing high grade hard skill personnel among PMs and their supporting MSCs avoided the problem of self contained and self perpetuating PM offices. Final implementation was underway when the Army Acquisition Executive (AAE) and Program Executive Officer (PEO) system was imposed in FY87. The Secretary of the Army directed that PEOs and PMs be supported through a matrix system. In FY88, AMC adapted the matrix support structure and operating procedures to the rapidly evolving PEO/PM structure. Major issues addressed included the performance rating scheme under matrix support, the position classification of both support and PM "core" positions, and supervisory relationships between the PM core and the MSC functional managers.

AMC Base Closure Cost Model

AMCMP developed an AMC cost estimating model to provide detailed AMC activity cost estimates to the Defense Secretary's Commission on Base Realignment and Closure. The objective of the commission was to identify installations which could be closed without endangering the mission of the Department of Defense (DOD).

Total Army Analysis

The DCS presented two PEO/PM manpower issues to the Army Force Structure Conference on 3-7 October 1988. The two issues identified 1,306 spaces to support both the existing and new start PMs. These issues were recognized by the force structure TDA panels and were elevated to the Total Army Analysis (TAA 92-96) Council of Colonels and General Officer Steering Committee (GOSC) for possible resources. The Council of Colonels and GOSC tasked Office of the Secretary of the Army for Research, Development and Acquisition to validate the 1,306 space requirement in consonance with the current action to streamline the PEO/PM organizational structure.

Review and Analysis

The HQ AMC Review and Analysis (R&A) continued through FY88 as the primary system for measuring performance toward the accomplishment of AMC's mission, goals, and objectives. The Command R&A was accomplished on a quarterly cycle and provided the CG with a picture of the Command's performance for that quarter. Displaying trend data for the previous two years and prepared by the Review and Analysis Division, the Command R&A book was a summary matrix that was prepared for each quarter, highlighting those indicators that were out of tolerance. The DCGs receive the complete Command R&A book for their review.

The Commanding General's Review and Analysis Book (CGRAB) was organized in FY87 when the CG requested that he be provided selected charts each quarter showing significant areas of interest. Beginning with the third quarter FY88, the CGRAB was replaced with a Summary Command Analysis that provided a horizontal approach to the R&A as contrasted with the vertical approach of the quarterly Command R&A. It stratified/integrated performance across staff elements. The Summary Command Analysis Notebook (SCAN) provided a quick overview of the Command R&A.

A major improvement in the Command R&A was the conversion from manual, time consuming chart preparation procedures to automated procedures. This reduced the preparation time and notably improved the professional quality of the Command R&A.

Staff responses to CG questions and comments were provided via DISUMs. The R&A Division continued to execute the overall management of the R&A System for the CG.

SecDef Productivity Excellence Awards Program

The Secretary of Defense Productivity Excellence Awards Program was established to recognize individuals and groups who have made substantial contributions to productivity improvement. The program had two levels of recognition: the OSD Productivity Excellence Award, for individuals and groups whose actions resulted in at least $1 million in annual savings, and the OSD Letter of Commendation, for individuals and groups who produced annual savings of at least $100,000.[9]

AMC nominated 17 individuals for the 1987 OSD Productivity Excellence Award and 25 for the OSD Letter of Commendation. The Secretary of Defense presented Productivity Excellence Awards to three AMC employees at a Pentagon ceremony on 27 January 1988. AMC had 14 productivity exhibits on display at the Pentagon during the month of January 1988.

On 4 September 1988, General Wagner nominated 24 individuals for the 1988 OSD Productivity Excellence Award and 12 for the OSD Letter of Commendation. The recipients were to be recognized at a presentation ceremony in January 1989.

Commanding General's Award for Installation Excellence

This award recognized an installation/activity that had made outstanding achievements in productivity, efficiency, and other areas. Ten nominations were received for consideration. The U.S Army Missile Command at Redstone Arsenal, Alabama, was awarded the first place award and was subsequently the Command's nomination to HQDA for the Commander-in-Chief's Award for Installation Excellence. Watervliet Arsenal received the second place award, and the third place award was shared by the U.S. Aviation Systems Command (AVSCOM) and the U.S. Army Troop Support Command (TROSCOM). Presentations were made by the Commanding General via video teleconference on 8 September 1988. It was expected that the CG's award would be integrated into the Army Communities of Excellence (ACOE) program under DA Pam 600-45.

Stewardship Letter

In April 1988, the *1987 Stewardship Letter* was published. Although this document was similar to previously published *State of AMC* documents, its purpose was to highlight the actions and initiatives in AMC related to the increase in productivity and efficiency of the workforce, the decrease of systems development, and improving the effectiveness of the Command to meet the needs of the Army in the field.[10]

Automation of Technical Library

The DCS in 1985 submitted a funding request under the Productivity Improvement Finding (PIF) program which included a plan to automate the HQ AMC Technical Library. The submission was

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[9] Ltr, GEN Wagner to HQDA, 16 Sep 88, subj: Secretary of Defense Productivity Excellence Awards.

[10] 1987 Stewardship Letter.

approved and received FY87 funding. Some equipment was installed throughout the DCS but the Technical Library system would not be operational until FY89.

Arroyo Center Projects

The Arroyo Center was the Army's Federally Contracted Research Center (FCRC) for studies at the Rand Corporation. Its mission was to conduct long-term, deep-reaching policy analysis for the HQDA leadership. General Wagner participated in the FY88 semiannual meetings of the Arroyo Center Policy Committee (ACPC) which reviewed and approved proposed research programs (including provisional and exploratory efforts) and provided guidance to Rand. Five of the 54 ongoing projects were either sponsored or cosponsored by AMC. These projects were:

Sponsor/Cosponsor	Program
AMCCOM	Developing Ammunition Requirements and Production Schedules to Increase Combat Capability.
LABCOM	AI/Robotics for Combat Systems.
TRADOC/LABCOM	Future Army Warfighting Ideas and Technologies.
HQ AMC/TRADOC	Combat-oriented Logistics Management System.
HQ AMC	The Army Space Technology Exploitation Plan.

Staff Officer's Guide

The Staff Officer's Guide (AMCP 1-6) provided information to incoming HQ AMC personnel to enable them to become more productive members of the AMC staff. An extension to the Staff Officer's Guide was being developed as part of the Commander's perspective.

Army Commanders' Conferences

Three Army Commanders Conferences (ACC) were held in FY88.

The Fall 1987 Conference was held on 7-10 October 1987 at Carlisle Barracks, Pennsylvania, and the Pentagon. Attendees at Carlisle Barracks on the first day of the conference included only four-star commanders. All MACOM commanders attended the sessions at the Pentagon on 8-10 October 1987. A presentation by General Wagner covered documentation of organizational changes, establishment of AMC's Armored Family of Vehicles Task Force, live fire testing, the Bradley, forward air defense, and preliminary results of an AMC baseline study.

The Spring 1988 ACC was held for four-star commanders only, from 28 February to 1 March 1988 at the Pentagon. AMC's perspectives given by General Wagner included: a comprehensive look at resources - all appropriations - FY88-89 and POM Years; AMC manpower FY88-89 (Including PBD 731,P7), funding of key automation initiatives, training (an ORSA Training Cut, AIT Specialized Training, and AMC Training Resources), an update on the Objective Logistics/Supply Systems being piloted at Fort Rucker. During the conference, a discussion was reopened on a problem which remained unresolved from the Fall 1987 ACC: Documentation of Organization Changes (Problems with Concept Plans). General Wagner believed that the concept plan requirement was too restrictive, obliging MSC commanders to wait from 12 to 24 months in processing organizational changes. He

recommended that the MACOM commander be given the authority to approve zero sum reorganizations that did not violate the PBG or other HQDA guidance.[11]

The 1988 Summer Senior Commanders' Conference was held on 7-9 August 1988. The Commander, AMC discussed the following issues: chemical agent resistant coating, AMC must-fix issues for FY89-91, Total Package Fielding funding priorities, progress toward a single battlefield fuel, The Objective Supply System, Foreign Military Sales Fair Pricing, congressional action adversely affecting Morale, Welfare, and Recreation Activities.

Additionally, the Commander, AMC and the Assistant Secretary of the Army (Installations and Logistics) met periodically to discuss matters of joint interest. These meetings were held on 6 October and 13 November 1987 and 5 January, 4 March, 13 May, 8 July, and 12 August 1988. Another meeting was scheduled for 26 October 1988.

Automated Library System

The Technical Library contracted through the Federal Library and Information Center Network (FEDLINK) to acquire the Online Computer Library Center (OCLC) LS/2000 Automated Library System. The system will automate the card catalog as well as circulation, acquisitions, and periodicals control functions. Profiling, the defining of specific requirements of the HQ, AMC Technical Library, began in March 1988. The equipment, including a Data General MV/7800 minicomputer, disk and tape drives, and six Lear Sigler terminals, arrived in May 1988. Originally planned for installation in the Technical Library, the system will be installed in the main computer room. Installation and start-up were delayed due to electrical requirements, but it was expected that the equipment would be installed before 1 January 1989 and be operational by the 3rd Quarter, FY89.

Long Range Stationing Study

The Long Range Stationing Study (LRSS) was chartered by CSA Memorandum 86-15-14 on 6 November 1986 and renewed by a similar document, CSA Memorandum 87-310-07, on 30 November 1987. The purpose of LRSS was to study Army's long range stationing requirements and recommend a stationing methodology or plan to the CSA. The methodology or plan would become an institutionalized Decision Support System (DSS) allowing real-time projections of potential requirements and resources in aid of identifying investment strategies into the 21st Century.

The DCSMP, in April 1988, established an ad hoc group to acquaint the AMC community with the LRSS concept and to collect information from MACOM/PEO/PM points of contact. In May, the group reviewed and evaluated the functional description for the Integrated Planning Model of LRSS. By June, the PEO/PM POCs identified equipment types by technology level, identified the essential elements of analysis for AMC facilities, and provided extensive data on AMC facilities and operations. On 27 July 1988, the ad hoc group met with the HQDA functional work group which was working taskers from the Base Closure Commission.

AMC Restructuring Initiatives

The Central Systems Design Activity (CSDA) St. Louis, Missouri, the Central Systems Design Activity-East (CSDA-E), formerly the Logistics Systems Support Activity (LSSA) at Letterkenny Army Depot, Chambersburg, Pennsylvania, and the Logistics Programs Support Activity (LPSA) also at

[11] More on this subject under "Concept Plan for Organizing and Reorganizing AMC Units" below.

Letterkenny Army Depot had similar missions and functions. A management review of the organizations[12] indicated that the combined strength required to operate the three activities could be reduced by forming them into a single organization. The reduction could be achieved with continued operation in both St. Louis and Chambersburg and without a shift of employment levels between the two locations.

The Command accordingly directed realignment of the separate activities into an organization designated as the Systems Integration and Management Activity (SIMA). SIMA would be headquartered at Letterkenny Army Depot with sub-activities in both St. Louis and Chambersburg. The SIMA would report directly to HQ AMC. Under this structure, it was expected only a small number of positions would require reassignment.

Until SES hiring authority was established, an acting director would be recruited at the GM-15 level, and the implementation of SIMA would begin 30 days after the selection of the acting director. When the authority was granted, an SES would be appointed as the Director. The announcement of the realignment was scheduled for 17 October 1988.

Library Expert System

A prototype expert system was developed for use by library patrons. The system was produced by using the M1 expert system "shell" which allowed rapid prototyping and advanced debugging facilities.

The AMC Library Expert (ALEX) duplicated the knowledge of professional reference librarians in directing users to sources of information. For example, users could ask for sources in the area of corporate information. Through a series of menus, users were prompted for more detailed descriptions of the type of information they sought. The system then made recommendations. The areas of expertise included historical data, corporate information, government information, library periodicals and PC software, and plans called for expanding the scope of expertise. Copies of ALEX were distributed to several DCSs for comments and suggestions.

Headquarters Installation Support Activity Study

At the request of the Headquarters Installation Support Activity (HISA) Commandant, a management study of the functions performed by the HISA Operations and Support Division was conducted. The division was responsible for providing resource management, property management, travel and security services for HQ AMC. In the request for assistance, the HISA Commandant cited procedural problems and the lack of internal controls and performance indicators within the activity. Equipment accountability, requisition of supplies and equipment, and budget functions were primary areas of concern. The study team was scheduled to present its findings and recommendations to the HISA Commandant in October 1988.

Army Study Program

The Army Study Program was designed to provide studies and analyses to assist Army decision makers. AR 5-5, *Army Studies and Analyses,* dated 15 October 1981, established policies, procedures, and responsibilities for the administration and management of the Army Study System. The

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[12] Prompted by HASC Report 100-410. See DCSIM coverage of "Central System Design Activities Study," this AHR.

implementation of AR 5-5 within AMC, characterized by centralized review and monitoring, and decentralized development and funding, resulted in 20 in-house studies and three contract studies during FY88. The subjects of these studies are listed below.

AMC Contributions to Army Study Program, FY88

Study	In House/Contract
Allocation of Operational Availability to End Items	In House
Ammunition Resupply Study	In House
Applications for Prioritization Models in DESCOM	In House
Army Industrial Fund	In House
Artificial Intelligence Applications in DESCOM	In House
Artillery Projectile Pallet Optimization Study	In House
Ballistic Effects of Chemical Weapons	In House
Cataloging Expert System	In House
Combat PLL/ASL Methodology	In House
DS/GS Maintenance Backlog	In House
Dynamic Inventory Model	In House
FMS Payment Schedule	In House
Generator Reliability Study	In House
Individual/Crew Survivability	In House
Insensitive Munitions	In House
Leading Indicators for Availability Study	In House
Organic Depot Maintenance Contract Study	In House
Retrograde of Army Items From OCONUS to CONUS	In House
Survivability Modeling	In House
Virtual Attrition: Considerations for Minefields	In House
Operational Effectiveness Evaluation of the AFV Concept	Contract
Determination of Voids in the Ammunition Logistics Systems	Contract
Develop Log Models to Analyze Airdrop Requirements for Army 21	Contract

Defense Logistics Studies Information Exchange

The Defense Logistics Studies Information Exchange (DLSIE), repository for approximately 75,000 studies and models, disseminated logistics and management information to defense components via custom bibliographies, catalogs, and microfiche. Having an automatic telephone answering and recording device available during non-duty hours, DLSIE also had an on-line data system that gives remote locations a dial-in capability to search and retrieve from its database.

Managing Analytical Support Services

Managing Analytical Support Services (MASS), governed by AR 5-14, consisted of appointing individual and contracted experts and consultants, contracting studies and analyses, and contracts for professional and management support services. DOD's use of these services continued to receive

congressional scrutiny and was highlighted in the Defense Appropriation Act. All AMC contracts for analytical support services were supported by a formal Management Decision Document approved by a General Officer or a member of the Senior Executive Service. AMC's FY88 Analytical Support Services program consisted of 35 contracts at a cost of $148.2 million.

AMC Policy Circulars

Commander's Guidance Statements (CGS) as a means to distribute policy and guidance within AMC was discontinued in June 1987, by decision of the incoming Commander. All CGS expired as of 30 June 1987. Any new policy or a change to an existing policy was distributed in accordance to the AMCR 5-21, Policy Guidance, 10 August 1987.

AMC Productivity Program

Model Installation Program. AMC was an active participant in the Model Installation Program (MIP), the ongoing Department of Defense experiment to encourage innovative management. MIP was initiated by the DOD to encourage the services to allow installation commanders to try new ideas. The program sought to achieve better ways to organize and operate installations while permitting installation commanders to retain any savings to improve local services and facilities. There were originally 15 installations enrolled as model installations, five from each military department. Active in the program since its inception, the Command by January 1984 had two installations in the program--Anniston Army Depot (ANAD) and Aberdeen Proving Ground (APG). The following month, New Cumberland Army Depot (NCAD) joined MIP. Lessons learned from MIP were shared with other installations, and separate reporting activities throughout the command.

An important element of this program allowed the participating installation to request a waiver from any regulation or policy if the commander believed that increased effectiveness would have been the result. Such requests travel through the chain of command to the headquarters that could approve the request, even to DOD, other government agencies, and Congress, if necessary. Each level of command was encouraged to act quickly on the requests, accepting the possibility of failures. AMC's activities generated hundreds of requests for regulatory waivers, and HQ AMC disapproved only two percent of those it reviewed, while approximately 25 percent were disapproved by HQDA or higher authority.

Army Suggestion Program. Great strides were made during FY88 in The Army Suggestion Program (ASP), an employee involvement initiative designed to stimulate and encourage submission of constructive ideas to improve product quality, eliminate unnecessary work, devise new or improve existing tools and equipment, reduce costs of materials, increase the effectiveness of Army operations, and to promote better working environments. The program also provided a means for employees to express themselves, point out problems, propose solutions, and earn recognition and tangible awards for their efforts. It had been operated at AMC since October 1987 by the DCS. The commitment of the command to providing concise, thorough, unbiased and responsive evaluations included a review by top management of all disapproved suggestions.

The Suggestion Program was being automated Army-wide and implemented at some smaller commands. AMC and other MACOMs operated in a test mode. Eventually the automated system should permit faster transmittal of suggestions between different geographical areas.

American Productivity Management Association. AMC elected to renew its membership in the American Productivity Management Association (APMA), a network of private and public groups and

organizations promoting national productivity. Associate memberships at a reduced cost were offered for the first time and several of the major subordinate commands (MSCs) joined. At the national meeting held in Los Angeles in February 1988, the AMC representative presented a program on the Army Streamlined Acquisition Program to the members of the Defense and Aerospace Forum. In April 1988, the AMC representative was elected chairperson of the APMA Chesapeake Council, which included member organizations from the District of Columbia, Maryland, and Virginia. The council was hosting the national meeting scheduled for Arlington, Virginia in April 1989.

Productivity Capital Investment. The AMC Productivity Capital Investment (PCI) Program provided supplemental funding to support long-term productivity improvements. The PCI program obtained funding through the Office of the Secretary of Defense Productivity Investment Funding (OSD PIF) Program, the Productivity Enhancing Capital Investment Program (PECIP), the Quick Return on Investment Program (QRIP), and the AMC RESHAPE Program. The FY88 PCI Program consisted of the following:

FY88 Productivity Capital Investments

Appropriations	Projects	Funding(Mil)	Projected Benefits (Mil)
RDTE	67	$32.5	$45.2
OPA2/OPA3	12	3.3	6.1
OMA	9	3.8	3.0
AMMO	15	1.0	0.7
TOTAL	103	$40.6	$55.0

Savings Tracking Initiative. The Savings Tracking Initiative was directed by the Commander, AMC, in FY86, to provide credibility for claimed savings resulting from productivity initiatives throughout the command. Standardized definitions for hard dollar savings and cost avoidances were disseminated throughout AMC and, using them, all elements were reporting their productivity results in a format compatible with the Budget Program Resource Review.

During FY88, emphasis was given to reconciling the savings reports with functional reporting required by certain Army regulations. A great deal of analytical time was devoted to comparing the figures and determining reasons for discrepancies, especially in the value engineering area. Once the functional reports were determined to have been documented using the principles established by the savings tracking initiative, the savings report was streamlined and the functional report was relied upon. After several iterations, the savings report was eliminated. MSCs, SRAs, and HQ AMC elements were responsible for ensuring that claims of benefits realized from actions accomplished were credible and could withstand an audit.

The savings tracking initiative begun in FY86 could be credited with bringing a cultural change within AMC through stringent review given claimed savings and the use of standard definitions categorizing benefits achieved.

AMC/Army Lessons Learned Program. The AMC Lessons Learned Program was begun in 1985 to document lessons drawn from experience at the National Training Center (NTC). With an expansion of the program include all of AMC lessons learned, the data base at Logistics Management Center at Fort Lee expanded to 1,260 lessons learned in 30 September 1988.

A Lesson Learned was the description of an experience, observation, or accomplishment that may have been of value and use in an ongoing or future program. In this context, it documented a method of operation which may have wide application among the military services.

Commercial Activities Program. Seven commercial activities (CA) cost studies were completed for final approval by HQDA during FY 88. All of the studies concluded that it was more cost effective to perform the work in-house rather than contract out. The studies covered installation support functions at Aberdeen Proving Ground, the audiovisual and administrative support functions at APG, installation support functions at Lexington-Blue Grass Army Depot, data processing functions at LBGAD, data processing functions at Anniston Army Depot, and, jointly, data processing functions at Letterkenny Army Depot and Savanna Depot Activity.

Concept Plan for Organizing and Reorganizing AMC Units

HQDA had emphasized standardization of TDA organizational structure to the maximum extent. This policy severely limited the ability of local commanders to change their organizational structures. To reorganize, local commanders had to prepare a concept plan for review and approval by higher headquarters. Such plans had to present detailed data about the reorganization and its implications. Some reorganizations were delayed by AMC/HQDA reviews and other processing procedures. The response time for a major reorganization was six months to a year.

General Wagner discussed concept plans at the Fall 1987 Commanders Conference. The AMC position was that if all resource movements were within the command, with no resource impact on DA, no concept plan should be required. Indications at the Commanders Conference in March 1988 suggested that AR 310-49 was being revised to eliminate concept plans, but HQDA in May 1988 reiterated that an Army Staff review of concept plan was "needed to assure full conceptualization of a unit's organization or reorganization, audit change, align resources, ensure supportability, dampen costly turbulence, minimize nonstandardization and, most important, to assure that resources are used to support Army objectives and priorities."[13] However, a revised policy was issued which gave guidance that was similar to what General Wagner had requested. The revision was to be reflected in AMCR 10-1 early in FY89.

AMC Commanders' Conference

An AMC Commanders' Conference (AMCCC) was normally scheduled directly after each ACC. Scheduling problems forced a video conference in lieu of a Fall 1987 AMCCC. The purpose of the 2 November conference was for the Commander, AMC to debrief the Fall 1987 Army Commanders' Conference. Each MSC Commander, including the commanders of AMC-Europe and AMC-Far East who were linked to the video conference by telephone, was provided an opportunity to raise significant issues. The Spring 1988 AMCCC was hosted by the Depot System Command at Hagerstown, Maryland, on 6-7 April 1988. The agenda included 30 minutes for each Commander to present their plans to reach and operate at their assigned resource levels. Commanders also discussed productivity

[13] Msg, 201510Z, HQDA to AMC, subj: Concept Plan Requirements.

efforts within their commands. General Maxwell Thurman, Commander, TRADOC, the luncheon speaker on 6 April 1988, addressed the subject of materiel requirements determination and preparation. The 7-8 September 1988 AMCCC was hosted by the Armament, Munitions and Chemical Command (AMCCOM) at the Armament Research, Development and Engineering Center (ARDEC) at Dover, New Jersey. The Under Secretary of Defense, Acquisition, Dr. Robert B. Costello, was the luncheon speaker on 7 September 1988. Dr. Costello discussed Total Quality Management (TQM). The theme of the conference was "Quality, Quality People and Quality Equipment and Quality Support."

AMC/TRADOC Conferences

The Commander, AMC and Commander, TRADOC resumed their scheduled monthly meeting with a meeting on 29 July 1988 at HQ AMC. It was the only meeting conducted during the year. Subsequent meetings were canceled due to the non-availability of one or both Commanders.

Information Management

Mission and Organization

The mission of the DCS for Information Management was to advise the command "in planning and developing the information concepts, objectives, policies, projects, systems, and methods required for achievement of the AMC mission through the use of general purpose automated data processing (ADP) hardware, scientific and engineering (SE) hardware, and related software."[14]

The DCS was authorized nine military and 211 civilians on 1 October 1987 but by the end of the fiscal year it was reduced to an authorized strength of eight military and 108 civilians. The majority of the space reductions resulted from a two-step move that saw the transfer of AMC personnel stationed at AIMC, Fort Lee, Virginia, to the Army Information Systems Command-Army Materiel Command (USAISC-AMC) in support of the information mission function and their subsequent transfer, on 1 October 1988, from the HQ USAISC-AMC TDA to the USAISC-Alexandria, formerly Bush Hill, TDA, separate from the AMC DOIM. Also reflected in the year-end figure is a reduction of 15 spaces required by 7th Signal Command in May 1988 to place HQ USAISC-AMC at the determined FY89 manpower end-strength. The DCS for Information Management was COL Kenneth H. Campbell.

Reorganization and Realignment

In 1987, the DCS recognized that the organizational structure was inadequate to accomplish the mission of providing quality information services to the Command. One of the most significant deficiencies was the incorporation of the Director of Information Management (DOIM) structure within the DCS for Information Management. These two organizations had widely divergent missions. The DCS was responsible for managing the entire USAISC-AMC organization, while the DOIM was responsible for providing information services to HQ AMC. Recognizing the inadequacy of this situation, the decision was made in January 1988 to move the TDA requirements and authorizations from the HQ USAISC-AMC to the USAISC-Alexandria (formerly Bush Hill).

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[14] AMC-R 10-2, *Organization and Functions,* p. 12-2.

On 1 February 1988, the reorganization went into effect. The purpose of the realignment was to integrate the information management mission (communications, automation, audiovisual, records management and publications) into the HQ ISC-AMC DCS Information Management organizational structure. The two major changes were the establishment of an Operations Division to monitor the performance of ISC-AMC operations throughout the command, and a Security and Evaluation Office to inspect the execution and compliance of ISC-AMC plans and policies.

Effective 1 October 1988, however, the Director of Information Management (DOIM) would become a separate activity within USAISC. The TDA requirements and authorizations were separated from the HQ USAISC-AMC TDA and moved to USAISC-Alexandria TDA. Separate funding was also established at this time. The HQ DOIM was Richard Turner until July 1988 when he transferred out and Maurice Johnson was appointed Acting DOIM.

There were some changes in key personnel positions. Mr. Richard T. Edwards, Chief, Systems Management and Integration Division, retired on 30 June 1988 on the ISC early out option. Ms. Mary C. Carroll was selected to succeed him as division chief and reported for duty on 10 October 1988. Ms. Ingjerd Omdahl, Chief, Library Program Office, also retired on the AMC early out option on 28 February 1988. Ms. Louise Nyce was selected to succeed her and reported for duty on 29 August 1988. The Assistant Librarian, Ms. Phyllis Ortutay, transferred out of AMC on 16 July 1988. Mr. Edward Fornaser, Chief, Command Automated Systems Branch, Systems Management and Integration Division, retired on 2 August 1988 on the ISC early out option.

In March 1988, the last (phase V) major information mission transfer was completed. A total of 428 authorizations transferred from AMC to ISC. Of the total, 392 of these authorizations were civilians and 36 were military. These spaces consisted of visual information spaces and spaces that had not transferred pending the outcome of commercial activity studies. Except for minor adjustments, the IMA transfer was virtually complete by the end of the year.

Official Mail Management Program

Mail Management. The ISC-AMC Official Mail Management Program was $700,000 under the FY88 budget established for official mail expenditures under the Customer Payment Program. FY88 expenditures were $900,000 under FY87 expenditures. The reasons for the savings were lower mail volumes caused by cuts in defense spending and a better technical base in mail management achieved through additional training of mail managers.

Mailing Label System. ISC-AMC installed the DA 18-1 Label Mailing System at Catalog Data Activity and at White Sands Missile Range (WSMR) in Arizona. The AMCCOM-produced system permitted storage and maintenance of large address files and the printing of address labels with postal parameters for cost effective mailing. The goal for FY89 was to establish the system as an AMC standard.

Mail Information Network. ISC/AMC Official Mail Manager introduced the Mail Information Network (MIN). MIN was an informal electronic mail network of Official Mail Managers that allowed mail managers to communicate ideas and share better ways of doing business. The system was well received by mail managers and directors of Information Management as well.

Super Computers

The Army's first supercomputer was installed at the Ballistics Research Laboratory (BRL) at Aberdeen Proving Ground in December 1986 and was accepted on 2 January 1987. It operated around the clock doing valuable analyses of armor, vulnerabilities, lethalities and ballistics. Another supercomputer was installed there in July 1987 and accepted in August. Further growth was anticipated when a SIMSCRIPT compiler became available in the December 1987 time frame, but problems developed as software was transferred from one system to another due to a mismatch in data and a necessity to make conversions of the data.

The third system was installed at the U.S. Army Tank-Automotive Command (TACOM) in Warren, Michigan, in the spring of 1988, to be shared by TACOM with the Corps of Engineers (COE). During FY87, training was accomplished for BRL, TACOM, COE and Concepts Analysis Agency personnel. The applications code for TACOM was converted at BRL and at the Supercomputer Consortium facility at Mandota Heights, Minnesota. COE had its code converted at BRL and at various commercial vendor sites. Utilization of the supercomputer had grown at a fast rate and was continuing to grow.

WSMR was running production programs at Kirtland Air Force Base, and at Los Alamos and Sandia sites in New Mexico. WSMR also started to convert systems at BRL. The U.S. Army Aviation Systems Command (AVSCOM) continued to use the NASA Cray X/MP and Cray 2 at the Ames facility at Moffet Field, California, and it did not project any use of Army supercomputers. The U.S. Army Missile Command (MICOM) was not included as a site in the plans submitted by the PM to the OSD Major Automated Information Systems Review Committee (MAISRC). The Army objected to that exclusion, and the PM was directed to re-examine the Army projections. Harry Diamond Laboratories used the Navy Research Laboratory (NRL) Cray X/MP 24 on occasion but had started to use mini-supercomputer technology.

Funds were sought to exercise an option to purchase the Cray X/MP at BRL via several methods. The DOD ADP Management Fund was selected, a revolving fund that must be repaid. Savings of at least $7 million were achieved.

The PM, Supercomputer sought to acquire successor Contracting Officer functions for the Army supercomputers. AMC non-concurred and retained the function at APG. The function was then split to allow TACOM to manage its system.

Artificial Intelligence and Expert Systems

General Wagner was briefed on artificial intelligence and expert systems in the spring of 1988. This was followed by a video teleconference on artificial intelligence and expert systems for the MSCs.

Expert systems provided a wide base of knowledge in a restricted domain, using complex inferential reasoning to perform human tasks. Advantages of expert systems were manifold. They made the expert knowledge and understanding more available to the user. Productivity increased while experts were able to pursue more complex problems. Organizational competitiveness was enhanced. A single system could integrate multiple sources of expertise. Expert human knowledge and expertise critical to the organizations was preserved. Quality and consistency improved, and risks were reduced.

Expert systems were built by knowledgeable engineers in close cooperation with domain experts. AMC's first knowledge engineering group was designated at the Central Systems Design Activity

(CSDA) in St. Louis, Missouri, by the HQDA in July 1988. CSDA provided the central focus for the development of logistics expert systems within AMC. It was subsequently renamed Systems Integration and Management Activity (SIMA).

The Chief of Staff, AMC, directed the development of expert systems in the headquarters. This was in response to a briefing concerning expert systems in the command. A committee was formed and 14 potential expert systems candidates were nominated for initial assessment. An evaluation resulted in the selection of five systems for further assessment and development.

Funds to support growth of expert systems in the command were requested through the Productivity Investment Fund (PIF). A total of 75 projects worth $49,471,000.00 were requested for FY90 and beyond.

Army Personnel Data System

There are currently three systems that process Army personnel actions: the Corps of Engineers Management Information System - Personnel Accounting (COEMIS-PA), the Civilian Personnel Accounting System (CPAS), and the Standard Civilian Personnel Management Information System (SCIPMIS). The Army Civilian Personnel System (ACPERS) was under development to replace these three systems. ACPERS was to be designed along the "three tier" concept of Army automation architecture and was to extend interactive processes for civilian personnel functional areas to 174 Army Civilian Personnel Offices worldwide.

On 29 April 1988 the Under Secretary of the Army made a decision to discontinue development of ACPERS and to adopt the Air Force Personnel Data System - Civilian (PDS-C) for implementation at all local operating Civilian Personnel Offices (CPOs). SCIPMIS, which was a system designed to operate at the installation level and functionally supported the local CPOs in daily operations relevant to selected civilian personnel management functions, will be replaced by PDS-C.

PDS-C was located at the Air Force Data Service Center in San Antonio, Texas. All field operating CPOs will be connected to this service center. The HQDA personnel system will be known as the Headquarters ACPERS and will reside at the Hoffman Building, Alexandria, where The Total Army Personnel Agency (TAPA) is located.

The schedule of remaining activities required for Army implementation of PDS-C was:

14 November 1988 - PDS-C conversion begins at Corpus Christi

15 January 1989 - System Acceptance Test

15 February 1989 - Test begins at Letterkenny

15 March 1989 - Deployment to Army.

Consolidated ADP Equipment Acquisition

A primary objective in the Acquisition and Policy Branch of the Resources and Plans Division was to streamline the acquisition process through the use of consolidated contractual services. In November 1987 a project was initiated to consolidate all Tier II automatic data processing equipment (ADPE) requirements identified in the Information Management Master Plan (IMMP), command-wide, and establish requirements contracts for each machine group, to include: central processors;

direct access storage devices; tape drives; automated tape libraries; and non-impact printers. The basic acquisition approach was to use one consolidated solicitation and award multiple contracts from that solicitation with contract coverage for a minimum of a five-year period. Furthermore, a software conversion study was planned to support the command-wide need for compatibility with the installed baseline architecture.

AMC's consolidated command-wide requirements were projected at $240 million over the five-year period. Due to the dollar value of the program, issues of Program Executive Office (PEO) management, MAISRC, and competition in contracting had to be articulated and defended. Briefings were conducted throughout the ISC-AMC Chain of Command to solicit support, comments and approval. Life cycle management documentation and contract specifications were being developed and teams of technical personnel at each AMC Major Subordinate Command (MSC) were appointed to participate in the acquisition process and the U.S. Army Information Systems Selection Acquisition Activity (USAISSAA) agreed to conduct the procurement.

A review of the AMC financial program and investment funds during the fourth quarter of FY88 revealed significant decrements in the other procurement appropriations (OPA2) budget line. It became necessary to redefine requirements and restructure the acquisition strategy to support specified equipment needs in two year increments. This new strategy will eliminate the requirement to address the major issues described above and will continue to be pursued during FY89.

Architecture Control Committee

The Architecture Control Committee (ACC) was established on 9 February 1988 to be a permanent organization. It operated within the Information Mission Area (IMA) disciplines of automation, communications, records management, printing/publications, visual information, and libraries. Its diffuse focus covered all three environments of the Total Army-- tactical/theater, strategic, and sustaining base--for all the conditions of peace, transition to conflict, and conflict.

The ACC was comprised of members from 19 HQDA staff agencies and three non-voting MACOMs (AMC, TRADOC, and ISC). It included general officer/senior executive service (GO/SES) membership from the participating organizations plus a working level of ACC (WLACC) COL/GM-15 members from the same organizations.

The purpose of the ACC was to assist the Director of Information Systems, Command, Control, Communications, and Computers (DISC4) by reviewing the establishment, maintenance, and application of the Army Information Architecture (AIA). Each member was provided an opportunity to present issues at each meeting. The WLACC met for the first time on 21 September 1988.

Automated Publications Production System

AMC was responsible for management of the overall HQDA Equipment Publications Program. AMC MSCs, as proponents of equipment publications, were required, among other publishing functions, to ensure equipment publications were available for the operation/maintenance of all Army equipment. As the complexity of equipment and the associated volume of required information increased, proponents were experiencing serious difficulty in processing production of equipment publications in an efficient, timely, and cost-effective manner. The availability of new technology for the production of equipment publications made it possible to reduce costs and increase efficiency and accuracy during production. Analysis of the potential benefits led to the conclusion that an automated publishing capability was needed at each AMC equipment publications proponent production site.

A System Decision Package was prepared for the Automated Publications Production System (APPS) by the U.S. Army Troop Support Command (TROSCOM) and the St. Louis Director of Information Management (DOIM). APPS was a page composition system that was designed solely for the pre-press development of equipment publications. It included devices and software for text/graphics input, edit, integration, scanning, storage/retrieval, and typesetting. AMC equipment publications proponents will use APPS to integrate the entire publishing process by receiving digitized information from contractors, reviewing, correcting, and updating publications content, and creating final reproducible, camera-ready copies for printing and distribution by authorized GPO printers. The APPS System Decision Paper covered the 20 or so sites, TRADOC included, that were reviewed for publishing requirements.

The System Decision Package was staffed in HQ AMC and submitted to DISC4 on 11 May 88 to obtain Milestone III approval of the APPS. APPS was unfunded, however.

Army Library Management Review

Indecision by HQDA on the placement of libraries adversely affected libraries in the field and caused needless confusion over the assignment of resources. A 10 December letter solicited information on organizational structure and recommendations for change, with a suspense of 30 June 1988. Commands were instructed to maintain status quo positions on placement of libraries, pending resolution of significant issues.

The issue of non-appropriated funding (NAF) support (using appropriated funds to reimburse NAF expenditures) was resolved with a HQDA decision that reimbursements were authorized even when technical libraries were placed under the DOIM, unless they were merged with other libraries (thus losing their identity). NAF employees, however, could not be used, whether on a reimbursed or on a non-reimbursed basis, in any part of a consolidated library that was not exclusively morale, welfare, and recreation (MWR).

Membership of the Community and Family Program Review Committee unanimously endorsed keeping MWR libraries under MWR management within the DPCA (installation directorates for personnel and community activities) arena, pursuant to the standard installation organization, rather than transferring them to ISC. This position was approved by the Chief of Staff, Army (CSA). General libraries at the MACOM and installation levels were to remain in the DCSPER/DPCA organization. AMC and TRADOC were directed to return general libraries to the DPCA in April 1988.

Large Scale Computers for CCSS

AMC and its commodity commands were the proponents for the automated Commodity Command Standard System (CCSS), a very large and highly integrated system that maintained accountability for the total spectrum of Army wholesale logistics systems.

AMC had IBM-43XX computers and other plug compatible machines (PCM) installed at the commodity commands and activities. Although this equipment was obsolete, every effort was made to upgrade it to the fullest to achieve maximum efficiency. It lacked sufficient computing power to support existing and ever-expanding requirements. Implementation of many AMC and DA initiatives critical to logistics support were dependent on significant upgrade of the AMC information processing systems.

Information was dispersed to functional organizations through hard copy printouts from batch processes and through a limited number of remote terminals. The central processing units could not support the required number of terminals within acceptable performance levels.

Plans were made to increase information processing power to permit a faster exchange of information among functional organizations. This increase in processing power was necessary to support interactive teleprocessing of current and planned information systems. Additional remote terminal access was necessary for the interchange of information required for the management of weapon systems. The plan provided for the installation of six large-scale computers to be used in support of CCSS at MSCs and the AMC Central Design Activity (CDA).

The first two large-scale computers were delivered to MICOM and Catalog Data Activity (CDA) by 1 September 1987. The remaining four were delivered to CECOM, TACOM, AMCCOM, and AVSCOM/TROSCOM complex in St. Louis in September 1988.

Central Systems Design Activities Study

HASC Report 100-410 directed a study of DOD Central Systems Design Activities (CSDA's) for cost effectiveness and the potential for consolidation. HQDA in turn tasked AMC and other MACOMs to study their respective CSDAs. AMC had eight activities that met the HAC criterion. Five--AMCCOM, CECOM, DESCOM, MICOM, TECOM--were MSCs; the others were Logistics Control Activity (LCA), in San Francisco; Logistics System Support Activity, Chambersburg, Pennsylvania, and Automated Logistics Management System Activity (ALMSA), in St. Louis.

AMC had these activities send in information which was then reviewed, analyzed, and submitted to HQDA, DISC4. The first in-progress review (IPR) was held on 11 March 1988, while the second, a general officer level IPR, was held on 8 April 1988, at which time a final report was presented.

AMC took the position that despite eight facilities meeting HASC criteria for central design activities, only ALMSA and LSSA met the criteria of a central design activity as defined by the DOD tasking letter, and that the others were actually data base activities. This position was accepted by HQDA, DISC4 and presented to DOD.

Systems Integration and Management Activity

Responding to OMB and Congressional guidance concerning potential cost avoidances in consolidation of information management systems development resources, a management study was performed on the functions and organizations of Central System Design Activity (CSDA) in St. Louis, Central System Design Activity, East (CSDA-E) and Logistic Programs Support Activity (LPSA), both at Letterkenny Army Depot near Chambersburg, Pennsylvania. As a result, General Wagner announced his decision in mid-October to restructure the three activities into a single organization of two major components, one in St. Louis and the other at Chambersburg. The new activity was named Systems Integration and Management Activity (SIMA) and headquartered at Chambersburg. The benefits of the change included the redirection of duplicate administrative positions into system development and/or operations and a command-wide reduction in system support costs attendant to greater application of software standards.

INF Treaty Support

The DCS participated in the headquarters working group that coordinated INF Treaty compliance, and, as part of that effort, assured communications support of critical phases of the on-site inspections

and the elimination of missiles. In particular, the DCS worked with AMCCOM and MICOM to ensure there was extra backup communications for the Longhorn Army Ammunition Plant during the burning and crushing of the first two missiles eliminated.

Migration to Ada Programming Language

During FY88, two approaches were being pursued in developing an Ada/SQL interface between the Ada programming language being developed for the military and SQL, or Structured Query Language. One was known as the View Processor while the other was known as Ada/SQL binding.

AMC personnel attended an Ada/SQL interface workshop at the Institute for Defense Analysis (IDA) to discuss the requirements for implementing Ada, establishing an Ada standardization committee, and problems of Ada/SQL binding. AMC representatives presented concerns over development of a comprehensive plan for implementing Ada. In particular, adoption of a standard methodology and software to allow the appropriate interface between Ada and SQL, development of Ada interfaces to the Customer Interface Control System (CICS) and to Data Management Routines (DMRs) and Cyclic Data Management Routine (CDMRs), and maintenance of standard systems that had more than 40 million lines of COBOL code were noted as concerns.

A meeting attended by several MSCs representatives was held at HQ AMC on 25-26 August 1988. AMC strategy for migrating to Ada was discussed. The attendees agreed to submit (and later submitted) individual details concerning such issues as scheduling, resources, and training for inclusion into the consolidated AMC Ada Implementation Plan. A request for funds was been placed in the Resource Action Committee budget. Mr. Tom Hendrick, Deputy to STARS PM, agreed to include some of the AMC Ada implementation funds in a requested Army-wide software engineering program.

Information Management Plan

AMC was responsible for developing and submitting an Information Management Plan (IMP) to HQDA. Eighty-five AMC initiatives were consolidated into seven that were validated by HQDA. This was the first year that the IMP was submitted in two parts--new initiatives on 1 July, and financial, life cycle, and priority data on 15 December. HQ AMC submitted 11 new or consolidated initiatives that were validated. The second half of the IMP will be submitted by 15 December 1988.

All USAISC IMP initiatives are submitted through 7th Signal Command to USAISC, Fort Huachuca, Arizona to HQDA. The submission dates to 7th Signal Command were 23 May and 30 November 1988.

Automation Capacity Management Program

Limited funding and fewer personnel made it imperative to manage automation resources more effectively and efficiently. Accordingly, AMC sought management controls to identify problems of capacity saturation of the automation systems before they become critical and used capacity management tools to forecast new requirements. Compliance with provisions in the Paper Reduction Act of 1986, the Brooks Bill, and Federal Information Resource Management Regulations required AMC to adopt its Automation Capacity Management Program.

AMC's program aimed at ensuring efficient use of existing information technology, identifying the automation capacity needed to support new functional user requirements, deciding when automation upgrades were required, and permitting AMC to better prepare and defend its budget for automation resources.

Computer capacity management data will be collected automatically from MSC and subordinate installation computer systems. Each MSC will analyze data and effect changes to improve performance, predict future capacity requirements, and recommend acquisition of additional capacity when justified. The MSCs will also regularly submit summary reports to this headquarters to assist in evaluating requests for automation upgrades and to set priorities and substantiate budgetary requirements.

An important initiative of the program was the charging system that had been directed by the Under Secretary of the Army for Information Technology Facilities. It provided information technology service to more than one user, operated one or more general management computers, and had an operational cost in excess of $3 million per year.

The basic capacity management software was installed at six of nine MSCs, with the prototyping being done at AVSCOM.

Message Volume Discipline

In June 1986, as a result of studies conducted by the Joint Chiefs of Staff (JCS) and the military departments of message traffic management and communication discipline, two major problems were surfaced.[15] These were the growing volume of messages processed by the message centers and the inordinate number of copies distributed throughout organizations. It was determined that message volume growth was the largest impediment to providing quick, effective service. The problems were seen as particularly acute during periods of crises and exercises. The CSA determined this was a human discipline problem that could and must be resolved through command emphasis.

The Vice Chief of staff, Army (VCSA) directed an Army-wide reduction in AUTODIN message traffic of 30 percent in October 1986. By March 1988 AMC had reduced monthly traffic by approximately 45 percent, or approximately 20,000 messages per month, compared to AMC's baseline of 62,000. Because the 30 percent goal was achieved, the VCSA rescinded the requirement of monthly reporting. The means for monitoring narrative message traffic remained in place for future use, however. USAISC-AMC DOIMs ensured that message reduction was made a part of their Information Systems Control Board (ISCB) and continued the emphasis placed on maintaining the reduced level of message traffic. The installation's DOIMs were responsible for monitoring this program.

Direct Access Storage Device

The award of a competitive CECOM/AMC-wide 3380 direct access storage device (DASD) buy was made on September 29, 1988, to Storage Technology Corporation. At a unit cost of $195,500 per 20 gigabyte dual density string (one "A" and three "B" boxes) the contract had options available for up to 25 strings over a five-year period. Eleven strings were purchased in FY88 with one string each going to the AVSCOM, CECOM, LPSA, MICOM, and TACOM AMPMOD sites, using FY88 OPA funds, and three strings each going to the AVSCOM and CECOM CCSS sites, using FY86 OPA funds. Included with each string was a 48 megabyte cache controller.

There was a savings of approximately $1 million over the estimated cost of acquiring 11 strings of DASD. The savings permitted the acquisition of five copies of the selected command standard Model 204 DBMS software.

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[15] See HQ, AMC FY87 Annual Historical Review, p. 84.

The Modern Army Recordkeeping System

The new Army files management and recordkeeping system, implemented in January 1987, was still in a state of flux. Through usage, it was discovered that there were many omissions in the original document (AR 25-400-2). Further, the National Archives and Records Administration (NARA) had decreed that records being retired to a Federal Records Center would use the General Records Schedule number, rather than an Agency's designated number. These developments necessitated more changes in the regulation and would impact on any electronic recordkeeping system.

Duplicate Emergency Files

The implementation of the Digital Storage and Retrieval Engineering Data System (DSREDS) was changing the method of storing Technical Data Packages (TDP). Rather than storing them at the Master Duplicate Emergency Files Depository (MDEFD), special repositories were to be designated for the storage of these disks.

Prototype of a Paperless Office in HQ AMC

A prototype paperless office in HQ AMC was one of nine initiatives submitted by the DCS for the Commander's Perspective. The intent of the initiative was to establish an environment that increases reliance upon automation and administrative technologies and decreases utilization of paper. The Public Affairs Officer volunteered his office to be the model paperless office. An ad hoc task force was established with representatives from the five IMA disciplines. Two surveys were conducted: one on the administrative work flow and automation capabilities and needs, the other on records maintenance, storage and disposition. A report was prepared noting the deficiencies in work flow and record storage and retrieval procedures. Recommendations included an increase in automation hardware and software and the utilization of an optical disk technology to store records/documents.

Image Systems (Micrographics)

The U.S. Army Image Systems Support Directorate (ISSD) of the Information Systems Engineering Command (ISEC) was the Army-wide PM for Standard Computer Output Microfilm (STACOM). STACOM systems supported Army Standard Information Management System (ASIMS). ISSD awarded a requirements contract in September 1988.

On 1 December 1987, AMC had identified requirements for 17 computer output micrographic (COM) systems, seven of which need to be replaced immediately because of age and poor condition, and requested funding support from ISSD. The command was advised that funding for acquisition of STACOM systems was not available at that time, but the requirements had been included in ISSD's outyear budget. Because of fiscal constraints, it appeared unlikely that these outyear funding requests would be supported. However, ISSD would continued to pursue funding for non-ASIMS requirements, such as AMC's, but it was recommended the command should continue to pursue funding for its requirements. Attempts to obtain funding support from USAISC were not successful.

Integrated Procurement System

AMC MSCs were responsible for the procurement of supplies and services at the wholesale level for distribution worldwide to support Army soldiers and their weapon systems. The environment mandated the development of better processes and controls for acquisition to increase MSC

productivity overall and to speed the implementation of a multitude of legislative changes that typically create additional layers of review prior to award of a contract.

The purpose of the Integrated Procurement System (IPS) was to improve the efficiency of Army procurement at the wholesale level by automating the process, thus reducing administrative lead time and procurement backlog. To be developed and implemented in phases, the use of electronic interfaces and common databases will reduce the need for paper copies of files produced as a result of existing manual and partially automated systems. HQDA MAISRC approved Milestone I on 27 March 1987. OSD MAISRC approved Milestone I on 10 June 1988.

Army Materiel Plan Modernization

The Army Materiel Plan Modernization (AMP MOD) consisted of interactive database management-based applications supporting major item logistic and acquisition management, program planning, and budget execution for major item acquisition, and major item planning. A significant event in FY87 was the inclusion of the Acquisition Information Management (AIM) system classified electronic mail data support on the AMP MOD equipment. Two software updates to the system were released during FY88 as planned. It was further planned that leased communications lines supporting AMP MOD would be eliminated in FY90 when the system is to transition to the Defense Integrated Secure Network (DISNET).

Computer-Aided Acquisition and Logistics Support

The Computer-Aided Acquisition and Logistics Support (CALS) Program was an OSD directed program to replace the paper intensive approach in the design, manufacturing, and support of weapon systems to a highly automated, integrated mode. The thrust of Army CALS was to provide computer systems and communication capabilities to network installations/systems/ databases associated with the development and support of Army weapon systems. CALS was being structured to build on and tie together "islands of automation" that will allow users at all levels timely access to accurate logistics technical information.

A Project Management Office (PMO) was established at Fort Monmouth, New Jersey to accomplish the CALS mission and functions. A CALS Functional Coordinating Group (FCG) had provided guidance during the initiation of the project.

The Army CALS program is four phased: (1) two to four contractors will develop alternative approaches for an Army-wide CALS architecture; (2) two contractors are tapped to provide a limited technical demonstration; (3) a single contractor is given the task of implementing a Basic Capability Module (BCM) at five Army installations; and (4) the contractor will extend the BCM to 51 additional Army sites.

The Army MAISRC milestone 0 approval was received 16 October 1987 and OSD MAISRC milestone 0 approval was obtained 11 May 1988. The established funding profile FY88-94 was fully funded at $206.9 million funded. OSD on 5 August 1988 required weapon system PMs to include CALS standards in all systems entering development after September 1988.

Computer Literacy Program

Computer Literacy, a training initiative begun in 1985 to hasten the acceptability and viability of personal computing within the AMC work force, was devised as an introductory training for persons

with no prior computer experience. It was expected that additional courses would be developed in the coming years to support the needs of the PC users within AMC.

The DCS provided $125,000 to the Army Logistics Management College (ALMC) at Fort Lee, Virginia for the procurement of hardware/software for the Computer Literacy course. The Computer Literacy course has become extremely successful, and enthusiasm in each class was consistently high. Surveys indicated a continuing need for such training, and registration for the course exceeded requirements. To date, more than 2,000 AMC and DOD students had received their introduction to microcomputing through this course. It was expected that the demand would continue into the next decade.

The Computer Literacy course was the initial phase of a three-phase microcomputing program. Phase two bridged the gap between basic computer literacy and advanced operational computing. This step was performance-oriented and emphasized a range of PC computing skills that served as a foundation for more effective job performance. It focused on intermediate PC computing skills that supported a wide array of information management and analytical tasks. Students explored the productivity and analytical power of off-the-shelf PC hardware and applications software. The DCS provided an additional $38,000 in 1988 for hardware/software in support of phase two training. A third phase that would address higher order computing methods that support strategic problem solving and decision support systems was planned. The target date for its installation at ALMC was mid-November 1988.

Data Administration Structure

The Data Administration Structure was an AMC initiative to provide a standard structure for the data administration function. It outlined the responsibilities for the Data Administrator, Data Base Administrator (DBA), and Data Base Manager (DBM). *The Army Data Management Program,* AR 25-9, was used as a basis for the development of the structure.

The AMC Data Administration Study Group reconvened in March 1988. The goal of the group was to develop four products--a data administration policy, narrative definitions for DBA and DBM positions, a responsibility matrix, and a management structure diagram. The group modified the revised draft Data Administration Structure concept diagram and began development of the responsibility matrix during a workshop at HQ AMC, 19-20 October 1988. The draft products, structure diagram, and responsibility matrix were to be staffed with AMC DOIMs in preparation for discussion at the board of directors meeting 15-17 November 1988.

Extended Data Base

ISEC awarded the mini/micro common DBMS contract to ADR on 30 September 1987, for a product called Extended Data Base (XDB). XDB was developed by a company called Software Systems Technology, Inc. (SST). ADR purchased the rights from SST to market XDB to the Army. Acquisition approval for XDB was granted 3 February 1987. The RFP was released 16 April 1987. The cost of the product is $15.5 million over the life of the contract, which is 10 years. After 10,000 copies ($6.7 million) are purchased, the Army will own the product. XDB was benchmarked on the SAMS system.

XDB is a Structured Query Language (SQL) relational DBMS that uses SQL to access the data base. It is a menu driven 4GL application tool that supports forms design, SQL queries and graphics development. XDB has a report writer and a built-in data dictionary. It runs in the MS-DOS (IBM

and plug compatible machines), UNIX (Sperry 5000/89), and XENIX (Intel 310), operating system (OS) environments. The XENIX version is not yet available.

XDB/COBOL and XDB/C were optional components on the XDB contract. XDB/COBOL and XDB/C were required to run COBOL and C programs that contain embedded SQL. There was a basic COBOL and C "call level" interface included in the MS-DOS and UNIX versions of XDB. This meant that existing COBOL and C programs did not contain embedded SQL statements that could be processed by the XDB data base. These interfaces supported the MICRO compiler on the Zenith contract and the PHYLON compiler on the Sperry contract.

The Advanced Technology Branch of the DCS was responsible for coordinating the acquisition of XDB for all of AMC. Funding for XDB was the responsibility of the requesting user site. After several months of acceptance testing, XDB was officially accepted by the Army on 2 September 1988. ADR was purchased by Computer Associates (CA) on 9 September 1988. After much discussion with ADR and CA representatives, there were no anticipated modifications to the existing Army acquisition of XDB.

Fast, Accurate, Simple, Tempest (FAST) Terminal

The FAST terminal was a word processor and a telecommunications system that provided the user on-site capability to send and receive narrative and data message traffic, worldwide, via the Automatic Digital Network (AUTODIN). It satisfied communication requirements as a low volume, indirect Mode I terminal, capable of handling secure message traffic. Replacement of obsolete, low volume telecommunications center equipment with FAST terminals began in 1984 by HQ USAISC. Successful prototype testing was completed at Indiana Army Ammunition Plant in FY85. Installations of FAST terminals were completed at Jefferson Proving Ground, Pine Bluff Army Depot, and Savanna Army Depot in FY87, while in FY88 installations were made at Holston Army Ammunition Plant and Iowa Ammunition Plant.

Video Enhanced User System (VENUS) Network

The VENUS teleconferencing network became operational within the AMC on 1 April 1986. The utilization of VENUS became an integral part of the way AMC did business. Plans were underway to expand the VENUS network to White Sands Missile Range (WSMR) in New Mexico, Picatinny Arsenal in Dover, New Jersey and the Belvoir Research, Development and Engineering Center (BRDEC) at Fort Belvoir, Virginia.

On 27 September 1988, the Defense Communications Agency (DCA) contracting office signed a contract with AT&T for the turn-key construction of the video facilities at Picatinny and BRDEC. The studios were to be modeled after the original AMC VENUS rooms with a new AT&T software-defined room controller. Initial room construction was scheduled for 20 October 1988.

HQ AMC and DCA were jointly involved in an on-going project for a VTC gateway in the Defense Communications Telephone Network (DCTN) to allow Defense contractor access into the VENUS network. This gateway would permit Defense contractors with compatible video teleconferencing (VTC) studios to confer with the VENUS studios in a point-to-point configuration. MICOM and AVSCOM were given the lead in this project.

The dollar savings derived from the establishment of VENUS was significant. This trend in reduced TDY costs will continue as the network is expanded. The use of circuits in off hours was expected to provide a needed service at minimal cost by capturing unused resources.

CONUS Telephone Modernization Program (CTMP) Edgewood

The CTMP program will upgrade archaic telephone switching equipment to more efficient digital switching equipment at locations in the United States. The CTMP contract that included an award to Edgewood Arsenal was complemented by a program to rehabilitate performance-limiting outdoor cable--the Outside Cable Rehabilitation (OSCAR) program. Pre-construction matters were discussed during a Project Status Review (PSR) meeting on 21 September 1988.

Automation Resources and Planning Management Information System

All Federal agencies are required to establish and maintain inventories of Automatic Data Processing Equipment (ADPE) assets and software. In order to accomplish this, an Automation Resources and Planning Management Information System (ARPMIS) was devised to accumulate data on Army information systems. The system became operational in FY88.

The ARPMIS was accepted officially by the Government on 6 February 1987, replacing ADPMIS and DARTS effective 31 October 1987 and officially operational throughout the AMC/ISC-AMC community on 1 November 1987. Responsibility for the program has transferred from Resources Division to the Operations Division, effective 22 March 1988. Data collected was evaluated at the Information Processing Facility (IPF).

Reports Control Program

The Information Management Control Officer (IMCO) managed, reviewed, and analyzed all management information requirements (MIRs) and ADP products under the authority of AR 335-15, *Management Information Control System.* The system was an assemblage of resources and procedures organized to collect, process, and issue data. It was designed with several purposes in mind. It aimed at keeping reporting burdens to a minimum by ensuring that only mission essential management data was requested, that directives requiring management data were clear, complete, and succinct, that they complied with standard forms, terms, data elements, and source records, and that simple, orderly, and flexible procedures and systems were provided such that they could quickly respond to mobilization.

Functions of the IMCO included issuance of policy and guidance to all elements of USAISC-AMC, HQ AMC, and their subordinate activities; reviewing of all Requirements Control Symbols (RCSs) and Product Control Numbers (PCNs) for cost effectiveness, essentiality, and duplication of effort; providing such data to report initiators for their review and evaluation; assigning RCSs to approved recurring MIRs; maintaining a database for all RCSs, PCNs, and AMC-P 335-1 (*Reports Attributes File - Management Information System*) at least yearly. By regulation, all MSCs and separate reporting activities (SRAs) designated an IMCO that performed these functions.

The IMCO function transferred from the DCS for Resource Management to the DCS for Information Management in 1986. In 1987 the function and its incumbents were transferred in place from AMC to ISC.

ISC-AMC Telephone and Telecommunications Center Facilities

During FY88, staffing of telephone and telecommunication center (TCC) facilities became extremely difficult because of severe fund limitations. The hiring freeze, the "early out" authorization,

and little or no overtime funds directly affected many of the facilities that provided crucial communications services to installation personnel.

Personnel hazardous conditions (HAZCON), defined as staffing below 75 percent of the allocated authorization, occurred at 15 ISC-AMC locations. In order to function, measures were taken to reduce hours of station operation and hours for high speed, secure, facsimile transmission. Also, personnel were cross-trained at the secret rather than the top secret level, assistance was obtained through TDY tours of military and civilian personnel from other locations, and waivers from the hiring freeze were sought and obtained. With these measures the telephone and telecommunications facilities at all locations were able to remain operational throughout the entire fiscal year.

CONUS High Frequency (HF) Radio Upgrade Program

HQDA directed ISC to develop a plan to upgrade CONUS HF capabilities as a result of a major shortfall identified during a mobilization exercise in 1985. HQ 7th Signal Command developed the plan in June 1987 and obtained approved in December 1987. Fielding of the systems was initiated in September 1988 at 284 locations. Twenty-six of the locations identified were AMC locations. Delivery and installation of 100 of the HF systems was made in 1988, with the remainder scheduled in 1989. Responsibility for operation and maintenance of the systems rested with the activity where they were installed. Systems were procured by contract with the Harris RF Communications Group established by HQ 7th Signal Command.

Exercises and Mobilization

The DCS participated in Exercise Proud Scout in October and November 1987, providing support to AMC players and coordinating with players on Exercise Capability (EXCAP) data. While the play was going on, direction from the Command Group level caused an unplanned major disruption at an MSC. The play of this disruption pointed out some weaknesses in AMC Continuity of Operations Plans (COOP).

Congressional Liaison

Mission and Organization

The mission of the Congressional Affairs Liaison Office was to "serve as the principal advisor to the Commanding General on AMC matters of concern to members of Congress, and congressional staffs and committees."[16] In the accomplishment of this mission, the office maintained liaison and coordinated with DOD congressional affairs representatives, participated in congressional committee hearings, recommended programs and actions, coordinated responses to White House and congressional inquiries, and provided information to the entire Command. The office was authorized six civilians at the beginning of the fiscal year and Mr. Charles R. Smith served as the Special Assistant for Congressional Affairs.[17]

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[16] AMC-R 10-2, *Organization and Functions,* pp. 7-3, 7-4.

[17] All material in this section is taken from the FY88 AHR submission of the Congressional Liaison Office unless otherwise stated.

In August 1988, the Commanding General and Chief of Staff, AMC, decided to reorganize and appoint a colonel as chief of the office. In September, LTC(P) James W. LaBounty was selected and released by MG Dominy, Chief, Legislative Liaison, HQDA, for assignment as Chief, Congressional Liaison Office, AMC. COL LaBounty reported for duty on 12 September.

The Special Assistant for Congressional Affairs was disestablished and a request was submitted to the Civilian Personnel Office to change this position to Congressional Affairs Program Specialist. Additionally, at the request of the Chief of Staff, the office would subsequently relinquish one GS-13, Congressional Affairs Program Specialist in October.[18]

A scheduled realignment as to eliminate the procedure of operating solely on a geographic basis, with each action officer becoming involved in the same across-the-board issues, depending on the involvement of specific Congressmen. Operating on functional lines would permit the following areas of planned emphasis: (1) research, development, testing and evaluation, laboratories, and commercial activities; (2) acquisition (less ammunition) and procurement contract issues, and military construction; (3) industrial base/materiel readiness (depots, ammo plants, arsenals and ammunition procurement), and (4) personnel issues, chemical and demilitarization, and testing.

Senate Armed Services Committee

The Senate Armed Services Committee (SASC), Subcommittee on Readiness, Sustainability and Support on 17 February 1988 invited General Wagner and the other senior logistics commanders to testify on the FY89 Defense Authorization Request. Testifying on 25 March, General Wagner expressed Army's concern about the effect of funding shortfalls in FY88/89 on its ability to satisfy continuing maintenance and support needs. He stressed the importance of depot maintenance in sustaining the Army in peace and war, adding that the key to an effective depot maintenance program is stability.

The AMC Commander noted that congressional assistance was essential to assure that guidance was consistent. Marginal funding would inhibit the Army's ability to support the engineering changes necessary for long term reliability and maintainability improvements. Training of soldiers on new fielded equipment and assuring that they have the technical documentation and assistance needed for operations and maintenance was also threatened.

General Wagner identified funding of central supply activities, which included transportation, as being the most critical issue in sustaining readiness and support to the field. The FY88 situation was bad and would worsen in FY89 when real purchasing power would be down 22 percent from the FY87 level for the Army and 28 percent for AMC. Such levels would require continued work force impacts even more drastic than actions taken in FY88, he said, suggesting a real potential for a reduction-in-force in FY89. The summary presented to the committee predicted that the Army could not continue to operate effectively under those adverse conditions.

In his short statement before the Committee, General Wagner gave AMC's perspective on where the logistic support of the Army was going:

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[18] Msg, 201845Z Sep 88, AMC to AIG, subj: Disestablishment of the Special Assistant for Congressional Affairs, AMC; SF 52-B, Request for Personnel Actions, 31 Oct 88; Memo, COL LaBounty for Commandant, 31 Oct 88, subj: HQ AMC Civilian Manpower Reduction; Memo, MG Harrison for Chief, Congressional Liaison Office, 26 Oct 88, subj: HQ AMC Civilian Manpower Reduction.

* AMC with its 115,000 personnel in 350 different locations was making real accomplishments, as with the fielding of the M1A1 tank.

* Strides were made in increased contract competition in acquisition with 81 percent of AMC's total contracts under the competitive system.

* Problems in the spare parts area were being worked with industry to get their ideas and innovative techniques to assist in this effort.

* Funding of Central Supply (P7S) was critical to everything that AMC accomplished, paying 41,000 of AMC's 106,000 civilians, including those who received, stored, issued and inventoried equipment as well as those who wrote and negotiated contract. Transportation to move supplies, as well as ammunition demil and industrial preparedness of laid-a-way facilities were part of this program. When dollars for industrial preparedness are not available, personnel must be released, and if that had occurred, the plants would not have been ready to open in case of war. To meet the situation that confronted the command, AMC laid off most temporary employees, reduced overtime to the bare minimum and implemented an early retirement program.

* The shortfalls impacted almost every facet of AMC operations and the ability to satisfy the soldier's maintenance and support. For example, depot maintenance backlog was funded in FY88 at only 63 percent of the end items needed to be overhauled. That included tanks, aircraft and other major items. Airplanes that needed overhaul were still flying. Obtaining spare parts was a problem that would continue into FY89 since AMC was scheduled to be funded at 71 percent of the FY89 request.

Counterfeit Bolt Hearing

On 9 May, the House Energy and Commerce Subcommittee on Oversight and Investigations held a hearing on mismarked, substandard and counterfeit fasteners. Chairman John D. Dingel (D-MI) indicated concern that readiness of the Army was being affected by defective bolts and the failure of the Army to advise field units of the problem. He cited reports that M-60s could not travel at design speeds due to defective bolts and that two waivers had been granted for M-1s. His comments were echoed by Representatives Ron Wyden (D-OR) and Michael G. Oxley (R-OH). The Oregon representative charged that the Defense Industrial Supply Center (DISC) actions to address the problem at the source did not meet the problem of bolts already fielded.[19]

A panel of committee staff members who related results of their on-site investigations of equipment at Army posts, was followed by a panel that included representatives of AMC, DLA and the Defense Industrial Supply Center (DISC). These included LTG Bunyard, LTG Vincent Russo (DLA), MG William S. Flynn (CG TACOM), BG William B. McGrath (CG, DESCOM), BG Leo J. Pigaty (DISC), Mr. Seymour Lorber (HQ AMC), and Mr. Lowell Barnett (TACOM).

The first panel described in greater detail visits to 7th and 4th Infantry Divisions where vehicles contained bolts from foreign producers known to have provided substandard bolts, as well as bolts below grade 8.0, as required. They also found that maintenance inventories from unit to general support (GS) level were contaminated with bolts of various grades, bolts without manufacturer's marks,

[19] For further information, see James D. Nicolo, "DISC Tightens the Screws on Fastener Fraud," *Army Logistician* (Sep-Oct 1988: pp. 10-12; "Solving the Bolt Problem," *Army Logistician* (Sep-Oct 1988): p. 13.

or bolts from manufacturers known to have supplied substandard bolts in the past. The Quality Deficiency Report (QDR) system was also perceived as being of limited value, due to reluctance to complete required paperwork or discouragement with the nonresponsiveness of the system.

At Fort Ord, California, they found that 75 percent of HMMWVs had been affected by loose ball joints. Other problem areas were the alternator bracket and starter motor. On one vehicle, they found a 5.0 bolt that had been installed by AM General. In 34 bolt bins, they found mixed or suspect bolts in all but one of the bins. At Fort Carson, Colorado, they were told that no messages had been received concerning potential bolt problems. Conditions similar to Fort Ord were discovered. The staffers found problems on a variety of tracked vehicles. They expressed the opinion that the torque problem (loose bolts) may be caused by zinc plating rather than cadmium, as required. The staffers said that the impending hearing had started a flurry of activity, but that the field had still not been told to replace its stocks. In contrast, the Navy had tested bolts and purged the inventory.

The second panel submitted a joint statement by LTG Bunyard and LTG Russo, with each giving introductory remarks describing actions taken or proposed by Army and the Defense Logistics Agency (DLA). The DLA inventory had been purged of 30 million suspect bolts; 11 firms had been disbarred, with 16 more under consideration, and certificates of compliance were being required for each shipment. The Army queried all Logistic Assistance Representatives (LARs) and detected no trend of increasing incidence of failures. All MSCs were notified of the problem, and clearing of the wholesale stocks got underway. Although field level units had not been advised of potential problems, an action plan was developed to balance readiness and safety considerations with good business decisions. Tests of 8.2 grade bolts for tensile strength indicated acceptability for the application in which they are used. The panel assured the committee that the field would be educated as to bolt grade differences and bolts would be separated according to their grades. Suspect logos would be used only when necessary to maintain readiness.

Hearing on Bell Helicopter

On 10 June 1988, the House Subcommittee on Oversights and Investigations, Committee on Energy and Commerce, notified HQDA that it would hold hearings on various activities of the Army Plant Representative Office (ARPRO) at the Bell Helicopter Plant. The subcommittee stated it would focus on the following area: the role of the Army Aviation System Command (AVSCOM) and ARPRO in monitoring and overseeing Bell Helicopter; the results of the Army's investigation into both Bell's activities in the matter; and the basis for the Army's monetary settlement with Textron.

Three separate panels testified 13 July 1988. The first panel was the Subcommittee's investigators; the second consisted of Defense Contract Audit Agency (DCAA) personnel, and the third panel was from the Department of Justice (DOJ).

Chairman Dingell described the DOD procurement system organization as operating incorrectly. This was evidenced by current DOJ investigations (which included at that time, Ill Wind). The panel expressed belief that military officers should be taken out of the acquisition process, suggesting that their military mission and good business practices were in conflict.

Bell intentionally created chaos with cost accounting and inventory control, causing the government to pay inflated costs and repurchase government-owned parts at several times the original cost, the panel recounted. And, although DCAA repeatedly warned the Army, nothing was done to stop the abuses. Priority was given to obligations. The ARPRO Commander quit the Army and went to work for Bell as Manager of Military Business Development. U.S. Attorneys found key Army

officials were fully aware of the fraud, but allowed it to continue, approving Bell's impedence of criminal prosecution by destruction of key documents.

Committee investigators said that DCAA began issuing audit reports in 1975, but by 1980 ARPRO was effectively ignoring audit recommendations while the Army continued to award contracts to Bell. Parts and costs were moved and recosted among contracts, resulting in millions of dollars in overcharges; lost parts from transfers were later found and recosted to the government. Bell never did account for residual inventory, which was government property. During this period, DCAA issued about 100 reports. All Army officials interviewed by the staff investigators supported the contention that pressure from superiors to obligate funds took precedence, however. On 11 March 1988, Bell settled with the government in the amount of $86 million.

The DCAA panel described the movement of parts costs between contracts and an informal system known as "floating inventory." Costs of a part changed as it moved around. Parts were charged to an overhead account, shared 50 percent by government, but were transferred to commercial accounts at no cost. Unpriced orders were negotiated at estimated cost, even though actual cost was known. Eventually conditions were reported to Defense Investigative Service (DIS) and Criminal Investigation personnel in 1984. Some 54 reports were issued identifying $50 million in overpricings, and four reports identified $100 million in overcharges.

The third panel, describing the criminal investigation that had occurred, stated that prior to the investigation the Army allowed Bell to destroy certain records. Cost problems associated with these records was the primary reason for criminal investigation, and their destruction rendered prosecution impossible. The Army also permitted Bell to bill on estimated prices, resulting in overbilling and rendering impossible any assertion of criminal false claims. Army did not require Bell to close out contracts properly, thereby avoiding accounting reconciliation, use of residual parts and changing costs on contracts years after final delivery. Much of the activity was not disclosed since it was revealed to U.S. attorney by use of the Federal Grand Jury.

When the hearing resumed on 14 July, the committee investigators were back for further testimony. Describing a too-cozy relationship between the Army and Bell, they estimated that over a decade Bell had cheated taxpayers of several hundred million dollars, while Army stood idly by, despite DCAA warnings. In 1985, DOJ initiated a grand jury investigation. Bell refused to cooperate. Employees were coerced into taking Fifth Amendment for fear of losing their jobs, the investigators asserted. The Army was paralyzed to react, given its cover-up attempts and its past failure to discipline its personnel.

Since receiving correspondence from the U.S. Attorney General in March 1985, no one in Army had discussed the matter with DOJ. When the new ARPRO Commander was interviewed, he was totally ignorant of events at Bell. In a prepared statement, Dr. Jay R. Sculley, Assistant Secretary of the Army for RD&A (SARDA) described an on-going management review being conducted by AMC.

Irregularities in Procurement at Redstone Arsenal

Congressman Jack Brooks, Chairman of the Committee on Government Relations, opened a series of hearings on procurement irregularities, fraud and abuse with a session that looked at practices at Redstone Arsenal. The Government Accounting Office had conducted two investigations involving MICOM procurement practices. The first concerned contracts awarded to small businesses at Redstone Arsenal, Alabama. The second investigation, which was coordinated with the Criminal Investigation Command, focused on a five-year contract for base support activities including maintenance, food service, and equipment repairs.

As related by GAO's Director for Special Investigations, Mr. David D. Williams, the first investigation revealed a system in practice that permitted the technical expert who prepared contract specifications to also evaluate bidders. One of the findings concerned MICOM's time-and-material contracts wherein 45 percent of the actions reviewed suggested that bid proposals were within one percent of the Government's cost estimate or that contractors themselves prepared the Government's cost estimates. Either practice would compromise the Government's ability to ensure a fair and reasonable price, the GAO found. After the discovery of these problems, the Commander of MICOM issued a regulation prohibiting the same employees from preparing contract specifications and then evaluating bids for them and requiring Government employees who prepared Government estimates to certify that the preparation was done independently.

The pattern of abuse by contractor and subcontractors that was uncovered in the second investigation included substantial falsification of labor hours on time sheets, giving building supplies to contract and Government employees in order to support falsified labor charges, excessive costs for vehicle maintenance, wages charged for no-show employees, and inflated labor costs.

Mr. Williams also outlined results of an investigation into procurement practices at the Strategic Defense Command (SDC) involving apparent favoritism in awarding of two contracts. Essentially ignoring the testimony regarding MICOM shortcomings, during questioning the Committee pursued why the Commander at SDC was not criminally charged. Numerous questions concerning SDC consumed the rest of the hearing.[20]

Congressional Legislation of Interest to AMC

Consultant Registration. A front burner issue during the "Ill Wind" Pentagon procurement scandal hearings, consultant registration was thought by many to be necessary due to conflicts of interest generated by dual or foreign clients. The DOD position was that it created an administrative burden and might delay needed expertise to the Services. Congress decided against any legislation at this time.

Base Closure and Realignment Act. Senate Bill 2749 was passed by Congress and signed by the President. General provisions of the legislation were: a commission consisting of 12 members appointed by the Secretary of Defense (SECDEF) would submit recommendations to him by 31 December 1988 on base closures and realignments. The Defense Secretary will have to accept or reject the list in its entirety. Congress must then accept or reject the entire list, and their decision will be subject to Presidential veto. Congress tasked itself to approve or disapprove, by joint resolution, all the recommendations within 45 days after 1 March 1989. If approved, all closures and realignments would begin not later than 30 September 1991 and be completed by 30 September 1995.

The Army provided the commission with information on size of bases, their location, size of the civilian work force, and environmental impact statements on base closing. The Army did not make any recommendations.

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[20] *Washington Times,* 14 Jul 88; *Huntsville News,* 14 Jul 88.

There was considerable Congressional interest on the issue. The most aggressive in his quest for information was Rep. Hansen (R-UT), who sent each AMC depot commander a letter asking to have some very specific questions answered.[21]

Post-Employment Restrictions Act. House of Representatives Bill 5043, scheduled for passage in October, essentially proposed tightening of current laws. It would take effect nine months after being signed by the President. General provisions of the proposed legislation applied to lobbying, aiding and/or advising were:

All federal workers would be barred for life from lobbying on all matters in which they were "personally and substantially involved." A two-year bar would apply if the matters were their "official responsibility."

Cabinet members, Under Secretaries and general and lieutenant generals would be prohibited from contact with former agency for one year.

Personnel in grade GS-17 and with the rank of brigadier general and above would similarly prohibited if the Office of Government Ethics determined they had significant decision making positions.

All GS-17's and above would be prohibited from lobbying for a foreign government and any federal agency.

Ex-members of Congress could not lobby any member or staff member for one year.

Violations of any above would include a penalty of $250,000 and/or two years in prison.

Minority Small Business Reform Act. House of Representatives Bill 1807 was designed to cure the ills of the Wedtech case. Enacted as PL 100-656 in November 1988 it required:

Firms to compete for all manufacturing contracts worth more than $5 million and all other contracts worth more than $3 million.

Firms could participate for a maximum of nine years.

The responsible SBA official for Section 8(a) minority set-aside programs was to be a career civil servant, not a political appointee.

The maximum penalty for "front companies" was raised to $500,000 and ten years in jail.

Whistleblower Protection Act. Senate Bill 508 was expected to be vetoed by the President. It would have made the Office of Special Council an independent agency with the responsibility of protecting whistleblowers from harassment. Previously, it was part of the Merit System Protection Board. It would also have required federal agencies to show "clear and convincing" evidence that personnel changes would have taken place in the absence of whistleblowing.[22]

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[21] Ltr, Congressman Hanson to Commander, Sierra Army Depot, 12 Oct 88; Ltr, Chief, Congressional Liaison Office to Hon Hanson, 25 Oct 88.

[22] This bill was passed on 14 Oct 88, but vetoed by President Ronald Reagan on 26 Oct 88.

Federal Leave Sharing. Another bill in the House, which was expected to pass, was H.R 3757, Federal Leave Sharing. It would give employees access to colleagues' unused leave in the event of prolonged absences due to medical emergencies.[23]

Systems Integration and Management Activity

HQ AMC approved the establishment of the Systems Integration and Management Activity (SIMA) on 17 October 1988, with its headquarters at Letterkenny Army Depot, Chambersburg, Pennsylvania. This action realigned three separate organizations under single management. They were the Central Systems Design Activity, St. Louis; Central Systems Design Activity, East, at Chambersburg; and Logistics Program Support Activity, also located at Chambersburg.

There was considerable congressional interest generated by this realignment due to the decision to move the headquarters from St. Louis (with the Director's space) to Chambersburg. There were numerous inquiries from the Missouri and Illinois delegations seeking to keep this headquarters in St. Louis.[24]

Commercial Activities Hearing

A hearing on commercial activities (CA) was held by the HASC Subcommitte on Investigations on 4 October to review the apparent conflict between the Executive Order (EO), which prescribed a goal of 3 percent per year for CA studies, and the Nichols Amendment, which permitted an installation commander to decide what functions would be studied. DOD's policy was to eliminate CA studies which involved fewer than 10 personnel.

Mr. Richard Stone, Deputy Assistant Secretary of Defense (Installations), briefed his prepared statement by emphasizing that DOD was obeying the Nichols Amendment. The EO was promulgated before the effective date of the Amendment and it was designed to take advantage of the efficiencies of competition/cost comparisons. The EO goals were higher than any previous efforts and the projection for FY88 was 14,000 positions. The initial submissions for FY90-91 by installation commanders included 54,000 positions which required review since many, security guards, for example, violated the law. Exemption for 10 or fewer positions was an efficiency effort asked for by model installation commanders.[25]

Red River Army Depot/AOD MOD Project

In July 1988 the Texarkana, Texas, Chamber of Commerce alerted members of the Texas Delegation that the DOD had prepared a "hit list" that included the Area Oriented Depot Modernization (AOD) Program located at Red River Army Depot. This was followed by articles in the press and considerable interest from Congressman Jim Chapmand and the two Texas Senators.

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[23] This legislation was passed on 12 Oct 88.

[24] Memo, DCS for Management and Productivity for Chief Staff, 11 Oct 88, subj: Decision Memo - CSDA, CSDA-East and LPSA Restructuring; Statement, Information for Members of Congress, 17 Oct 88, subj: Establishment of the SIMA.

[25] Memo, Special Assistant for Congressional Affairs for Ms Acton, 8 March 88, subj: Privitization Push.

OSD had requested the Army to prepare a decrement package which would amount to $2.9 billion. One of the items on the Army's list was to unfund the Red River AOD/MOD Project. The DCSLOG, DCSOPS and AMC disagreed with RRAD's inclusion in the package. A letter outlining AMC's position on the AOD's was sent to DA on 12 October 1988.

Interested Members of Congress were briefed on this subject. They understood the issues and indicated strong support for completion of the Central Distribution Center. The result was that $10 million for MCA was restored in the FY89 Appropriations Bill with remaining increases to be authorized in the FY90/91 time frame.[26]

Radford Army Ammunition Plant

During 1988 there were several accidents at Radford Army Ammunition Plant (RAAP). On March 19, 1988, an explosive accident killed two employees. One of the major conclusions of the investigation of the accident was that workload considerations had created an environment in which safety was taking a back seat to production.

A special safety assessment, conducted independently of the investigations, revealed that intense competition for limited production resources associated with the solventless propellant workload needed to be reduced to improve safety at the plant. AMCCOM had been pursuing alternatives to alleviate this situation and had identified specific actions to adjust production levels downward. It was determined that employment levels would have to be reflective of the adjusted production rate. In regards to RAAP, AMC anticipated Congressional interest to increase.

Personnel

Mission and Organization

The mission of the DCS for Personnel was to advise the Command Group on issues pertaining to military and civilian management, law enforcement, physical security, administrative systems, morale support activities, and Army Community Services. The DCS also established and maintained policies and programs to meet specialized requirements, directed the AMC Alcohol and Drug Abuse Prevention and Control Program (ADAPCP), exercised operational control over the U.S. Army Logistics Management Center, and managed significant budget programs.[27] It was authorized 280 personnel but by the end of the fiscal year the strength had been reduced to 176. The reduction was due primarily to the transfer of the military and civilian personnel offices to the Headquarters Installation Support Activity. Major General Charles D. Bussey was the DCS for Personnel and Mr. Archie D. Grimmet served as the Assistant DCS for Personnel until 1 September 1988. The Provost Marshal, Colonel David Garner, was scheduled to leave the command on 3 October 1988; his replacement was to be Colonel Dale Price.[28]

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[26] Ltr, Hon Chapman, et al, to Hon Ron Dellums, 23 Sep 88; Ltr, GEN Wagner to MG Charles E. Dominy, Chief of Legislative Liaison U. S. Army, 12 Oct 88.

[27] AMC-R 10-2, *Organization and Functions*, pp. 10-2.

[28] Personnel Historical Submission. Hereafter, all information in this chapter is from this source unless otherwise indicated.

Customer Service Program

The Commanding General (CG) issued a policy statement reiterating the importance of quality customer service within AMC activities. Emphasis was placed on the Customer Care Program to improve the delivery and perception of Civilian Personnel Office (CPO) service. Each CPO was tasked to ensure that quality customer service was maintained in every employee interaction and that customer service would be established as a hallmark of AMC.

A customer service survey was conducted to assess the status, needs, and concerns of AMC activities, and to determine the type of assistance they needed from HQ AMC. The survey indicated the CPO personnel were adhering to command policies and that excellent customer relations were becoming a way of doing business in AMC. Customer service training was also conducted at local installations to emphasize the importance of customer relations.[29]

Managing the Civilian Work Force to Budget

The Civilian Personnel Modernization Task Force on 1 October 1987 began a two-year test of managing the civilian work force to Budget at several Army installations including the Natick Research, Development and Engineering Center and the Red River Army Depot. The test focused on delegating to line managers the authority, responsibility and accountability for position classification and the execution of an approved Army budget for civilian personnel resources.

The test required that the concept be conducted within the framework of Memorandums of Understanding (MOUs) between the MACOM, the MSC and the installation commander so that specific responsibilities for the MCB test would be addressed. One of the most important responsibilities of the MACOM and the MSCs was to provide installations with the flexibility and support required to conduct a valid test. The critical test areas were budget execution, employment levels, position management and classification, and organization performance. Because of fiscal, personnel and manpower implications, the test was being evaluated by HQDA, Army Audit Agency (AAA), the MACOMs, the MSCs, and the installation.

In September 1988, the General Officer Steering Committee (GOSC) made the decision to extend the test for an additional year and use FY88 data as the baseline year. The need to construct data from FY87 was creating an element of artificiality which would have detracted from the validity of the evaluation. This, coupled with some delays in fully implementing the test in FY88, necessitated the change in baseline years. The GOSC would decide in FY89 on any further change in baseline years or the feasibility the of expanding the test to other activities.

Leave Transfer Program

The Office of Personnel Management issued final rules governing the Transfer of Leave Program on 8 March 1988. Under this program, employees were permitted to donate annual leave to other employees experiencing personal emergencies resulting in extended unpaid leave and financial hardship. AMC quickly established its guidance to field activities for immediate implementation of the program. The office was evaluating responses from AMC activities to ascertain the success of the program. Success stories were received from at least two AMC subordinate activities. Those two activities, Red River Army Depot and Tobyhanna Army Depot, were recognized by the Secretary of the Army for a

[29] Memo, Kenneth C. Morris for Distribution, 30 Sep 88, subj: Customer Service Survey.

job well done in implementing their programs. The Leave Transfer Program was initially due to terminate on 30 September 1988, but Congress passed legislation which extended it through FY89.[30]

Army Training Requirements and Resources System

As of 1 October 1988, the AMC Schools became fully integrated into the Army Training Requirements and Resources System (ATRRS). ATRRS was a major HQDA information system which supported institutional training missions. This was accomplished by determining training requirements, objectives, manpower and costs to assist managers and trainers in scheduling classes and filling classroom seats. Its quota management system allowed all levels of training management to determine when and where unused training seats were available. More importantly, ATRRS would be beneficial during budget strategies in making close assessments of funding requirements for training at the AMC Schools. In the past, AMC School resource requirements were underestimated as a result of not being included in ATRRS.

As an offshoot of ATRRS, AMC Schools were participating in a test study to determine the feasibility of automating DD Form 1556, the training request form for DA civilians, as a means of eliminating voluminous paperwork. A similar initiative was undertaken for automating DA Form 4187 for enlisted personnel.

Initially, ATRRS highlighted training for military personnel only and TRADOC had been a participant since 1983. Efforts were underway within AMC to increase ATRRS awareness at MSCs through training and orientation sessions. With the acquisition of more compatible ADP equipment and training, it was anticipated that the total AMC training community would be linked into ATRRS in the near future.

Advanced Engineering Training Program

After five years of negotiations, a contract was finally awarded to proceed in the development of an Advanced Engineering Training Program. Of the five colleges/universities that submitted proposals, Texas A&M was awarded the contract on 21 September 1988 to develop advanced graduate level training (non-degree granting) to enhance the knowledge and expertise of engineering interns in topics essential to accomplishment of the AMC mission. The overall objective was to provide a recruitment incentive to attract high quality engineering students. The program was designed to build upon the five one-year engineering programs at ALMC's School of Engineering and Logistics in Red River Army Depot (RRAD), Texas. Congressional approval was granted in July 1984. Over 175 colleges/universities had expressed an interest in the program.

Transfer of Class VI Stores to AAFES

At the direction of the House Armed Services Committee and effective in FY89, all AMC package beverage store operations were to be transferred to the Army and Air Force Exchange Service (AAFES). Although AAFES was to operate these activities, the Installation Morale, Welfare and Recreation funds would receive a share of profits from the program. The rationale for the transfer was that AAFES could manage this program in a more professional manner and generate additional income.

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[30] Memo, Mr. Roger M. Edwards for Distribution, 19 Apr 88, subj: Interim Guidance on Temporary Leave Transfer Program.

Child Development Services

HQDA directed MACOM inspections of all Child Development Services (CDS) programs and facilities in the Army using a single source document of regulations and standards. Forming functional teams of fire protection, safety, and health, AMC facilities and child development specialists completed inspections throughout the command. Installations corrected most deficiencies and provided status reports. Their findings were briefed to the a Child Care Action Group composed of General Officers.

Resource Factor Handbook

A "resource factor handbook" was developed to be used by AMC schools, HQ AMC, and HQDA to assist in establishing resource levels for AMC schools. In order to improve communication and document need, Army managers had to relate various operations and maintenance, Army (OMA) functions to common measures of workload. Documented resources to workload relationships could then be used as management tools in deciding the most productive application of scarce resources to carry out Army missions.

The AMC *Resource Factor Handbook* had OMA cost estimating relationships (CER) which permitted quick resource estimating at the program element and school levels based on projected workloads. It gave HQ AMC a documented procedure of how resources requirements are developed.

Pay Telephone Profits

Effective in FY88, profits generated at AMC installations through AAFES pay telephone services were accumulated at HQ AMC for distribution to installations. The CG directed the consolidation of funds to ensure all AMC soldiers could share in the benefits derived from the phones. The consolidation also allowed a major concentration of resources that will be committed on a priority basis to the installations projects which otherwise would have been unfunded due to recent and severe appropriated fund restrictions.

Beginning in FY89, a HQ AMC committee will review and evaluate installation requirements and distribute funds accordingly. It was anticipated that funds generated and distributed during the first year will amount to $1.2 million.

Operations Research Analyst Classification Study

AMC launched a position classification standards study of the Operations Research, GS-1515, occupation. A team of two Operations Research Analysts and one Personnel Management Specialist, based at Aberdeen Proving Ground, where the largest cluster of federal employees in Operations Research (232) was located, was established to perform the fact finding and standard writing phase. Factfinding visits were made to a wide variety of headquarters and field organizations in Army, Air Force, Transportation, Agriculture, and Interior, and approximately 150 interviews were conducted.

Traditionally, the U.S. Office of Personnel Management (OPM) used its Personnel Management Specialists to conduct this kind of study. It normally required a substantial amount of time for the Personnel Management Specialists to become sufficiently knowledgeable of the occupation to conduct the study. By using a team of people working in the occupation and a Personnel Management Specialist who had provided services to organizations employing Operations Research Analysts, an orientation process was not necessary. An additional advantage of the team approach was that fact-

finding was being accomplished simultaneously at more than one location. The study was projected to conclude by 31 December 1989.

The Deputy Chief of Staff for Program Analysis and Evaluation directed the study but the Office of Personnel Management (OPM) provided the technical guidance. Under a tripartite agreement between AMC, the Director of Civilian Personnel, Army, and OPM, AMC acted as sole Army agent for the study. However, the Director of Civilian Personnel, Army will review the study and submit it to OPM for final approval.

Voluntary Early Retirement

A congressional deficit reduction action created a $192 million shortfall in meeting AMC's projected FY88 payroll costs. In order to reduce FY88 payroll, the DCS requested and obtained from OPM through the U.S. Total Army Personnel Agency, authorization to implement provisions under the Voluntary Early Retirement Authority. From 1 February to 31 March 1988, AMC employees who had 25 years of service or who were 50 years of age and had 20 years of service, and were not subject to direct hire authority or special salary rates, could obtain early retirement. As a result, 2,877 employees retired, a number representing less than 3 percent of the total work force. The savings which resulted from voluntary early retirements along with other personnel budget reduction actions taken, including hiring freezes, release of temporary employees, and reduction of overtime and travel, enabled the Command to avoid furloughing employees or conducting a reduction in force.[31]

Officer Distribution Plan

The U.S. Army Total Personnel Agency (TAPA) was expected to release change 1 to the FY89 Officer Distribution Plan (ODP) in November 1988. Though specific figures were not available, AMC expected to experience a decrement in most grades and specialties. Army directives ensuring the maintenance of Table of Organization and Equipment units at 100 percent was a major cause for decreased support for Table of Distribution Allowances units. Additionally, limited officer assets in key AMC-related specialties contributed to the command's lower numbers.

The DCS ODP distribution figures for FY89 reflected an officer authorization of 2,662 with 2,509 under the ODP, equating to 94.3 percent support. Comparatively, the FY88 ODP distribution yielded 2,430 ODP versus 2,752 authorizations for an 88.3 percent level of support.

Several factors accounted for improvements in the ODP support posture. The DCS for Personnel was actively involved in adjusting authorization documents, with assistance from the DCS for Resource Management, to more realistically reflect actual officer locations. This resulted in a realignment of the ODP with authorizations. Section B (non-ODP supported colonels) of the MILPC-25 report was screened extensively in an effort to move these officers to vacant ODP supported positions. AMC requested that TAPA reduce the command's lieutenant ODP authorization to a more accurate figure. It was anticipated this would be done in the upcoming distribution. Additionally, AMC reiterated its ODP support requirements to TAPA and ODCSPER.

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[31] Memo, USTATPA Director of Civilian Personnel to AMC, 21 Jan 88, subj: Authority for Optional Retirement Under 5 USC 8336(d) (2).

Army Educational Requirements Board

The U.S. Army Educational Requirements Board (AERB) was previously held at HQDA level to examine requests for positions that required officers with advanced degrees. This was delegated to Major Army Commands (MACOMs) in February 1988, and AMC held a detailed review of all officer, captain through colonel, and warrant officer positions. The zero-based approach--beginning with no valid positions and then building an inventory based on board results--was used.

The six-member board convened on 14-17 June 1988 to consider 752 positions. The board validated 634 positions, 71 percent of the total considered. Of the 39 Ph.D requests, 18 were approved; 18 master's degree requests were approved, and two were disapproved. Validated positions were prioritized and submitted by discipline to TAPA for DA-level prioritization and distribution. At the after action review on 25 July 1988, the CG directed that AERB reconvene in FY89 to review all requests for Ph.D. validation.

General Officer Orientation Course

An orientation course was conducted at HQ AMC for newly-assigned Colonel(P) through Major General. The Commander, AMC had directed the establishment of the course in September 1984. The Adjutant General/Community Activities Division conducted the first course in January 1985, but functional responsibility was transferred to the Military Personnel Division in June 1988. By 30 September 1988, a total of 27 General Officers had attended the course.

Junior Officer Professional Development Program

The purpose of the Junior Officer Professional Development Program was to create command-wide initiatives for commanders to use in establishing a systemic and structured learning environment for junior officers. The program was governed by AMC Pamphlet 350-1. Development of a solid training program and effective implementation of Military Qualification Standards (MQS) further enhanced the program's credibility. The ultimate objective was to provide a broad core of professional development initiatives to improve efficiency and effectiveness in our junior officers.

A built-in reporting requirement directed major subordinate commanders to submit semi-annual status reports to HQ AMC which outlined their progress in the respective programs. The first status report submitted in July 1988 for installations revealed there were 281 junior officers participating in the program and all were assigned mentors. Of the assigned officers, 58 percent were in supervisory positions, 81 percent had MQS manuals, and 30 percent had received a developmental reassignment to broaden their skills. Only 82 officers have received "muddy boots" type training.

Reports received from all command echelons indicated wide support for the program. Commanders had formed professional development committees to manage the program and ensure that all aspects of the program were fully implemented. All junior officers were aware of the merits this program, and recognized the efforts being made to provide them with opportunities for professional and personal growth.

Training Funds

AMC experienced a severe reduction in training funds. Funding to support executive/managerial training was reduced by one-third. Funds to support the Facilities Engineer Apprentice Program (FEAP) were frozen, resulting in no new FEAP hires after February 1988. Additionally, the number

of long term training opportunities supported by HQDA funds were reduced. While HQDA centrally-supported programs were curtailed, AMC activities used mission funds to continue providing essential managerial training. Innovative approaches to the funding shortage included increased on-site training in lieu of training requiring TDY, sharing resources with other Army/DOD activities in the local area, and increased use of Learning Resource Centers and the PLATO computer-based-instruction network.

HQDA's allocation of Civilian Training, Education, and Development (CTED) funds for AMC interns was reduced from $44,346 thousand to $37,364 thousand. This reduced amount was not sufficient to pay salary and benefit costs for the number of interns in the program. AMC management actions, including a hiring freeze, deferred training and travel costs, and early reassignments from CTED resources (space and funds) to local resources (enabled by a DA late FY increase in the annual funding), avoided a furlough and/or reduction in force. However, the on-board strength in the AMC Career Intern Program (CIP) was reduced from 1,945 to 1,163.[32]

The Logistics and Acquisition Management Program (LOGAMP) also experienced a severe reduction. Through the use of local resources and creative approaches to accomplishing training needs identified on the LOGAMP Individual Development Plans, 60 LOGAMP participants completed their requirements for graduation from the competitive development phase of the program.

Year of Training

The Secretary of the Army and the Chief of Staff, Army (CSA) announced on 14 November 1987 that "training" was the Army Theme for 1988. On 20 April 1988, General Wagner signed the AMC Action Plan to implement the theme. In spite of the austere funding situation, AMC supported the "Year of Training" effort in an exemplary fashion.[33]

AMC managed to increase the use of cost-saving training delivery methods for civilian employees and the development of initiatives which encouraged excellent, realistic, and innovative training for all of AMC. Among the programs were an instructor exchange program at ALMC/AVSCOM, a muscle building program at CECOM, a pre-executive development program at AVSCOM, C-Band Satellite program at DESCOM and MICOM, and training to junior officers at the National Training Center (NTC). To satisfy the many training requirements, ALMC expanded the Satellite Education Network to 39 courses and increased training to almost 5,000 students. These innovative training methods resulted in a cost avoidance of over $8 million.[34]

AMC also registered a significant increase in leadership training during FY88. Approximately 600 first year interns completed the Intern Leadership Course. Seventy managers completed the Organizational Leadership for Executives Program, and over 100 managers completed a managerial program at one of the Office of Personnel Management Executive Seminar Centers. Several AMC activities had teams trained to conduct the Leadership, Education and Development program on-site for first line supervisors.

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[32] Msg, 231215Z Feb 88, subj: Training Budget.

[33] Summary Sheet, DCS for Personnel to CG, subj: 1988 Army Theme.

[34] Ltrs, GEN Wagner to GEN Vuono, 17 Jun, 1 Jul 88, subj: 1988 Army Theme - Training; DF, Ms. Pat Smallwood to all Directors, 3 May 88, subj: "C" Band Satellite Presentation - A Day with Peter F. Drucker.

Program Analysis and Evaluation

Mission and Organization

A decision by the Command Group abolished the DCS for Management and Analysis on 31 March 1988, and on 7 April 1988 the Office of Program and Analysis, which was established on 1 October 1987, became the DCS for Program Analysis and Evaluation. Two spaces were transferred from the DCS for Management and Analysis to the DCS for Program Analysis and Evaluation. The functional Chief Representative (GS-1515) from the DCS for Management and Productivity was also required by the new DCS. Another Command Group decision assigned the AMC Systems Management Office to the DCS for Program Analysis and Evaluation on 6 April 1988. The U. S. Army Materiel Systems Analysis Activity (AMSAA) was also acquired from the DCS for Program and Evaluation on 1 April 1988. With authority from the Chief of Staff, automated functions previously performed by the DCS for Resource Management were transferred to the DCS for Program Analysis and Evaluation on 16 August 1988. By the end of the fiscal year, the DCS was authorized two military and 48 civilians, an increased of 18 civilian personnel. The DCS for Program and Analysis was Mr. Michael C. Sandusky.[35]

Source Selection Evaluation Board

The DCS for Program Analysis and Evaluation represented AMC on the Source Selection Evaluation Board (SSEB) which was designed to select a contractor to put the Decision Support Experimentor (DSE) on the HQDA Decision Support System (DSS). Other board members were from the Decision Support Management Agency (DSMA), Secretary of the Army for Research, Development and Acquisition (SARDA), and Office of the Deputy Chief of Staff for Operations (DCSOPS). As part of the HQDA DSS, the DSE facilitated decision makers in exploring "what if" scenarios involving Army equipment, logistics and budget data.

Operations Research/Systems Analysis Bulletin Board System

Major responsibilities relegated to the DCS for Program Analysis and Evaluation involved career management for AMC Operations Research Officers and Army-wide Operations Research/Systems Analysis civilians. To support these efforts and to build a sense of community among Army Operations Research/Systems Analysis (ORSA), an electronic bulletin board system (BBS) was established. This BBS allowed Army ORSAs world-wide to communicate with each other, share "lessons learned," exchange useful software, and learn about forthcoming training opportunities. BBS gave a tremendous communication capability at almost no cost to the command.

Budget and Program Resources Review Response to AMCLOG 21

An analysis of the May 1988 Budget and Program Review (BPRR) submissions from the major subordinate commands (MSCs) and the separate reporting activities (SRAs) was made to determine

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[35] Program Analysis and Evaluation Historical Submission, FY88. Hereafter, all information in this chapter is from this source unless otherwise indicated. Other key personnel in the DCS were COL Duane H. Myers who succeeded COL Dale R. Price as ADCS; Mr. Edwin J. Curie, Ch, Program Development Division; Mrs. Mary E. Minor, Ch, Program Evaluation Division; Mr. Harold E. Jarrell who succeeded Mr. Gary Metz as Ch, Information Resource Management Division; and Mr. Philip Sternberg, Ch, AMC Systems Management Division.

to what degree requirements were presented as AMCLOG 21 deficiencies in the most recent AMCLOG 21 Mission Area Development Plan. The study presented the following recommendations for the improvement of the AMCLOG 21 process:

* Better cooperation between functional proponents and budget/programming experts to enable AMCLOG 21 requirements to reach funding documents.

* Better communication between MSCs and the headquarters in tracking all corrective actions.

* Rescheduling AMCLOG 21 events to permit the biannual Materiel Acquisition Development process to correspond with the biannual BPRR cycle.

* Modifying the AMCLOG 21 concept to allow the inclusion of major Operations and Maintenance (OMA) deficiencies.

Intermediate Range Nuclear Forces Treaty

The DCS for Program Analysis and Evaluation participated in the Intermediate Range Nuclear Forces (INF) Treaty Ad Hoc Working Group which addressed such topics as on-site inspections, backfill of equipment to units losing PERSHING, and FY89 funding problems. AMC used PS7 FY89 funds and expected a reprogramming of the funds later in the fiscal year.

AMC Guidance 1990-1994

The *AMC Guidance* was a major resource management document which merged specific AMC guidance with total Army guidance. Responsibility for developing guidelines, editing and publishing the *AMC Guidance* was transferred from the DCS for Resource Management to the DCS for Program Analysis and Evaluation on 1 October 1987 because of a reorganization within the headquarters. The *AMC Guidance* was published in July 1988.

Long Range Research and Development Acquisition Plan

With the creation of the DCS for Program Analysis and Evaluation and the subsequent mission change for the DCS for Resource Management, it was determined that the split in responsibilities for the Long Range Research and Development Acquisition Plan (LRRDAP) was unworkable. The total responsibility for LRRDAP was given to the DCS for Development, Engineering and Acquisition, with an additional an action officer (GS-14) and another space acquired to accomplish this function.

Base Support Area Mission

Since the responsibility for the Base Support Area Mission was established specifically for the DCS for Resource Management, it was not appropriate to incorporate this responsibility into the functions of the DCS for Program Analysis and Evaluation. The DCS for Resource Management retained this function and its Program Budget and Policy Division was designated as the Mission Area Manager (MAM). This realignment involved no spaces, but responsibility for AMC Guidance, Program Analysis and Resource Review (PARR) and BPRR Commander's Letter, and the Program Decision Memorandum (PDM) were included in the DCS for Program Analysis and Evaluation mission. Two spaces were acquired from the DCS for Resource Management to accomplish this function.

Information Management Initiative

At the request of the Command Group, an evaluation was completed on the high-speed Local Area Network (LAN) configurations that allowed rapid omni-directional Multi-System Disc Operating System (MSDOS) based data and graphics communications and storage within the Command Group. Procurement action was initiated to construct a Command Group sub-LAN with connections for the DCSs of Resource Management, and Program Analysis and Evaluation. Software development and associated training was also initiated, and a LAN bridging of a 3COM signal across Sytek was demonstrated by the DCS for Program Analysis and Evaluation.

FY90-94 Summer Program Review Schedule (Program Decision Memorandum Cycle)

After the Army submitted the Program Objective Memorandum (POM) in FY88, the Office of the Secretary of Defense's Resources Board identified major program issues in the Program Decision Memoranda. The memoranda which formally approved the POM provided the basis for budget formulation. The issues identified entailed providing alternatives to certain proposals in the POM. Few of the issues were passed on for resolution at the AMC level since HQDA operated relatively independently. HQDA attributed the lack of activity to the Army's well-documented submission.

Commodity Management Decision Package Restructure Program

During the FY90-94 POM process, AMC experienced difficulty in supporting and defending the commodity Management Decision Packages (MDEPs). As structured, the commodity MDEPs did not represent logical resource program packages nor did they reflect the way AMC managed OMA resources. This situation, in an era of extremely constrained funding, could have lead to a loss of critical AMC resources. Therefore, the DCS for Program Analysis and Evaluation, in conjunction with functional organizations, developed an alternative MDEP structure. The objective of the restructuring was to more accurately satisfy AMC's planning, programing, budgeting and execution system (PPBES) requirements. The MDEP architecture developed was designed to facilitate the defense of AMC's resources in the POM process and in decrement drills, and to more adequately assign responsibility for the management of new MDEPs within the headquarters. The proposed new structure was scheduled to be submitted to HQDA in November 1988.

Office of Equal Opportunity

Mission and Organization

The mission of the Office of Equal Opportunity (OEO) was to manage and direct the Command's Equal Opportunity (EO) and Equal Employment Opportunity (EEO) programs, policies, and operations.[36] Ms. Jessalyn L. Pendarvis became the Director of OEO on 15 February 1988. She replaced Mr. George L. Jones, who became Administrator of the U.S. Army Civilian Appellate and Review Agency in September 1988. Ms. Pendarvis made orientation visits to all of the major subordinate commands (MSC) and to several installations. SGM Manuel Smith, the Senior EO NCO,

[36] AMC-R 10-2, *Organization and Functions,* p. 7-10.

retired on 1 August 1988 and MAJ Michael Cain, the Equal Opportunity Staff Officer retired on 1 September 1988.[37]

Affirmative Employment Program Plan

In conjunction with the DCS for Personnel, Office of Command Counsel and key managers, OEO developed a five-year affirmative employment program plan for minorities and women in accordance with the Equal Employment Opportunity Commission's Management Directive 714. The plan emphasized AMC's affirmative employment policy, actions to prevent sexual harassment, and methods to monitor, evaluate, and report issues under this program. Annual accomplishment reports and updates were scheduled to begin with FY88 and continue through FY92.

Equal Opportunity Management Information System

FY88 was a significant year in the development and deployment of the Equal Opportunity Management Information System (EOMIS). The receipt of $2.4 million dollars of productivity improvement funds for FY88 allowed significant progress toward the full automation of the EO/EEO function within AMC. Personnel at AMC installations were offered training, conducted by Central Systems Design Activity (CSDA) (formerly AMSAA), on the standard hardware and software configurations. Additionally, all of the Command's EO/EEO Offices which had been unable to purchase equipment were provided productivity improvement funds to acquire the standard hardware configuration.

The EOMIS Army Personnel Data System-Civilian (APDS-C) Development Team from HQ AMC and CODA continued coordination with the Project Manager, Army Chief of Staff for Personnel (ACPERS), to facilitate communications with the Army's new ADP system for civilian personnel administration. In order to facilitate the deployment of EOMIS and APDS-C, AMC held a meeting in St. Louis, Missouri on 19-23 September 1988 for all MSC EEO officers. This meeting resulted increased awareness and unity of effort in EOMIS issues.

EO/EEO Program Evaluations

Limitations on travel funds imposed by the Gramm-Rudman-Hollings legislation, and other priority studies conducted by HQDA and DOD, forced a reduction in the program evaluation schedule. Where the evaluations were conducted, they were successful in assisting commanders to implement effective EEO/EO programs, thereby ensuring unity of effort. Program evaluations were conducted at EO/EEO offices in AMCCOM, DESCOM, and Letterkenney Army Depot.

Manpower Staffing Standards Systems Study

HQDA conducted the Manpower Staffing Standards System (MS-3) study to determine the appropriate staffing level for EEO offices Armywide. AMC played an active role in the study by providing senior specialists who served as technical experts and advisers, including manpower analysts from the AMC Management Engineering Activity from Huntsville, Alabama. The studies of AMC activities, conducted at MICOM, Chemical, Research, Development and Engineering Center (CRDEC), Corpus Christi Army Depot (CCAD), and Anniston Army Depot (ANAD), documented workload

[37] Equal Opportunity Historical Submission. Hereafter, all information for this Chapter is from this source unless otherwise indicated.

requirements which exceeded current personnel authorizations. Final results of the study were pending at the end of the fiscal year.

Classification Study

HQDA also conducted an Equal Employment Opportunity Officer (EEOO) grading study during July-September 1988. The study resulted from concerns raised by MACOM EEOOs to the HQDA Director of Civilian Personnel regarding the consistency of EEOO grading within DA, grade disparity between EEOO and Civilian Personnel Officer positions, and the adequacy of the Office of Personnel Management position classification standard for the EEO series. Results of the study not complete at year end. Anniston Army Depot, Aberdeen Proving Ground, and TECOM were in the survey.

Accountability Study

Finally, DOD sponsored a study of supervisory accountability for accomplishment of the EEO mission. The study involved a review of standards for the EEO critical element and description of performance against the standards. The study focused on the standards and appraisals of 80 supervisors within HQ AMC over a three-year period. The study results were not available by the end of FY88.

Complaints Processing

While the established goal of resolving 75 percent of complaints at the informal stage was not met, the trend in the resolution rate had increased. Of 329 formal complaints filed throughout the command in FY88, 62 were closed with three findings of discrimination.

Reduction of Underrepresentation

All of the goals to correct the underrepresentation of women and minorities in the AMC workforce were not achieved. Despite numeric decreases, the percentage of women in the workforce was the same as FY87 and the percentage of minorities in the workforce was greater than FY87.

EO Program Evaluation Standards

The OEO developed specific program evaluation standards for the military EO program which paralleled those used in evaluating the civilian EEO program. The objectives were to achieve unity of effort, consistency, and guidelines for program implementation in the field. The standards were utilized in the FY88 EO program evaluations and were provided to HQDA, which was considering their application armywide.

DOD EO Seminar

AMC participated in a DOD-sponsored seminar in February 1988, presenting a briefing on the EO Representation Index. The Index established a statistical measurement of unit EO status that could be used to identify and correct problem areas. The objective was to solve problems before they became identified in the form of discrimination complaints.

Commander's Assessment

The overall EO climate within AMC improved during the fiscal year, according to an assessment provided HQDA by the Commander, AMC. This was attributed to the assignment of equal

opportunity advisers (EOA) throughout the command. Training for military and civilian supervisors of military personnel was 98.8 percent compared to 98.1 percent for FY87. The appraisal suggested that the EO program appeared to be making tremendous progress within the command.[38]

Force Content. A breakout of AMC force content was as follows: Women were 8.4 percent of the commissioned officer strength, an increase of 0.6 percent from FY87 when women were 7.9 percent of the commissioned officer strength. There were four female warrant officers assigned to the command, the same as in FY87. The enlisted women's strength decreased slightly, from 899 in FY87 to 870 in FY88. Women were 13.2 percent of the enlisted strength, down from 13.6 percent in FY87. In grades E1 to E5, women dropped to 17.7 percent from 18.8 percent the previous year. The total number of soldiers in these grades increased by 4.3 percent--going from 4,084 in FY87 to 4,270 in FY88. Minorities were 34.5 percent of the commissioned officers, 31 percent of the warrant officers, and 35.7 percent of the enlisted strength. Minorities represented 33 percent of grades E1 to E5 and were distributed as follows: African American - 26.3 percent, Hispanic - 3.2 percent, Native American - 0.2 percent, Asian/Pacific Islanders - 1.3 percent, and other/unknown -2.6 percent. This was an increase of 0.9 percent over FY87.

Staffing. AMC was authorized 20 EOAs but had only 17 at the end of FY88. One of the officers and all of the NCOs were school trained. Most depots, activities and installations were staffed with collateral personnel because of the small military population.

Military Justice. Article 15, unfavorable discharge, and court martial cases decreased from 202 in FY87 to 189 in FY88, representing a 6.4 percent decrease.

Complaints. Complaints increased from six in FY87 to eight during FY88. There were four racial and two sexual harassment complaints filed in FY87 compared to five and three, respectively, for FY88.

Majority/Minority Selection Rate. There was parity in the enlistment promotion rate throughout FY88. However, Native Americans and Asian/Pacific Islanders had a higher selection rate than all other ethnic groups.

EO Training. The EO goal was to train 7,568 military and 2,022 civilians. The actual accomplishment was 7,463 and 2,009, representing 98.6 percent for military personnel and 99.4 percent for civilians.

Affirmative Actions. The primary goals were to ensure adequacy and continuity of EO education and training programs in accordance with the EO Training Plan. Punitive actions were tracked to ensure that all soldiers were treated fairly in their pursuit to attain personal and professional goals. The command goals were accomplished during FY88.

Community Affairs. Activities varied according to geographical location, but MSCs reported their involvement in community activities such as Blacks in Government, Community Outreach, Red Cross, Boy Scouts and Girl Scouts, and Co-celebrating Community Ethnic observances. The latter appeared to be making the greatest contribution to better understanding between the military and civilian populations throughout the command.

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[38] Memo for HQDA, 1 Dec 88, subj: Annual Narrative and Statistical Report on Equal Opportunity Progress. Hereafter, all information for this chapter is from this source unless otherwise indicated.

Safety

Mission and Organization

The mission of the Safety Office was to "direct and staff supervise the AMC Safety Program that includes provision of maximum safety consistent with operational requirements in the design of Army materiel; prevention of injuries to military, civilian, and contractor personnel; prevention of damages to Government property and interruption to essential operations; and elimination from the environment of those effects of AMC operations that might otherwise represent a hazard to the civilian populace; management and administration of the AMC Occupational Safety and Health Program in compliance with Public Law 91-596, Executive Order 12196, and 29 Code of Federal Regulations (CFR) 1960; [and] direction and control of the AMC Field Safety Activity."[39]

The Safety Office was authorized 13 positions which included 12 civilians and one military officer. However, there were some significant personnel changes during FY88. Mr. Mark Peterson joined the Engineering Safety Division; Mr. Ralph Cardenuto transferred to the Health Physics Division; Ms. Carol Gillum was assigned as Information Specialist; Mr. William Wortley transferred to the HQDA Safety Office, and Claude Smith was assigned to the DCS for Product Assurance and Testing. Ms. Ruby Taylor, the Headquarters Safety Officer, was transferred to the Headquarters Installation Support Activity (HISA) together with her function.[40]

Military Personnel Injuries

General Louis C. Wagner, Jr. was extremely concerned about the number of military injuries in the Command. He was convinced that a 7 December 1987 memorandum concerning military injuries had little impact because in FY88 only six fewer AMC soldiers were injured compared to the 112 in FY87. In a 3 February 1988 memorandum he reemphasized suggestions made to protect soldiers at work, at play, and while driving their privately owned vehicles.[41]

Aviation Accident Rate

The command achieved an aircraft accident rate of 3.38 percent after flying 41,966 hours during FY88. The rate reflected the loss of one TECOM JAH-1F helicopter and its crew of two during a 16 May 88 mission at Fort Rucker, Alabama.

Presidential Three Percent Injury Reduction Program

This fiscal year was the fifth and final year of the Presidential Three Percent Injury Reduction Program. AMC achieved a 13 percent reduction over the five year program. Although the reduction was short of the 15 percent goal , it was impressive both because AMC failed to reduce injuries during the first two years and because the reduction achieved throughout the Army was only 7 percent.

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[39] AMC-R 10-2, *Organization and Functions,* April 1985.

[40] Safety Historical FY88 Historical Submission. Hereafter, all information in this chapter is from this source unless otherwise indicated.

[41] Memo, GEN Wagner for Distribution, 3 Feb 89, subj: Military Personnel Injuries.

Safety Awards Program

An AMC Safety Awards Program was instituted by the publication of AMC Circular 385-6. This non-competitive awards program consisted of three levels of achievement. The criteria upon which each major subordinate command (MSC) was evaluated included such elements as meeting assigned goals, sharing good ideas, responsiveness to field and higher headquarters, and success in implementing special emphasis programs.

Surgeon

Mission and Organization

The mission of the Surgeon was to "provide policy and guidance to HQ AMC and subordinate elements on all medical matters."[42] The Office of the Surgeon was authorized nine personnel at the start and end of FY88. There were no changes in the positions authorized during the year. Surgeon Taras Nowosiwsky (Colonel) departed the Command in September. Three other officers also left: LTC Charles E. Day in May, MAJ William T. Broadwater in February, and MAJ Holly L. Doyne in August. The Surgeon's position remained open at the end of the Fiscal Year, to be filled in FY89.[43]

Preventive Medicine Support to AMC

The U.S. Army Environmental Hygiene Agency (USAEHA) provided consultative services essential to compliance with environmental and occupational health laws and regulations. The Office of the Surgeon planned and coordinated these services, reviewed recommendations and directed the technical reports to the requesting Command. A total of 238 services having an estimated value of $11,750,000 were provided to AMC at no cost. They were in the following areas: occupational health - 39; air, water, and solid and hazardous waste pollution control, and water supply - 107; pest management - 29; laser, microwave, and ionizing radiation exposure control - 63.

Health Hazard Assessment

The Surgeon's Office coordinated and monitored over 131 requests for health hazard assessment (HHA) support. Timely medical input led to the control and elimination of health hazards in AMC-managed developmental and non-developmental items of equipment. Recommendations contained in HHA's provided specific administrative and engineering controls to reduce adverse health impacts to operators and maintenance personnel.

The HHA officer assisted The Surgeon General in prioritization of health hazard assessments being performed by the U.S. Army Research and Development Command. Relevant medical research issues were identified, based upon a review of data base gaps for militarily unique exposure to potential health hazards. These HHA research issues were identified as a direct result of the formal program for materiel acquisition review implemented by AMC in accordance with AR 40-10.

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[42] AMC-R 10-2, *Organization and Functions,* p. 7-12.

[43] Surgeon FY88 Historical Submission. Hereafter, information in this chapter is from this source unless otherwise indicated.

The Surgeon's Office coordinated key information in support of the medical assessment of the Bradley Fighting Vehicle live fire survivability tests, the XM43 Protective Mask, Non-Line of Sight, Family of Medium Tactical Vehicles, M109 Howitzer Improvement Program, and numerous training devices and new munitions.

Medical Support

Mutual support responsibilities between AMC and Health Services Command (HSC) were governed by a memorandum of understanding (MOU) prepared in 1982. After an informal agreement to consider revision of the MOU, a draft HSC provided in February 1987 was revised by the Surgeon, staffed within HQ AMC, and submitted to HSC as a final draft on 28 July 1987. The MOU was signed on 12 January 1988.[44]

The Surgeon coordinated with Walter Reed Army Medical Center (WRAMC) to ensure that the AMC Health Clinic remained operational. WRAMC had scheduled the AMC Health Clinic for closure, along with several other Civilian Employee Health Clinics in the Washington, D.C. area, to consolidate health care resources.

Child Care Facility Evaluations

HQDA Community and Family Support advocates required Commandwide, one-time, Child Care Facility Evaluations to assure that child care provisions were effective, safe and healthful. Physicians and environmental science officers were an integral part of the HQ AMC, TECOM, DESCOM, and CECOM Child Care Evaluation Teams that visited each child care site within the Command. Evaluations involved health screening, communicable disease control, nutrition and food service, custodial support, and prevention of exposure to toxic materials and other environmental contaminants.

Medical Support of Surety Mission

The Surgeon participated in six surety and operational inspections (SOI) to AMC installations. Various aspects of medical support to the surety program were evaluated including occupational health surveillance, training, health care during emergency exercises, records management, and external support to the installation from civilian and military medical activities. This office served as liaison with HSC in correcting medical deficiencies seen during inspections.

In response to a request to evaluate medical risks associated with benzene (BZ) requirements plant operations at Pine Bluff Arsenal, the Surgeon's Office provided occupational medical guidelines to the arsenal commander.

The office of the Surgeon provided materials for draft DA PAM 40-8, *Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GB, GD, and VX.* A review of draft DA PAM 40-8 was accomplished in February 1988, and the office attended a meeting on the document at U.S. Army Environmental Hygiene Agency (USAEHA) in August 1988.

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[44] Memorandum of Understanding between HQ AMC and HQ HSC, 12 Jan 88.

Occupational Medicine

The Chief of Occupational Medicine presented a professional paper on "Lower Extremity Injuries in Active Duty Soldiers" at the Academy of Family Physicians Meeting in Salt Lake City on 29 March 1988.

This office also developed an occupational medical rotation for uniformed services university health services occupational medicine residents. The rotation allowed residents in program and policy development and management at the MACOM level to train in the area of occupational and environmental medicine.[45]

Industrial Hygiene

On 23 October 1988, the commander of TECOM gained approval of his Model Installation Program (MIP) request to establish a directorate of public health and safety. The Safety, Health and Environmental Directorate, formed from assets from the Safety Office, Environmental Office, Fire Protection Division of the Directorate of Engineering and Housing, and Industrial Hygiene from the Health Services Command (HSC) Health Clinic, was a provisional organization. It was to undergo a testing period of two years. HSC Preventive Medicine Division and the AMC Surgeon approved criteria developed by the USAEHA Army Environmental Hygiene Agency and AMC Field Safety Activity for future evaluation.

Chemical Agent Resistant Coating

Chemical Agent Resistant Coating (CARC) cost avoidance meetings were held on 21-22 October 1987 with Raytheon, Martin Marietta Corporation, Lear Siegler, and AMC representatives (including the industrial hygienist from the Surgeon's Office) to review CARC paint specifications including safety, health and environmental issues. Marietta had requested over $1 million additional funding to build new facilities, purchase new ventilation systems, and acquire new painting and safety equipment. After inspecting the contractor's painting facilities, AMC representatives refuted its data by reviewing AMC's CARC experience, explaining the environmental and occupational health ramifications, and resolving administrative roadblocks. Martin Marietta was scheduled institute CARC painting with only a small funding adjustment.

Sick Building Syndrome Investigation

The Surgeon provided an action officer to participate in a technical investigation of the workplace environment of Armament Research, Development and Engineering Center (ARDEC) employees who complained of apparently work-related illnesses to management and their congressional representative. USAEHA conducted the 26-27 May investigation. After employees were interviewed, blueprints reviewed, and ventilation tests conducted, it was determined that the ventilation system required repair and maintenance, an exhaust fan in the mechanical room was non-operable, pipes and ducts were improperly sealed, and an unbalanced return air system further aggravated the situation.

[45] Memo for Occupational Medicine Residency Program Director, 24 Mar 88, subj: Practicum Rotation for USUHS Occupational Medicine Residents.

Asbestos Investigation

At the request of the Office of the Assistant Secretary of the Army for Installations and Logistics (OASA(I&L)), a visit was made to New Cumberland Army Depot (NCAD) on 6-7 January 1988 to respond to a letter from Congressman Mel Levine concerning a constituent's exposure to asbestos between 1941-1943. NCAD has 59 buildings listed in its inventory which were constructed between 1941 and 1943. All the buildings had pipes covered with asbestos insulation, varying in the percentages of amosite and chrysotile. Some had exterior-shingle/shingle-underlay containing chrysotile. It was determined that NCAD was in compliance with TB MED 513, *Occupational and Environmental Health Guidelines for the Evaluation and Control of Asbestos Exposure.* OASA(I&L) was informed about the status of NCAD's asbestos program and provided with a response to the constituent's concern.

Notification of Potential Exposure to Lead in Drinking Water

The U. S. Environmental Protection Agency (EPA) reacted to increased incidence of health effects in young children from exposure to lead found in drinking water by requiring all drinking water suppliers to notify users of potential exposure. Sources were identified as piping, joint solders, and water coolers. Installation commanders were notified of a requirement to complete notifications by 19 June 1988, and were provided information on health effects and priorities for testing and remedial action, when necessary. Engineering guidance was provided in coordination with DCS Engineering, Housing, and Installation Logistics.

Pest Management Materiel Readiness

A detailed review of pest management in draft AMC Pamphlet 235-1, *Industrialized Activities and Labor Relations - Maintenance and Layaway of Government-Owned, Contractor-Operated Facilities,* was completed. Recommended changes would align pest management with policy contained in AR 420-76.

The AMC Surgeon's Office worked with the Office of The Surgeon General (OTSG) to develop Army Medical Department policy for the surveillance of *Aedes albopictus* (Asian tiger mosquito) in the continental United States. Assistance was provided the Armed Forces Pest Management Board in developing standardized procedures for the Pesticides Committee and for the review of requests for the assignment/cancellation of National Stock Numbers to pesticides.

Surgeon participation in Milestone III In-Process Review of the Extended Duration Topical Insect/Arthropod Repellent (EDTIAR) resulted in a recommendation requiring the transition of EDTIAR to the production and deployment phase, pending the receipt of EPA registration.

Service Response Force Exercise

Medical support for the 1988 Service Response Force Exercise (SRFX-88) was initiated at the request of the Surety Field Activity. Medical controllers and players for the exercise were selected with the cooperation and assistance of HSC and OTSG. This office provided one physician as controller and one health physicist as the On Scene Commander's Surgeon staff.

Intermediate Nuclear Forces Treaty

The Surgeon prepared the Medical Annex to the AMC Plan of the Intermediate Nuclear Forces (INF) Treaty. The treaty required that medical support, as necessary, be provided to the inspection

team and air crews, and that medical treatment facilities would be reimbursed for this service. The document also provided planning assumptions and additional guidance in the medical area for AMC activities to plan and implement the on-site inspection provisions of the INF treaty.

Inspector General

Mission and Organization

The mission of the Inspector General (IG) and Inspector General Activity (IGA) was to inquire into and report upon matters that pertained to the performance of mission and the state of discipline, efficiency, and economy within AMC; coordinate inspector general activities throughout the Command, and perform such other duties as were required by law and regulation, or as directed by the Commanding General.[46]

The IG and IGA were authorized a total strength of 73 military and civilian personnel which represented the reduction of one civilian space from the FY87 strength. COL James L. Tierney replaced COL William J. Edwards, who departed the command in July 1988, as the Inspector General. Mr. Lewis J. Leithauser replaced Mr. Ronald V. Murphy as chief of the Policy, Followup and Analysis Division in April 1988. COL Lewis R. Heffner served as chief of the Investigation Division and COL Alfred J. Theriault was chief of the Inspection Division.

Inspections

The IGA conducted 31 inspections throughout the Command during FY88. These fell into three categories: procurement inspections of a compliance nature; soldier support inspections; and systemic issue inspections. Procurement inspection at 15 locations included the following general areas of interest: blanket purchase agreements, acquisition planning, physical security and integrity of the procurement process, utilities contracting, certificates of insurance, contracting officer representatives, payment of membership fees, small business set-asides, and other topics relevant to ensuring that AMC procurement offices were complying with regulatory requirements. Soldier support inspections at 9 locations assessed morale and welfare issues affecting soldiers at AMC installations. Topics of concern included leave control management, unit training, Army Physical Fitness Program, Weight Control Program, and mailroom operations. Systemic inspections were conducted in the following areas: displaced/separated equipment, Army Program Management, aviation depot maintenance roundout units, technical data management, value engineering, science and technology management, and test, measurement, and diagnostic equipment (TMDE).

Followup Inspection Program

A significant enhancement to the followup inspection program was accomplished. On-site followups were conducted for five reports: AMC Schools, Career Intern Program, Army Oil Analysis, subject matter assessment implementation, and management of joint actions. The IG determined that corrective action had been taken to correct approximately half of the deficiencies identified in the report. Those deficiencies not corrected were to be tracked in a second--and if necessary a third--followup, to assure the effectiveness of the IG systemic inspection process.

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[46] Inspector General FY88 Historical Submission. Hereafter, information in this chapter is from this source unless otherwise indicated.

Planning and Analysis

The IG Planning and Analysis Team completed an analysis of systemic issue candidates, met with the planning and analysis committee, and briefed the Command Group on systemic issues and special issues. The CG approved the following issues for study: aviation depot roundout, data collection system, logistics control activities, program management control systems, transportability, total package fielding, training devices, value engineering, and test, measurement and diagnostic equipment, as well as management of the product improvement program, technical data, and test and evaluation missions. The FY89-FY90 inspection plan was published and included for examination these systemic issues: MANPRINT, packaging and packing, total package fielding, government-furnished property, materiel change management, training devices, and nondevelopment items. Special inspections were scheduled for vehicular safety and metal fasteners. The team also participated in the MACOM IG Inspection Planning and Advisory Committee (IPAC).

Assistance Program

Initiated in January 1987, the Assistance Program provided AMC personnel and their families the opportunity to express their opinions and provide suggestions on a broad range of policies and programs. The information obtained was provided to the command element having proponency for specific programs. The program guaranteed nonattribution and freedom from retribution to elicit meaningful participation. The program's policy of leaving issues at the lowest appropriate level and not requiring formal followups reduced the perception among commanders that the program was a threat to their operations. Commanders from detachment to MSC level expressed appreciation for the candid feedback provided to them. Positive results from the program ranged from improvements in the operating hours for support activities to improved military police (MP) assignments at AMC installations. The program identified world-wide strengths such as worker pride. The initial Assistance Program visits, completed in September 1988, numbered 1,200 interviews with soldiers, civilians, and family members at 11 CONUS and 18 OCONUS installations. The second cycle was scheduled to begin in November 1988 with visits to stations in Europe and Saudi Arabia. These visits were to combine Soldier Support Inspections as well as Assistance Visits.

Policy Compliance Review

Phase I of the Policy Compliance Review (PCR) Program "window concept" was completed. It was a test encompassing only the compliance/functional reviews performed by HQ AMC staff at the MSC headquarters. Phase II was to be conducted at MSC subordinate activities by both HQ AMC and MSC personnel and would require MSC commanders to establish specific time frames (windows) in which PCRs will be conducted at their subordinate activities. AMC-R 11-45, revised by the DCS for Management and Productivity, contained the policy and procedures for accomplishing the PCR program. The consolidated schedule compiled by the AMC IG served as the tracking device for the PCR program.

In accordance with AMC-R 20-1, commanders were responsible for ensuring that their IGs performed full service support, including inspections, investigations, assistance, followup, teaching, planning and analysis, and information management. As part of staff inspection responsibilities, the AMC IG performed policy compliance reviews at each MSC every other year to assess compliance with established policy and the ability of the IG organization to perform its mission. During FY88, reviews of AVSCOM, CECOM, MICOM, TACOM, TECOM, and TROSCOM IG offices revealed that IG offices were, in general, performing full service IG functions and accomplishing the IG mission in a commendable manner.

Technical Inspections

In accordance with instructions from the Secretary of the Army Inspector General (SAIG), the AMC IG laid plans to incorporate the surety inspection functions of the Surety Field Activity into its operations at Picatinny Arsenal. The 1 October 1988 change was to standardize AMC surety functions with SAIG and other MACOM IG offices.

Training

Sixty staff members received training in management courses that related to their positions and to their career development. Eleven attended the Department of the Army Inspector General (DAIG) Course. Twenty-three also participated in the DAIG World-wide Conference in January 1988.

Command Counsel

Mission and Organization

The mission of the Office of the Command Counsel was to serve as legal advisor to the Commanding General, AMC and members of the staff, and to act as principal legal advisor to AMC subordinate commands, installations and field activities in the areas of law and patents. During the fiscal year, the office was reduced by five spaces due to a headquarters reorganization. However, one Patent Attorney from LABCOM was returned to that subordinate command along with the data rights function. Three other attorney positions in the Procurement Law division were upgraded to GS-15 to accommodate the new Program Executive Office (PEO) structure of the Army. Each position was appointed as an exclusive attorney for a particular PEO. Mr. Edward J. Korte became the Command Counsel on 4 December 1987 after the retirement of Mr. Burton M. Blair.

Automation

The automation program was implemented with the receipt of APD equipment. It was anticipated that the office would become automated and operational early in FY89.

Public Affairs Office

The Public Affairs Office personnel authorization was increased from one officer and 12 civilians to one officer and 20 civilians during FY88, reflecting the addition of the Historical Office.[47] The shift of the Historical Office from oversight by the DCS for Readiness to oversight by the Public Affairs Office was one part of the headquarters realignment carried out at the beginning of the Fiscal Year to accommodate the thinking of the new commander.

The realignment was intended to streamline operations, however, at the end of the Fiscal Year, the Historical Office was made a separate staff office reporting directly to the Chief of Staff.

[47] All information in this section is from the FY88 AHR submission of the Public Affairs Office unless otherwise noted.

A Marketing Branch was established in FY88 with a mission to improve the AMC image. Heading up the Marketing Branch was Mrs. Tansill R. Johnson, in a newly-created GS-1035-13 position. Mr. Clifford Braverman later joined the branch in a newly-created GS-1035-12 position.

Another position in the Public Affairs Office, a GS-1035-12 slot that existed for the production of AMC Journal, a video production, was eliminated during the year. The incumbent of that position, Mr. Richard Long, retired and the position was not filled.

The TDA authorization at the end of the Fiscal Year was one officer and 13 civilians.

Most Significant Issues

Congressional and national information media interest focused on several issues during FY88, including the military acquisition process, substandard bolts and fasteners, chemical demilitarization, and the environment.

Public Affairs personnel participated in the handling of the media during a Soviet Chemical Disarmament Delegation visit at Tooele Army Depot, Tooele, Utah, 18-21 November 1987, and a visit by then Vice President George Bush, at Longhorn Army Ammunition Plant, Longhorn, Texas, 8 September 1988, to witness destruction of a Pershing II missile under the Intermediate-Range Nuclear Forces (INF) Treaty.

Substantial support was provided to the Association of the United States Army, including an exhibit at the AUSA National Meeting, 12-14 October 1987, and preparation of the weapons directory for the October (Green Book) issue of ARMY Magazine.

Marketing Program

The newly-assigned marketing mission to improve the AMC image communicated the message that AMC is to be equated with quality--quality of products and all efforts; service to the soldier, and the fact that AMC is essential and integral to all things the Army does. The Marketing program focused on two initial target audiences, the soldier and the internal AMC audience.

A number of video spots intended for release over Armed Forces Soldiers Radio and TV stations were developed, conveying the message that AMC cares about the soldier and produces the best equipment in the world.

Public Affairs personnel coordinated numerous requests and visits by reporters for interviews with AMC subject matter experts during the fiscal year, as well as assisting to arrange interviews with subject matter experts at major subordinate commands, installations and activities.

PERSPECTIVES, a newsletter containing procurement and acquisition news, continued to be published and distributed to selected Department of Defense and Department of Army officials, editors of certain magazines or newspapers and a number of contractors doing business with AMC.

Management of Subordinate Activities

With respect to managing and monitoring the Public Affairs activities of the Major Subordinate Commands and installations subordinate to them, the Headquarters AMC Public Affairs Office:

1. Held its annual Public Affairs Symposium, 13-16 October 1987, at Gettysburg, Pennsylvania.

2. Furnished Command Information Topic Guidance, i.e., topics of emphasis for Command Information Programs at Major Subordinate Command, installation and activity levels.

3. Participated in the Service Response Force Exercise 88, at Sierra Army Depot, Herlong, California, in June 1988, which was conducted by the AMC Surety Field Activity, Dover, New Jersey.

Command Information

Support for the celebration of the 200th anniversary of the signing of the Constitution of the United States was widespread throughout the command with numerous programs and publicity efforts.

The Public Affairs Office conducted a program commemorating the 213th Army Birthday, 10 June 1988, in front of the AMC Building, with employees and invited guests in attendance.

Engineering, Housing and Installation Logistics

Mission and Organization

The mission of the DCS for Engineering, Housing and Logistics was to "direct, staff supervise, develop authorization and funding program for, and/or coordinate the management and utilization of, the physical plan of AMC, and the logistical support services incident to the operations of AMC installations."[48]

Facilities Division

At the beginning of the year, the Facilities Division underwent an organizational change as part of a headquarters realignment which transferred functional manager responsibility for Real Property Maintenance Activities (RPMA) from the DCS for Resource Management to the DCS for Engineering, Housing and Installation Logistics. This realignment, part of a larger reorganization of the HQ AMC Planning, Programming and Budget Execution System (PPBES), was approved in November 1987. It established the DCS, Engineering, Housing and Installation Logistics as the consolidated RPMA functional manager, charged with keeping the command informed on the adequacy of funding for RPMA programs in all PPBES phases and in all appropriations (Operations and Maintenance, Army; Army Industrial Fund; Research Development, Testing, and Evaluation; Procurement Appropriation, and Army Family Housing - the latter assigned to Family Housing Division).

To increase efficiency and save money and personnel, the DCS transferred the overall management of the Retail Logistics function within AMC to the Installations and Services Activity, Rock Island, Illinois, effective 11 July 1988. This action reduced the HQ AMC manpower requirement by six spaces. The activity was responsible for the development of command policy as well as

[48] AMC-R 10-2, *Organization and Functions,* p. 11-2.

providing technical assistance for the following retail logistics subfunctions: standard retail automated systems; equipment management; supply management; property accountability; equipment authorization; and troop food service. A Retail Logistics Liaison position was established within HQ AMC to coordinate actions within the headquarters.

Effective 20 September 1988, HQ AMC had a civilian manpower reduction. The DCS lost one space in the Housing Division. At the beginning of FY88, the DCS was authorized four military and 47 civilians; however, five civilian spaces were lost during the fiscal year. The DCS for Engineering, Housing and Installation Logistics was COL Jerry A. Hubbard.

Installation Restoration (IR)

AMC continued to take the initiative and demonstrate leadership in cleaning up contamination from past activities at its installations in accordance with the Installation Restoration Program Policy guidance issued in September 1987 by Mr. John Shannon, Assistant Secretary of the Army (Installations and Logistics). The U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) continued in its program of identifying, evaluating, and cleaning up contamination throughout all Army installations. The program addressed 1,391 Army installations with environmental contamination at sites in CONUS, Hawaii, Alaska, and Puerto Rico with an annual budget of more than $154 million in FY88. The Army goal was to complete preliminary assessments/site investigations by the end of FY89 and to complete remedial investigations/feasibility studies by the end of FY92.

One of the more significant events in the AMC IR program was the transfer of USATHAMA from AMC to the Office of the Assistant Chief of Engineers. Transition planning took place over most of the fiscal year, with formal transfer of the agency, except for Program Manager, Rocky Mountain Arsenal, which was maintained as an AMC function, occurring on 30 September 1988.

Section 105(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) required EPA to develop a national inventory of hazardous waste sites, ranked by priority with the most hazardous sites at the top of the list. The uppermost part of the list is known as the National Priority List (NPL). The process required that a site first be proposed and then later nominated for the NPL. There were no changes in the number of AMC installations on the NPL during FY88. These were:

Alabama Army Ammunition Plant
Cornhusker Army Ammunition Plant
Joliet Army Ammunition Plant
Lake City Army Ammunition Plant
Letterkenny Army Depot
Lone Star Army Ammunition Plant
Milan Army Ammunition Plant
Rocky Mountain Arsenal
Sacramento Army Depot
Sharpe Army Depot
Twin Cities Army Ammunition Plant
Umatilla Army Depot

Additional AMC installations proposed for inclusion were:

Aberdeen Proving Ground
Anniston Army Depot

Louisiana Army Ammunition
Savanna Army Depot
Tooele Army Depot
Riverbank Army Ammunition Plant (added in FY88)

A significant change in the 1986 Superfund Amendments Reauthorization Act was the requirement under Section 120(e) for developing an interagency agreement between federal facilities and EPA that explained technical and legal procedures by which remedial action would be implemented at a federal facility on the NPL. Such an agreement was drafted and signed for the Twin Cities Army Ammunition Plant. Completion of agreements at other sites was delayed due to significant disagreements regarding generic issues between EPA and the DOD. Those disagreements were resolved in August 1988 and negotiations for agreements at the remaining sites had resumed by 30 September 1988.

In the past Defense Environmental Restoration Account (DERA) funds had been used to extend or construct public water distribution systems to provide a permanent treated water supply to off-post residents whose drinking water wells had been contaminated from activities on AMC installations, though no projects were completed or begun in FY88. Bottled water was provided to off-post residences or businesses where contamination might have been caused by past activities. Sites where this was accomplished included Letterkenny, New Cumberland, Tobyhanna, and Sacramento Army Depots, and Rocky Mountain Arsenal.

The IR expanded in scope and in the range of AMC installations impacted by the program. DERA funds were used to perform restoration projects at 41 AMC installations which included:

Aberdeen PG
Alabama AAP
Anniston AD
Badger AAP
Cornhusker AAP
Detroit Arsenal
Dugway PG
Hawthorne AAP
Iowa AAP
Joliet AAP
Lake City AAP
Letterkenny AD
Lexington Blue-Grass AD
Lone Star AAP
Longhorn AAP
Louisiana AAP
Materials Technology Laboratory
McAlester AAP
Milan AAP
New Cumberland AD
Newport AAP
Picatinny Arsenal
Pueblo AD
Radford AAP
Redstone Arsenal
Red River AD
Riverbank AAP
Rocky Mountain Arsenal
Sacramento AD
Savanna AD
Seneca AD
Sharpe AD
Sierra AD
Sunflower AAP
Tobyhanna AD
Tooele AD
Twin Cities AAP
Umatilla AD
Volunteer AD
White Sands Missile Range

AMC Environmental Audits Program

AMC conducted the largest, most aggressive environmental audits program within DOD between 1985 and 1987. This $1.2 million program reviewed the compliance status of 64 installations in 34 states where numerous federal, state and local environmental laws and regulations were applicable.

Pollution areas covered involved air, water, solid waste, hazardous waste, toxic substances, pesticides, noise, drinking water, spill plans and environmental management. The summary report of this contract audit showed AMC installations had a total of 181 major, 1,169 intermediate and 1,262 minor non-compliances.

A follow-on Environmental Compliance Review (ECR) program, conducted by AMC Installations and Services Activity (I&SA), continued environmental audits by an in-house team that visited AMC installations on a cyclic basis. Twelve multi-media ECRs were scheduled each year and in FY88, 11 were completed at: Tobyhanna Army Depot, Anniston Army Depot, Iowa Army Ammunition Plant, Riverbank Army Ammunition Plant, Dugway Proving Ground, Letterkenny Army Depot, Ethan Allen Firing Range, Natick Laboratories, Jefferson Proving Ground, and Ravenna Army Ammunition Plant. The Pueblo AD ECR was postponed because of other regulatory visits and Intermediate Nuclear Force (INF) Treaty operations ongoing there. The AMC Chief of Staff signs each ECR report through the MSC to the installation and requests a correction schedule of deficiencies be reported within 180 days. AMC installation commanders were required to review their resources and effect corrective actions on a priority basis.

After each ECR, I&SA provided each installation with an Environmental Management Plan to provide a framework and focus of objectives for the corrective action. The Environmental Management Plan was an integrated management approach to implement and represent solutions to environmental management noncompliance issues.

Real Property Maintenance Activity Management

As the DCS assumed functional management responsibility for the RPMA budget programs, AMC spent approximately 19 percent of the Army's RPMA budget. However, the command managed 25 percent of the Army's buildings and facilities, 21 percent of its building square feet, 29 percent of its electric lines, 28 percent of its water lines, and 36 percent of its acreage. Included in these assets were industrial, supply and research facilities that range from Civil War era structures to ultra-modern production and testing operations. AMC had difficulty in meeting the minimum requirements for mission performance in facilities that needed maintenance and repair, while the command was at the forefront of technology, developing and fielding advanced weapon systems for the modern Army.

Throughout FY88 the overriding issue was the significant shortfall of available RPMA funds and the disturbing growth in the backlog of maintenance and repair (BMAR) as minor construction projects were deferred. Day-to-day operating requirements such as utilities and contractual obligations at several installations (depending on type of appropriation) were underfunded, prompting a mid-year DoD-wide order to sharply curtail expenditures. In FY88 the total BMAR in AMC grew 31 percent, by best estimate, from the year-end FY87 level, yet RPMA budget guidance contained no funds for BMAR. On the MCA side, AMC continued to see urgently needed projects deferred, and questions were raised up to the Assistant Secretary level concerning the command's "fair share" of the MCA appropriation. Delays in constructing facilities to support future weapon systems or to correct environmental, security, and safety deficiencies will eventually impair mission performance. Obviously, the budget environment will force a reappraisal of AMC's mission and its $49 billion in real property assets.

To provide the Army's highest level decision-makers a composite picture of the state of AMC's facilities and equipment, together with its assigned missions, a major effort known as the AMC Modernization Study, or "Battelle Study," was performed. The contractor, Pacific Northwest Laboratory, which operated for the U.S. Department of Energy by the Battelle Memorial Institute, was asked to develop, through site visits and tech data reviews, an order of magnitude estimate of the

funding required to bring AMC's facilities/equipment up to a fully functional level, and the future funding needed to maintain that level. The study reflected standards and methods typically used in the private sector to maintain their competitive edge in a cost-conscious environment. It was basically a snapshot of AMC's facilities/equipment needs, taken from a private industry perspective. The contractor found an AMC industrial complex extremely old by industry standards, and an ongoing maintenance expenditure about half the industry average.

The study estimated an initial "get well" cost far above current and anticipated budgets, indicating a need for major changes in management philosophy. Anticipating funding nowhere near the estimated requirements, the study recommended a combination of aggressive management improvements and operational streamlining (such as use of alternate financing) to maintain and modernize AMC's facilities/equipment, coupled with a hard look at its mission with a view toward shrinking the mission and facilities. At year end, the study had been released by AMC for review at higher levels, including the OSD base closure study.[49]

Hazardous Waste Minimization (HAZMIN)

The 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act resulted in comprehensive Environmental Protection Agency (EPA) regulations being promulgated 15 July 1985 which required hazardous waste (HW) generators to certify that hazardous waste minimization (HAZMIN) programs had been established. While AMC had, at least since February 1983, formally listed as its first HW management priority the reduction in quantities of HW using various means, new EPA regulations introduced the need to centralize and prioritize AMC's local HAZMIN efforts.

In September 1985, General Richard H. Thompson directed the AMC Engineer to develop a comprehensive hazardous waste plan for AMC. The AMC HAZMIN Plan outlined actions that AMC would take to reduce its HW generation and how it would manage the HW it generated. Its goal was to reduce AMC HW generation 50 percent by 1992 over 1985 levels. By the end of CY87, AMC had reduced its HW generations by 11.8 percent. Indirectly, the AMC HAZMIN Plan was intended to demonstrate to regulatory authorities that AMC recognized that HW must be managed properly and more efficiently.

Responsibility for HW reduction efforts was not given to HW generators alone in AMC's HAZMIN Plan, but rather to all parties who could affect AMC HW reduction efforts. The HQ AMC HAZMIN Board was established 1 June 1986. This interdisciplinary group, formed from HQ AMC Deputy Chiefs of Staff, separate office chiefs and chaired by the AMC Chief of Staff, advised the CG about HAZMIN progress as well as guided and advocated AMC HAZMIN actions. AMC regulation AMC-R 15-46, *U.S. Army Materiel Command Hazardous Waste Minimization Board*, formulated the activities of the board. In addition the regulation established three working groups (Incentives, Productivity Projects, and Technology Transfer) to be the functional arms of the board. Two technical assistance contracts addressing solvent reuse and electroplating waste minimization were also sponsored by the AMC Engineer to support installation efforts to reduce their HW generation. These studies resulted in 35 HAZMIN projects funded by DERA between FY86 and FY88.

The Army Environmental Hygiene Agency surveyed 11 active HW-generating installations and prioritized what actions they were doing that best promoted HW reduction and what actions needed to be taken to reduce HW even further. USATHAMA issued a report prioritizing expedient

[49] Battelle Memorial Institute, *Army Materiel Command Modernization Study,* September 1988.

HAZMIN technology or techniques (within their mission areas) that could be implemented and used to reduce AMC HW within the five-year goal period. USATHAMA listed eight active R&D projects addressing HAZMIN Research and Development.

By the end of FY88, 59 installations had issued local HAZMIN plans of action using the information, guidance, and requirements detailed in the AMC HAZMIN Plan. At least $2,940,000 in Environmental Restoration OPA funds had been distributed to the MSCs for the purchase of HAZMIN equipment.

Environmental Restoration Program

AMC's share of Environmental Restoration Program (ERP) funds was increased from $130.081 million in FY87, (99.98 percent obligated) to $155.0 million, which included Rocky Mountain Arsenal. The U.S. Army Toxic and Hazardous Materials Agency, as central program manager for these funds, ensured obligation of $153.9 million, for a rate of 99.3 percent obligated. This was well above the AMC goal to obligate more than 98 percent of these Defense Environmental Restoration Account funds.

Historic Preservation

During FY88 the Historic Preservation Program was reorganized and data relating to AMC Installation's compliance with Army regulations was developed. The Fort Worth District Corps of Engineers examined the program and made recommendations to bring the Command into full legal compliance for the first time.

Energy Management

After maintaining a downward trend since FY85, AMC's energy management program suffered a setback in FY88 as AMC facilities and industrial equipment consumed nearly 2 percent more energy over the prior year. Aside from pushing the command off the FY85-95 glidepath to meet HQDA's energy reduction goal, the increase was a component of a near-$200 million energy bill for the year. The DCS was working to maintain a high level of energy awareness in AMC, but growing apathy and shrinking resources for energy management were undercutting the program that was so successful in the FY75-85 period. With the RPMA funding shortfall jeopardizing even basic operations, there was little to spend on projects solely to save energy, and deferred maintenance and repair actions permitted unchecked energy losses in buildings and utility systems.[50]

With process operations continuing as a major factor in many installations' energy consumption, preparations were made to enable those installations to report process energy separately from building consumption, and establish a separate goal based on productivity indicators, rather than square feet. Process energy reporting was to commence in FY89, arguable being a better assessment of AMC's progress toward meeting assigned goals. The task of identifying productivity indicators in such areas as depot and laboratory operations posed a real challenge, as did developing methods to document energy used separate from building requirements.

A landmark energy management action was taken with the award of the Army's initial "shared energy savings" contract. This was an alternate financing arrangement whereby private capital funds

[50] Memo, DCS for Engineering, Housing and Installation Logistics for HQDA, 7 Jul 88, subj: Waiver from Facility Energy Goals.

were used for an energy conservation project in lieu of appropriated funds. With Congressional authority to enter into long-term contracts, the Government could implement energy conservation improvements with no up-front appropriations. The principle of shared savings enabled the contractor to recover his investment and realize a fair profit, and the Government to obtain energy savings that otherwise would not be available under funding constraints for construction or maintenance/repair. At Corpus Christi Army Depot, a 25-year contract was competitively awarded to modernize, operate and maintain the environmental control system of a large paint hangar in a most efficient manner. Savings of $3.4 million were estimated over the life of the contract. It was believed there were countless opportunities in AMC's antiquated buildings and utility systems to enter into similar contracts at considerable benefit both to the government and the private sector.

Three installation energy programs received "excellent" ratings in the I&SA Facility Engineering/Energy Program Review visits: Detroit Arsenal, New Cumberland Army Depot, and Pine Bluff Arsenal. Corpus Christi and Sierra Army Depots, and Badger and Lake City Army Ammunition Plans, won AMC Energy Management Awards in FY88 (for FY87 performance). Also Lake City Army Ammunition Plant and the energy coordinator for Sierra Army Depot were presented Federal Energy Efficiency Awards.

Housing Management Division

Management

New initiatives and objectives for improving quality of life for service members was an initiative called Army Communities of Excellence Program. The quarters cleaning initiative was implemented during FY88, but a reduction in funding augured more cleaning by occupants and less by contract, in order to keep the initiative alive.

Housing Operations Management System

The Assignments/Terminations (A&T), Housing Referral Survey (HRS), and the billeting modules of the Housing Operations Managment System (HOMES) were approved for deployment. The furnishings and financial modules were under development. Redstone Arsenal and Aberdeen Proving Ground had operational A&T, HRS, and billeting modules. The first Configuration Control Board (CCB) for HOMES was established to handle all changes to the system.

Training

Seven Army Housing Management Courses were held at the CEHSC, Fort Belvoir, Virginia and six courses were held at other sites where ninety-three AMC persons received training. Two Economic Analysis courses were held and 11 persons received training.

Funding

The Program Budget Guidance (PBG) of $48 million for operations (BP191000), M&R (BP192000) and utilities (BP191000) was adequate to fully fund the cost of ownership during FY88.

High Cost Quarters

With the increased emphasis of reducing and stabilizing costs associated with the larger high cost quarters, AMC continued to stress eliminating conditions that contributed to high costs. The few

historical dwelling unit assets were studied under a contract sponsored by HQDA to determine existing conditions and the actions required to reduce the drain of dollars.

Improvements and Construction

The AMC community was on schedule in improving its housing inventory. The 104 new units at Dugway were completed. A contract for 100 new units at Charles Melvin Price Support Center in St. Louis was awarded for $9.7 million, and four sites totalling 395 dwelling units had improvements projects funded for $13.7 million. AMC total Family Housing inventory was 8,827 dwelling units.

AMC Environmental Program

The Environmental Quality Division (EQD) was responsible for managing the Environmental Quality and Pollution Abatement Program. It prepared and implemented AMC policy and procedures that involved coordination with federal, state and local officials. While the Clean Air Act and Clean Water Act were the most expensive cleanup laws of the 1960-1970's, the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and, in FY88, the Superfund Amendments and Reauthorization Act (SARA) continued to challenge and complicate AMC's compliance and cleanup efforts in the 1980's.

AMC EQD had an automated Environmental Projects Information System (EPIS), which accelerated input and output of environmental data such as the annual Defense Environmental Status Report (RCS 1485) and the semi-annual Environmental Pollution Prevention, Control and Abatement Report (RCS 1383) to HQDA. This ADP database was maintained by contractor to the U.S. Army Toxic and Hazardous Materials Agency at Aberdeen Proving Ground.

Compliance with Applicable Environmental Quality Standards

The Clean Air Act and Clean Water Act were the expensive, driving laws of the 1970s, but the regulations implementing TSCA, RCRA and CERCLA (Superfund), which came to the forefront in FY82, had a major impact on the AMC during FY87 and FY88. TSCA regulated manufacturing, use and importation of chemical substances, including polychlorinated biphenyl (PCB). AMC installations stored and used large quantities of polychlorinated biphenyl. RCRA and CERCLA addressed past and future management of land disposal of hazardous waste. Under RCRA, AMC was spending several millions of dollars annually to obtain RCRA Part B hazardous waste permits. Under CERCLA, problems at installations with groundwater contamination was quite pervasive. With the Superfund Amendments to CERCLA and the Reauthorization Act (SARA), more hazardous waste requirements are forthcoming on AMC installations.

On 1 October 1987, AMC had 33 noncomplying installations composed of five air noncomplying sources, six water noncomplying sources, 28 hazardous waste source and two solid waste sources. At the close of FY88, the total number of noncomplying installations had increased to 37, due to increased attention and regulatory emphasis by Federal and State regulators. Of the 37 installations, there were two air noncomplying sources, 11 water noncompliers, 36 hazardous waste noncompliers and 1 solid waste problem area. Thus, the net AMC compliance posture decreased considerably during the fiscal year in the areas of water pollution and hazardous waste sources. Many of the hazardous waste failings were due to Part B RCRA permit deficiencies, where States added new requirements or returned draft permits with procedural violations.

The most pervasive environmental problem at AMC installations was groundwater (GW) contamination. At the start of FY82, AMC had only 16 installations with confirmed GW contamination. By the 4th Qtr FY83, this had grown to 38 and remained at 38 throughout FY84. During the 2nd Qtr FY86, this increased to 41 installations where it remained throughout FY87. During FY88 the problem installations numbered 44, 16 of which had contamination migrating off-post. Ten additional installations had the potential of having off-post migration of GW contamination. EPA placed 12 of them on the NPL and six more were candidates for the list.

Monitoring of GW continued from existing or additional wells to identify the type of contaminants and extent of migration. The CERCLA of 1980 required investigation of and response to contamination caused by past disposal activities. The DOD program in this area was an outgrowth of the AMC Installation Restoration Program started in 1975, and was managed by USATHAMA which provided technical experts to installation commanders.

Air Quality

The Air Quality Program throughout AMC continued to work without major problems and was mostly controlled by State Implementation Plans individually administered by state or local authorities. As with the remainder of the air pollution control community, the impact of the overdue amendments to the Clean Air Act on AMC were unknown. In the area of stationary air pollution sources, there was little activity during FY88.

Air Quality--Mobile Sources

A National Security Exemption (NSE) for 20,500 replacement engines for multifuel 2-1/2 and 5-ton trucks, requested from the EPA on 30 June 87, was granted on 30 September 1987 for one year, but on only 4,100 engines out of the five-year request. The Army's chances to get four more years on this request were poor, since the Service Life Extension Program (SLEP) was canceled and the Family of Medium Tactical Vehicles program was slipping due to budget constraints. On 22 December 1987 TACOM revised its NSE package request, wanting 1,600 more 2 1/2 ton engines for CY88 to be exempted. This was forwarded to EPA on 4 February 1988, and on 2 March 1988, EPA granted 2,700 more engines (1,600 plus 1,100 not used for the 5 ton exemption).

General Motors incorrectly sent a letter directly to EPA on 3 November 1987 requesting a NSE for 6.2 liter engines for the High Mobility Multipurpose Wheeled Vehicle (HMMWV). Such requests required endorsements by the HQDA. This request was for 22,000 new and replacement engines over two years. The alternative to an NSE was payment of a Non-Conformance Penalty (NCP) of about $50 per engine, depending on how far the diesel engine was below the new 1988 particulate standards. The TACOM NSE package, dated 3 March 1988 was revised, staffed and forwarded through HQDA (CEHSC-E) on 31 Mar 88 to Assistant Secretary of the Army for Installations and Logistics (ASA (I&L)) (Environment, Safety and Occupational Health). ASA (I&L) forwarded the request to EPA on 4 May 1988.

The 6.2 liter engine NSE request was overtaken by an aggregate NSE for the total Army Tactical Vehicle Fleet (TVF). On 25 and 26 May, representatives from EPA and TACOM met to develop guidelines for NSEs that would cover the Department of the entire Army TVF. This exemption package was sent by TACOM on 29 June 1988, through AMC and HQDA to EPA. Specifically, these guidelines will allow HQDA to plan for future procurement of military tactical vehicles and replacement engines that would be consistent with Section 203(b)(1) of the Clean Air Act. Additional discussions were held between EPA and TACOM on 22 August 1988 on specific applications to the entire fleet of light, medium and heavy tactical vehicles and their replacement engines.

On 4 October 1988, EPA granted a NSE for 31 different vehicles/engines in 1988 and provided guidelines for future NSEs. This precedent-setting agreement permitted TACOM to develop instructions for contractors to implement the EPA/TACOM agreed-upon NSE. The development of the Army/EPA agreement will be a significant contribution to the future of the Army's Tactical Vehicle Fleet and should eliminate case-by-case exemption requests.

Water Quality

In FY87, the long overdue amendments to the Clean Water Act were passed. The most immediate effect on AMC installations was a requirement for water-quality-based effluent limitations as a part of the National Pollution Discharge Elimination discharge permit system, which may be imposed in a phased program over the next three years. EPA conducted a limited number of bio-monitoring studies and toxicity reduction evaluations as part of the proposed water quality effluent evaluation programs during FY88.

Regionally, AMC continued to support efforts to clean up the Chesapeake Bay as outlined in the DOD-EPA Joint Initiative on the Chesapeake Bay. And, while military construction funds were approved for construction of the industrial waste treatment plant at Lake City Army Ammunition Plant, future funding of major construction efforts at government-owned/contractor-operated installations was in a state of flux, pending agreement on whether MCA or production funds were to be used.

Environmental Noise

The purpose of the Army Installation Compatible Use Zone (ICUZ) program was to safeguard installation mission capabilities from off-post encroachment. Chapter seven of AR 200-1, 15 June 1982, and AMC Supplement 1 to AR 200-1, 1 February 1983 implemented the ICUZ Program for the Army. The ICUZ program required development of noise zone contours at those installations generating sound from aircraft operations, weapons firings, munitions detonations or other excessive noise activities. It further required identification and analysis of incompatible land uses and, if necessary, development of agreements with local communities. This requirement had to be documented in an ICUZ analysis study for each installation generating significant environmental noise.

At the end of FY87, 45 AMC installations were determined to need complete noise contour maps; 40 installations had completed this requirement. Further, 30 other installations generated no significant environmental noise and had no requirement for noise contours or an ICUZ analysis study. Compliance with the ICUZ requirements will be an ongoing requirement for the next several fiscal years. During FY84-86 the AMC EQD initiated background studies and held ICUZ training for representatives of 45 installations. This training covered ICUZ contours, site specific analysis of community noise laws, land-use requirements, and public involvement techniques. At the end of FY86, five AMC installations had their initial ICUZ analysis study 100 percent complete, and by the end of FY87 20 installations had their ICUZ studies completed. By the end of FY88, 14 additional installations had completed their ICUZ studies for a total of 34.

By the end of FY89, the final 11 AMC installations must complete their ICUZ analysis studies in order to comply with an ASA (I&L) memorandum. This, of course, will be contingent upon monitoring noise on-site at installations by the U.S. Army Environmental Hygiene Agency's Bio-Acoustics Division at six installations, and acquisition of OMA funding for refresher noise/ICUZ training and public participation work.

Environmental Training

The Army had a very comprehensive and up-to-date environmental training program offered by AMC's Army Logistic Management Center (ALMC). The eight environmental course offerings were: Basic Environmental Coordinator's Course, Environmental Documentation Course, Manager's Environmental Course, Executive Environmental Seminar, Environmental Coordinator's Seminar, Defense Hazardous Materials/Waste Handling Course, Executive Environmental and Hazardous Materials Workshop, and the Defense Hazardous Waste Workshop. During FY87, the ALMC Environmental Management Committee (EMC) also developed and offered by correspondence a Defense Hazardous Materials Handling Course.

The Defense Hazardous Materials Handling Course was originally developed and presented by the Army Logistics Management Center at Fort Lee for the Defense Logistics Agency (DLA) during FY82. It was offered during FY83-FY88 in residence and on-site to AMC, other Army, other service, other government, and contractor personnel. A major revision of all eight environmental courses was completed in FY86 and minor revisions in FY87 and FY88. These minor changes were thoroughly coordinated with HQDA and other MACOM's at the annual environmental course proponents meetings. The revision brought about flexibility in course material, modernization of generalized blocks of instruction, separation of target audiences and variability in modes offered.

During FY88, the ALMC EMC taught 2,258 students in its eight environmental courses, not counting those who took instruction by correspondence. Of these, 52 percent were from AMC. Thus, AMC personnel were taking advantage of the management, logistics, and environmental offerings of ALMC. This was largely due to the publicity given their courses through correspondence and the Army Training Requirements and Resources System.

Resource Conservation and Recovery Act

The management of HW was regulated by the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984. There was also increased emphasis by EPA to monitor federal facility compliance with RCRA. EPA policies developed enforcement strategies that entered into Federal Facility Compliance Agreements (FFCA) within 120 days of any RCRA violation. DOD provided a policy that required agreements be negotiated when RCRA compliance could not be achieved within a 3-6 month period from the first formal notification by a regulatory agency. One of the ways that EPA accessed RCRA compliance was with the Hazardous Waste Data Base (HWDMS). AMC provided updates to this database to ensure that EPA could verify or amend compliance data to reflect accurate information.

A major milestone affecting AMC's operations dealing with the management of hazardous waste was the submission of applications for RCRA Subpart X permits. One of the areas within AMC that this classification applied to was open burning and open detonations (OB/OD) operations. The submittal of the application allowed the continuation of operations in an interim status until a final determination was made on the permits. The discharges from OB/OD operations were a concern due to the requirements of both RCRA and the Clean Air Act (CAA). Many regulatory agencies expressed their concern about alternative methods needed for the development of the demilitarization of conventional munitions and explosives. In response to these needs the U.S. Army Defense Ammunition Center and School (USADACCS) was tasked to conduct a two-year study on environmentally sound demilitarization alternatives. Additional studies characterized the non-criteria (toxic) air pollutants from OB/OD operations to support information on permit applications.

Deactivation furnaces and explosive waste incinerators were programmed for equipment upgrades necessary to meet RCRA requirements for hazardous waste incinerators. These units were used for the demilitarization of small arms, primers, and fuses, and were classified by the EPA as hazardous waste when they were discarded. AMC submitted evidence to the EPA in support of a change in the classification of many of these items to non-hazardous waste. The engineering design and procurement of equipment for the upgrades was managed by the Ammunition Equipment Directorate, Tooele AD.

Programs to meet the requirements of RCRA were no longer eligible to compete for funding under the Defense Environmental Restoration Account (DERA), which was primarily used to fund installation restoration projects.

Toxic Substance and Control Act

The major impact of the Toxic Substance and Control Act (TSCA) on AMC activities was its regulation of operations concerned with polychlorinated biphenyl (PCBs). Efforts centered on compliance with storage, handling and disposal regulations. While not regulated as a hazardous waste, these materials were included as an area of interest in the ongoing environmental audit program.

Radon Reduction Program

The Army established an aggressive radon reduction program in a policy and guidance memorandum in March of this year. The Army planned to test all of its buildings by FY91 and to complete mitigation efforts by 1997. A central HQDA technical services contract was to be used to procure the radon detectors and to furnish analytical support to the installations. AMC guidance issued in November 1987 includes required steps to ensure accurate and efficient placement of the detectors, public notice of the proposed testing to installation personnel, regulatory protocols, data management, and record keeping. The first testing period will begin during the 1988-89 heating season for all day care centers, hospitals, and schools. Mitigation efforts will be based on radon concentrations detected during the testing period with remedial actions required within one month at high levels.

Underground Storage Tank Program

Final regulations on Underground Storage Tanks (UST) were published on 23 September 1988 by EPA. Effective 12 December 1989, the new rules would require extensive and costly changes in UST systems at many AMC installations. Requirements range from installations of new tanks to the closure and removal of old. The requirements embrace both new and existing USTs with capacities of more than 1,100 gallons and with 10 percent or more of their volume underground, storing petroleum or any of more than 700 chemicals listed under EPA regulations. AMC planned to update the Army-wide UST inventory in FY89 and outline the technical requirements and corrective action schedule based on tank age.

Defense Environmental Status Report

This report served as a basis for HQDA's annual review to DOD and also as part of DOD's annual report to Congress. It was an indicator of how well AMC was proceeding toward achievement of DOD/DA environmental goals and objectives. It also provided valuable information in identifying key "non-compliance" issues that required corrective actions, either via pollution abatement projects or through administrative efforts. By analyzing the data submitted on this report, AMC was better able to identify existing or potential problem areas as well as gather input on emerging trends in the environmental arena, thus enabling a well planned environmental quality control program within AMC.

Environmental News

In FY87, the DCS published a *News Bulletin* which the Environmental Quality Division (EQD) utilized to disseminate information, policy changes and directions in the environmental arena, as well as items of general interest to the MSCs and installations. The bulletin proved to be an invaluable and economical method of communication.

National Environmental Policy Act

Army policies and procedures for complying with the procedural as well as the substantive requirements of the National Environmental Policy Act (NEPA) were outlined in AR 200-2, *Environmental Effects of Army Actions,* as well as in the Council on Environmental Quality's regulations implementing NEPA. During 1988, AR 200-2 was revised to provide much stricter controls relative to use of a "categorical exclusion" in lieu of an environmental assessment/impact statement.

However, problems continued to surface regarding projects/programs that require environmental documentation. Often PMs neglect to adhere to their legal requirements to prepare and provide environmental documentation to support their project in a timely manner. Such neglect was a direct cause of project delays. In fact, the Army voluntarily suspended all electromagnetic pulse (EMP) testing operations in the wake of a federal lawsuit against DOD alleging non-compliance with NEPA. This suspension affected several AMC installations and their respective mission requirements. HQDA and Congress continued to give increased interest to and scrutiny of NEPA documentation when considering funding programs and projects.

Headquarters Installation Support Activity

Organization and Mission

Within headquarters, administrative and service support activities (SSA) were combined in 1974 and reorganized in 1982 with the addition of Civilian Personnel and other functions. In an effort to avoid redundancy, SSA functions were distributed among the various DCS and separate offices. A change in approach occurred in FY87 with a reorganization plan calling for creation of a single separate office to handle the full range of post/camp/installation-type functions for the command. The proposal recommended that this separate office be removed from Army Management Headquarters Activities (AMHA) by assigning it to a non-HQ TDA with duty stations unchanged. This realignment would eliminate DCS and separate office responsibility of all support service activities. The recommendation was approved on 20 August 1987, and the Headquarters Installation Support Activity (HISA) was scheduled to become operational on 1 October 1988. Mr. Robert Brooks served as the Acting Commandant until the arrival of COL James P. Hunt on November 1987.[51]

An organizational realignment was approved and implemented on 11 February 1988. The Headquarters Civilian Personnel Office was assigned with 100 percent of its requirement of 62 authorized personnel. However, a HQ AMC realignment eliminated four spaces. The Operations and

[51] Memo, BG Harrison for All Employees, HQ AMC, 11 August 87, subj: Reorganization of HQ AMC; Headquarters Installation Support Activity FY88 Historical Submission. Hereafter, information in this chapter is from the HISA submission unless otherwise indicated.

Support Division was organized with personnel spaces transferred from the DCS for Personnel, Resource Management, and Engineering, Housing, and Installation Logistics. The Equal Opportunity Office was established with two personnel from HQ AMC Office of Equal Opportunity. The HQ Safety Office received a Safety Occupational Health Specialist position from the HQ AMC Safety Office which became the HQ Safety Officer position. The Military Support Division, conisisting of the Motor Pool, Military Personnel Service Center, and CG's Mess, received six positions from the DCS for Engineering, Housing, and Installation Logistics, seven from the DCS for Personnel, and six from the Secretary of the General Staff, respectively.

The Director of Information (DOIM) activity, initially established and aligned under the U. S. Army Information Systems Command-AMC (ISC-AMC), was realigned under HISA. DOIM supported ADP automation, printing and publication, records management, telecommunications, and visual information management. Prior to the DOIM concept of information management, the Telecommunications Center was designated as the USAISC-Bush Hill activity. On 6 September 1988, it was redesignated as the USAISC-Alexandria activity, effective 2 October 1988.[52]

Frequent Flyer Program

The major subordinate commands (MSCs) were directed in July 1986 to establish a "frequent flyer program" like that used by TACOM to secure the benefits of travel promotion programs for the government. HISA was tasked on 19 October 1987 to establish a similar program for HQ AMC. This program became operational on 11 July 1988. The command had an average of 350 participating in the program. The criteria used to identify participants was assignment to a position that required air travel more than six times annually.

HQ Realignment

In February 1988, the HQ AMC civilian manpower authorization was reduced 182 spaces to implement a HQDA-directed 10 percent Army Management Headquarters Activities (AMHA) manpower reduction for FY88. Virtually every element in the headquarters was decremented by 10 percent. The Headquarters authorizations associated with the DCS for Conventional Ammunition were deleted from the Headquarters Table of Distribution and Allowances (TDA) and placed on a separate non-AMHA Program Executive Office (PEO) Ammunition TDA. This action generated unused spaces under the AMHA ceiling which allowed the CG to restore 49 civilian spaces for various high priority functions and to move the International Cooperative Program's functions from the U. S. Army Security Affairs Command to HQ AMC. The reduction and realignment became effective on 1 April 1988 and necessitated the placement of 131 employees into authorized positions. HQ CPO coordinated with appropriate DCSs and referred qualified impacted personnel to vacant positions. As a result, all but five were placed by 30 September 1988.

Affirmative Action

Significant progress in affirmative action was made by the HQ CPO in the placement of handicapped personnel. HQDA had established annual goals for accessions of both handicapped and severely handicapped individuals. At the end of FY88, the headquarters had 179 handicapped employees and 39 severely handicapped employees, or 11.84 and 02.48 percent of the total workforce respectively.

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[52] PO 104-1, 6 Sep 88, HQ USAISC, Fort Huachuca, AZ.

EO was responsible for establishing and implementing the Affirmative Action Plan for HQ AMC. It also conducted special programs, such as those for Black history, Hispanic heritage, and federal women.

Quality Circle

A CPO initiative overhauled new employee orientations to provide a much more personalized introduction consisting of a pre-arrival letter from the selecting supervisor, an inprocessing and formal welcome by the Command Group, and a command briefing that focused on the mission and functions of AMC, with emphasis on the employee's role in accomplishing the mission.

Sick Leave

CPO completed instructions and policies which transferred to first line supervisors the authority to approve or disapprove requests for advanced annual or sick leave. This function was previously the responsibility of CPO.

Incentive Awards

Incentive Awards (IA) processing procedures were revised and citations were prepared within the HISA Administrative Office. Prior to this revision, proposed citations were reviewed by the IA office and a final certificate was prepared. This procedure was time consuming and resulted in an unnecessary backlog which was not eliminated until FY88. On-the-Spot Cash Award procedures were revised and awards were processed within one day.

IA was also merged with the performance management function to provide a one-stop review and approval of performance appraisals and incentive awards. Automation of performance appraisals readily identified delinquent appraisals and reduced the delinquency rate to less than two percent.

Training

The training facility was divided into two rooms to establish a computer training center. This initiative resulted in the offering of 62 on-site courses during FY88 which equated to an average of 5.17 courses per month. It also reduced training costs and eliminated the requirement to send personnel to non-government facilities in the Military District of Washington.

The Learning Resource Center (LRC) was reopened, and it offered training through self-paced electronic media resources. There were 862 courses completed in the LRC, an average of 71.8 completions per month as compared to 33 per month during the previous period of operation. The increased utilization of the LRC saved funds by eliminating travel and tuition costs for some personnel.

Controlling Defense Outlays

The Deputy Secretary of Defense on 20 May 1988 directed the deferment of all General Services Administration (GSA) purchases and restricted emergency repair to in-house facility maintenance. Although requisitions were processed administratively, HISA was unable to process 169 requisitions for purchases totaling $2,595,749. With all but certain safety related actions blocked, the backlog between 20 May and 30 September 1988 grew to 40 work orders.

Joint Hazard Classification System

The DOIM Information Center was tasked in November 1987 to develop an automated data base system with the capability to provide field safety activities and transportation offices throughout the Army automated retrieval of the latest available Explosive Hazard Classification Data. This objective adhered to the AMC plan for SAFEARMY 1990 which was emphasized by the former Commanding General, General Richard H. Thompson, to his chief of staff on 15 November 1985. The system provided 24-hour access to as many as 10 users simultaneously and permitted 600 accessions per day.

Armored Family of Vehicles Data Base

(U) The DOIM Information Center was also tasked in April 1988 to modify the armored family of vehicles (AFV) data base capabilities. Improvements to the system provided users the ability to obtain data to facilitate the management of AFV funds and to measure the progress and status of technical activities.

Spare Parts Breakout Cost Avoidance Program

In June 1988, revisions to this program included an edit program for national stock numbers (NSN) and appropriation accounting numbers. The modifications also incorporated a computation program that recognized "adverse trend" items as well as a program to create a report of these items for procurement records.

Pentagon/AMC Secure Data Communications Link

LTG Bunyard in December 1987 tasked DOIM to establish a secure data link between HQ AMC and the Pentagon to connect with the U. S. Army Research and Development Information Systems Agency in Radford, Virginia (RDAISA) Support Terminal Network. The Information Center was responsible for managing the supply of all required materials and coordinated the installation and testing of the system which became operational on 16 September 1988.

Local Area Network

A contract to install a broadband local area network (LAN) within HQ AMC building expired on 30 September 1988. Due to the nature and complexity of problems experienced during the three-year relationship with the prime contractor, CBM Electronics Systems, Inc., the contract with CBM was not renewed. Only 30 to 40 users had actually been connected. LAN had been installed only in the DCS for Resource Management, Plans and Logistics Division, Systems Software Branch of DOIM, and selected elements within HQ, U.S. Army Security Affairs Command and the DCS for Development, Engineering and Acquisition. Since installation was not completed and some installation practices were questionable, the contracting officer at Defense Supply Services of Washington (DSS-W) mandated that an installation survey be conducted to determine whether CBM complied with the terms of the contract. Personnel from the 7th Signal Command (ISEC CONUS) were requested to provide technical support to satisfy the specific requirements imposed by DSS-W. The survey was scheduled to commence on 28 November 1988.[53]

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[53] DF, DOIM to Distribution, 8 December 88, subj: LAN Update.

Improvement of Copying Service

A pilot contract with the National Industries for the Severely Handicapped (NISH) relating to provision of copying services was renewed at a cost of $92,000 for FY88. Copying equipment was also upgraded in three centers and each center had the capacity to produce 300,000 copies monthly. This service was supplemented by 46 copiers, strategically placed throughout the headquarters, to provide self-service convenience for those with smaller copying jobs. The entire cost of providing copying service to HQ AMC and collocated activities for FY88 was $860,000.

Conversion of Paper Records to Microfiche

An initiative to convert paper records into microfiche was accomplished on a pilot basis with the Headquarters Safety Office. With an appropriation of $7,000 and a contract with the Columbia Lighthouse for the Blind (CLB), the project reduced records in a five-draw file cabinet to less than one-half of a drawer and reduced storage costs by 90 percent. This program will be extended to other elements in the headquarters that have a requirement to maintain long term and permanent records.

Modern Army Recordkeeping System

An aggressive effort was launched to improve records management in the headquarters. Training was provided to administrative personnel, action officers, and records management personnel. The objective was to emphasize the procedures for managing information once it was created and the importance of following assigned authorities in the disposition or retirement of records.

Joint Safety Committee

A Joint Safety Committee, consisting of representatives of the command and the National Federation of Federal Employees (NFFE), was created to assist in implementing a safety and health program for HQ AMC employees. A previous agreement had restricted the committee membership, making it too small to assist HISA effectively in managing the total safety and health and program.

Fire Code Deficiencies

Automation requirements of the headquarters to support the mission exceeded the capability of the electrical power outlets available in the building. This deficiency together with the use of unauthorized cabling in various offices caused fire code violations. The responsibility for monitoring corrective action was given to HISA, effective 1 October 1987. Numerous inspections by local fire authorities and Safety Office personnel during the year brought the headquarters facility into a much safer status.

Accidents

The Safety Office maintained records on all accidents occurring during the year in accord with AR 385-40. The office was required to maintain a log of occupational injuries and illnesses. The Office of Workman's Compensation advised the headquarters of the number of claims it received. These did not reflect every accident, as no claims were filed relative to certain of the accidents by the end of the fiscal year. Injuries reported under workman's compensation during FY85-FY88 were 30, 50, 35, and 47, respectively.

Chapter III

Materiel Acquisition

DCS for Development, Engineering, and Acquisition (DCSDE)

Organization and Mission Changes

The congressionally-mandated realignment of the Headquarters, Department of the Army (HQDA) (Goldwater-Nichols Department of Defense Reorganization Act of 1986) assigned the DCS for Research, Development and Acquisition to the Assistant Secretary of the Army as his military deputy.[54] As a result of that reorganization, a number of missions previously performed by the DCSRDA were transferred to AMC at the start of the fiscal year. These included serving as DA appropriation director for the following budget categories: Other Procurement, Army, Budget Activity 1 (OPA-1), Tactical and Support Vehicles; and Other Procurement, Army, Budget Activity 3 (OPA-3), Other Support Equipment. In addition to obtaining this mission, the DCS obtained nine military and 13 civilian positions from the Pentagon to accomplish it. Other mission and personnel changes accomplished at the start of the fiscal year included the transfer of one civilian position from the DCS for Resource Management to support the Long Range RDA (Research, Development, and Acquisition) Planning and the Mission Area Materiel Planning function and six civilian spaces from the DCS for Readiness to support the staff responsibility for Special Operations Forces, Army Test Bed, Low Intensity Conflict, and the Army Development and Employment Agency. With these changes, the DCS at the start of the fiscal year had authorizations for 35 military and 215 civilian spaces.[55]

On 1 December 1987 the CG, AMC transferred an additional civilian space to the DCS to support the new functions transferred to it. In addition, the DCS picked up one military and 31 civilian spaces to support the Procurement Appropriation function that had been transferred to it from the DCS for Supply, Maintenance, and Transportation.

On 1 April the DCS lost 22 civilian spaces which it had previously identified as its part of the headquarters AMC civilian space reduction. Following the December realignments, MG Stevens, the DCSDE, proposed a realignment of the DCS which was approved by General Wagner and then implemented effective 1 February 1988. Although the reorganization took place before the civilian space lose was implemented, the DCS had been aware of the pending loss before it implemented its reorganization. The reorganization reduced the number of divisions concerned with specific hardware programs and had them report directly to the DCS Chief. The resulting structure had an Office of the DCS; an Assistant DCS for Acquisition Management with three subordinate divisions--Acquisition Policy, Acquisition Software and Automation, and Acquisition Integration and Analysis; an Assistant

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[54] Ltr, HQDA to Distribution, 22 Apr 87, Subj: Implementation of the Reorganization of Headquarters Department of the Army and Associated Activities.

[55] Unless otherwise noted, the source for this chapter is the DCSDE AHR submission for FY88.

DCS for Program Management with three subordinate divisions--RDTE Appropriation Management, Procurement Appropriation Management, and Planning and Integration; an Operations and Plans Divisions, and six hardware divisions. The hardware divisions included Aviation, Support Systems, Missiles, Special Operations, Weapons and Tracked Combat Vehicles, and Command, Control, Communications/Intelligence. They reported directly to the Office of the DCS.

Operations and Plans Division

In FY88 the DCS participated in PROUD SCOUT 88, a JCS directed mobilization exercise. In this, the first such exercise performed after the Army reorganization, the DCS performed certain functions which had previously been performed by the DCSRDA such as the approval of weapon systems selected for accelerated development.

The DCS also participated in the Headquarters AMCMCB (Manage the Civilian Workforce to Budget Test) Working Group. This was a major element in the HQDA sponsored Civilian Personnel Modernization Project. In FY88 the DCS had provided assistance in writing a draft letter of instruction and a program of instruction for implementing the MCB.

A decision by the AMC Chief of Staff to consolidate all personnel proponency offices within AMC into the Office of Project Management resulted in the 22 May 1988 transfer of proponency for the Research and Development Commissioned Officer Functional Area 51 (FA51) Personnel Proponency mission from the DCSDE to the Office of Project Management.

Acquisition Policy Division

Response to Defense Industry and Subcommittee Report

The division reviewed and consolidated the DCS's response to a number of issues and problems related to the defense acquisition process which were raised in a report by the Defense Industry and Technology Subcommittee of the Senate Armed Services Committee. The topics addressed are listed at Table 1.

In a number of instances, although by no means in all, the AMC recommendation was that no legislative action be taken and/or that the proposed remedy was "aimed at benefiting Industry unilaterally."[56]

TABLE 1--SASC Issues

Quality of Procurement Workforce/Attracting Competence in Key Positions
Acquisition Executive Selection Process
The Conflict Between Profit and Investment Policies
Profits and Costs
Government Policy on Independent Research and Development
Shifting Undue Risks to the Contractor
The Role of the Contracting Officer
Streamlining the Defense Acquisition Process

[56] Memo, 15 Mar 88, Subj: Defense Industry Advisory Group Report.

-- Table I - cont --

Government Oversight of Defense Contractors
Contractor Liability and Indemnification
Foreign Selling Costs
Incentives for Innovation
Price Only Competition
Defense Industrial Base and Technological Advancement
Mandatory Uncompensated Overtime
Restoring Trust in the Defense Acquisition Process
Suspension and Debarment
Corporate Self-Governance
Truth in Negotiations
Implementation of Commercial Product and Practices Acquisition

Source: Memo, Subj: Defense Industry Advisory Group Report, 15 Mar 88.

DEA Charter

The division developed a DEA management guide as a means of addressing itself to the emphasis being placed in FY88 on "total quality management." The guide included the DEA "charter," a statement of DEA's role in the new acquisition system following the PEO realignment:

> **"a. AMC is responsible for supporting overall acquisition management. DEA develops acquisition management policy and executes total program integration including acquisition appropriation management.**
>
> **"b. DEA is the primary staff element which assists the CG AMC in carrying out his mission in materiel acquisition. DEA is the staff agent for the CG AMC in his role as an ASARC member for PEO programs and as the senior decision authority for non-PEO programs.**
>
> **"c. DEA oversees all the organizational elements that provide functional services in program management, and directs and coordinates all HQ AMC DCS support for materiel acquisition.**
>
> **"d. DEA interacts in an identical manner with PEO and non-PEO programs to support and impact program management and program management deliberations; only the titles of the program decision authorities differ. DEA executes the CG AMC acquisition management responsibility through identification of issues and alternative solutions, and impacts the program management deliberations in a support and staff advisory capacity.**
>
> **"e. DEA provides continuous, real-time services and support in program management for all materiel acquisition programs through a materiel acquisition system coordinator (MASC).**
>
> **"f. DEA fosters, helps and furthers appropriate tailoring and integration of functional policy as applied to specific acquisition programs. DEA fosters, helps and furthers sound business practices and economical resource application in the**

execution of program management. DEA facilitates program management and program management deliberations.

"g. DEA participation adds value through policy, policy compliance, appropriation management, issue resolution, and by furthering sound program management."[57]

Systems Development Subcareer Program

The DCS prepared a proposed plan for the Systems Development subcareer program of the DA-wide Engineer and Scientist (E&S) Non-Construction (NC) Career Program. The plan was deliberately structured to afford "maximum flexibility to accommodate the diverse organizational missions throughout the Army ."[58]

Design to Cost (DTC)

The DCS developed and coordinated a final draft of a revision to AR 70-64, *Design to Cost.* This revision included the automation of the DTC Status Report sent to the Assistant Secretary of the Army for Research, Development, and Acquisition. The draft was based upon the revised report formats used within AMC. AMC had noted to HQDA in early FY87 that the report format mandated by the current AR lacked "adequate and reliable data" and was of "marginal utility" in tracking DTC progress.[59]

The DCS also developed and coordinated final drafts of the DOD DTC Military Standard, data items, and handbook. It also conducted staff assistance and policy compliance reviews at the Major Subordinate Commands. In general, there was continued revitalization and institutionalization of the program throughout AMC, and the DCS also emphasized its importance to the commercial sector as well.

MANPRINT

In FY88 responsibility for the overall MANPRINT program within the Army was transfered from HQDA's DCS for Personnel to the Training and Doctrine Command (TRADOC). Within AMC the data collection effort for the MANPRINT Database and the Lessons Learned Program continued, with an anticipated expiration date of the last quarter of FY89. At the direction of the DCG for Research, Development, and Acquisition, work began on the development of a MANPRINT Military Standard that would cover all six MANPRINT domains and that would provide a crosswalk to other applicable Military Standards. MANPRINT maintained its visibility through marketing and communication efforts that included use of video conferences, General Officer/Senior Executive Service seminars, government/industry seminars, the MANPRINT Joint Working Group meetings, the publication of a

[57] Memorandum for all DCS DEA Employees, 31 Oct 88, Subj: DEA Role in Total Quality Acquisition Management (DEA "MAGNA CARTA").

[58] Memorandum for AMCDRA, 29 July 1988, Subj: The Army Civilian Training, Education and Development System (ACTEDS) Plan for the DA-wide Engineers and Scientists (E&S) (NC) Career Programs.

[59] Msg, CRDAMC to HQDA, 031900Z Oct 86, Subj: Design to Cost (DTC) Regulation, AR 70-64.

MANPRINT Handbook for Nondevelopmental Item (NDI) Acquisition, and quarterly updates of the *MANPRINT Bulletin.*

Design for Discard (DFD)

The objective of the DFD program was to reduce or eliminate the manpower, personnel and training burden of the materiel maintenance effort by increasing the percentage of components which may be economically discarded in lieu of repair. During FY88 the DCS completing the first draft of a new System Engineer's Handbook for DFD, which was to be published as a DOD Handbook in the Engineering Design Handbook series. It also published a second article on the program in the *Army RD&A Bulletin.*

Army Streamlined Acquisition Program

The DCS developed a course of instruction on ASAP and conducted six pilot courses and seven executive overviews of the course. Course development continued based upon critiques of the pilot courses. The curriculum developed as a result of this effort was to be utilized in Army formal training institutions as a means of fully integrating the streamlining approach.

For the second time, DOD Acquisition Streamlining Excellence Awards and Army Streamlining Honor Roll Awards were presented. Two of the DOD awards and ten of the Army awards went to individuals and organizations making significant contributions towards reducing the time and cost of systems acquisition while maintaining essential performance and quality requirements.

A comprehensive plan to institutionalize ASAP was developed. The plan addresses structure, program management and execution, training and development, feedback, recognition and awards initiatives that will make streamlining a reality in Army acquisition.

AR 70-1

The Assistant Secretary of the Army directed in January 1988 that AMC's Acquisition Policy Staff Director serve as the head of a working group that was revising AR 70-1, the Army's capstone regulation on the management of materiel acquisition programs. This revision was to be accomplished as a "surge" effort in order to bring the Army regulation up-to-date in light of a number of major changes in DOD acquisition policy. These changes included the adoption of the Packard Commission recommendations, National Security Directive 219, and the 1986 DOD Reorganization Act. These in turn had resulted, on 1 September 1987, in revisions of DOD Directive 5000.1, Major and Non-Major Defense Acquisition Programs; DOD Instruction 5000.2, Defense Acquisition Program Procedures; and DOD Directive 5000.49, Defense Acquisition Board. These DOD regulatory changes in turn "necessitate substantial changes to the Army's foundation acquisition policy guidance."

AMC's Acquisition Policy Division thus became responsible for all the administrative and logistics action-level tasks involved in preparing and coordinating the new AR. Basic policy guidance and oversight was provided by a steering committee chaired by the Office of the Assistant Secretary of the Army (Research, Development and Acquisition) but which also included the Office of the AMC's DCG for Research, Development, and Acquisition.[60]

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[60] Memorandum for Distribution, Jan 1988, Subj: Acquisition Policy Revision Task Force.

The new regulation was published with an effective date of 10 November 1988. It implemented acquisition policy guidance published in DODD 5000.1 and DODI 5000.2 and also implemented the acquisition reforms mandated by the Packard Commission and the Goldwater-Nichols DOD Reorganization Act of 1986.

Materiel Systems Computer Resources

Policy on materiel systems computer resources (MSCR) was developed and incorporated into AR 70-1 on 10 December 1988. Coverage in AR 70-1 represents the first time the subject has been addressed in Army regulations and will provide the framework for the publication of detailed "how to" procedures in a DA document on materiel acquisition.

Materiel Acquisition Handbook

Until revised as a DA Pamphlet, AMC-TRADOC PAM 70-2 has been approved for use by the PEO/PM and both combat and materiel developers as a "how-to" guide. Revision was expected not later than the last quarter of FY89.

Type Classification (TC)

A proposed revision to AR 70-61, *Type Classification,* was initially submitted to HQDA in 1987. The decision was made later to incorporate the type classification guidance into two separate documents. Type classification policy was to be incorporated into AR 70-1 as its chapter 7. The procedural guidance was to be incorporated into the Materiel Acquisition Handbook, AMC-TRADOC PAM 70-2. These revisions clarified existing Type Classification policy by strengthening safeguards and procedures dealing with Non-Developmental Items and limited procurement. The revisions also implemented enhancements recommended by an earlier TC Subject Matter Assessment. Also introduced was a new TC designation (LRP) that was applicable only to low rate initial production and was consistent with the testing assessment and review requirements of DODD 5000.3.

Acquisition Integration and Analysis Division

Deep Battle Laydown

On 3 November 1987 the Vice Chief of Staff of the Army was given a review of the status of Deep Battle doctrine as well as a detailed review of the current materiel acquisition programs that were designed to provide a Deep Battle capability in the 1996 timeframe. The review was jointly presented by HQDA, AMC, and TRADOC, with the majority of the review being devoted to system capabilities beyond 1988. General Wagner was the senior AMC representative. The Acquisition Integration and Analysis Division had the primary responsibility for pulling together the AMC portion of the laydown and identifying issues to be presented.

Armored Family of Vehicles (AFV)

The goal of the AFV was to eventually replace existing tracked and selected wheeled vehicles within the Armored and Mechanized forces by an AFV fleet based upon advanced technology and commonality, providing increased wartime effectiveness at a reduced cost. In May 1988, an AMC/TRADOC Concept Formulation Process Memorandum of Instruction required AMC to perform a Trade-Off Determination (TOD) analysis of current or preplanned product improved (P3I) systems against the requirements of the AFV Operational and Organization (O&O) Plan. On 5 August, the

AMC AFV Special Projects Office requested the DCS for Development, Engineering and Acquisition to look at the capability of current and P3I systems to meet the requirements specified in each of twenty-five AFV mission areas. In order to take full advantage of the expertise available to HQ, AMC, the DCS utilized the lead agencies for the current/P3I systems to make the initial comparisons. A letter was mailed 19 August tasking the following organizations for input: TACOM, MICOM, CECOM, CRDEC, BRDEC, and ARDEC.

Through September and October, the MSCs evaluated their assigned systems. Hardware divisions within the DCS assisted in reviewing input from MSCs, while the Armor Anti-Armor Branch of the Acquisition, Integration and Analysis Division provided overall integration; its compilation was submitted to the AFV Special Projects Office on 2 November. The results represented a first cut analysis and indicated several areas where the AFV program had potential to make improvements over the current/P3I systems.

FY89 Army Armor/Anti-Armor Master Plan (A/AAMP)

Under the authority of a study directive issued by DCSOPS, HQDA, the A/AAMP was to determine the optimum mix and numbers of armor/anti-armor systems and munitions. It was also to determine the appropriate organization for combat (force structure), employment considerations (operational concepts), and command and control (C2) for all armor/anti-armor systems and munitions. The revised A/AAMP was published in October of each year and served as the basis for Army input to the DOD Anti-armor Munitions Master Plan. TRADOC had the lead in the development of the A/AAMP, with AMC providing support. AMC inputs to the A/AAMP include Chapter 4, Armor/Anti-Armor Technologies; all programmatic information for Chapter 5, Armor/Anti-Armor Systems; and annexes on Conventional/Smart Munition and Technology Base Investment Strategies, Test Activities and Results, and Anti-Armor Weapons Comparisons Using GAO Methodology. The approach used to construct the A/AAMP was to develop an integrated doctrine, consonant with current and future force structure, systems, and munitions, that supported defeat of the approved threat data. The approach also included the development of a baseline of programmatic and user information regarding all A/AAMP system and munitions. This data was synthesized into a preliminary acquisition strategy for all systems and munitions. The expected outcome was that it would provide senior Army/DOD decision makers a recommended acquisition strategy for armor/anti-armor systems and munitions.

Armor/Anti-Armor Modernization Plan

An Armor/Anti-Armor Task Force was established in early CY88 by the Army Chief of Staff to be the lead organization to gather information on the Army's large number of acquisition programs in this area and to formulate an Armor/Anti-Armor Modernization Plan. The Task Force divided their task into three distinct areas: Anti-Tank Direct Fire; Anti-Tank Indirect Fire/Disabling/Counter-Mobility; and Tanks/Kinetic Energy Munitions. Information was gathered with the assistance of TRADOC, Intelligence, various PEO's and Program Managers, Armored Family of Vehicles Task Force, HQ AMC and its Major Subordinate Commands. An initial series of program reviews was provided to the Chief of Staff on the Armored Family of Vehicles, Advanced Antitank Weapon System/ (AAWS/AMS-M), and Tanks in preparation for the budget submission during August 1988. Briefings to the Conventional Systems Committee of the Office of the Secretary of Defense (OSD) during early FY89 were being prepared for Armored Family of Vehicles, Tanks/Kinetic-Energy Munitions programs, Anti-Tank Direct Fire Programs, Anti-Tank Indirect Fire and Countermobility Programs, Directed Energy Programs, and CACDA analysis. These briefing packages, once briefed to the Conventional Systems Committee, were to be used as the basis for a written Armor/Anti-Armor Modernization Plan which was to be submitted by 16 December 1988.

Materiel Change Management

The basic concept for restructure of the Materiel Change Management (MCM) process was approved by the Under Secretary of the Army in June 87. This new concept revised the procedure for review and approval of modifications to equipment and required the creation of a System Improvement Plan (SIP) for all major weapon/support systems in order to strengthen configuration management. Implementation of the concept began with information briefings to Program Executive Officers (PEOs) and MSC commanders in September 1987. In December 1987, following the last Materiel Change Joint Review, a working group from HQ AMC, HQ TRADOC, and HQDA began formulation of an Interim Operating Instruction (IOI) and a new Army Regulation for Materiel Change. Pending publication of the IOI, an 11 February 1988 letter to the MSCs initiated implementation of the revised process, with specific instructions for the submission of materiel change data for the second quarter of 1988. The IOI was published on 1 September 1988 and was distributed to the field. The new AR 70-15, was being developed at the end of FY88. It would replace the current Army Regulations 70-15 and 750-10 and was expected to be ready for publication in the second quarter of 1989.

Development of an automated information system for materiel change continued in FY88. This system was expected to be operational in August 1989.

Materiel Acquisition Review Board (MARB) Activities

The PEO concept had modified HQ AMC's role in MARB activities. HQ AMC now focused on establishing a functional support role with the MSCs/PEOs while simultaneously staying informed of and involved in issues supporting the AMC Commander's overall responsibility for functional matters. A memorandum, "Implementation Policy for MARB Procedures," was developed and staffed internally with all HQ AMC MARB participants and externally with the MSCs/PEOs. Recommendations from the field were incorporated to promote cooperative participation with the new procedures. The memorandum was signed by the DCGRDA on 15 November 1988. The procedures paralleled those in the recently revised AR 70-1.[61]

Requirements Analysis

The Acquisition Integration and Analysis Division was performing a new mission of analyzing requirements. A formal structure to accomplish this was developed in a Plan For Requirements Analysis. Under this plan, documents such as the Operational and Organization (O&O) Plans and Required Operational Capabilities (ROCs) were to be analyzed for issues such as need, threat, operational characteristics, technical assessment, life cycle cost assessment, and milestone schedule. Then potential problem areas were to be reviewed, such as determining if there was a logical connection among the need, threat and deficiency. In addition, a data base was to be developed to accumulate findings and determine trends on problem areas in the requirements process.

[61] See Supra, under AR 70-1.

Program Planning and Integration Division

FY88 LRRDAP/MAMP Process

The Mission Area Materiel Plan (MAMP) process had been jointly established in 1985 by Headquarters, Army Materiel Command, the materiel developer, and Headquarters, Training and Doctrine Command (TRADOC), the combat developer. In 1987 the Information Systems Command (ISC) became the third Army command to join the process. The newly-formed Assistant Secretary of the Army for Research, Development, and Acquisition (ASARDA) and the Army Program Executive Officers (PEOs) also participated. These additions brought further credibility to the Field Long Range Research Development and Acquisition Plan (LRRDAP).

The MAMP process converted the users' materiel deficiencies, as defined in the TRADOC Concept-Based Requirements System (CBRS), into Research, Development and Acquisition (RDA) plans and programs. Each AMC Major Subordinate Commander doubled as a Mission Area Manager (MAM) responsible for formulating strategies and defining the appropriations required to develop materiel solutions to the deficiencies for their mission area. The MAMs presented their plans to a Mission Area Integration Team (MAIT) that then developed an affordable Field LRRDAP. The proposed Field LRRDAP was reviewed by the participating MACOM commanders and, when approved, was sent to HQDA to be used as the input document for the Program Objective Memorandum (POM) process.

The result of the 1987 LRRDAP/MAMP review, i.e., the Field LRRDAP, was sent to HQDA in November 1987. During the FY90-94 POM exercise, resource planning estimates were scaled back. This resource reduction was followed by an update to the Extended Planning Annex (EPA) portion of the LRRDAP starting in July 1988. The POM changes also caused a slippage of the *Materiel for Winning* publication from March 1988 to September 1988.

With the assistance of AMC Management Engineering Activity, a Subject Matter Assessment (SMA) covering the entire LRRDAP/MAMP process was conducted in January 1988. During the period from November 1987 to January 1988, AMC and TRADOC jointly requested field elements to submit ideas for process enhancements that would have improved the previous cycle. Over 200 ideas were submitted. During the SMA conference these ideas were condensed into 19 comprehensive enhancements which will be incorporated into the FY89/90 cycle.

The LRRDAP/MAMP process is conducted biennially to match the Army budget submission, with the next cycle being FY89/90. During the off-year (FY88) portion of the cycle, a number of changes were made to improve the process. These included splitting the Materiel Acquisition Base (MAB) mission into the Test and Evaluation (T&E) and Science and Tech Base (S&TB) mission areas. Also a new mission area, Information Systems Management (ISM), was added. Guidance documents were prepared to be published early in FY89, included a revised LRRDAP/MAMP Letter of Instruction (LOI). A revised milestone chart was published and distributed with the following major milestone changes:

FY92-97 DOD fiscal guidance will be provided to the services in February 1989.

Final Battlefield Development Plan (BDP) will be approved and distributed by TRADOC in February 1989.

HQDA Draft FY92-06 LRRDAP will be distributed to MACOMs in April 1989.

Defense guidance will be provided to HQDA to support the POM build in July and November 1989.

Mission Area Integration Team (MAIT) reviews will be conducted in July and September 1989.

Field LRRDAP will be submitted to HQDA in October 1989.

POM Descriptive Summaries FY90-94

In March 1988, HQDA directed that AMC prepare descriptive summaries for all program elements in the FY90-94 POM. They were prepared in April and May 1988, submitted to HQDA, and were published in May 1988 as a 551-page Volume 10 of the POM.

EPA Build

On 29 June 1988, HQDA issued a Letter of Instruction (LOI) directing AMC and TRADOC to develop an Extended Planning Annex (EPA) for the years FY95-06. Confronted with the reality of declining resources, HQDA recognized the necessity of long range planning to best employ limited resources to meet future requirements. The DA LOI was followed by a joint AMC/TRADOC Memorandum of Instruction to Mission Area Managers requesting that they submit revised planning estimates for the EPA years. Following a series of two and four star reviews, a joint memorandum containing the EPA update was signed by the commanders of TRADOC and AMC and forwarded to HQDA on 23 September 1988 for review and approval prior to inclusion in the LRRDAP.

Materiel for Winning

The booklet *Materiel for Winning* was introduced in 1986 to describe the research, development, and acquisition (RDA) process and its results. The 1988 version was published in September 1988, and 10,000 copies were distributed to both industry and government. The document contains generalized unclassified data which is used as guidance by industry to develop their R&D programs and as a training aid and planning guide for government.

Automation

The Program Planning and Integration Division was designated as a secure local area network (LAN) test site. In May and June 1988 personnel tested a secure link between PCs in the branch and a Sperry mini-computer, using the LAN and Guardsman encryption devices. The Guardsman/LAN combination did not work as intended, and the Guardsman devices are currently being modified. A secure data line between the DEA computer room and the RD&A Information System Activity (RDAISA) field office at the Pentagon was installed. The line will enable users at AMC to log into the Support Terminal Network and access RDAISA's RDA Consolidated Data Base. Data can be down-loaded from RDAISA to a PC in the computer room.

The division experimented with sending data over the Acquisition Information Managment Network (AIMNET). Files were successfully sent between HQ, AMC and several MSCs, although the transfer rate proved to be unacceptably slow for sending large data files. Bernoulli Box IIs were installed on most division PC's to be used for processing classified data. The Bernoullis have two 20 megabyte removable storage disks.

RDTE (Research, Development, Test, and Evaluation)
Appropriation Management Division

Congressional Descriptive Summaries

Congressional Descriptive Summaries (CDSs) for the Research, Development, Test, and Evaluation, Army (RDTE,A) appropriation provided narrative information on all program elements and projects within the appropriation. Each CDS explained why the program was needed, how it would meet the Army's missions, and what shortfall it would satisfy. CDSs were prepared for all AMC RDTE programs and submitted to HQDA in January 1988 for a February submission to Congress in support of the amended FY88-89 Biennial Budget request.

CY88 Research, Development, Test and Evaluation (RDTE) Review

A review of all RDTE programs managed/administered by AMC, including both PEO and non-PEO programs, was conducted under the joint leadership of the Office of the Assistant Secretary of the Army (Research, Development, and Acquisition (OASA(RDA)), the Office of the Assistant Secretary of the Army (Financial Management) (OASA(FM)) and HQ AMC in May and June 1988. All PEOs/commands/activities were reviewed on-site or at HQ AMC. Individuals from HQDA--Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) and Office of the Deputy Chief of Staff for Logistics (ODCSLOG)--and TRADOC were active participants in the review. Funding changes which impacted approved mission area strategy, as reflected in the Program Objective Memorandum (POM), were coordinated with the cognizant Mission Area Manager (MAM).

The review was issue oriented and designed to ascertain the executability of various programs. Specifically it had four objectives:

1. **Refining the FY90-91 budget and its outyear tails for FY92-94.** These changes were provided as POM-to-budget issues in July 1988. Results of the review also culminated in writing the R&D descriptive summaries needed to support the OSD budget estimate submission. The intent was not to restore HQDA decrements taken during the POM development unless the program was deemed unexecutable and could not be restructured in outyears without seriously impacting the program. Approved reprogrammings for FY90 and FY91 totaled $462 million and $765 million, respectively.

2. **Identifying FY89 issues and reprogrammings.** Programs with significant FY89 congressional reductions/adjustments in most cases required restructuring of the FY88 and FY90-91 programs. Approximately 111 projects were adjusted for FY89, totaling $398 million. A plan of execution reflecting the approved FY89 reprogramings was provided to HQDA in mid-September, 1988.

3. **Validating FY88 "must fund" issues.** Approved but unresourced FY88 "must fund" requirements were revalidated and updated with emphasis placed on planned obligation date and period of performance.

4. **Determining the executability of the FY87/88 programs.** Emphasis was placed on identifying programs that indicated forward financing, i.e., obligations and disbursements which did not meet the HQDA's execution goals.

The review, approved at the HQDA and HQ AMC General Officer level, resulted in an RDTE program which was viable, efficiently executable, designed to complete developments on time and

within cost thresholds and that permitted a smooth transition from research and development into procurement and production.

FY88 RDTE Obligation Plan

The FY88 RDTE obligation plan was submitted to OSD with a goal of obligating 93 percent of AMC's program. AMC exceeded the goal by 0.5 percent. An OSD-directed Defense Outlay Restriction resulted in HQDA withdrawing $332 million in RDTE funds from HQ AMC on 30 July 1988 and returning the funds to HQ AMC on 16 September 1988. This slowed the FY88 obligation performance.

Procurement Appropriation Management Division

Procurement Congressional Data Sheets (PCDS)

On 20 January 1988 HQDA tasked HQ AMC to prepare the FY88/89 Procurement Congressional Data Sheets for major weapon systems. This annual budget document, required by law, provided detailed technical and budget data on selected major Army weapon systems funded under the Aircraft, Missiles and Weapons and Tracked Combat Vehicles appropriations. FY88 was the first time HQ AMC became involved in preparing this document. HQ AMC was responsible for updating all narrative data, including the system description, mission data, the basis for the FY88/89 buy, all contract data, and the cost history comparison exhibit. HQ AMC, with assistance from the MSCs, prepared the test and evaluation section, updating all T&E activities conducted during the past 12 months. A draft copy of the publication was sent to HQDA for final staffing with DA and OSD. AMCDE-PP was responsible for providing final copies to all HQ AMC units and the MSCs.

Procurement Appropriation, Army Summer Budget Reviews

The Procurement Appropriation, Army Summer Budget Review for the FY90-91 Biennial Budget was joint effort of ASA(FM), ASA(RDA), the Office of the Director of Information Systems for Command, Control, Communications and Computers (ODISC4), and HQ AMC, to review all procurement appropriations for defensibility, executability and pricing. DCSLOG, DCSOPS, and HQ TRADOC also participated in the review. In preparation for the review two in-house training sessions were conducted for the DA and DEA staff on budget review techniques and budget scrub of procurement justification documents (i.e., P-Forms). Memorandums of instructions were sent to all MSCs giving detailed guidance on scope of the review, funding baselines, dates and locations of the reviews, preparation and sequencing of P-Forms, and due dates.

The actual review was conducted during the period from 11 May to 27 June 1988 by means of fourteen separate on-site reviews and a fifteenth at HQ AMC. The total program reviewed was $65.8 billion for FY88-FY92. A total $1.3 billion of at risk items were funded during the review through contract award revisions, additional program justifications, and accelerated obligation of current year awards. The review identified $245 million in FY90 and $220 million in FY91 of excess funds that were used for the must fund items. The division conducted a two-star level briefing to the DA staff on the review, results, and recommendation of the procurement revisions.

The HQDA stated that the result was a "defensible, executable, properly priced budget" and recommended that the summer budget scrub be continued. It was also noted, however, that the budget process raised a number of significant concerns, including reduced support for the production base and

an inability to meet training requirements or to build war reserves. The bottom line was that sustainability would be degraded.[62]

Decrement Drills

During FY88, three decrement drills took place. The first occurred in October and involved FY86 funds. It was caused by foreign currency fluctuation. Although there was no actual pull-backs by HQDA, $137 million had been identified by AMC for potential pull-backs. AMC and the MSCs did go through the motions as if it were an actual pull-back.

In January a pull back drill involving $140 million in FY86 funds and $208.1 million in FY87 funds took place based on potential sequestration in accordance with the Gramm-Rudman-Hollings Act.

In May and June a decrement involving $155 million in FY86 funds and $330.8 million in FY88 funds took place in order to provide for funding shortfalls in other appropriations.

FY86 Expiring Year Appropriations

HQ AMC obligated $16.3 billion or 99.5 percent of the $16.4 billon FY86 expiring Procurement Appropriation, Army program. Of the $82 million unobligated, $62.7 million was being held for contingent liabilities and $19.6 million was excess. Approximately $20 million of the funds held for contingent liabilities were due to contractor default and would be obligated in FY89.

Special Operations Division

Establishment of a Special Operations Division

In order to meet the challenges of increasing emphasis on and requirements for Special Operations Forces (SOF) AMC activated the Special Operations Division on 1 October 1987. This division was to serve as the focal point for new and unique SOF equipment research, development, and acquisition without regard to commodity orientation. It replaced the Office of the Assistant Deputy Chief of Staff for Development, Engineering and Acquisition for Special Operations Forces, which had been a one-person office.[63]

Development of Weapon System Management Program

The Special Operations Division developed an automated data base management program which action officers used in tracking and managing the development of weapon systems. The program provided the capability to shift resources quickly (on paper) within the total obligation authority and mission area so as to analyze trade-offs, track milestone accomplishments, compare current programs with projected fundings, and keep pace with the many program and budget fluctuations. The program is government owned, and has been installed at AMC MSCs, DA, TRADOC, and several hardware divisions at AMC.

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[62] Briefing charts, "Procurement Appropriation, Army Summer Budget Review, FY90-91 Biennial Budget," ca. second half of 1988.

[63] For more information on the transition, see the AMC AHR for FY87.

Disestablishment of AMC Support Activity

HQDA decided in January 1988 to disestablish the Army Development and Employment Agency (ADEA). All directly supporting organizations were also directed to be disestablished and manpower spaces withdrawn. The AMC Support Activity fell into this category and was phased out during the last half of FY88 and formally terminated on 30 September. All programs and projects were completed, cancelled, or transferred. All files were appropriately disposed of, and all personnel either took other jobs or retired.

Command, Control, Communications/Intelligence Division

Initial Fielding of the Mobile Subscriber Equipment (MSE) System

MSE was designed to provide, for the first time, an advanced, secure, and survivable telephone system with a data/facsimile capability, linking both fixed and mobile subscribers within an entire five-division corps area. It was a non-developmental item procurement, which allowed a scheduled delivery of a total package fielding first coherent unit set (CUS) in 26 months from contract award. MSE was the largest signal equipment procurement at $4.6 billion and the largest fielding effort in Army history. Fielding was planned to occur a corps at a time in the following sequence: III, V, VII, XVII, and I Corps.

Significant MSE activities during FY88 included the first MSE Materiel Release (MR), the first CUS fielding, and the initiation of a Follow-On Test & Evaluation (FOT&E). An In-Process Review (IPR), chaired by the DCGRDA, was held on 8 April 1988 at HQ AMC to review MSE materiel release recommendations. Conditions existed that precluded full release. Environmental/reliability testing of a few items of equipment within MSE assemblages remained undone. There was a concurrent conditional MR on the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), and certain hardware/software anomalies had arisen after completion of field operational test and evaluation (FOT&E). As a result, a recommendation was made for approval of a conditional MR for the first MSE CUS to the 1st Cavalry Division. The Vice Chief Staff of the Army (VCSA) approved the recommendation on 15 April 1988.

The fielding of the first MSE CUS to the 1st Cavalry Division, III Corps, commenced at Fort Hood on 19 February 1988. The system handoff took place on 19 April 1988. Systemic and procedural problems were encountered which precluded entering into the FOT&E. Improvements were made by the MSE prime contractor, GTE, and verified through operational testing at Fort Hood. A decision was made to proceed with the FOT&E on 9 August 1988, and the final documents for training and support were signed.

SINCGARS Radio Fielding to Korea

The initial fielding of the Single Channel Ground and Airborne Radio System (SINCGARS) radios to the Eighth U.S. Army (EUSA) in Korea was successfully completed in December 1987. The SINCGARS is the first new combat net radio since the AN/VRC-12 and AN/PRC-77 families of radios were fielded in the 1960s. In February 1988, 83 systems were operational on the Demilitarized Zone (DMZ) and had logged 31,803 operating hours with only one failure. By March 1988, 60,000 operating hours had been recorded with three confirmed hardware failures. A battalion changeover of DMZ Forces occurred in May 1988 and demonstrated that training of operator and maintenance skills could be efficiently handled in the field. By September 1988, the reliability remained excellent and valuable feedback had been given to the Program Manager on ways to improve select characteristics such as the

manpack antenna, handles, backpack carrying configuration, and Communications Security (COMSEC) equipment cables.

QUICKFIX EH-60A Countermeasures System

The QUICKFIX EH-60A is a Communications Jamming and Emitter Intercept/Locating System that was being fitted in the Black Hawk Helicopter. A total of 12 systems were fielded in FY88--three to TRADOC at Fort Huachucua, Arizona; three to the 3rd Infantry Division; three to 2nd Armored Cavalry Regiment, VII Corps, U.S. Army, Europe; and three to the 2nd Infantry Division, Korea.

TACJAM AN/MLQ-34 Countermeasures System

The TACJAM AN/MLQ-34 is a High Power Communications Jamming System carried in the M1015 Tracked Vehicle. A total of 17 systems were fielded in FY88, with 14 going to USAREUR during the last quarter of FY88 and three going to Fort Devins, Massachusetts, during the second quarter of FY88.

Army Tactical Command and Control (C2) and the Maneuver Control System (MCS)

AMC's Deputy Commanding General for Research, Development and Acquisition (DCGRDA) denied conditional release of any further MCS Tactical Computer Terminals following a recommendation by the systems technical evaluator, AMSAA. The denial was to last until the Field Operational Evaluation (FOE) of the total MCS system with both militarized and non-developmental item equipment late in 1989. The denial was based upon the fact that the message processing, text editing, data base management, and graphics capabilities provided by the MCS operational software, Version 9.1B, when using the tactical control terminals, did not satisfy all requirements.

However, the DCGRDA did recommend that the PM, Operations Tactical Data Systems negotiate support agreements with users willing to accept the current system and to take their authorized complement of tactical computer terminals on a hand receipt pending full release of the equipment after a successful FOE with the total maneuver control system in 1989/90. This was done because the equipment did meet minimal user requirements and provided improvements in communications and command and control. It would also provide field use and operational experience to the troops, which would be of value when the entire system became available. It would also provide the Army with valuable user experience and feedback prior to the FOE. Following this decision, the TCT was operational in a number of corps. In addition, TCT production was completed, the final order for the tactical computer processors and analyst consoles was placed, the contract was awarded for the ATCCS common software/hardware, and the request for proposal for the ATCCS system engineering and integration was released in September 1988 with the proposals expected to be in by November 1988.

In a related matter, the Command, Control, Communications/Intelligence Division accepted responsibility for the Advanced Field Artillery Tactical Data System (AFTADS) and the Forward Area Air Defense Command, Control and Intelligence System (FAAD C2I) so that all five battlefield functional areas of the ATACCS could be handled as an integrated system.

LHX Milestone I Decision

In January 1988 the Deputy Secretary of Defense stated that the original Light Helicopter Experimental (LHX) was "no longer a viable program for affordability reasons. Instead the Army is directed to refocus the LHX program to develop and acquire a light-weight, low-cost helicopter for the light attack/armed reconnaissance missions to replace the aging Cobra and OH58/OH-6 fleets."[64] Following a 16 May 1988 ASARC on the LHX, formal approval to proceed into the demonstration/validation phase (Milestone I), subject to action by the Defense Acquisition Board (DAB) was granted by the Army on 8 June. Approval by the Office of the Secretary of Defense followed on 17 June 1988. This OSD approval stated that the major emphasis in this phase

> should be on developing and integrating LHX mission equipment package (MEP) technology, rather than airframe development. MEP effort should be structured so that appropriate portions are applicable to upgrading present inventory AH-64 Apaches, UH-60 Blackhawks, and OH-58D AHIPs [Advanced Helicopter Improvement Programs] via Multi-Stage Improvement Programs.[65]

In addition, it noted that the "draft system specifications should be subject to industry team performance/weight/cost tradeoffs to achieve the best aircraft system to meet an average unit fly away cost requirement of $7.5 million (FY88$)."[66]

Army Aviation Modernization Plan

The Army Aviation Modernization Plan for 1988 was approved in May 1988. The plan reflected a funding level of about $3.4 billion for FY89, with no real growth over the POM cycle. It addressed the following issues:

Continued production of the AH-64, UH-60, OH-58D, CH-47D, and aircraft to support Special Operating Forces.

Product improvements to fielded systems to protect aviation investments by maintaining required warfighting capabilities and effecting appropriate safety modifications.

Decision points for Multi-Stage Improvement Programs (MSIP) or new aircraft development.

Retirement of some aircraft including those no longer capable of defeating the threat, or surviving on the battlefield, at the rate of 200-250 per year.

Initial Operating Capability (IOC) of an armed, light, reconnaissance and attack system (LHX) not later than FY 1997.

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[64] Memorandum, Deputy Secretary of Defense to the Secretary of the Army, 20 Jan 88, Subj: LHX/Army Aviation Modernization.

[65] Memorandum, Deputy Secretary of Defense to the Secretary of the Army, 17 Jun 88, Subj: LHX Milestone I Acquisition Decision Memorandum.

[66] Ibid.

Aviation Mission Equipment Package (MEP) oversight by an Executive Steering Group (ESG), integrated with an Army Aviation technology base to meet long term aviation requirements.

A strategy for high-low technology mix management.

Aircraft acquisition to complete Army-Air Force Joint Force Development initiative 17 (Special Operations Aviation).[67]

Other Issues

An Executive Steering Group was established to oversee all Army Aviation Multi-Stage Improvement programs and control the LHX Mission Equipment Package Development and subsequent incorporation of this technology in the AH-64 and UH-60 aircraft. Contracts were awarded for the Development of AH-64 and UH-60 MSIP programs.

Contracts were awarded for the development of the MH-47 and MH-60 aircraft for use by the Special Operational Forces. This was a major milestone in the implementation of CSA/CSAF initiative 17 which transfered the SOF rotary lift mission to the Army.

The General Electric T-701c engine was selected as the follow-on replacement for the T-700 in new UH-60 and AH-64 aircraft.

A formal aviation Electro-Magnetic Vulnerability/Electro-Magnetic Interference (EMV/EMI) program was established under the auspice of an Aviation Systems Command (AVSCOM) EMV/EMI Steering Committee. EMV/EMI Testing of existing Army aircraft was initiated to find areas of susceptibility and develop the appropriate design changes necessary to correct the problems.

Missiles Division

Armor/Antiarmor Modernization Plan

During FY88, a new office was established under the Army Chief of Staff to evolve an Army strategy and plan for improving a number of major weapons systems that would be used to conduct both the armor and antiarmor battles. With this DA initiative, HQ AMC organized a counterpart office for ensuring a sound, comprehensive plan for modernization of our armor and antiarmor components.

Anti-Aircraft Systems

The Mark XV Cooperative Identification Friend or Foe (IFF) System's Request For Proposal (RFP) was released on 22 April 1988 for Full-Scale Development (FSD) and low-rate initial production (LRIP). FSD included integration of an interrogator on the Hawk Missile System and a transponder on an EH-60 Special Electronics Mission Aircraft (SEMA). A leader/follower approach for designing the indentification friend or foe (IFF) system during FSD and for developing independent production capabilities during LRIP was adopted. To reduce the cost of a NATO-interoperable IFF system, the

[67] Army Aviation Modernization Plan, May 1988. Initiative 17 discussed in the last sentence was a 1984 agreement to transfer rotary wing air support for Special Operations Forces to the Army. See Richard G. Davis, *The 31 Initiatives* (Washington, D.C.: Office of Air Force History, 1987).

RFP included a NATO Cooperation Incentive Provision which would allow the Prime to subcontract to other NATO nations. The contract award was expected to take place in March 1989.

The Patriot Air Defense Missile System successfully intercepted and destroyed a surrogate tactical ballistic missile on 4 November 1987 at White Sands Missile Range, New Mexico. This test was the first in the Patriot anti-tactical missile (ATM) Capability Phase II (PAC-2) series, and demonstrated that through extensive software modifications the PATRIOT System can counter short-range conventional missiles similar to those facing the U.S. and NATO forces in Europe. A contract was signed in December 1987 to build and operate a Patriot Missile Facility (PMF) in the Federal Republic of Germany through a NATO Maintenance and Supply Agency (NAMSA) contract. This would bring the number of Patriot Missile Facilities in Europe to two. On 10 March 1988 the Italian Minister of Defense signed a Memorandum of Understanding on the Italian Patriot Program. Negotiations continued throughout FY88. Fielding of the software modifications to Patriot battalions worldwide began in July 1988.

A Patriot/Hawk Interoperability test was conducted at White Sands Missile Range on 5 April 1988. The Hawk Phase III Air Defense System successfully engaged a Tactical Ballistic Missile (TBM) test target. The test target was a U.S. missile programmed to fly a trajectory that is characteristic of Soviet short range TBMs. The test demonstrated that the Hawk Phase III Missile System cued by Patriot radar data through integrated systems software can successfully engage TBM's.

Hawk Phase III First Article Testing (FAT) began in July 1988. The 16-week test program is scheduled to be completed in November 1988. Mobility improvements for Hawk were supported in the FY87 and FY88 budget and were part of an MOA with The Netherlands. Negotiations for multiyear Marine Corps missile procurement were completed in June 1988 at the lowest price, inflation considered, the Hawk Project had ever obtained. The procurement was approved by the Deputy Secretary of Defense on 24 August 1988 and the contract award occurred on 15 September 1988.

In January 1988 the Army awarded a second source contract for the manufacture of 400 Stinger-RMP (Reprogrammable Microprocessor) missiles to Raytheon Corporation. During the production verification testing of Stinger RMP produced by General Dynamics in the second quarter of FY88, the missile performed poorly when subjected to advanced countermeasures. Technical teams were established to address this problem. The contractor proposed a solution in the last quarter of FY88, which would be tested in FY89. In March 1988, a three-year contract with General Dynamics was finalized. Options 1 and 2, with FY87 and FY88 funding, have been exercised.

In July 1988, the Pedestal Mounted Stinger (PMS) met all objectives in completing Force Development Test and Experimentation I. Also in July, a Pre-Planned Product Improvement (P3I) letter contract was signed with Boeing to integrate the Range Data Distribution System with the PMS fire unit for testing during production qualification next year. The first prototype fire unit was due to roll off the production line 1 November 1988.

The Forward Area Air Defense Non-Line-of-Sight (FAAD NLOS) component of the Forward Area Air Defense (FAAD) system consisted of a missile, missile launcher and fire control ground station mounted, in the light version, on a HMMWV or, in the heavy version, on the MLRS M993 chassis. A vital element in the forward air defense mission area, it was being developed to carry the maximum possible number of ready-to-fire missiles and provide air defense protection to the maneuver force against masked, standoff rotary wing aircraft. The Fiber Optic Guided Missile (FOG-M), the product of a successful advanced development program at MICOM Research, Development and Engineering Center (RDEC) was selected as the NLOS element for the FAAD system.

Congressional language issued in December 1987 required completion of the Initial Operational Evaluation (IOE) of FOG-M and accelerated development and fielding of the FOG-M system meeting initial Block 1 requirements. This resulted in the current Acquisition Strategy in which nine service-type contracts for engineering support and fabrication of hardware to deliver the IOE FOG-M system were awarded. Both the TV seeker missile and light fire units were fabricated and entered system testing in preparation for captive flight and missile flight tests to be conducted in FY89. Initial Operational Evaluation would provide early user involvement in the system development and will support the development of tactics, doctrine, techniques, and training. IOE captive flight testing was set for October 1988.

After a review by the Conventional Systems Committee of the Defense Acquisition Board (DAB) in October 1987, the final RFP for the Full Scale Development contract for the NLOS FOG-M system was released in November 1987. To comply with the congressional requirement of accelerated development of a system meeting Block I requirements, the RFP was amended to focus on the Block I requirements. Two FSD contractor teams responded to the RFP. Best and final offers were received for evaluation and selection of the winning team. The Army provided a detailed briefing to the DAB on 4 August 1988, for the purpose of a milestone II decision review. An acquisition decision memorandum (ADM) approving the acquisition strategy (AS), to include advance procurement, as well as authority to proceed into Full-Scale Development was signed on 23 September 1988.

In the Line of Sight-Forward-Heavy (LOS-F-H) component of FAADS, a candidate evaluation process was completed early in FY88 to select a weapon system to fill the LOS-F-H role. Four systems, Rapier (United Technologies), Paladin (Hughes), ADATS (Martin Marietta) and Liberty (LTV) were evaluated. The ADATS system was selected in November 1987, and a contract was let to Martin Marietta in February 1988 to provide the ADATS to the Army. The ADATS was initially developed by Martin Marietta in cooperation with Oerlikon of Switzerland for deployment with the Canadian Forces. It is a laser beam rider system which will operate with tank and armored personnel carriers to provide protection from attack by fixed wing aircraft and helicopters. It will be mounted on the M3A1 Bradley vehicle chassis, operate during day or night and under adverse weather conditions, and have an on-board ranging device and fire control system. The system will be manned by a crew of three--driver, commander and gunner. Follow-on tests of the ADATS system began in the third quarter of FY88. The tests cover tactics and doctrine, missile firings, acquisition and tracking, safety and environmental testing.

Follow-On To Lance (FOTL)

The Army Nuclear Force Modernization plan was precipitated by the expiring service life of the Lance missile and became more urgent because of the INF treaty. The FOTL system would provide the Army a surface-to-surface missile to deliver tactical nuclear munitions at ranges within the permissible limits of the INF treaty. A Milestone 0 Acquisition Decision Memorandum was approved 23 August 1988 for a program go-ahead. A Project Management Office (Provisional) was established in July 1988.

Antitank Missiles

During FY88, the three competing contractors for the Advanced Antitank Weapons System-Medium (AAWS-M) successfully passed minimum test profiles in the Proof-of Principle (POP) phase, which qualified them for entry into Full-Scale Development (FSD). At the onset of the POP phase in August 1986, it had commonly been believed that only one, or at best two, contractors would be able to meet the very stringent requirements for one-man portability and ability to defeat the most advanced threat armor.

During FY88, the Army entered into a contract for a fly-over, shoot-down version of TOW, the TOW 2B. The TOW 2B, by attacking a tank from the top, exploits a vulnerability created by designs that emphasize protection from lateral attack. TOW 2B will use an explosively formed penetrator as the warhead and will use one of three competing sensor concepts to achieve a high hit and kill probability. The Phase I flight engineering test was not successful (attributed to poor workmanship), but all 20 sled tests and 25 static tests of the warhead have been successful.

Congress, through language in appropriation bills, continued to press the Army to qualify and adopt an interim antitank system to replace the basic Dragon until AAWS-M is fielded. The Congressional language required the Army to pick an interim system from either the French MILAN II, the Swedish Bofors BILL, the Army's warhead upgrade of the Dragon known as Dragon II, or the Marine Corps improved Dragon known as Dragon III. AMC's role continued to be development, testing, evaluation, support to the Cost and Operational Effectiveness Analysis and life cycle cost estimates.

The Hypervelocity Missile (HVM), a proposed new antitank missile using "leap-ahead" technology, was initially researched by the Defense Advanced Research Projects Agency (DARPA) and was in the Proof-of-Principle phase at MICOM. The HVM was considered the primary solution to the Advanced Antitank Weapons System - Heavy (AAWS-H), Kinetic Energy Missile (KEM) requirement. The Program Executive Office for Close Combat Missiles was directed by the Secretary of the Army for Research and Development to assume responsibility for HVM/KEM in the third quarter of FY88. Three test firings of the Army/USMC HVM were held at the White Sands Missile Range during FY88. None of these tests were completely successful. During test 1, the fins failed to deploy. In tests 2 and 3, the missile was successfully launched but failed to impact the target due to guidance problems. More tests were planned in early FY89.

During FY88 HQ AMC aggressively pursued an accelerated acquisition of an Electro-Optical Countermeasure (EOCM) hardened seeker and designator for the Hellfire, a helicopter launched missile system. Two other improvements were being developed for Hellfire. They were an improved warhead and a Digital Autopilot (DAP). DAP provides greater selectivity in target impact angle, thereby minimizing the thickness of armor that must be penetrated. The improved warhead, DAP and EOCM hardening would assure that Hellfire is effective as an antitank weapon for many years into the future, it developers believed.

The Airborne Adverse Weather Weapons System (AAWWS) was a fire-and-forget version of Hellfire, which in FY88 was in the Proof-of-Principle phase. It was planned as a supplement to the current laser semiactive version of Hellfire. It would not replace the current Hellfire in all scenarios because of cost; it was expected to be twice the price of the present Hellfire.

Pershing II

The Pershing II, an intermediate-range surface-to-surface missile, developed for fielding with the U.S. Army in Europe, provided the capability to deliver nuclear munitions at preselected targets within the Soviet Union with considerable accuracy. It was widely credited as being instrumental in prompting that country to negotiate the elimination of its intermediate-range nuclear weapons in order to secure a like elimination of U.S. weapons. The Intermediate-range Nuclear Forces (INF) treaty, concluded on 8 December 1987, required destruction of all existing, surface-to-surface, intermediate range (1,000 to 5,500 kilometer) and shorter-range (500 to 1,000 kilometer) ground-launched ballistic missiles and ground-launched cruise missile weapons delivery systems. It additionally bans all future systems of these types. In FY88, the DCSDEA provided appropriate guidance and functional support to MICOM,

PEO Fire Support (the Pershing Project Manager's Office), and other participating PEOs, MSCs and PMs to develop and execute the Retrograde/Elimination (R/E) in accordance with the provisions of the treaty. Elimination of all U.S.-owned PIa and PII missiles was initiated. Both PIa and PII rocket motor stages were being statically fired at Longhorn Ammunition Plant, Texas, in accordance with the provisions of the INF treaty and the R/E plan. Pueblo Army Depot Activity (PUDA), Colorado, and Tooele Army Depot, Utah, were also included in the Army plan as additional elimination sites. In accordance with the provisions of the INF treaty, HQ AMC issued a letter signed by the Commanding General which certified compliance with the INF treaty as it related to the research, development, test/production treaty provisions. A letter of certification was due at HQDA on a biannual basis. This was accomplished in coordination with appropriate MSCs and agencies reporting to HQ AMC covering the activities within their responsibilities.

Army Tactical Missile System

The Army Tactical Missile System (ATACMS) Milestone Division Review II Pre-ASARC was held in September 1988. The first five Engineering Development Test Contract flights were successful, and the initial production option was exercised. The vendor for the FSD Control Actuator System (CAS), Singer, withdrew from the production program, however, and the new CAS vendor, Simmonds Precision, would not have hardware available until flight 20. The PM recommended continuing the program regardless, since the missile was warranted by the prime, LTV, for 36 months. Because of the warranty, going with a new CAS was considered low risk to the government.

Multiple Launch Rocket System-Terminal Guidance Warhead

The MLRS Terminal Guidance Warhead program in FY88 was in the component demonstration substage phase. An earlier cutback in planned research and development funds was reversed in the Program Objective memorandum (POM). The component demonstration tests would determine whether the program would be moved into the system demonstration substage phase. Evaluation of the component demonstration data revealed that additional work would have to be completed before moving to system demonstration. Because of the difficulties, the transition was not anticipated before early FY89.

Support Systems Division

Explosive Ordnance Disposal Equipment

Reacting to an urgent requirement to enhance the safety of Explosive Ordnance Disposal (EOD) personnel, HQDA directed procurement of four items of equipment. AMCCOM awarded contracts in FY88 for the items: hook and line sets, robots, explosive detectors, and tool kits. Initial deliveries were made to and first use of this equipment was made by the 8th EOD Detachment in Korea in support of security measures against terrorists at the 1988 Summer Olympics.

Material Handling Equipment

In 1988 TACOM awarded a contract to Trak, International (formerly Koehring Corporation) of Port Washington, Wisconsin, to execute the first and second years of a four-year multiyear contract to produce 337 6,000-lb variable reach forklifts. The forklift was categorized as a major Logistics Unit Productivity Systems (LUPS) piece of equipment. Its use by ammunition and transportation units would greatly increase productivity and reduce needed personnel.

M40 Protective Mask

In June 1987, a contract for M40/M42 protective masks was awarded to Scott Aviation, Lancaster, New York. The protest against this contract by ILC Dover, Inc., of Frederica, Delaware, was upheld by the General Accounting Office. On 23 March 1988, the Army announced a change in the M40/M42 protective mask program. A detailed assessment of alternative strategies addressed the GAO's recommendations to terminate the initial production contract with Scott Aviation, Inc., and pursue full and open competition for initial mask production. The Army canceled the second year of the two-year multiyear Scott contract. In conjunction with this action, a competitive procurement open to United States and Canadian manufacturers for two production sources was initiated and two new production contracts were awarded on 15 September 1988 to ILC Dover and to Mine Safety Appliances of Murrysville, Pennsylvania, the two lowest offerors. The contracts provided for the acquisition of 120,000 masks each, with deliveries starting in September 1989. Each had also a 150 percent option and an additional 50 percent option.

Investment/Expense Threshold

In its FY88 Other Procurement, Army (OPA) appropriation, Congress increased the investment/expense unit cost threshold from $5,000 to $15,000 as a two-year test. The increase permitted most installation equipment to be procured locally, resulting in quicker deliveries and less paper work. Concurrently, Congress also directed the General Accounting Office to conduct a study of this initiative for all Department of Defense (DOD) services.

Water Equipment

The U.S. Army Troop Support Command (TROSCOM) awarded a contract for 98 Reverse Osmosis Water Purification Units (ROWPU) rated at 3,000 gallons per hour to Aqua Chem of Milwaukee, Wisconsin. The award was a milestone for field units, such as those in the Central Command (CENTCOM) area of operations, as they were being provided the capability to treat salty, brackish, or NBC contaminated water. Fielding plans called for issuance to Quartermaster non-divisional supply companies and general support water purification units beginning in FY90. Water purification technology at a high level was also being provided through the program to equip divisions with the 600 GPH ROWPU.

Commercial Generator Sets and Assemblies (CGSA)

A procurement moratorium on military standard generators was directed by the Under Secretary of the Army in June 1985. The challenge to the Army was to procure a quieter, lighter, more reliable generator set, one that would reduce operating and supports costs, improve mission effectiveness and enhance near-term readiness. The AMC community's GAME plan to meet this goal was the Generator Acquisition Management Execution Plan. It evolved into the Commercial Generator Sets and Assemplies (CGSA) program. On 29 August 1988, the U.S. Army Troop Support Command, through a non-developmental item acquisition process, awarded the initial CGSA contracts. A $28 million small business set-aside requirements contract for the 5 and 10 kilowatt (KW) generators was awarded to Libby Corporation, Kansas City, Missouri. Additionally, a $15 million fully competitive requirements contract was awarded to Libby for the 15, 30 and 60 KW sets.

Watercraft

In FY86, TROSCOM awarded a contract to Moss Point Marine, Inc., Pascagoula, Mississippi, for four Logistics Support Vessels (LSV). Delivery of the four LSV's was completed in FY88. They

provided the Army the capability to support unit deployment/relocation, and tactical and sustained resupply, to remote, underdeveloped areas along and between coast lines and along inland waterways. In FY88, the Navy awarded a single year contract with four option years to Robert E. Derecktor, Inc., Middletown, Rhode Island, to procure large tugs for the active Army and Army Reserves. Deliveries of the tugs were to begin in FY 1989.

Reconnaissance System, Nuclear, Biological, Chemical (NBCRS)

In February 1988, the Army announced its decision to procure the Federal Republic of Germany's Spurpanzer Fuchs NBC Reconnaissance vehicle for fielding to meet all Army requirements. However, the acquisition strategy was revised when the Congressional Joint Authorization Committee directed the Army to procure the NBCRS on a competitive, nondevelopmental basis. A solicitation was hurriedly prepared and released to industry on 14 September 1988. This new approach solicited nondevelopmental prototypes for competitive testing and selection of a winning vendor in FY89. The Army's urgent requirements were to be met by fielding an interim design followed by a system improvement effort to upgrade it to comply with all required operational capabilities.

Binary Chemical Munition Modernization Program

The binary chemical warhead for the Multiple Launch Rocket System successfully completed advanced development and was approved to enter the engineering development phase on 14 July 1988. The binary chemical warhead was seen as providing an intermediate range chemical warfare retaliatory capability that bolstered the U.S. chemical warfare deterrence posture. The M687 155 millimeter Binary Chemical Artillery Projectile initiated full scale production. This marked the first chemical munitions production since the United States unilaterally ceased its production effort in 1969. The decision to produce the M687 projectile is credited for the Soviet Union's willingness to seriously negotiate a Chemical Weapons Arms Control Treaty.

Weapons and Tracked Combat Vehicles Divisions

Improved Recovery Vehicle (IRV)

The Army significantly modified its acquisition strategy for the IRV in FY88. General Dynamics built a prototype Abrams Recovery Vehicle with its own funds, and Congress directed the Army to run a comparative test with the M88 improved vehicle that BMY was under contract to the Army to develop. The test was conducted in July and August 1988, a source selection board was completed, but announcement of an award was held up until additional reviews could be conducted.

Abrams Tank Strategy

The Army submitted a Program Objective Memorandum in May 1988 without funds for continued production of the Abrams past FY91. OSD provided funds to build the M1A1 Abrams through FY94 at a minimum sustaining rate for a single plant, factoring in Marine Corps and Foreign Military Sales purchases. The Army submitted its FY90-FY91 budget in September 1988 with a more costly Block II Abrams program paid for with reduced annual quantities of tanks. The Army recommended that both tank plants remain open since the difference in cost was only about $25-35 million a year. The Army also submitted plans for the development of a Block III Abrams with a first unit equipped in FY97. The plan included the use of an Advanced Technology Transition Demonstrator (ATTD) to develop, mature, and integrate components. The program would then transition directly into Full Scale Development.

M551 Sheridan

The Army initiated a program to add improved night vision capability to the M551 Sheridan deployed with the 82d Airborne Division. TACOM analyzed alternative programs to add Tank Thermal Sights to these vehicles. A decision on program initiation was pending at HQDA at the end of the fiscal year.

Sniper Weapon System (SWS) Requirements

The CG, AMC raised his concern that depots, as sensitive sites, did not have priority over National Guard Units for fielding the M24 Sniper Weapon System (SWS). Taking action on behalf of AMC's Special Reaction Teams (SRT), he directed that M24 SWS requirements be submitted for the depots. A detailed review indicated that although AMC's SRT's were destined to receive the SWS, not all SRT's had been included in TRADOC's Basis of Issue Plan nor were the total number of SWS's scheduled to be procured (2,510) adequate for Operational Readiness Float, Repair Cycle Float, or Wartime Reserve requirements. Also, the DA's prior list of Special Operation Project Requirements for SWS's needed to be reviewed and revalidated. Following the review, General Wagner, shortly after the end of the fiscal year, sent a memorandum to the Assistant Deputy Chief of Staff for Operations, Force Development, at HQDA stating that "I am concerned that the total quantity of subject weapons being procured through FY90 is inadequate for all Army requirements and believe that a complete review of Sniper Rifle usage and needs is warranted." He recommended exercising a contract option to add an additional 490 weapons to the scheduled FY90 planned procurement at an additional cost of $1.8 million, and noted that the estimated cost of additional weapon systems once the contract was allowed to lapse was in excess of $5,000 each, about one-third greater.[68]

120mm Mortar

Uncertainty still existed as to when and how the 120mm mortar would replace the 4.2" mortar. In September 1984, in response to the 1990-2004 Army Mortar Plan and to the reported performance deficiencies of the 4.2" mortar, the Chief of Staff of the Army had approved the replacement of the 4.2" mortar by an off-the-shelf 120mm mortar. The Required Operational Capability for the 120mm mortar was approved in July 1985, and a competitive weapon evaluation was completed in November 1986. None of the commercial weapons in that evaluation met all of the Army's requirements, and in June 1988 a contract was awarded to develop a 120mm mortar that would. In August 1988 a development contract was awarded for enhanced ammunition. In June 1988, however, OSD ordered that the 120mm mortar not be purchased until it was reviewed by the Defense Review Board. The Defense Review Board directed that the 4.2" mortar remain in the inventory and be included in programs for weapon modification.

In September 1988 the Commander in Chief of the U.S. Army in Europe requested help from the VCSA and from the Commanders of AMC and TRADOC to fix deficient 4.2" mortars. The response from AMC and TRADOC, however, was that it would take longer to fix the 4.2" mortars than it would to replace them with new 120mm mortars, which were anticipated to be fielded over the FY92-96 time frame.[69]

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[68] Memorandum, GEN Wagner to ADCSOPS, Force Development, Subj: Sniper Weapon System (SWS) M24 Requirements.

[69] Msg, CDRAMC to CINCUSAREUR, 111340Z Oct 88, Subj: 4.2 inch mortar issue.

Office Of Project Management

Mission and Organization

The Office of Project Management's primary functions were to exercise staff responsibility for the Army/AMC program/project/product manager (PM) programs. It also had several important personnel responsibilities. These included serving as an advocate for personnel matters concerning the PMs in the areas of selection criteria and selection, training, and assigning; serving as the Army point of contact for the Defense Systems Management College; and acting as the proponent office responsible for the Functional Area (FA) 51 (Research, Development and Acquisition) program. Other significant missions included promoting continuous AMC staff policy, interface, and coordination on all requirements/actions supporting the Vice Chief of Staff, Army (VCSA) Functional Area Assessment (FAA) program and AMC PM/Materiel System Assessment (PMSA) program and acting as the user representative for the Program Management Information System (PMIS).[70]

The manpower authorization for the office was reduced during the course of the year from 17 to 13, with one military and 3 civilian positions being eliminated as part of the headquarters manpower reduction. The office chief, COL James B. Lincoln, who had served as chief of the Program Management office since June 1987, retired in May 1988 and was succeeded by COL John R. Bramblett in July 1988.

The Deputy Commanding General for Research, Development, and Acquisition (DCGRDA) decided in June 1988 to merge the Office of Project Management directly into the Office of the DCGRDA. As a result, as of 1 October 1988 it became a separate division within his office rather than being an independent staff office. Coinciding with this realignment at the start of FY89, the DCS for Development, Engineering, and Acquisition transferred to the Project Management Division the function of managing the *Army RD&A Bulletin*. At the same time, the Project Management Division transferred its responsibilities for oversight over Functional Area Assessments to the DCS for Readiness. Earlier, in an August 1988 mission change, the Project Management Office had taken over responsibility for management of the Materiel Acquisition Management program from the DCS for Personnel.

Program Executive Officer Realignment

In order to better streamline the PEO process, the Army Acquisition Executive (AAE) mandated a reorganization of PEOs/program/project/product managers (PMs).[71] Effective 15 September 1988, a number of changes went into effect. The PEOs for Ammunition, Close Combat Missiles, Combat Support Aviation, Engineer Programs, Finance Management Information System, Forward Area Air Defense, Health Care Systems, and Networks were abolished. The PMs subordinate to these PEOs were given new reporting channels. PEO, Strategic Information Systems was established with three subordinate PMs.

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[70] Unless otherwise noted, the information for this chapter came from the Office of Project Management FY88 AHR submission.

[71] For the original establishment of the PEO structure and the transfer of most AMC PM programs to its control, see the AMC AHR for FY87.

Program Management Information Systems (PMIS)

PMIS was established as part of the Acquisition Information Management (AIM) program. It was to be an automated software package that would assist the PEOs/PMs in their daily operations. It would cover all areas of life cycle management and would assist the PEOs/PMs by reducing the time needed to generate required reports. A PMIS User Plan defining all areas to be covered in PMIS, from administrative matters to the production/fielding life cycle phase, was submitted to the PM, AIM for incorporation into the overall AIM effort. Actual design and testing of the software was left to the future.

Materiel Acquisition Management (MAM) Program

Based on the development and recommendations of the Leader Development Study, the CG, AMC called on a panel consisting of general officers from HQDA, TRADOC, TAPA, and AMC to meet in order develop a set of recommendations to improve the MAM program. Those recommendations, approved by the CG, AMC in July 1988, comprised an approach entitled "Improved Skill Management" (ISM). This approach incorporated current Officer Personnel Management System (OPMS) capabilities with the evolving professional development needs of the acquisition community in order to establish what was virtually an Army acquisition track. Under ISM, MAM eligibility was reduced from 13 branches and Functional Areas to two, FA 51 (Research and Development) and FA 97 (Contracting and Industrial Management). To be in the program, an officer would carry either FA 51 or FA 97, although some exceptions might be required.

Personnel Issues

Two personnel actions occurred in FY88 that showed an apparent convergence between some AMC-managed and some TRADOC-managed career fields. TRADOC Systems Managers (TSMs) represented the users' perspective and interests during the materiel development process. In FY88 the HQDA Deputy Chief of Staff for Personnel (DCSPER) approved a request from the TRADOC CG to have a centralized DA selection board pick the TSMs. This was to be done by having the board which selected PMs also select the TSMs. The AMC Office of Project Management remained the proponent for this board. The first HQDA centralized selection board for TSMs was to convene in November 1988.

The second personnel action concerned the consolidation of Functional Areas (FA) 99 (Combat Developments) and FA 51 (Research, Development and Acquisition). On 26 August 1988, the Army DCSPER approved the consolidation of FA 99 into FA 51. This provided a viable career path for those officers who were previously in FA 99. The action created two new Army Occupational Codes (AOCs) for FA 51. The revised AOCs were 51A (Research and Development, General), 51B (Test and Evaluation), 51C (Combat Developments), and 51D (Acquisition). This action also transferred proponency for skill 7Y (Combat Developments) from TRADOC to AMC. At the same time, within AMC the proponency responsibility for FA 51 was transferred from the DCS for Development, Engineering, and Acquisition to the Office of Project Management, although without the transfer of any new resources.

In another personnel-related matter, two serving PMs were selected for promotion to Brigadier General. They were COL Robert A. Drolet, who was serving as PM, Stinger, and COL Otto J. Guenther, who was serving as PM, Position Location Reporting System/Tactical Information Data Systems.

PEO/PM Distribution

The total number of PEOs and PMs throughout the Army shortly after the end of the fiscal year, as of 4 November 1988, was as follows:

PEOs	15
PMs reporting directly to the Army Acquisition Executive	1
PMs reporting to PEOs	206
PMs reporting to AMC	44
PMs reporting to Information Systems Command	20
PMs reporting to DCS for Operations	7
PMs reporting to Military Traffic Management Command	2
PMs reporting to Surgeon General	9
PMs reporting to National Guard	1
PMs reporting to Force Development Support Activity	1
Total PEOs/PMs	306

(Product Manager, Army Communications Systems was disestablished in FY88.)

PM TRADE

Organization. PM Training Devices (PM TRADE) started the fiscal year with an authorized strength of 26 officers, four enlisted personnel, and 191 civilians. The only change by the end of the year was an increase in the authorized number of civilian spaces to 197.

In an organizational change, a provisional Resources Management Division was established as of 1 March 1988 in accord with the standard Resources Management Organization. PM TRADE also reshuffled some its resources to establish the full-time permanent position of Product Manager for Combat Training Centers. The Lieutenant Colonel authorization for that position was obtained by deprojectizing the Product Manager for Army Communications Systems.

This Fort Eustis program, which had reported to PM TRADE, had seen all of its mission work completed or transitioned to an AMC MSC, and therefore had been deprojectized with its resources used elsewhere within PM TRADE.

In June 1988 PM TRADE moved physically from the Naval Training Center, Orlando, to a new facility in the University of Central Florida Research Park. That facility had been specifically built to house PM TRADE and the Naval Training System Center but at the time of the move there was not enough space available to accommodate all of PM TRADE's personnel. Following some adjustments in space use, however, PM TRADE was able to move its remaining personnel (from the Technical Support and Readiness Division) into the new building by the end of September 1988. This marked the first time since the activation of PM TRADE that all of its personnel were housed under one roof.

Contractor Logistics Support Plus. PM TRADE was taking action to implement an expanded form of contractor logistics support (CLS) which would be known as CLS Plus. In addition to the current CLS, which was limited to supply and maintenance, CLS Plus would provide operators, instructors, administrators, etc. If approved, this concept would be incorporated, as applicable, into the next support contracts for several major training systems and would serve to augment and increase the training capability of selected sites and organizations.

Specification Upgrade. PM TRADE institutionalized its efforts to upgrade the quality of specifications. Section 3 requirements were reviewed to ensure that each requirement was self-sufficient and stated in terms independent of inspection methods and procedures. Section 4 was prepared in accordance with MIL-STD-961B and DARCOM Publication 702d-2. In addition, starting in FY88, work statements were prepared for each contract in accordance with MIL-HDBK-245B in order to describe the non-specification work tasks. This resulted in a clearer and more understandable statement of the contractor's requirements, made it easier to determine to determine the government's minimal needs, and provided a document that could be used as a standard for measuring the contractor's effectiveness and that could be used as a baseline document to resolve questions about the contractor's rights and obligations.

Institute for Simulation and Training (UCF/IST). PM TRADE entered into an arrangement with the Institute for Simulation and Training (IST), a branch of the University of Central Florida that was located at the same UCF Research Park where PM TRADE had its new offices. IST was to serve as the nucleus for research activities, including interdisciplinary teams with representatives from the Army Research Institute's Orlando Field Office, PM TRADE, and the Human Engineering Laboratory Liaison Office. Research initiatives were begun on the effectiveness of such Army systems as Simulation Networking (SIMNET) and TOP GUN, which had an immediate focus upon the establishment of Simulation Test Bed Facility. Research would also include such areas as neural networks, battlefield model development, low cost visual image generation, network analysis, photo based databases to support mission rehearsal, and the development of a strong technical database with inputs from academia, industry, and other government laboratories.

Army Executive Agent for RDA Information

On 2 February 1987 the Assistant Secretary of the Army (Research, Development and Acquisition) (ASA(RDA) or SARDA) and the HQDA Deputy Chief of Staff for Research, Development and Acquisition sent a message announcing the establishment of the Research, Development and Acquisition Information Network (RDAIN).[72] On 27 April 1987 then MG Bunyard, at that time the Military Deputy to the SARDA was appointed as the Army Executive Agent for RDA Information (AEARDA). On 3 June 1987 SARDA announced that he would retain that position when he went to AMC (where he became the Deputy Commanding General for Research, Development, and Acquisition) as a dual hatted position where he would continue to report directly to the SARDA in his capacity as AEARDA. The same letter also announced that the program's name had been changed to the Acquisition Information Management (AIM) Program.[73]

An RDAIN Task Force had been established in March 1987 and disestablished in June 1987. It was followed by an AIM Task Force that was established in October 1987 and continued in existence until March 1988. Simultaneously, a Table of Distribution and Allowances for an Acquisition Information Management Office was established in November 1987. It was never implemented, however, and was superseded by a new TDA which provided for an SES position, two GM-15s, four GS-14s, four GS-13s, one GS-9, and two GS-8s. Starting in March 1988, personnel were selected for

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[72] Unless otherwise noted, information for this section comes from the 1988 AHR submission from the Acquisition Information Management Office.

[73] Memorandum, ASA(RDA) to all RDA Information Managers, 3 June 1987, Subj: Management of Information to Support the Acquisition Information Management (AIM) Program.

the new office, and by the end of FY88 selections had been made for approximately half of the positions.

The goal of the AIM program was "to promote efficient connectivity, interoperability and integration while ensuring cost effectiveness in providing acquisition information" thus to "enable the Army to more effectively conduct RDTE; acquire materiel; identify related personnel and facilities requirements; manage contract services; and manage materiel improvements." The program was to "integrate acquisition information data flows and interface with numerous other existing systems, including those containing force structure, personnel, financial and accounting, and logistics data."

The AIM Program Office operated as part of SARDA, with a SARDA office symbol (SARD-IPO), but as it was resourced through AMC it also had an AMC office symbol (AMCDRA-AIM). Several resource issues were resolved in FY88. AMC agreed to fund the office with FY88 and FY89 funds and agreed to provide 14 civilian and one non-TDA military space to support the AIM Program Office at AMC. It refused, however, to provide eight civilian spaces for the PM, AIM, who reported to the Program Executive Office, Management Information Systems.

DCS For Intelligence

Organization and Personnel

The DCS lost two authorized civilian spaces during FY88 as part of the headquarters personnel reduction. This left the DCS at the end of the year with an authorized strength of one military and 39 civilian spaces--augmented, as in the previous year, by two officers and one civilian who were assigned to the Intelligence Materiel Activity at Fort Meade for duty at the AMC DCS for Intelligence at HQ, AMC.[74]

The major organizational change during the year was the elimination of the Intelligence Requirements Division of the Assistant Deputy Chief of Staff (ADCS) for Foreign Intelligence. The division was eliminated after the early retirement of the division chief, and the division's assets were distributed to the remaining two divisions in the ADCS for Foreign Intelligence.

On 27 September 1988 COL Ralph C. Gauer replaced COL Michael Schneider as the DCS for Intelligence. Colonel Schneider left for promotion to brigadier general and an assignment as Chief of Staff for the Intelligence and Security Command.

Counterintelligence and Soviet Visits

A major challenge to AMC security operations in FY88 were the authorized inspection visits by Soviet personnel to sensitive AMC facilities. These visits required the development of comprehensive security, counterintelligence, and operations security plans. The first such visit took place from 18-21 November 1987 when a delegation of Russian scientists visited Tooele Army Depot as part of a reciprocal Soviet and U.S. program on chemical demilitarization. The experience gained in this visit proved especially useful when the passage of the Intermediate Range Nuclear Forces (INF) treaty opened up five more sensitive AMC sites for Soviet inspection teams. The DCS for Intelligence was

[74] Unless otherwise noted, data for this section came the DCS for Intelligence FY88 AHR submission.

given the responsibility of ensuring the secure conduct of all INF on-site inspections at AMC facilities. This included the preparation and review of operations plans, development of emergency notification procedures, validation of INF on-site inspection related expenses, and the conduct of on-site inspection exercises. All five sites received Soviet inspections and remained eligible for additional inspections for the next 13 years.

The Commander's Perspective

Following the January 1988 dissemination of the *Commander's Perspective,* the DCS chief met with several mid-level action officers in an effort to develop a plan to improve the way the DCS performed its mission. The resulting action plan proposed changes in the areas of communications, personnel, and functional support to PMs. Many of the specific suggestions were implemented during FY88.

In the area of communications, a number of measures were taken. A triennial bulletin entitled "AMC DCSINT Items of Interest" was published, the first two issues coming out in April and August 1988. The DCS held several VENUS teleconferences with senior intelligence officers at MSCs and Separate Reporting Agencies in order to discuss general intelligence and policy issues. The feedback from the field on these conferences were positive, and they were to be continued on a periodic basis. Coordination on policy issues with other major players in the threat area was improved, and representatives from Intelligence in AMC, HQDA, and TRADOC/DCSINT met on a regular basis to coordinate policy issues.

New job classification standards were adopted to improve the quality of security personnel. The DCS continued to emphasize to the senior intelligence officers at the MSCs their responsibility of support to project managers. The intelligence professions could not wait for PMs to call for assistance; AMC intelligence personnel were to actively contact the PMs to work with them.

Foreign Intelligence

Current Intelligence. The ADCS for Foreign Intelligence continued to provide current intelligence to the HQ AMC Command Group by publishing twice weekly a "Black Book" which contained current intelligence at the codeword level. Once a week, as a separate section of the "Black Book," it also produced a science and technology section that dealt with foreign science and technology, technology transfer, and other items of interest. To provide better support for USASAC, the ADCS began to prepare a weekly black book section on foreign military arms sales at the secret and codeword level. They also started to prepare a weekly compendium of similar items at the secret level for USASAC action officers not cleared for codeword access.

The ADCS continued to prepare special trip books for members of the command Group travelling abroad. These trip books contained information on terrorist threats, a political-military summary, data on foreign military sales and purchases, biographical data on key foreign military personnel, and State Department "culturegrams" and other background notes.

In May 1988 the DCS started preparing a biweekly intelligence briefing at the Secret level called the "Biweekly." This was to ensure that personnel outside of the command group and below the level of general officer/SES were aware of intelligence data that could impact their work. It also served to advertise to the action officers the types of data that the DCS for Intelligence could provide. It normally consisted of a 15 minute briefing on short science and technology items that usually related to AMC interests and another 15 minute briefing on a specialized science and technology topic.

Some of those specialized briefing topics have included third world ballistic missiles, worldwide reactive armor threat, soviet small arms, directed energy weapons, and soviet "wing in ground effect vehicles."

Threat Support to Competitive Strategies. The DCS continued to provide threat support and comments for HQ AMC's input into the DOD competitive strategies effort and to coordinate with the headquarters primary contact for competitive strategies, the DCS for Management and Productivity.

Soviet Threat. Although the Soviet Battlefield Development Plan (SBDP) was the Army's base threat document and was widely used in AMC to provide threat data for materiel development, it never had a proper Intelligence Production Requirement (IPR) to justify its existence. Questions arose over this in the intelligence community, and as a result AMC's DCS for Intelligence prepared an IPR for it in May 1988. While doing so, the DCS also requested changes in the structure and format of the SBDP which would make it more closely conform to the needs of AMC's foreign intelligence officers.

The DCS also used the umbrella of the SBDP as a means of attempting to gain the type of detailed foreign parametric threat data that AMC elements such as the Army Materiel Systems Analysis Activity (AMSAA) and the Ballistic Research Laboratory (BRL) needed for modeling and computer simulations. This effort began in FY88 and would continue into FY89.

AMCR 381-1. The DCS prepared AMC Regulation 381-1, *Foreign Intelligence Operations,* on responsibilities, policies, and procedures for foreign intelligence operations in AMC. In FY88 this draft regulation was prepared and sent to the field and the rest of the headquarters for staffing. It was anticipated that it would be published in the first quarter of FY89 as a replacement for AMC Supplement 1 (1987) to AR 381-11, *Threat Support to U.S. Army Force, Combat, and Materiel Development,* and to DARCOM Regulation 381-1, *Military Intelligence,* dated 31 March 1982. The draft regulation also contained extracts from and provided much of the same how-to information as was found in the old Foreign Intelligence Officer Handbook.

Support to AMSAA and BRL. The DCS had HQ, AMC oversight over the effort to establish a DA-level funding line in support of the Ballistics Research Laboratory's (BRL) production of computerized target descriptions and ballistic vulnerability assessments. For two years, efforts had been ongoing to obtain funding in the FY90-94 Program Development Increment Package (PDIP), and approval for it was eventually obtained. The DCS was working with HQDA (DAMI-FIT) to a create a management and implementation program for the new funding.

In addition to the normal range of support that the DCS provided the Army Materiel Systems Analysis Activity (AMSAA)--such as obtaining intelligence and threat productions for input into AMSAA studies and evaluations--the DCS also monitored Army and TRADOC requests for studies. In the past, many such requests were forwarded without proper threat documentation. In coordination with the DCS for Program Analysis and Evaluation, which was responsible for overseeing AMSAA activities, the DCS for Intelligence reviewed all threat data provided with TRADOC requests for AMSAA studies and coordinated with the intelligence function at DA to ensure that DA requests for studies received a similar review.

Foreign Materiel Exploitation (FME). FME activity in FY88 declined from the levels of previous years because the HQDA DCS for Intelligence had requested $2 million for high priority exploitation requirements, which resulted in no new starts for FY88. However, AMC's DCS for Intelligence continued to be involved in some 40 on-going classified exploitation programs.

Separate Reporting Activity (SRA) Management. The Science & Technology Center - Far East (STCFE), based in Tokyo, Japan, and the Science & Technology Center - Europe (STCEUR), based

in Frankfurt, Germany, continued to support AMC with the production of over 1,200 reports per year on worldwide scientific and technical subjects.

Armor/Anti-Armor Issues. The DCS was instrumental in informing the AMC Command Group, the headquarters staff, and MSCs of recent developments and changes in Soviet Armor/Anti-Armor Systems. The DCS prepared numerous reports and briefings on the subject and provided direct assistance to the MSCs. It also, of course, continued to provide the most recent intelligence estimates in this area. As a result, the threat has been reevaluated and program goals and system specifications have been changed to meet the new threat.[75]

MSE Electronic Warfare Advisory Council. The DCS was instrumental in recommending the establishment of the Mobile Subscriber Equipment (MSE) EWAC. Its charter had it evaluate the current plan and alternatives to best resolve the investigation of electronic warfare during and after follow-on test and evaluation (FOTE). The DCS assisted by participating in the review and validation of electronic warfare planning for the MSE corps level simulation and the PM MSE threat laydown scenarios that were required for the FOTE. The completed efforts of the council were presented to the Assistant DCS for Intelligence at HQDA in preparation for a presentation to the MSE Oversight Committee.

Counterintelligence

Security of Laptop Computers. Guidance on classified processing, security accreditation requirements, and off-site processing as those subjects related to the increasingly common laptop computer within AMC answered an unmet need. In April, the DCS reiterated and clarified HQDA guidance on computers as it applied to laptops.[76]

The policy allowed use of laptops at the worksite, home, or on TDY, but accreditation would have to specify where processing could take place. Processing of classified materiel would be permitted only in areas acceptable for storage, preparation, and discussion of classified material, however, and additional countermeasures were mandated if the computers had internal memory storage. Laptops and other portables were restricted from entering or leaving facility areas dedicated to sensitive compartmented information.

AMC Supplement to Automation Security Regulation. Change 1 to AMC Supplement 1 to AR 380-380, *Automation Security*, was published in April to provide guidance on privately-owned computers. With a memorandum of agreement (MOA), a privately-owned computer could be used either at home or at the work site. No accreditation was required so long as only unclassified, nonsensitive processing was done. Liability and compensation issues would be covered in the MOA or in the office SOP on automation security.

Technology Security Policy/Procedures. AMCMI supplemented the HQDA regulation *International Technology Transfer and Security* and drafted *An AMC Guide to Foreign Disclosure* that described policies and procedures to be followed in sharing military information with allies and friendly nations. The guide was a companion to a 1987 AMC guide on technology security. Draft revisions of

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[75] For specifics on the changed threat evaluation, see the classified portion of the DCS for Intelligence AHR submission for FY88.

[76] Memo, AMCMI-CS to Distribution, 20 Apr 88, Subj: Security of Laptop Computers.

AR 70-1, *Systems Acquisition Policy and Procedures*, and AR 70-5, *International Programs*, incorporated new policy and procedure on technology security as well.

Weapon System Technical Assessments. In FY88 14 weapon system technical assessments (WSMTA) were completed, 10 were in editorial review, and eleven were in draft. The completion of two or three WSMTA's a month had brought the number completed to 27. A total of 62 systems were targeted for such assessments, although the number was changing as new systems entered the acquisition cycle.

Twenty-four WSTAs had been entered into an automated database, administered out of the Los Alamos National Laboratory. The source code and a users manual were written and published. Monthly updates of the database gave HQDA and HQ AMC a current and accessible picture of militarily critical technologies.

Advanced Technologies Assessment Reports. ATARS--advanced technologies assessment reports--were being developed on image intensification, anti-armor, tunable lasers, optical improvements, and very high speed integrated circuit technologies. The program was still being shaped, but the DCS anticipated completing four or five ATARS a year on technologies important to the AMC International Cooperative Programs and Security Assistance communities. The succinct but comprehensive reports would provide technology transfer guidelines, describing U.S. progress in key areas and assessment of worldwide availability.

INF Treaty. The Intermediate Range Nuclear Forces Treaty requirements for on-site inspections required planning by AMC. The DCS for Intelligence had this proponency and provided continuous support to the DCS for Supply, Maintenance, and Transportation, which was responsible for overall coordination of AMC compliance. This entailed assuring that MSC fund requests related to such inspections were justified, that OPLANS were in effect for the inspections, and that notification procedures were in place.

The baseline inspections began on 4 July 1988 were completed by 31 August 1988. The AMC organizations affected were AMCCOM, MICOM, DESCOM, TECOM, and AMC Europe. The sites surveyed were Pueblo Army Depot, Longhorn Army Ammunition Plant, Dugway Proving Ground, Redstone Arsenal, and the Equipment Maintenance Center (EMC) in Hausen, Germany. AMCMI found all of the sites to have been well-prepared for the visits and for the visits to have gone successfully. Further inspections would be either to verify annual quota requirements or elimination.

AMCMI provided functional oversight for two INF training videos being produced by AMC at Aberdeen Proving Ground. MICOM was producing one on Operational Security (OPSEC) and TECOM was producing one on INF Treaty provisions and their impact on AMC.

Counterintelligence Liaison. AMC had formalized its relationship with the 902d Military Intelligence Group, Fort Meade, MD, for the Subversion and Espionage Directed Against the Army (SAEDA) counterintelligence program. Specifically, information was shared on a quarterly basis, allowing the DCS for Intelligence to keep up with sensitive ongoing espionage investigations affecting AMC personnel, activities, and installations. AMC was able to monitor the hostile intelligence threat against it, while the 902d received feedback on the use of resources and materiel.

Security and Technology Transfer Working Group (STTWG). The STTWG was established under the memorandum of understanding for the the multinational cooperative program for the Multiple Launch Rocket System, Terminal Guidance Warhead (MLRS-TGW). Several of the security procedures were totally new, breaking ground for other programs to follow. These were: emergency

visit procedures, a courier plan for handcarrying classified documents, and establishment of a secure communications channel (with facsimile) linking government contractors in the U.S., U.K., France, and West Germany. Work on listing those technologies that could be transferred to third parties and which couldn't was continuing.

Special Programs

Special Access Programs (SAP). During FY88 AMC implemented the Army policy of transferring security cognizance over SAP contractors to the Defense Investigative Service. Previously the security cognizance had been implemented by the 902 Military Intelligence Group and by security personnel from the individual PM offices. By centralizing security cognizance in one office, provisions were made for uniformity in policy interpretations as well as for having an independent organization perform the security cognizance function.

Polygraph Program. The National Defense Authorization Acts for FY88 and FY89 changed the DOD Polygraph Program from its previous status as a test program into a permanent program. Covered by the polygraph requirement were personnel with access to top secret information and to special access programs. The DCS took part in the program by coordinating the random selection of SAP personnel (individuals with top secret access were not yet integrated into the polygraph program) for the polygraph tests and by developing a way to mandate contractor participation in the program. The method being used was to include language in the DD Forms 254 that would mandate the contractors participation. As this, however, constituted a deviation to the Federal Acquisition Regulation, it was submitted to HQDA for approval.[77]

Secure Telephone Units (STU). All the positions in the command identified in the July 1986 request for secure telephone units had STU-IIs in place. An additional 30 requests were received for STU-IIs in MICOM, LABCOM, and TACOM. These requirements were revalidated for the STU-IIIs, which were being received at SAP locations. The STU-IIIs were to replace the STU-IIs, with a projected turn-in date of April 1989. Possible slippage was anticipated from technical problems, however.

DCS for Chemical and Nuclear Matters/ Executive Director for Chemical and Nuclear Matters

On 1 January 1988, the Office of the Deputy Chief of Staff for Chemical and Nuclear Matters was redesignated Executive Director for Chemical and Nuclear Matters.

BG Walter W. Kastenmayer served as Deputy Chief of Staff for Chemical and Nuclear Matters until 31 December 1987. On 1 January 1988, LTG Fred Hissong, Jr., the DCG for Materiel Readiness, took control of the program as Executive Director for Chemical and Nuclear Matters with day-to-day control in the hands of a deputy executive director. On 7 February, COL Victor J. Fenwick, Jr. replaced COL Lamar A. Stroud, as Acting Deputy Executive Director.[78]

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[77] See AMC DCSINT Items of Interest, 20 April 1988.

[78] All material on chemical and nuclear matters is taken from the FY88 submission of the Executive Director for Chemical and Nuclear Matters, unless otherwise noted.

Other key personnel serving during FY88 included Chemical Operations Division Chief LTC Frank Kelly, Chemical Materiel Division Chief Dr. James J. McLeskey, and Nuclear Division Chief COL Lamar A. Stroud.

As of the end of the fiscal year, the office had a total of 18 positions authorized against a requirement of 25. COL Stroud's departure left the Nuclear Division Chief position vacant.

U.S. Army Role

The Army is both the DOD executive agent for chemical warfare related research, development, test, and evaluation (RDTE) and the DOD "Single Manager" for the production, storage, and maintenance of conventional and chemical munitions. As such, the Army develops and produces chemical weapons for its use in the land battle; does RDTE to produce new chemical agents and dispersal systems for all services; supports the development efforts of the other services in devising chemical weapons systems (carrier plus agent and dispersal system); establishes the production base for all chemical weapon systems; and produces the weapons in response to our needs and funded orders from the other Services. Current Army efforts included fielding a binary chemical artillery projectile; a binary chemical warhead for Multiple Launch Rocket System (MLRS); support of Navy development of a binary chemical bomb; building the production base for all three systems; and producing required quantities of these systems.

Binary Chemical Stockpile Modernization Program

The Binary Chemical Stockpile Modernization continued to receive emphasis during FY88 at the highest levels of the Department of Defense. The long unilateral moratorium on production of chemical agents and munitions, announced by the United States in 1969, was lifted when the FY86 Congress approved production of the 155mm Binary Artillery Projectile. The actions by the FY86 Congress were reinforced by the FY87 Congress and subsequently by the FY88 Congress with their favorable consideration of the Binary Chemical Program budget requests. Accordingly, all three chemical weapon development initiatives included in the modernization effort remained viable in FY88. Besides the GB-2 155mm Artillery Projectile, these were the VX-2 Bigeye Bomb for the Navy and the Intermediate Volatility Agent Binary Chemical Warhead (BCW) for the MLRS. Army initiatives in support of each of these programs were vigorously pursued.

M687 155mm Projectile. Final assembly of the first 155mm Projectiles, a historical milestone, was accomplished in December 1987. It ended the 19-year moratorium on production of U.S. weapons. The M687 projectile entered the stockpile in December 1987. The Product Improvement Program for the Domed Steel Base was incorporated by IPR decision in March 1988.

Bigeye Bomb. Following earlier completion of the required environmental documentation, the Army Source Selection Authority in November 1987 had sited both agent QL and DC production facilities at Pine Bluff Arsenal, an important step forward for development of the Navy's Bigeye Bomb. Further progress was made when the Bigeye completed Operational Test IIB (OTIIB-operational evaluation), and on review of the Defense Acquisition Review Board, with input from the SECDEF Test Performance Review Board, which was also briefed, the recommendation to begin Low Rate Initial Production (LRIP) was received. President Ronald Reagan certified that acquisition of the bomb was needed in the interest of national security. With completion of the Technical Data Package (TDP), contracts were then awarded for the metal parts assembly facility, the fill/close facility, and the QL chemical constituent production facilities, successively from January to March. The Bigeye hardware production contract followed. Toward the end of the year, the final report and GAO assessment of

operational evaluation testing were completed. In response to Congressional direction to perform additional testing on the bomb, a Tri-Service Test Planning Working Group was formed in July, 1988.

MLRS Binary Chemical Warhead. The MLRS-BCW completed the validation phase and entered full scale development (FSD) with LTV Corporation as the sole source contractor for long lead time items. LTV also proposed later in the year that it be sole source contractor for BCW development during the full scale development. Its bid was subsequently accepted. Pine Bluff Arsenal Injection Assembly Fill/Close facility construction contract was let in December 1987. The MICOM Materiel Acquisition Review Board (MARB) authorized release of the FSD phase Request for Proposal (RFP). Contracts awarded included, in November, a process equipment design contract for the XM277 Injector Assembly Fill/Close facility was awarded to the Ralph M. Parsons Company, and in December, a contract for construction design of this facility (to be located at Pine Bluff Arsenal) to the Carter-Burgess Company. Finally, in January Harry Diamond Laboratories awarded KDI Corporation a competitive contract for continued development of the XM450 fuze and associated producibility activities.

NBC Reconnaissance System (NBCRS)

In FY88 the Army had a requirement for an armored vehicle equipped with a fully integrated NBC detection, identification, warning and communication system. It was proceeding with full-scale development with a XM87 NBCRS program, with TRW as the contractor. The NBCRS had to detect, identify, and mark areas of NBC contamination; collect soil, water and vegetation samples for later analysis; designate lanes of clear passage for troop movements, and transmit NBC information to unit commanders in the area of operations.

In February 1988, the Army decided to terminate development and to procure the German Spurpanzer FUCHS NBC Reconnaisance Vehicle, which is already in the German Army and which had been seen as an interim solution until a projected FY93 fielding of the U.S. system.[79] However, language in the FY89 Authorization Bill directed the Army to conduct a head-to-head competition with prototype vehicles between no fewer than two technically qualified competitors. Congress authorized $6 million for the test program and $10 million for procurement. The companion FY89 Appropriation Bill did not include the funds that were authorized, however.

In compliance with Congressional guidance, the Army undertook an expedited competition for an NBCRS and will select a winner by 29 Sep 89. The German FUCHS-NBC Reconnaissance Vehicle may compete on an equal basis. Request for Proposal (RFP) was released on 14 September 1988. A pre-proposal conference was held 4 October and was attended by 21 interested firms. Two proposals were received and were undergoing evaluation. The selection of competitors was to be made by 20 January 1989. Actual "shoot-off" of selected competitors will be completed by 4 August 1989, with the winner being announced by 29 September. The three-phase contract for Interim System Production, System Improvement and Full Rate Production was scheduled to be awarded in October 1989.

Under the NATO Comparative Test Program, five FUCHS NBC Reconnaissance Vehicles were procured from Thyssen-Henschel for generic NBCRS training, doctrine and tactics. The vehicles were delivered to Aberdeen Proving Ground on 27 August 1988. All safety tests have been completed by TECOM, and a safety release for training use at Army Chemical School has been granted. The Army will use the FUCHS to assist in NBC reconnaissance, doctrine, tactics and training development at the U.S. Army Chemical School, Fort McClellan, Alabama.

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[79] FY87 AHR, p. 181.

Remote Sensing Chemical Agent Alarm (RSCAAL), XM21

The XM21 alarm was being developed as an automatic scanning passive infrared remote sensor which detects nerve and blister agent clouds at distances of up to 5 kilometers based on changes in the ambient infrared caused by the agent cloud. It was intended to be employed for point and area surveillance and for reconnaissance. The XM21 consists of a detector, tripod, and transit case and will be powered by standard military power sources.

In January 1988, the PEO Chem/Nuc redirected the program to complete initially the tripod mounted system and incorporate design of the vehicle mount and demonstration of the vehicle mounted capability into the NBCRS program. Development of the thermoelectric generator was also terminated at this time. Technical testing of the XM21 at TECOM sites was initiated in September 1988 and was scheduled to continue through October 1989. Planning continued for the initial operational test and evaluation to occur in 1989 in the August to October timeframe. The Milestone Decision Review III (MDRIII) was still scheduled for September 1990 pending availability of the Technical Data Package (TDP).

Chemical Agent Monitor (CAM)

The Chemical Agent Monitor (CAM) was developed as a handheld air sampling device to detect chemical agent contamination of personnel and equipment. Production deliveries were ongoing from Graseby Dynamics, UK, to be completed in February 1989. CAM's were scheduled for fielding to the Chemical School in December 1988 and to USAREUR the following September. CAM will be particularly useful to medical personnel to check casualties for contamination prior to treatment. Another primary use will be to verify that decontamination of troops and their equipment is required and complete enough to allow them to reduce their protective posture.

Nuclear Munitions

XM785 Artillery Fired Atomic Projectile: This joint Deptartment of Defense/Department of Energy program continued to progress on schedule to meet Initial Operational Capability (IOC). In March 1988, a Milestone III In-Process Review was completed to type classify Standard and authorize procurement for the following Army components: M749 Fuze, M122 Rocket Motor, and M617 Container. The M42 Fuze Setter was type classified Standard and procurement authorized based on an IPR conducted in November 1988.

Nuclear Survivability

Large Blast/Thermal Simulator. Following site survey efforts that included contracted completion of environmental impact studies, the U.S. Army selected the White Sands Missile Range's Stallion Range area as the site for constructing the Defense Nuclear Agency Large Blast/Thermal Simulator (LBTS). Through vigorous support by the Army's Nuclear Survivability community, the Defense Nuclear Agency obtained approval of funds from the Defense Research Board to construct the facility. The Army will operate the LBTS scheduled to be completed in 1994.

Electromagnetic Pulse Test Facilities. In April 1988 the Army voluntarily suspended all outside electromagnetic pulse testing until full documentary compliance was achieved with the National Environmental Protection Act. Environmental Assessments (EA) were prepared for all three test sites (Woodbridge Research Facility, White Sands Missile Range, Redstone Arsenal). By the end of 1988,

the EA for WSMR had been approved by HQDA and testing resumed in September. An Environmental Impact Statement for Woodbridge Research Facility (WRF) was to commence in 1989.

Nuclear Surety

In compliance with AR 50-5, *Nuclear Surety,* AMC conducted the annual Service Response Force Exercises at Sierra Army Depot. The purpose of this exercise was to enhance the Army and AMC's capability to deal with nuclear accidents. AMC provided a realistic setting wherein a Service Response Force (SRF), in coordination with other federal agencies, practiced its ability to translate accident response and assistance plans into physical actions. To maximize the training value of the exercise, the scenario is designed so that each agency practices specific portions of its operational procedures, while at the same time has full functional participation in the overall SRF response. Approximately 300 players participated in these exercises in June 1988, including AMC, FORSCOM, Health Services Command, Defense Nuclear Agency, Department of Energy, and the Federal Emergency Management Agency. Past exercises have been successful and clearly demonstrated AMC's ability to execute its responsibilities concerning nuclear accidents. The next SRF (FY 89) will be a chemical accident exercise at Pine Bluff Arsenal, Arkansas.

Intermediate-Range Nuclear Forces (INF) Treaty - Pershing Missile Warhead Sections (WHS)

Three AMC agencies--AMCCOM, DESCOM, and PM-NUC--developed and at the end of FY88 were implementing plans necessary to meet the requirements of the Intermediate-Range Nuclear Forces (INF) treaty with the Soviet Union. The basic plan set a 36-month schedule to stand-down Pershing II firing batteries and retrograde treaty-specified equipment, such as warhead ballistic cases, for destruction at Pueblo Army Depot and Longhorne Army Ammunition Plant. In addition, U.S. Army support for continued deployment of the Pershing 1A missile system by the Federal Republic of Germany was confirmed as being allowed within the terms of the INF treaty.

Chemical Stockpile Disposal Program

The Final Programmatic Environmental Impact Statement for the Chemical Stockpile Disposal Program was completed in January 1988 which was followed by the Record of Decision in February. In the Record of Decision, the Army announced its intention to destroy the U.S. stockpile of unitary chemical agents and munitions onsite at each of the eight storage installations.

In accordance with direction contained in PL 100-180, March 1988, the Army submitted to the Congress the Chemical Stockpile Disposal Implementation Plan. The plan incorporated the Record of Decision, outlined the program schedule and associated cost, and recommended a program extension to the year 1997.

The National Academy of Sciences' National Research Council was selected to serve as an independent group to review and provide oversight of the entire chemical disposal program.

Local and national "intergovernmental coordination and control boards" were established. The boards facilitate the exchange of program information and provide a forum to raise and discuss issues pertinent to the localities adjacent to projected disposal facilities.

Onsite and offsite emergency response planning activities were initiated at all eight chemical stockpile sites. The Army and the Federal Emergency Management Agency entered into a Memorandum of Understanding to initiate joint program efforts in emergency response planning, training and information exchange.

Nuclear Chemical Biological Decontamination

Decontamination research and development is a continuous process of investigating procedures, designs and materials which either preclude chemical, biological and nuclear contamination or further means for decontamination. Speed and ease of operation are sought. Notable steps occurring in FY88 included transition of microemulsion formulation for a new Multipurpose Chemical/Biological Decontaminant (MCBD) from research laboratory to tests in development laboratories. Tests were indicating that lower corrosivity could be obtained with the microemulsion formulations without significant loss of decontamination efficacy over standard decontaminants.
Investigations of the selfstripping coating for hasty decontamination application went well enough to warrant continuation of the program through the next phase, initial optimization attempts. Installation of the automated large scale decontamination system was completed and the system extensively tested, providing input for the redesign effort which was nearing completion by year's end. Testing of the new design was scheduled to begin early in FY89. Modular Decontaminating System (MDS) in-house design efforts were being used by the design contractor, who was charged with delivering drawings and prototypes for government evaluation in FY89.

Chemical Operations

Disposal operations at the BZ plant at Pine Bluff, Arkansas, began in May 1988. The plant successfully met all its emission, safety, and operational criteria. Disposal was to continue through FY90, with BZ processing to be completed during the third quarter FY89, the remainder of the time being required to process the liquid and solid wastes generated by disposal plant operation and by earlier BZ disposal test programs.

Installation of most of the process equipment at the Johnston Atoll Chemical Agent Disposal System (JACADS) was completed. Initial systemization for specific process systems began. Fully integrated process systemization was planned for January 1989 with munitions filled with simulant agents. Actual operations were scheduled to start in August 1989, when systemization was expected to be complete. A laboratory operational readiness review was planned for completion in the second quarter FY89. A preoperational inspection in August 1989 would be followed by start of the Operational Verification Test Phase.

Support of the Chemical Surety Disposal Program (CSDP) continued at the Chemical Agent Munitions Disposal System (CAMDS), Tooele, Utah, with tests and other data gathering for programmatic process decisions. CAMDS data acquisition included tests using GB agent in support of the reverse assembly incineration as well as the cryofracture incineration disposal technologies. Cryofracture incineration technology tests on robotic, cryogenic, and fracturing systems were completed. Testing in support of JACADS, CSDP, and the cryofracture incineration program were continuing into FY89, addressing data requirements of the reverse assembly incineration and cryofracture incineration technologies in an integrated test program. Testing will be directed at obtaining specific data required for design, construction, and operation of the CSDP facilities and the cryo-fracture incineration demonstration facility. Chemical agent VX incineration will be the focus of the FY89 testing.

The Chemical Surety Program continued to receive priority interest. As the principal user of surety regulations, AMC continued to work closely with DAMO-SWS, DAMO-SF, DAIG and Surety Field Activity in maintaining an accident free chemical working environment. Incidents at Dugway and CRDEC generated agent exposure lessons that have proven invaluable in strengthening internal working SOP's and chemical programs at AMC labs and depots. The ongoing safety and operational

procedural review of chemical operations show the emphasis AMC places on Surveillance Program for Lethal Chemical Agents and Munitions (SUPLCAM) and Enhanced Storage Monitoring Programs.

HQ, AMC created the Emergency Response Planning Executive Board (ERPEB) in order to establish the requirements needed for a comprehensive on and off-post emergency response (ER) system for all eight future demil sites. The board has prioritized needs for procuring hardware and also expressed funds needed.

Biological Aerosol Test Facility

As a contingency to the restricting of the proposed Biological Aerosol Test Facility (BATF) at Dugway Proving Ground to a biological level three, the Commanding General, Medical Research and Development Command (MRDC), has agreed to let his facility be used by AMC for level four testing, if required. The use of the facility at Fort Detrick will be on a non-interference basis and they have agreed to provide all services and safety support. AMC will provide the necessary personnel and unique equipment to conduct the tests. By this arrangement with MRDC, AMC will have all the required levels of biological facilities to conduct technical test.

Smoke and Obscurants

Achieving First Unit Equipped (FUE) for the M157/M1059 Mobile Smoke Generator system in mid-1988 at Fort Hood, Tex., was significant in that it provided the Army the first real mobile smoke generating capability that was reliable and capable of disseminating large volumes of smoke in a relatively short period of time. The M1059 consists of two product improved M3 type fog oil generators mounted within an M113A2 APC. Acquisition of 640 new M3A4 smoke generators and reconditioning of over 2000 M3A3 generators also provided a greatly enhanced capability in this vital area. PM Smoke took the lead in focusing attention on the problem of the vehicle engine exhaust smoke system (VEESS) not being capable of functioning properly with the new "single fuel" candidate JP8. Steps to resolve this problem are currently underway pending funding and specific requirements statements.

M157 Smoke Generator Set (SGS). The M157 SGS, the mechanical smoke generator used in the M1059, is operated by a gasoline fuel pulse-jet engine which vaporizes fog oil to produce large area screening smoke. Besides its use in the M1059 (the modified M113A2) it can be mounted as well on the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) with the M284 Mounting Kit. The M157 SGS was type classified standard in May 1985, and a production contract awarded in April 1986. The Initial Production Test (IPT) was conducted at Yuma Proving Ground (YPG) July-September 1987. In FY88, a Follow-on Evaluation (FOE) was held in November at Fort Hood.

Post award meetings were held at Minowitz Corporation in December 1987 for the follow-on buy of the generator set and at IMCO (Israel) in January 1988 for the M284 and M288 installation kits, M284 for th HMMWV and M288 for the M1059. Second production tests were conducted at Dugway Proving Ground for the M1059. A training release to the 2ID of seven M1059s was conducted in February 1988 in support of Team Spirit 88. The Chemical School sponsored follow-on evaluation (FOE) testing of the M1059 at Fort Hood in April 1988. Conditional materiel release to CONUS units and 2ID occurred on 17 June. Conditional materiel release to USAREUR was in August. A total 84 M1059 SGS were fielded in FY88. Fielding plans were developed for the wheeled applications of the M157 SGS. Initial production test planning for the wheeled application of the M157 SGS and M284/M288 kits continued.

M3A4 Smoke Generator. Like the M157, the M3A4 is a mechanical smoke generator operated by a gasoline fueled pulse-jet engine which vaporizes fog oil to produce large area screening smoke. The M3A4 was a Product Improvement Program (PIP) of the M3A3 Smoke Generator initiated in FY78 to improve reliability and operational characteristics. The First Unit Equipped was in FY86. A production contract for 640 new M3A4's was completed in FY87 and depot conversion of 2000 M3A3's was completed in FY88.

Large Area Screening System, XM55/XM56/XM57. The XM55 is a motorized version of a gas turbine/turbo-combuster designed to produce large area screening smoke and is mounted on the M1037 High Mobility Multi-purpose Wheeled Vehicle (HMMWV). The XM55 can obscure the visual through millimeter wave (MMW) spectrum. The XM56 is a dual purpose system which provides screening in the visual through millimeter wave as well as hot water decontamination.[80] The XM56 will be mounted on the M1037 HMMWV. The XM57 is a similar item mounted on a M112A3 APC (M1059E1) to provide a mechanized large area screening system. The XM55 entered full scale development in September 1987 and will be followed by type classification in 4QFY91.

Design efforts were initiated by MRC Corporation the first quarter of FY88. A contract option was awarded to Tierney Turbines for the Development Test II (DTII) engine in the third quarter. Due to technical and environmental problems the MMW phase was converted to a Pre-Plan Product Improvement Program (P3I) by Special IPR (IPR approval obtained in 1QFY89). First fieldings will be the XM56 to dual-purpose chemical companies followed by the XM55 for wheeled applications. Plans were initiated in 4QFY88 to combine the XM57 tracked version with the 2.75 inch rocket launchers and initiate a new program to provide a mechanized mobile smoke capability with projected Hydra 70 2.75 inch rockets carrying XM264 smoke warheads. Development of this system was to be initiated in FY90 using a Bradley Fighting Vehicle derivative chassis.

M76 Infrared Defeating Smoke Grenade. The M76 will provide a means of extending armored vehicle rapid smoke protection against missile and projectile sensor and guidance threats operating in the mid and far-IR regions of the electromagnetic spectrum. The grenades will supplement or replace the existing L8A1 smoke screening grenade, which is effective for visible through near-IR wavelengths. It will be fireable from existing armored vehicle launchers. New Materiel Release for the follow-on production by TRACOR MBA was approved January 1988.

L8A3 Smoke Grenade. The current L8A1 Smoke Grenade, fired from a variety of 12-tube and 8-tube launchers, was adopted in 1976 to counter threat sensors, range finders and guidance devices operating in the visual and near-IR regions of the electromagnetic spectrum. This grenade system was adapted to and fielded on numerous U.S. tanks, combat support vehicles and tracked infantry vehicles. Full release of the L8A3 produced by Pine Bluff Arsenal was approved December 1987. Management responsibility transitioned from PM to functional management by AMCCOM at Rock Island Arsenal.

M825E1 155mm Projectile. The M825E1 is a white phosphorous (WP) projectile based on the submunition concept; i.e., the projectile functions over the target area and disperses a large number of WP soaked felt wedges. This provides a sustained smoke cloud 5 to 10 times longer than comparable bulk filled rounds. Problems with flight stability at the critical mach launch environment and the firing restriction above 50 quadrant elevation were corrected. The new designs for the felt wedge and the steel base were incorporated into the Technical Data Package. The Independent Assessment Report recommended Type Classification Standard A, and the type classification IPR was scheduled for February 1989.

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[80] See below for more on XM56, p. 154.

Multi-Salvo Grenade Launcher (MSGL) and XM81 Millimeter Grenade. The MSGL is a component of Combat Vehicle Defensive Obscuration System (CVDOS) which will provide the host vehicle with concealment from threat surveillance, target acquisition, and weapon guidance systems by projecting an instantaneous obscurant screen protection in all directions (to include overhead) through employment of obscurant grenades (L8 series, M76, XM81) but without reloading. It will fully mesh with current and developmental information/countermeasure management systems. The first applications are for the M1A1 Abrams Tank and the M2/M3 Bradley Fighting Vehicles, developing designs with adaptability to all Track/Wheeled vehicles. The contractor continued design and fabrication of both the MSGL and the grenade. Planning continued for the start of technical feasibility testing in early FY89.

HC Replacement PIPs - M4A2 Smoke Pot and M8 Hand Grenade. Product Improvement Program funding was received in the third quarter to replace the suspected carcinogenic and toxic hexacloroethene mix (HC) in the M4A2 Smoke Pot and the M8 Hand Grenade. A development contract was awarded in 4QFY88.

M259E1 Hydra 70 Smoke Screening Rocket. The M259E1 is an improved 2.75 inch smoke screening rocket. BEI Defense Systems, Inc. completed hardware design and fabricated rockets for enginering development testing (EDT). EDT was initiated in 3QFY88 with test firings taking place in 4QFY88. Test firings revealed problems with the expulsion charge when fired after cold conditioning. This required a redesign of the expulsion charge prior to initiation of the Production Validation Test (PVT). Redesign is still in progress prior to final assembly of test hardware. Work was initiated at Tooele on the Demil Depot Maintenance Work Request (DMWR), and a Preliminary Fuze Board Meeting was conducted in 4QFY88. A Test Integration Working Group (TIWG) was also conducted in 4QFY88 to finalize test planning for the upcoming Production Validation Test. Type Classification is currently scheduled for 4QFY89 with Production Contract Award and FUE scheduled for 2QFY90 and 4QFY91 respectively.

Obscurant Countermeasures and Testing

The countermeasures and testing function of PM Smoke has two basic missions: (1) Developing and disseminating information on smoke/obscurant effects on other weapon systems and (2) coordinating and directing obscurants testing of systems with electro-optical components. During FY88 there were a number of significant accomplishments:

- o Conducted Smoke Week X at Fort Huachuca, AZ in September 1988 where 41 electro-optical systems were tested and 39 smoke trials were accomplished.

- o Conducted Smoke/Obscurants Symposium XII in April 1988 where 75 papers were presented to 350 participants.

- o Conducted, sponsored and supported a number of tests of instrumentation and specific weapon systems in obscured environments, and a live fire simulation test of Soviet artillery at Dugway Proving Ground in July 1988.

Nuclear Weapons Stockpile Reliability Program (SRP)

During FY88, the joint DOD/DOE Stockpile Reliability Program went to biennial reliability testing for Army nuclear weapon systems. The SRP for each weapon system includes both laboratory tests of components and flight tests for full-up configurations less the nuclear devices. The biennial

system was initiated as a cost-reduction measure by reducing the yearly requirements for transporting weapons and conducting expensive examinations of components. The biennial program will have no adverse effect on present systems' readiness and reliability, it was concluded, and was being smoothly implemented by PM-NUC and AMCCOM.

Non-Strategic Nuclear Forces Safety, Security And Survivability (NSNFS3) Program

AMC agencies participating in the Army's Non-Strategic Nuclear Forces "Safety, Security And Survivability" Program (NSNFS3) included the Nuclear Division of the EDCNM (AMCCN-N), the Provost Marshal (AMCPE-S), the PM, Nuclear (PM-NUC), AMCCOM, DESCOM, and ARDEC. PM-NUC chaired the NSNFS3 Project Officers Group that worked various nuclear-related safety, security and survivability projects and issues. Examples of NSNFS3 projects included: Survivability Overpack Container (SOC) for nuclear projectiles; Advanced Storage Concepts (ASC) such as Underground Storage Facilities and Weapons Storage Vaults; Weapons Access Delay System (WADS) family of components to prevent unauthorized entry into storage facilities; and Maintenance and Assembly Secure Storage (MASS) initiatives. The program provided a forum for coordinating input from using commands directly with the materiel developers, streamlining the acquisition process.

Nuclear Artillery/NATO Cannon Compatibility

AMC established technical interface control procedures to address the compatibility of U.S. nuclear artillery with present and future U.S. and NATO howitzers. The compatibility group that formed in 1987 conducted two meetings in 1988 to complete matrices of key howitzer and propellant charge data. The matrices--necessary for interface control and compatibility--were separately charted for 155mm and 8 inch howitzers. The 1988 meetings were conducted at Sandia National Laboratory in January and at HQ USAREUR, Heidelberg, Germany, in June. The group plans to meet annually at HQ USAREUR to update the matrices and discuss new developments in the howitzer and nuclear munitions programs.

Nuclear Survivability

Defense Standards And Specifications Program (DSSP). Through the Electromagnetic Effects Survivability Laboratory, AMC continued to support the vulnerability to electromagnetic pulse assessment of mobile ground based command, control, communication, and intelligence equipment (C3I), a DSSP initiative of the Assistant to Secretary of Defense-Atomic Energy. The required program documentation for 1988 was prepared on schedule.

Army Systems Nuclear Survivability Action Plan. The Nuclear Survivability Assessment Team completed fielded system assessments of the M1 Battalion and Fire Control C3 Systems. Analysis of the following systems were initiated: Bradley Battalion, M113 Battalion, Motorized Infantry, MLRS Battery, and Lance Battery. Due to a lack of program funding, HQDA directed termination at the end of FY89.

Physical Protection[81]

Individual Protection. With work contracted to Battelle Laboratories, the testing of the full ensemble of individual protection equipment was undertaken in FY88 at the Chemical Research

[81] Information for this section comes from the FY88 CRDEC Physical Protection Directorate AHR chapter.

Development and Engineering Center (CRDEC). Following the methodology that was adopted, tests compared leakage through controlled leaks of agent/vapor/aerosol using a headform and chamber under a breather flow. The purpose of the tests were to determine the penetration characteristics of corn oil, dimethyl/methyl phosphonate (DMMP), biacetyl and GB.

In the area of respirators, CRDEC's Physical Protection Directorate evaluated various NBC respirator lens designs to determine compatibility with simultaneous use of night vision goggles. It also collected acoustic/speech data on military respirators from eleven foreign countries as well as current, former, and prototype American military respirators to determine concepts for improving speech intelligibility and amplification in future respirators. A program to automate laboratory physiological data collection, storage and manipulation was undertaken and progressed to the point of beginning the training of staff members. The directorate also made significant contributions in the area of physiology and human factors for the revision of NATO document D103, Respirator Triptych, to improve and standardize functional characteristics of military respirators among NATO countries. It began study of changes in dynamic visual acuity caused by wearing the M40 respirator.

To develop better-fitting respirators, the directorate purchased and installed a three dimensional anthropometric scanner capable of collecting 230,000 data points of the human facial surface (lmm grid) in 0.7 seconds at rest or at repetitive time periods. This paired with action to establish a computer aided design data base for improving mask design, fit and functional capabilities.

To support the ongoing P2NBC2 study ("Physiological and Psychological Effects of NBC and Sustained Operations on Systems in Combat") the directorate undertook examination of the gaseous environment and crew workloads during sustained operations in the M1A1 tank. It conducted a physiological evaluation of two candidate closed-circuit breathing apparatus' for use with the Selfcontained Toxicological Environmental Protective Outfit (STEPO) as well as of three prototype designs of the Expedient Hood. Finally, it expanded the static pulmonary function database for the M40 respirator with addition of further subject fields.

Also at CRDEC, the lens system for the new Aircrew Protective Mask (ACPM) was designed and fabricated. The system was designed to achieve maximum compatibility with optical sighting/night vision devices, increased peripheral vision, improved visual acuity, and the elimination of the refractive error that occurs at higher altitudes. Also, the medium size facepiece mold for the ACPM was completed and units were fabricated for preliminary testing/fitting. Sizing studies were also initiated with three alternate sizes of the ACPM. The Front End Analysis (FEA) for the new Respiratory Protection System 21 (RESPO 21) for the year 2002 was completed. An expedient type hood was developed to provide limited protection against chemical agent particulate/vapors for emergency-type operations. The technology gained from development of the expedient type hood may be utilized in future developments of lightweight protective systems. The system may have potential for being used as an exchange mask in entry/exit decontamination operations. CAD/CAM was integrated into the development programs such as RESPO 21, ACPM, and the Expedient Hood. Primary emphasis was placed on the design of components such as new lens designs, low profile eyelens crimping rings, miniaturized motor/blower housings, and pattern configurations for CB protective hoods. Preliminary testing of an electronic speech amplification system adaptable to the M40 mask showed the device significantly increased the communication capability of the mask, especially in high noise level environments. The system may also have potential for being used in special use applications such as depot operations, technical escort operations, and special weapon firing teams.

New Reactive Sorbent Development Program

A major accomplishment of FY88 in Air Filtration Technology was the identification of an impregnated carbon providing enhanced protection against non-standard agents. A patent disclosure

covering the invention was submitted in April 1988. As a result of the breakthrough in adsorbent technology, a development team was assembled to execute the New Reactive Sorbent Development Program. The goals and responsibilities of the development team have been formalized by a CRDEC charter. The strategy calls for implementation of the new adsorbent into military gas filters in the first quarter of FY93.

An additional noteworthy breakthrough occurred in late FY88, an impregnant was identified which provided enhanced filtration of another class of nonstandard agents that had been resistive to the impregnated carbon discovered earlier. This technology will be investigated further under the New Reactive Sorbent Development Program.

Chromium-Free Carbon. Additional successes in new impregnated carbon technology were realized under the Chromium-Free Impregnated Carbon Program, aimed at developing safer alternatives to hexavalent chromium, an impregnant on ASC Carbon that poses a health hazard. During FY88, an optimized formulation of copper, silver, zinc, triethylenediamine impregnation for carbon was developed that provides filtration performance for standard agent filtration comparable to that of current ASC-TEDA carbon. Impregnation process optimization on this carbon will be performed in FY89.

Advanced Air Purification. Efforts continued in the exploratory development of air purification concepts of Regenerable Filtration, High Pressure Filtration, and Electrical Discharge Plasma decontamination of air. During FY88, a 250 cubic feet/minute (cfm) prototype system based upon the regenerable filtration concept of pressure swing adsorption was fabricated and tested by AiResearch Manufacturing Company. The prototype will be delivered to the U.S. Navy in FY89 for additional simulant tests. Testing was completed in FY88 on high pressure filtration with cyanogen chloride (CK). The results of this testing were transferred to the V-22 high pressure filter development program to assist in filter design. Also during FY88, efforts continued in the electrical discharge plasma area. Two patent disclosures were submitted on this important technology. A 30 cfm reactor was designed and fabricated as part of the necessary scale-up of the reactor flow rate capacity. Functionality testing and challenge testing of the 30 cfm reactor will be conducted in FY89.

Simplified Collective Protection Equipment Preplanned Product Improvement (SCPE-P3I). The P3I program for the M20 Simplified Collective Protection Equipment is directed toward bettering a simple, highly mobile system that provides NBC protection inside an existing structure. The improvements include increased entry-exit rate, liquid agent resistance, a medical airlock, interface with TEMPER, and expansion of the size capability. Development support was provided to the M20 production efforts to resolve production and IPT problems.

NBC Filter For V22 Osprey Aircraft. CRDEC initiated efforts to develop a high pressure filter for the V22 tiltrotor aircraft (Osprey) being developed by the Naval Air Systems Command (NAVAIR). The NBC filter for the V22 provides the NBC filtration for the aircraft's environmental control system's providing clean air for cockpit and cabin pressurization. The program also provides for a NBC Sustainability Analysis of the aircraft. In support of the NAVAIR development program for the V22 an NBC filter design was completed and a preliminary design review conducted. Laboratory scale testing was completed to verify the design concept. The program acquisition strategy, safety, ILS, quality and manufacturing plans were prepared and approved. The Test Integration Working Group (TIWG) was formulated and meetings were held. The full scale filter qualification test equipment was designed and fabrication initiated. The NBC Sustainability goals and program plan were prepared and presented to NAVAIR. The program was approved and work was initiated.

Large Filter Initial Production Facility (IPF). 1988 marks the completion of the Large Filter IPF's detailed design. The Large Filter IPF is the first initial production facility to be build by the Army to support chemical defense items. This plant will serve as a mobilization and production base support for collective protection filters. Procurement of equipment for the IPF facility at Pine Bluff Arsenal will be the major effort for FY89, with CRDEC providing technical support to Pine Bluff for these buys.

ASC-T Carbon Implementation. Implementation of the first improved whetlerite carbon since 1941 was a major producibility achievement in 1988. Test programs involving triethylenediamine (TEDA) impregnated ASC whetlerite carbon in standard filters were completed with excellent results proving that ASC-T carbon can be used in existing filter designs without modifications. Engineering changes to put the new carbon into standard items were started, and the first ASC-T filters manufactured for routine use were fielded with the Navy.

Status Of M43 Aviation Mask Production. The contractor, Scott Aviation, made its first delivery of the M43 Mask, 93 of the 1000 required. They were immediately shipped to USAREUR and fielded.

XM56 Dual Purpose Smoke And Decontamination System. The XM56 was being developed to meet an urgent operational need of the Army's newly established Light Division Dual Purpose Chemical Companies. The XM56 is a gas turbine/turbo-combuster designed to produce large area screening smoke, as noted above in the section on obscurants, and provide aqueous decontamination. The XM56 is mounted on the M1037 High Mobility Multi-Purpose Wheeled Vehicle (HMMWV). For decontamination, the XM56 can provide 10 gallons of water per minute at 1000 psi, 200 degrees Fahrenheit. For obscuration, the XM56 has the capability to screen visual, infrared, and millimeter wavelengths of the Electromagnetic spectrum. Agent tests are being conducted to quantify the effectiveness of the high pressure/hot water on removing agent contamination and is scheduled for a May 1989 completion.

Modular Decontaminating System (MDS). The MDS will provide a lighter, smaller, more mobile, flexible, and increased capability decontaminating capability to chemical companies. The MDS will replace the large, low mobility M12A1 decon systems. The smaller MDS will allow decontamination squads to carry enough equipment to double the their productivity at decon sites by establishing two decon lines. The MDS consists of three main modules: a DS2 Pumper/Scrubber module for dispensing the current Army standard decontaminant DS2, a High Pressure Washer Module for cleaning the contaminated vehicles prior to decontaminant application, and a Continuous Mixer module for continuously mixing and dispensing new decontaminating emulsions. The system will be supported by M17 Lightweight Decon Systems to provide hot water for washing and rinsing the vehicles.

MDS efforts included an initial in-house design and fabrication of prototypes of the DS2 Pumper/Scrubber and High Pressure Washer modules. The initial design task for the DS2 Pumper/Scrubber was awarded in September 1988 and will improve on the in-house design and produce drawings and prototypes for evaluation in FY89.

XM19 Nonaqueous Equipment Decontaminating System (NAEDS). The U.S. Army and U.S. Air Force (USAF) require a nonaqueous decontaminating capability to decontaminate newer, high technology avionics, electronics, and communication equipment. Under a joint development program with the USAF, CRDEC is developing the XM19 Fixed Site NAEDS. The hardware design is done, and decontaminating efficacy testing at Dugway Proving Ground was successfully completed. A complete Technical Data Package and Technical Orders will be completed by December 1989. The U.S. Army will fund the fixed site NAEDS program through FY90, as it moves to development of a ruggedized mobile NAEDS starting in FY91. CRDEC is expected either to continue to receive

customer funding for the development of the Fixed Site NAEDS from the USAF or transition the program to the USAF. Decontaminating efficacy testing with this hardware is scheduled to be performed 2QFY89 at Battelle Columbus Laboratories and in FY90 at Dugway, both under the supervision of the U.S. Army Test and Evaluation Command (TECOM).

M280 Decontamination Kit, Individual Equipment (DKIE). Efforts continued on the Pre-Planned Product Improvement (P3I) program on the DKIE. Work continued on contract to redesign the M280 Packet II to eliminate the glass ampules and to redesign the squad container holding the individual packets. Prototypes of the redesigned two compartment Packet II were manufactured. A first redesign of the squad container was completed. The P3I program was terminated before the squad container redesign effort and testing of new Packet IIs could be completed.

C8 Emulsion Evaluation. Testing of materials stored at Tropic Test Center (TTC) and Dugway Proving Ground (DPG) was completed as was penetration of chemical agents through mask filters exposed to vapors from C8 emulsion. A final report on all the International Materiel Evaluation (IME) testing on C8 emulsion, prepared by DPG, was reviewed. A package for a correspondence IPR on C8 emulsion was prepared.

Improved Chemical/Biological Agent Decontaminant (ICBAD). Work on ICBAD development was halted at the beginning of the second quarter. Data from the C8 IME continued to feed into the ICBAD program and a special IPR was held in the third quarter to determine the future course of the program. It was decided to continue only the environmental testing of ICBAD which was already underway and complete the remainder of the ICBAD development in conjunction with the Modular Decontamination System development program. Consequently materials stored at Cold Regions Test Center (CRTC), Tropic Test Center (TTC), and Yuma Proving Ground (YPG) were sent to Dugway Proving Ground (DPG) for evaluation to determine how adequately the containers selected for ICBAD protected the components during storage. This testing continued into FY89.

Mission Support Of Army Tactical Aircraft In An NBC Environment. The Aviation Applied Technology Directorate (AATD) at Fort Eustis and CRDEC addressed the support given Army tactical aircraft in NBC environments and jointly agreed to have CRDEC start development of: a foam decontaminant; use of automation and robots in mission support and maintenance; decontamination procedures for canopies, rotor blades, and radomes/antennae; and evaluation of the use of hot air deicing equipment for the purpose of decontamination. This support will continue into future years and will likely intensify.

XM291 Personnel Decontamination System, Skin Decontamination Kit (SDK). U.S. Army Medical Materiel Development Activity (USAMMDA) at Fort Detrick requested AMCCOM support in preparing the XM291 for production and fielding. CRDEC personnel and USAMMDA personnel met with the contractors developing the XM291 to ensure the Technical Data Package (TDP) will contain provisions necessary to support competitive procurement of the XM291. Contractor submissions of the TDP indicate the TDP was close to completion. This effort will continue until type classification and fielding of the XM291.

Decontaminating Apparatus, Power Driven, Portable, Type A/E32U-8. The A/E32U-8 was procurred and fielded as an interim until the Technical Data Package (TDP) for the M17 Lightweight Decontaminating System (LDS) could be developed and Type Classified. The A/E32U-8 can draw water from 30 feet away and 9 feet below the pump level, and deliver it at controlled temperatures (up to 248 degrees Fahrenheit) and pressures up to 100 pound per square inch gauge. The A/E32U-8 was type classified for limited procurement due to urgency (TC/LP(U)) in April 1984. Low reliability and restricted use to temperatures above 32 degrees Fahrenheit due to human machine interface concerns

in freezing conditions were the basis for the limited type classification. Initial fielding of the limited procurement quantity to TRADOC schools and to USAREUR units were completed in 3QFY86 and 4QFY86.

M17 Lightweight Decontaminating System (LDS). The M17 LDS consisted of a gasoline-engine driven pump and multiple-fired water heating apparatus, a 1500 gallon self-supporting, rubberized fabric water tank, and an accessory kit that contains hoses, wands, and personnel shower hardware. The M17 LDS can draw water from 30 feet away and 9 feet below the pump level, and deliver it at controlled temperatures up to 248 degrees Fahrenheit and pressures up to 100 pounds per square inch gauge. On fielding, the M17 will provide light division chemical companies, individual battalions Army-wide, and other specified units with an operational capability for decontamination. Current systems lack adequate hot water capability for decon operations in these type units. The design is based on that of the A/E32U-8 decontaminating apparatus but includes several human factor and safety improvements. The M17 LDS was type classified in May 87. The Technical Data Package (TDP) was government approved for first article fabrication in June 88. The TDP continued to be refined in the first article fabrication process through numerous government/contractors reviews. A complete competitive TDP will be available in FY89 upon completion of the First Article.

DCS for Ammunition

Organization and Personnel

The DCS for Ammunition was officially formed on 4 August 1988 as a result of an Army Acquisition Executive (AAE) decision memorandum of that date which disestablished the Program Executive Office (PEO) Ammunition and in its place established the DCS for Ammunition at AMC. A subsequent AAE memorandum dated 23 August 1988 refined the new ammunition staff responsibilities. This memo stated that the new DCS for Ammunition was to have all the staff responsibilities for ammunition that had been previously assigned to the PEO for Ammunition. The DCS was to be dual-hatted, serving both as an AMC DCS and as the executive agent for ammunition for the Assistant Secretary of the Army for Research, Development and Acquisition (SARDA). As a result, a small Pentagon office (SARD-ZCA/AMCAM-PC) was maintained to provide HQDA-level ammunition program and budget review capabilities. The Pentagon office represented SARDA on the joint DOD/DOE Nuclear Weapons Council Standing Committee. The office was also responsible for binary munitions funding and acted as proponent for nuclear survivability. Effective April 1988 the Pentagon core office took over responsibility for action officer requirements for the Conventional Systems Committee of the Defense Acquisition Board, which served as a forum for all conventional ammunition matters.

The DCS was authorized 59 civilian and 12 military positions. The DCS was headed by MG Paul L. Greenberg, who had previously served as the PEO Ammunition.

Program Objective Memorandum (POM) FY90-94

The Army ammunition POM for FY90-94 was developed and submitted in accordance with the POM instructions. It showed negative real growth between FY89 and FY90. In the case of shortfalls, the deficiencies were reported in terms of dollars and quantities of ammunition.

LRRDAP and Extended Planning Annex

The DCS developed the 1995-2006 Field Long Range Research Development and Acquisition Plan and Extended Planning Annex (EPA). The EPA was based upon the FY94 portion of the FY90-94 Program Decision Memorandum with a total obligation authority growth of 1 percent per year. It was developed to emphasize the need to resource essential warfighting capabilities and was an extension of the POM. Although resource constrained, it was designed to be operationally logical. It provided for the armor/anti-armor program, funded armor enhancement initiatives at the OSD-agreed-upon level, funded high priority modernization follow-on mines, 120mm mortar ammunition, and the future armor program. It also supported battlefield modernization and training at a minimum level. However, it did not provide for illumination rounds for the battlefield after 1992, nor maintain plant workload at plants projected to be active at the end of the POM, nor provide for sufficient surge capability based upon mobilization of the ammunition production base with modernized technology.

Ammunition Procurement Program Review

The Ammunition Procurement Program Review was held at AMCCOM from 27 June to 1 July 1988 and was co-chaired by the DCS for Ammunition and AMCCOM. The final program provided a baseline for the preparation of the budget.

Conventional Ammunition Working Capitol Fund (CAWCF)

The CAWCF was a revolving fund for managing and reporting the procurement of ammunition components and their assembly into conventional ammunition. It was established in 1982 to serve as the vehicle for the procurement of all Single Manager for Conventional Ammunition (SMCA) items as well as some non-SMCA items. In FY88 the CAWCF program totalled $3,744 million dollars. The obligations totaled $3103 million, for an obligation rate of 82.9 percent, the second best in the CAWCF's history.

Development of the Ammunition Production Base Master Plan (APBMP)

The APBMP was a 1-to-20 year plan begun in June 1988 to develop a way to meet ammunition mobilization requirements. The plan would highlight the shortfalls that resulted from a twenty year neglect of the ammunition production base and it would identify the necessary corarective measures.

The plan was to be developed by the DCS for Ammunition and AMCCOM and was to include the requirements of all the Services as well as the non-hardware requirements such as the maintenance of the production base itself. The requirements were to be matched against available resources and the resulting shortfalls would have their risks identified. A prioritized plan, unconstrained by resource limitations, would then be developed to reduce or eliminate the risks, and the projects identified in the plan would be implemented as funding became available. The Maximum Army Expansion Model (MAX) would be used to identify war fighting "pacer" items that were warfighting constrainers. Resources could then be concentrated on those items.

Automation

Ammunition Executive Management System (AEMS). AEMS consisted of computer programs being developed under contract by CACI that would enable the DCS to perform various "what if" analyses on ammunition programs. Variables included procurement costs, procurement quantity, production rates, and any ammunition requirement values such as Ammunition Initial Issue Quantity.

At the request of the DCS, changes were maid to the AEMS models in order to increase data calculations from six to seven years. This enabled the calculations to include the current year, the budget year, and the five years of the Program Objective memorandum (POM). AEMS training was provided by CACI, with 14 DCS personnel being trained, 12 of them being new users and two being experienced users who were included to evaluate the effectiveness of the training.

The AEMS data base was updated from the data base maintained by the Research, Development, Acquisition Information Systems Agency (RDAISA). Originally updated by data transfer over the Acquisition Information Management Network (AIMNET), problems of reliability, availability, as well as the time consuming nature of such a transfer led to updated the data by use of a courier carrying the data on a floppy disk.

Office Automation. Office automation was at a low level at the start of FY88 but that year saw major developments made in the acquisition of hardware and software. By the end of the year a good level of office automation had been achieved, although efforts were continuing to improve it.

Defense Standard Ammunition Computer System (DSACS). DSACs was a total logistics automation effort by the Army to met the requirements of DODI 5160.65, Single Manager for Conventional Ammunition. DSACS was initiated in 1983, and since then some 1.5 million lines of code were written and over $35 million was spent on the project. It became operational in June 1988 with operational testing of its four base modules. Debugging followed, and the system ended the year operational with its four basic modules being partially functional.

Standard Integrated Ammunition Management System (SIAM)

SIAM was an effort to integrate ammunition management information systems worldwide. It consisted of an effort to validate doctrine and data requirements at the retail level and to describe the current system and validate user data required at the wholesale level. The goal for completion of these two objectives was the second quarter of FY89.

NATO Consolidated Procurement

NATO Consolidated Procurement originated with an initiative offered by the Secretary of Defense to the NATO ministers in 1984. The executive agency for the program was the NATO Maintenance and Supply Agency (NAMSA), with the U.S. Army designated as the lead service. The first project, offered by the U.S., was the M577 fuze. A memorandum of understanding was signed by the U.S. and NAMSA in April 1988, and on 4 August 1988 NAMSA signed a contract on behalf of several nations with Hamilton Technology for a total of 461,216 of the fuzes. The U.S. portion of this buy was 355,008 fuzes. A second initiative was planned for 1989 to continue the consolidated procurement program.

Ammunition Production Base Management Policies

The FY88 House Appropriation Committee Report had directed the Department of Defense to develop a comprehensive policy that could serve as the basis for production base decisions. The policy that was developed and submitted to Congress covered the following areas: mobilization base; continuation, deactivation, reactivation and disposal of government-owned plants; maximizing competition; workload; plant utilization policy; self-facilitization, and reduction of government-owned property. These policy statements were to be converted into an Army Regulation in order to provide consistency and direction in the management of the ammunition production base.

Louisiana Army Ammunition Plant (AAP) RDX Facility

The primary activity in this area involved efforts to obtain DOD approval and funding for the construction of a plant to manufacture the explosive RDX at the Louisiana AAP. Congress appropriated $273 million for this project in FY88 and an additional $72 million was to be provided in FY89. OSD approved the project on 22 September 1988. The request for proposal was completed and was to be released in November 1988.

Armor/AntiArmor Master Plan (A3MP)

The DCS participated in the development of the A3MP by providing assistance on the technical and programmatic aspects of antiarmor ammunition. The goal of the plan was to provide a consolidated update of technical and funding issues for various research and development and procurement options, thus permitting the Army to select the most promising options to obtain the greatest battlefield advantage.

NATO Panel IX

The DCS represented the United States at the NATO Panel IX (Engineer Equipment) meeting in Brussels, Belgium. The panel received the final report from the NATO Industrial Advisory Group (NIAG) Subgroup 20 on Area Defense Weapon prefeasibility study. The panel decided to recommend the establishment of a project group to conduct an Area Defense Weapon feasibility study. The panel also received a report from the United States on wide area mine efforts and on anti-helicopter mine studies at the Defense Advanced Research Projects Agency. The panel also briefly discussed anti-helicopter obstacles, overhead cover for fighting positions, bridging requirements, and engineer automatic data processing requirements.

Weapon Systems

Multiple Launch Delivery System (VOLCANO). The VOLCANO, XM139, completed operational test II.

Modular Pack Mine System (MOPMS). A MOPMS option on a previously awarded contract to Lockheed Electronics for molded housing assembly was awarded in November 1987 for a total cost of $1,146 thousand. Action was initiated to request methodology studies and formal cost/schedule estimates for the production test facilities at Jefferson Proving Grounds and the Lone Star Ammunition Plant. The Army Materiel Systems Analysis Activity completed the draft Test Design Plan for the MOPMS initial production test.

Ground Emplaced Mine Scattering System (GEMSS). GEMSS M128 dispensers were handed off to USAREUR (55), Forces Command (2), and TRADOC (2). A total of 175,000 M75 antitank mines and 15,000 M74 antipersonnel mines were accepted. On 15 December 1987 an AMCCOM Materiel Release Board recommended full release of the system.

Wide Area Mine (WAM). The PM for Mines, Countermine, and Demolitions assumed responsibility for WAM as of 1 October 1987. Prior to that date, however, competitive contracts had been awarded for the two year proof of principle phase to Textron Defense Systems and to Honeywell. The WAM program was reviewed in December, and the conclusion was reached that the development of the basic mine and of the hand emplaced application should proceed but that integration into other delivery systems should be deferred.

Tactical Explosive System (TEXS). A major redirection of the TEXS program was initiated in response to a HQDA directive. This was requiring the reprogramming of production funds to RDT&E funding. Other actions taken included testing, conducting a demonstration of the competing explosive systems, planning an expanded program to evaluate nitromethane and ammonium nitrate explosive systems, and coordinating program discussions and presentations between USAREUR and the Federal Republic of Germany.

Office for International Cooperative Programs

The Office for International Cooperative Programs (OICP) served as the focal point for international cooperative research, development, and standardization programs assigned by HQDA. It served as the national office of record for agreements resulting from assigned programs and it promulgated draft and approved agreements to concerned activities. The office maintained records on 337 Data Exchange Agreements, 50 International Memoranda of Understanding, over 1,000 NATO standardization agreements (STANAGS) and approximately 550 ABCA Quadripartite agreements (QSTAGs and Air Standards). The OICP facilitated the identification of opportunities and initiation of international armaments cooperation. Extensive coordination was performed throughout OSD, HQDA, MACOMS, AMC Major Subordinate Commands (MSCs) and TRADOC Centers and Schools. The OICP provided the organizational interface for the U.S. Army Research, Development and Standardization Groups in the United Kingdom, Germany, Canada and Australia and the AMC Representative - France.[82]

On 1 October 1987, the Office of the Deputy Commanding General for International Cooperative Programs (DCGICP) was created along with an OICP. The DCGRDA was dual-hatted as the DCGICP. An Assistant Deputy for International Cooperative Programs (ADICP) was returned to the AMC Command Group. The OICP was formed by combining the International Cooperative R&D Directorate and the Foreign Materiel and Technology Division from the U.S. Army Security Affairs Command (USASAC) with the International Materiel Evaluation Division from the Test and Evaluation Command (TECOM). The OICP reported directly to the DCGICP. Thirty authorized spaces and four overhires from USASAC were combined with five authorized spaces and three overhires from TECOM. These totals included the ADICP and his secretary. Three military positions were required but only two spaces were supported by AMC.

The OICP made significant progress during FY88 in improving the infrastructure within AMC to support international activities. The addition of the title "DCGICP" to that of DCGRDA increased the visibility and responsiveness of HQ AMC and the MSCs to issues related to international armaments cooperation and to rationalization, standardization and interoperability (RSI) programs.

Substantial progress was also made in establishing an infrastructure within the MSCs. A Subject Matter Assessment of the International Cooperative Program in December 1986 revealed "a lack of an effective central focal point within the MSCs for international cooperative programs," which resulted "in the underutilization of valuable R&D conducted by allies and other friendly countries." As a result, on 20 May 1987 the DCGRDA issued a memorandum requesting that an international cooperative

[82] Unless otherwise noted, all information for this section can from the FY88 AHR submission from the Office for International Cooperative Programs.

program infrastructure be established at each MSC.[83] International cooperative program offices were then established within the MSCs and were staffed to monitor and coordinate international activities and ensure that new programs such as the Nunn Amendment, International Armaments Cooperative Opportunities Plan (IACOP), foreign technology, international seminars, and the interface with PEOs/PMs were properly managed. A 1988 subject matter assessment of the program (see below) noted that these organizations "although different in their alignment, are fulfilling the mission for which they were intended."[84]

Key personnel within the Office of the Deputy Commanding General for ICP and the OICP included LTG Jerry Max Bunyard as DCGICP and Mr. Bryant Dunetz as Assistant Deputy for ICP.

Management of routine activities were improved through the use of computers and automation. Specific projects included publishing of the annual data exchange report through the use of a classified database, conversion STANAG and QSTASG files to laser optical disk with a plan for remote access to the MSCs and TRADOC Centers and Schools, development of a compendium of cooperative R&D MOUs, and updating the joint Service International Standardization Agreements database (D104) to enhance access to field users and increase AMC representatives capability for participation in the TRADOC-led Bilateral Staff Talks through an improved interface.

Key Issues/Command Management Issues

Market Surveillance

A major cooperative effort with LABCOM to improve the capability to perform market surveillance in the areas of technology, components and end items used the Interoperability Decision Support System (IDSS) developed for OSD and HQDA as a carrier for information of use to AMC.

A Logistics Management Institute study of the foreign market analysis system which was completed in October 1988 found that problems still existed.

> Overall foreign market analysis suffers from two principal deficiencies. The first is a lack of emphasis by the MSCs on using the foreign market analysis to identify opportunities to lower costs and improve the effectiveness of systems they are developing. This lack of emphasis results from two factors: the vested interest of the MSC managers in protecting their own internal projects, and inadequate direction by the Department of the Army, AMC, and TRADOC to make armaments collaboration a major element in the materiel acquisition process.
>
> The second principal deficiency is inefficiency in the use of available information resources. This inefficiency is due to lack of a suitable mechanism for communicating requirements and foreign market information between the information collectors and the information users, inadequate use of AMC's organizational resources overseas, and separation

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[83] USAMC MEA Subject Matter Assessment: Institutionalization of International Cooperative programs, September 1988, pp. iv, vi. For the DCGRDA memorandum and the reply of several MSC commanders to it, see Appendix B of the ICP FY88 AHR submission.

[84] USAMC MEA Subject Matter Assessment: Institutionalization of International Cooperative programs, September 1988, p. vi.

of the management of security assistance from the management of international cooperative programs.

Solving these deficiencies will require AMC to take new management initiatives. Some initiatives are already underway in the area of improving the use of information resources. The AMC Office for International Cooperative Programs has begun development of a Foreign Market Analysis System that will employ new telecommunications and gateway technologies to improve communications between information collectors and users. However, use of new information technology will be useful only if accompanied by tightened management of foreign market analysis activities within AMC and by Command-wide emphasis on the importance of using appropriate foreign materiel and technology to strengthen the Army's ability to wage coalition warfare.[85]

Subject Matter Assessment

A Subject Matter Assessment (SMA) was conducted by the AMC Management Engineering Activity (AMCMEA) on the institutionalization of international cooperative programs. The 1988 AMCMEA study focused on potential areas for increasing the effectiveness and efficiency of international collaboration and cooperation. The study concluded in September 1988, and AMCMEA reported the study's findings to the AMC DCGICP and to the Assistant Secretary of the Army for Research, Development and Acquisition in October 1988. In general, the SMA appeared to find the program operating successfully, but a number of enhancements were recommended. It urged clarification of Nunn Amendment submission guidance so that Nunn Amendment programs could be submitted by the MSCs to AMC at any time of the year. Differences between U.S. and NATO classifications were noted as needing attention. Having MSCs query AMC as to the status of Data Exchange Agreements (DEA) submitted by the MSCs to AMC, establishing a training program to ensure that all R&D personnel had a uniform understanding of the regulations and controls imposed upon data exchange with foreign nations, establishing an international cooperative programs newsletter, and integrating emerging technologies into the RDTE process were propoesed as well. Other recommended enhancements included ensuring that MSC and RDE center ICP offices see all ICP correspondence, developing an ICP/Co-production lessons learned program, developing a new consolidated listing of ICP activities, ensuring that the MSC and RDE Center management reviews the ICP program on a quarterly or semiannual basis, insuring better coordination by RDE centers and laboratory's scientists and engineers with the Science and Technology Centers Far East and the Science and Technology Centers Europe, and that OSD provide funding for the Scientists and Engineers Exchange Program to create an incentive for local commanders to participate in the program.[86]

Investment Strategy

In May 1988, the United Kingdom expressed interest in the M1A1 Abrams main battle tank as a candidate for replacement of its aging Chieftain. In response to numerous British requests to AMC, HQDA and OSD concerning the tank, the ADICP proposed an investment strategy for international armaments cooperation and developed a comprehensive coordinated approach toward meeting the objectives of the Army and the NATO allies in developing and acquiring new conventional weapons systems. An international strategy review was prepared and presented to the CGs of AMC and

[85] Logistics Management Institute, Carl H. Groth, Jr. and Cynthia W. Shockley, Foreign Market Analysis Systems: Current Procedures and System Critique (Report AR704TR1), Oct 1988, p. iv.

[86] Ibid, pp. 1-25.

TRADOC on 19 July 1988. It focused on a concept for near and long term investment and burdensharing. Critical areas were limited to armor, armaments, artillery, and combat vehicles. The review addressed our capabilities to achieve tank main armament interoperability, to expand the M1A1 mobilization base, to achieve increased combat vehicle survivability, to achieve 155mm Howitzer interoperability and extended range capability, and to expand the M109 Howitzer improvement program mobilization base.

The strategies focused upon the requirements of the United States and several key NATO allies: Germany, the United Kingdom, and France. The British requirement for a new main battle tank became the issue of immediate attention, and AMC established a special task force to provide the Army a quick reaction team to coordinate, compile, and disseminate information. The task force operated from mid-August through mid-November 1988. It successfully provided the Army and OSD with information on the British evaluation, industry activities, and tactics for the negotiations. Briefings and information reports generated by the task force were prepared and presented to the President, in preparation for a meeting with the British Prime Minister in November 1988.

Significant Meetings and Conferences

The second Annual International Armaments Cooperation Conference was hosted by the OICP in January 1988. Dr. Jay R. Sculley, the Assistant Secretary of the Army for Research, Development and Acquisition, and General Wagner, CG AMC, participated. A workshop for preparing and implementing International Armaments Cooperative Opportunities Plans (IACOP) was held for MSC and PEO representatives at HQ AMC in February 1988. A U.S. Army/U.S. Industry Conference on International Armaments Cooperation was conducted in November 1988 to provide a forum for American defense related companies to present their experience and visions for future Defense Cooperation in Armaments.

International Cooperative R&D Division Activities

Regulatory Changes

AR 70-41, *International Cooperative Research and Development,* was revised, updated and submitted to HQDA in August for publication in FY89. This AR consolidated several international cooperative program regulations covering the Memorandum of Understanding (MOU), Defense Data Exchange Program (DDEP), Scientists and Engineers Exchange Program (SEEP), Defense Development Sharing Program (DDSP), and The Technical Cooperation Program (TTCP).

AMC Pamphlet 70-20, U.S./Canada Defense Development Sharing Program (DDSP) was published in July and provided detailed instructions for implementation. A U.S./Canada DDSP working group was established at Natick RDEC. The working groups at AVSCOM, CECOM, and TACOM continued to work actively with their Canadian counterparts to identify new projects. One project, the 20 Liter Plastic Fuel Container was completed.

Armor and Tank Armament

Significant activity took place in the areas of armor and tank armament. Four Power Senior National Representatives -Army established a technical working group on future tank main armament. Bilateral and quadrilateral discussions were initiated to establish cooperative development of the 120mm Lightweight Armament System. The Armaments Enhancement Initiation (AEI) Technology Sharing Program was revitalized with Germany and the United Kingdom along with the U.S./German M1-Leopard Harmonization program. An armor technology exchange program with Germany was

initiated. The negotiation of a Combat Vehicle Command and Control (CVC2) MOU with Germany was concluded and will be expanded in FY89 to include the United Kingdom and France.

Defense Data Exchange Program

The Defense Data Exchange Program (DDEP) continued as a significant cooperative R&D effort. The programs with France and Germany continued to be the most productive in terms of quantity and quality of exchanges taking place. The materiel/technology working group framework has proven very successful in increasing the productivity of the exchanges with France. Working groups in the areas of armaments and munitions, communications and electronics, mobility, and technology base were very active. The German DDEP remained active in ballistics and propellants, future armored vehicles research, shelters and nuclear defense. The Australian and Israeli DDEPs, although small, are very active in terms of the quality of the exchanges.

Japan

In a major effort, Japan undertook activation of their DEAs and initiation of serious cooperative R&D projects with the U.S. Army. This was accomplished though a Japan Armaments Study Team (JAST) visit to HQ AMC and selected subordinate activities in June 1988.

United Kingdom

A master agreement that implemented the DDEP with the United Kingdom was signed, and six DEAs that have been awaiting the signing of the master agreement were being staffed.

Pakistan

An AMC delegation visited Pakistan to review their programs, and DEAs were proposed in explosives, chemical defense, and proving ground techniques. Plans were initiated to visit Egypt in FY89.

Defense Professional Exchange Program

A major initiative was undertaken to activate the Defense Professional Exchange Program (DPEP) with Egypt and Pakistan to improve cooperative efforts. The DPEP is an expanded version of the International Professional (Scientists and Engineers) Exchange Program. AR 70-58 was rewritten and incorporated into AR 70-41, Chapter 4. The U.S. had signed bilateral MOUs to exchange principally scientists and engineers with eight countries, and three more were in staffing. The DPEPs with Germany and Korea remained the most active. Germany sent a group of approximately 16 every six months, and Korea sent approximately 15 once a year.

International Standardization and Staff Talks Division Activities

International Standardization Agreements Database Update

A major update of the International Standardization Agreements (ISA) database (D104) was accomplished. The field reviewed 1,295 agreements, leaving 384 to be completed. A total of 1,139 agreements were updated in the database, leaving a backlog of 256 actions consisting of field review

data and routing changes/additions. The National Standardization Offices of Australia, Canada, and United Kingdom gained access to the D104 database.

Optical Disks

The feasibility of storing, retrieving, viewing and printing ISAs and related documents on the laser optical disk system was shown. A prototype paperless office system, which can replace 37 five-drawer safes, was determined to be achievable. To prepare the files for loading on the laser optical disk system, 92 percent of the files were purged and prepared for scanning, and a list was compiled for missing data.

Interoperability Decision Support System

A Joint Service users group on the Interoperability Decision Support System (IDSS) was convened in September 1988 and identified issues on the use of IDSS as the hub of ISA automation efforts. The group included representatives from AMC, TRADOC, HQDA and the DOD Working Group for International Military Standardization (AMC, USAF, USMC, USN, and OSD).

ABCA Booklet

An information booklet on the ABCA (America, Britain, Canada, Australia) Armies Standardization Program was disseminated. An article on ABCA was published in the *RD&A Bulletin.*

RDI Regulation Update

AR 34-1, *International Military Rationalization, Standardization and Interoperability (RSI),* was substantially revised by HQ AMC, staffed by HQDA, and submitted for publishing. The revision concentrated on assigning responsibilities for international activities throughout the Army with emphasis on the NATO Army Armaments Group (NAAG) and the NATO Military Agency for Standardization (MAS).

Bilateral Staff Talks

Spain. The first Spain/U.S. Staff Talks took place in Madrid in August 1988. Terms of Reference were signed by Heads of Delegation (HOD). The Spanish Army was reorganizing its logistics system in accordance with the findings of an AMC-sponsored study. The Spanish Army proposed the "Role of the PM in Materiel Acquisition" as a briefing to be given by the U.S. at Staff Talks II.

Canada. Canada/U.S. Staff Talks III were conducted in June 1988 at Fort Monroe. Topics of AMC interest briefed were robotics, field artillery tube modernization, and smoke and obscurants. Canada agreed to pursue a Robotics Data Exchange Agreement (DEA) through AMC. Co-development of artillery systems was being pursued.

Italy. Italy/U.S. Staff Talks IV were conducted in July 1988 at Fort Monroe. AMC areas of interest included Italy's informal request to co-develop the Ground Station Module of the JSTARS program, the Italian Army's interest in the procurement of a new combat net radio, Italy's interest in the Non-Line-of-Sight (NLOS) program, and information exchange on the development of UAV's and RPV's.

Japan. Japan/U.S. Staff Talks IV were conducted in September 1988 in Tokyo. AMC topics briefed were the U.S. Army future weapons systems, combat net radio, Japanese future weapons

systems, and Ground Self Defense Forces' process for developing materiel requirements. The U.S. delegation observed Japanese maneuver training utilizing their equivalent to MILES (Multiple Integrated Laser Engagement System) and received briefings and observed displays on their latest equipment.

France. French/U.S. Staff Talks XV were conducted in April 1988 at Fort Monroe. AMC Topics of interest were the MISTRAL air-to-air missile, U.S. Armored Family of Vehicles, Army Tactical C2 System-(ATCCS), MARTHA (French acronym for a developmental C3I system for coordination of surface-to-air missiles and aviation assets), Family of Scatterable Mines (FASCAM), and Palletized Load System (PLS). Staff Talks have expanded to include training and materiel developments with increased AMC involvement.

United Kingdom. United Kingdon/U.S. Staff Talks XIX were conducted in September 1987 at Fort Monroe. AMC areas of interest that were briefed included mortar/mortar ammunition in the antitank role, Armored Family of Vehicles Update, robotics and artificial intelligence, and directed energy weapons.

Korea. Korea/U.S. Staff Talks IV were conducted in October 1987 at Fort Monroe. An AMC topic of interest was the ROK antiarmor doctrine to counter the armored strength of North Korea. Staff Talks V were conducted in August 1988 in Taejon. AMC topics of interest were New Equipment Training, Combined Logistics Operations, Artillery Employment Against Hardened Artillery Targets (HARTS), and the fielding and employment of the Combat Net Radio (CNR) and Mobile Subscriber Equipment (MSE). The Republic of Korea Army was interested in how AMC as a single command performs R&D, procurement, and sustainment. The ROK Army was also looking for a technical solution for neutralizing North Korean gun positions located in caves above the demilitarized zone.

Brazil. Brazil/U.S. Staff Talks V were conducted in May 1988 in Brasilia. Brazil requested an update on the technical data transfer on IMBEL's (Brazilian defense contractor) proposal for coproduction of munitions plant equipment. The AMC representative explained that no transfer would be allowed until a government-to-government agreement was signed. The U.S. analysis of the IMBEL proposal was being staffed at OSD.

Germany. The German/U.S. Army Armaments Working Group (AAWG) met at Waldbroel on 22-25 February 1988 to discuss an extensive agenda as the armaments cooperation element of GE/U.S. Army Bilateral Staff Talks. Discussions were focused on field artillery, weapons and ammunition interoperability, antiarmor developments, and countermine developments. There were meetings of working groups of experts on those issues as well as command, control, and communications interoperability from which a number of agreements resulted. The agreements laid the groundwork for substantial discussions and possible cooperative efforts in the near and midterm. It was recommended that follow-on discussions on a broad level take place at the GE/U.S. Steering Committee since many of the principals were present.

The results of the AAWG were reported to the GE/U.S. Staff Talks in May 1988, and both the American and German heads of delegation expressed appreciation for the progress made and optimism regarding future armaments cooperation.

International Logistics Standardization

In the area of international logistics standardization and the evaluation of materiel oriented international standardization agreements (ISA) a number of key actions occurred.

NATO STANAG 2386, NATO Common User Item Lists (CUIL), procedures for implementation were staffed Armywide and received positive support. OSD had assigned the Army as the lead service to develop a prototype for implementation. AMC representatives were working with the NATO Maintenance Support Agency (NAMSA) to identify the systems for further work.

In the area of battlefield damage assessment and repair, the NATO Correspondents Group on Vehicle Recovery Procedures was converted to a NATO working group, Battle Recovery, Repair and Evacuation, as a result of their significant work on allied publications: AEP 13, NATO Battlefield Vehicle Recovery Data; AEP 16, NATO Recovery Operations; and AEP 17, Battlefield Vehicle Recovery Handbook.

AMC and TRADOC initiated a major effort to evaluate the effectiveness of International Standardization Agreements (ISA). The OICP was given responsibility for coordinating this effort, which would be performed by the various elements of AMC on the materiel-related ISAs. In most cases, materiel ISAs can be evaluated through a desk audit to determine how they have been implemented in MILSPECS, MILSTDS, contractual documents and the like. Much of the TRADOC effort will consist of evaluations during field exercises.

Other Significant Issues

Representatives from the AMC MSCs and the Standardization Groups continued to participate in review and assessment of international technologies and weapon system programs to identify areas for potential armaments cooperation and to facilitate the exchange of research and development information.

The AMC Rep-France participated in the working groups between AMC and the Délégation Générale de l'Armament in April and May 1988 to review and discuss future areas for cooperation, additional Data Exchange Annexes, and possibilities for armaments cooperation. The U.S./France NBC (Nuclear, Biological, Chemical) Defense Working Group signed an MOU for the Cooperative R&D for a standoff laser chemical agent detector.

AMC continued to provide significant support to the Four Power Senior National Representatives (Army) and created a new working group for the 120mm Light Gun. This working group made rapid progress which may lead to a cooperative R&D MOU.

AMC provided administrative support for ABCA TEAL XXVII held in Quebec City in November 1988. The work continued toward defining a clear program strategy to achieve long term interoperability among the ABCA Armies. It was agreed that the Washington Standardization Officers would meet with and brief the Quadripartite Working Groups standing chairman on future ABCA program direction.

A Memorandum of Agreement governing personnel policies between the Standardization Group in the United Kingdom and LABCOM/ARO (Army Research Office) was signed in June 1988.

The Standardization Group in Germany participated in the July 1988 coordination of the Fuchs NBC Reconnaissance Vehicle Program.

The DCGICP visited France, Germany, and the United Kingdom in October 1987 and Canada in March 1988 to review and assess the effectiveness of AMC support for materiel and discuss future armaments cooperation efforts.

The CG AMC visited the Far East in February 1988, Latin America in April 1988, Europe in June 1988, and the Middle East in September 1988 to assess the effectiveness of AMC support and to discuss ongoing activities and cooperation.

Foreign Materiel and Technology Division Activities

International Armaments Cooperative Opportunities Plan Conference

The International Armaments Cooperative Opportunities Plan (IACOP) Conference was held in March 1988 with participants from the Program Executive Officers, Project Managers, and AMC MSCs. The conferees reviewed Army policy (AR 70-1) requiring the IACOP as a program management document. The working group agreed to develop a handbook to outline procedures to implement international cooperative R&D projects with U.S. allies and other friendly nations. In August 1988, the OICP finalized DA Pamphlet 70-XX, *Handbook for Technical Project Officers in the Defense Data Exchange Agreement*, and provided it to HQDA for staffing and publication.

Market Analysis System

The OICP initiated a prototype market analysis system to facilitate the cost effective conduct of market investigations once an Army requirement has been identified. In April 1988, the OICP hosted a working group meeting with an AMC user group and finalized the data elements and system architecture. A survey of European databases and an interim report were published in November 1988. Based on user feedback, the prototype system was refined to provide a network with Defense Technical Information Center and other commercial sources such as DIALOG. It also was provided a gateway through the IDSS to allow online users to search for appropriate information to assist in creating armaments cooperation opportunities.

Major NATO Cooperative Programs

AMC made a major thrust during FY88 to identify major projects to HQDA under the NATO Cooperative R&D, NATO Comparative Test and Foreign Weapons Evaluation Programs. In June 1988, the OICP hosted a joint AMC/TRADOC general officer review that approved many new and continuing Army projects. A listing of current projects is as follows:

Table --NATO Cooperative Programs

NATO R&D

Laser Stand-Off Chemical Detector
Combat Vehicle Command & Control
Electro-Optic Countermeasure
Lightweight 120mm Tank Main Armament
Advanced Tactical Patriot
HAWK Mobility Enhancement
Airborne Radar Demonstration
155mm Autonomous Precision Guided Munition (APGM) Identification System

Comparative Test Program

CL-227 Remotely Piloted Vehicle

Tank Diesel Engines
Rocket Powered Target (ROBOT-X)
Battlefield Management Fire Control System
ELTRO Mine Detector System
Helicopter Obstacle Avoidance System
Image Intensification Night Vision Devices
Improved Tactical Float Bridging
NBC Fuchs Reconnaissance Vehicle

Other Major Army Armaments Cooperation Projects

Mobile Subscriber Equipment
Line-of-Sight, Heavy
Air Defense System (ADATS)
Squad Automatic Weapon
M119, 105mm Light Gun
Bridge Erection Boat Product Improvement
European Telephone System
German .50 Caliber, Plastic Practice Cartridge (Ball and Tracer)
Chemical Agent Monitor
Improved 81mm Mortar System
German NBC Contamination Marking Set
105mm Kinetic Energy Practice Ammunition

Source: Office for International Cooperative Programs AIIR submission, FY88.

The Technical Cooperation Program (TTCP)

The OSD sponsored American, British, Canadian, Australian and New Zealand Technical Cooperation Program (TTCP) continued as a major forum for the exchange of technology between the member countries. FY88 TTCP initiatives were aimed at strengthening the program and improving its effectiveness. The TTCP Ad Hoc Review Group reported that TTCP was healthy and fully current with developments in technology. Recommendations were made concerning the need for more extensive interaction between technical subgroups and the urgent need to address systems and system integration. OICP monitored TTCP improvements by reviewing the technical working group panels, correspondence, minutes of meetings, trip reports, and OCONUS visit requests and was working toward an automated review process.

Interpreter/Translator Support

The requirements for German and French interpretation support for Army sponsored international meetings/conferences increased significantly. AMC staff interpreters provided linguistics support during FY88 to:

* ADLER/AFATDS Joint Technical and Tactical Subcommittee and Interface Committee
* US/CH/GE/NL Joint Configuration Control Board for Tank Main Armament
* US/FR Staff Talks
* NATO Project Group 23
* GE/US Countermine Experts

* Future Tank Main Armament Interoperability
* SNR Armor and Helicopter Experts
* Autonomous Precision Guided Munitions (APGM) Executive Management Committee
* Four-Power Interoperability Working Group on Weapons and Ammunition
* Expert Group on Energetic Materials
* SNR Anti-Tank Guided Weapon
* NATO Allied Tactical Communications Agency Land
* M1 Tank Expert Harmonization Group
* US/FR Subject Matter Expert Exchange/MANPRINT
* Four-Power International Standardization Group for Large Caliber Weapons/Ammunition

The AMC interpreters provided translation support for international meetings and linguistically certified the foreign language versions of significant bilateral MOUs and other program documents. A German video script for the TECOM Command Briefing was a major new initiative.

International Materiel Evaluation Division Activities

The International Materiel Evaluation (IME) Division was an operating division of the OICP located at Aberdeen Proving Ground, Maryland. The IME Division project managed the Army portion of the OSD, Foreign Weapon Evaluation, and NATO Comparative Test programs. These programs allowed the Army to identify end items (primarily) through market investigations in friendly foreign nations to satisfy U.S. requirements and evaluate items with good potential.

35mm HEAT Simulator Round

The HEAT (High Explosive Antitank) simulator round for the 35mm Tank Precision Gunnery Inbore Devices (TPGID) (Germany) was type classified for limited procurement. This allowed ammunition purchases to support training by 7th ATC in USAREUR with the weapons already purchased. The proposed FY89 evaluation of the APFDS-simulator ammunition for this system was approved by OSD.

Market Investigations

A total of 12 market investigations were in process at the beginning of FY88. Seventeen projects were initiated and nineteen projects were completed or terminated on the basis of no candidate being identified or Army requirements not being met.

Foreign Weapon Evaluation

A total of 18 candidate foreign weapon evaluations were in process at the beginning of FY88. Eleven evaluations were initiated, evaluation reports were distributed on two projects, and twelve projects were completed or terminated on the basis of Army requirements not met, withdrawal of the original requirement, or item selected for production and fielding. One item was type classified for limited procurement.

NATO Cooperative Test

In the NATO Comparative Test area, a total of five evaluations were in progress at the beginning of FY88. Five evaluations were initiated; one was completed.

DCS for Procurement

Organization and Mission

Effective 4 January 1988 the DCS for Procurement was reorganized to establish the Office of the ADCS (Assistant Deputy Chief of Staff) for Procurement Operations. This organization incorporated the previous Plans and Administrative Office, Career Programs, Automation, and Central Procurement Budget operations. The new ADCS had two main subdivisions--The ADP Division and the Services Support Division. The latter had separate sections devoted to administrative, budget, and career programs.[87]

The DCS assumed the additional function of providing the chairman of the DAR (Defense Acquisition Regulation) Council Subcommittee on Cost Principles as a result of the DOD policy on rotating that position. The subcommittee membership included representatives from all three services, the Office of the Secretary of Defense, and the Defense Logistics Agency. Nonvoting members of the council included the Defense Contract Audit Agency, the National Aeronautics and Space Agency, and the General Services Administration. The subcommittee's function was to update policies on the allowability or non-allowabilty of contract costs. Its operations had high visibility, both with defense contractors and their associations and with Congress. In order to provide a chairman for this committee, the DCS upgraded a GS-14 contract price/cost analyst position to GM-15 and appointed Mr. Thomas S. Luedtke to that position.

ADCS for Procurement Policy and Analysis

Business Clearance

Business clearance consisted of reviewing planned procurements in order to ensure that they had been adequately prepared, that they conformed with public law and regulations, and that they demonstrated sound business judgement. A business clearance review would present for the public record in a Business Clearance Memorandum (BCM) the proposed contract's statement of work, type, price/cost analysis, special clauses, and terms and conditions. It would also set forth a brief summary of the events that led to the proposed contract and the negotiated objectives for it.

Within AMC, the MSCs were required to conduct a business clearance review on each individual procurement of over $50,000,000. AMC had previously conducted the business clearance reviews on procurements of over $50,000,000;[88] however, the PEO realignment and acquisition streamlining had changed AMC's role to that of recommending objectives and means to the MSC Commanders. Some of these recommendations were accepted and resulted in benefits to the Army. Other recommendations have not been accepted--to the Army's detriment, files within the DCS for Procurement's Office of Contract Placement and Review would indicate.

In FY88 the DCS participated in 47 BCRs, although in some instances the final negotiated price was arrived at after the end of the year, 30 September 1988.

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[87] Unless otherwise noted, information for this chapter comes from the DCS for Procurement submission for the FY88 AHR.

[88] See the AMC AHR for FY87.

HQ AMC Participation in Business Clearance Reviews, FY88

MSC	Contract Quantity	Contractor Prop. Price in K$	Negotiated Price in K$	% Reduction
AMCCOM	19	$2,258,389.0	1,252,710.5	8.8
AVSCOM	5	408,563.6	155,264.6	11.0
CECOM	6	477,402.2	219,312.4	11.1
LABCOM	2	40,429.7	23,460.0	4.7
MICOM	9	1,661,941.5	1,502,534.3	5.1
TACOM	2	459,102.5	289,090.4	24.1
TECOM	1	106,200.0	105,000.0	1.1
TROSCOM	1	47,503.0	28,737.5	39.5
*USMA	2	3,706.8	2,163.6	41.6
Total	47	$5,463,238.8	3,257,960.9	15.0

* The United States Military Academy at West Point, New York, was not an AMC MSC but the DCS for Procurement provided some supervisory procurement functions for it.

Source: DCS for Procurement AHR submission for FY88.

In addition, the DCS's Office of Contract Placement and Review served as a member of the Source Selection Advisory Council and as a business clearance participant in competitive acquisitions engaged in by the MSC's, according to the following distribution: AMCCOM, 3; CECOM, 5; LABCOM, 3; MICOM, 2; TACOM, 2; TECOM, 1; TROSCOM, 3.

In support of the goal of acquisition streamlining, the DCS's Contract Policy Division took the initiative to change the Federal Acquisition Regulation (FAR) to include within the Acquisition Plan what had previously been two separate submissions--the acquisition strategy and the contracting plan. This modification had been approved by the Assistant Secretary of the Army (Research, Development, and Acquisition) and action was underway to make appropriate modifications to the AFARS and to AR 70-1.

The DCS's Contract Administration/MSC Support Division conducted several on-site Contract Management Reviews (CMR) in accordance with DOD Directive 5126.34, *Acquisition Management Review Program,* and the DOD Manual for Review of Contracting and Contract Management Organizations. Two CMRs were performed at AMCCOM's Louisiana and Longhorn Army Ammunition Plants. These CMRs confirmed the observation included in the FY87 CMR at Radford Army Ammunition Plant that problems common to all Army Ammunition Plants must be corrected at the HQ, AMCCOM level. These problems included lack of uniform policy, lack of clear delineation of responsibilities, and inadequate staffing and training. A report on both CMRs was made to HQ, AMCCOM,[89] and at the end of the fiscal year AMCCOM was reviewing the recommendations in that report.

[89] See report on Contract Management Review of Longhorn and Louisiana Army Ammunition Plants , 20 June 1988. This document is included in the DCS for Procurement FY88 AHR submission.

The Contract Administration/MSC Support Division also conducted, at the direction of the Assistant Secretary of the Army (Research, Development and Acquisition) special contract management reviews (SCMRs) at AVSCOM and the three AVSCOM Army Plant Representative Offices (ARPRO)--Boeing Helicopter Company, McDonnell Douglas Helicopter Company, and Bell Helicopter Textron, Inc. The report on these SCMRs pointed out the fact that serious accounting system problems had been noted at Bell Helicopter since 1973 but that serious efforts had not been made to correct them prior to the issue being brought to the attention of the Under Secretary of the Army and the Department of Justice. The report also noted that "the Assistant U.S. Attorney for Northern Texas has indicated he did not proceed with a criminal case against Bell Helicopter partly due to the manner in which AVSCOM and the ARPRO at Bell Helicopter conducted their activities."

Although the SCMRs did not review specific charges, they did review the general functional areas in which these problems had occurred to determine if the weaknesses still existed.[90] They did, and ARPRO Bell Helicopter was the only one of the three ARPROs rated as unsatisfactory, with all but two of the nine rated functional areas receiving an unsatisfactory rating. Although the report rated the other ARPROs as satisfactory, it did find significant problems with the existing ARPRO system. "The most significant problem identified during the review was the limited management involvement of the ARPROs by AVSCOM and by HQ, AMC. Instead of actively helping the ARPROs solve problems, we believe that AVSCOM failed to address problems until they became so significant that they came to the attention of higher level officials. A prime example of that failing was the accounting system problems that were allowed to continue and grow at Bell Helicopter for over a decade without resolution."[91] In summary, the report stated:

> [W]e found a lack of positive management, support, and oversight of the ARPROs by all levels of command. That condition allowed system pressures to predominate which, in turn, resulted in weaknesses and less than adequate management and inconsistent performance by the ARPROs. Notwithstanding, we concluded that on balance, the collective performance of the ARPROs was satisfactory; however, it is clear from this review that problems existed. Thus, the findings contained in this report and the associated recommendations should be used as a point of departure to build upon improvements already underway.[92]

The CG, AMC had also tasked the SCMR with reviewing several other specific issues, including whether the ARPROs should continue to report to AVSCOM only or should report to AMC, as well. The report recommended that the ARPROs continue to report to AVSCOM but made a variety of recommendations to improve operations. At the end of the year AVSCOM and HQ, AMC were in the process of responding to and implementing those recommendations.

The CG also expanded the impact of this study beyond the ARPROs to other AMC Contract Administration Offices (CAOs). These included two tank plants, the ammunition plants, Charleston storage facility, and the Mainz Army Depot. A dedicated team was established within AMC to provide oversight over the CAOs. That oversight team was monitoring resolution of the recommendations

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[90] AMC, Special Contract Management Review, Aviation Systems Command (AVSCOM) and the Army Plant Representative Offices (ARPROs), May - June 1988., 18 August 1988, p. ii. This document is included in the DCS for Procurement AHR submission for FY88.

[91] Ibid.

[92] Ibid., p. iii.

and would review existing policies and procedures in order to issue tailored guidance to meet the needs of the CAOs.

Contract Audit Follow-Up Program

In March 1988, after the ASA(RDA) advised AMC that there were serious deficiencies in the Army's Contract Audit Follow-Up Program, AMC's responsibility for that program was transferred from the DCS for Resource Management to the DCS for Procurement. The purpose of the program was to insure that issues raised in audits of contracts conducted by the Defense Contract Audit Agency (DCAA) were resolved with the contractor within one year. Audits not resolved within that time were classified as overage, and in early 1988 data had revealed that while the other Services were showing a decrease in number of overage audits, the Army was showing an increase. To resolve this problem a number of steps were taken. The MSCs developed in-house training methods to resolve and dispose of audit reports, monthly reports on the status of contract audits were superimposed upon the DOD requirement for semi-annual reports, and the MSCs Principal Assistant Responsible for Contracting convened the Overage Audit Review Board on a monthly basis to review and report the status of outstanding audits on a bimonthly basis. These actions reversed the unfavorable trend and achieved a substantial reduction in overage audits.

Independent Research and Development/Bid & Proposal Negotiations

The Cost/Pricing Policy Division operated as the Army focal point for negotiations of advance agreements for costs for Independent Research and Development/Bid and Proposal (IR&D/B&P). The services (Army, Navy, and Air Force) were required by law to negotiate such agreements with contractors that have annual expenditures in excess of $4.4 million for IR&D/B&P. Dividing the pool of such contractors, Army in FY88 was allocated 22 DOD contractors with which to negotiate. Five contracting officers conducted these negotiations for the Army, and in FY88 they concluded 33 business ceilings covering 33 business segments of the 22 contractors, with the total amount negotiated being $528,000,000.

ADCS for Competition and Procurement Management

Procurement Management Reviews (PMRs)

AMC conducted PMRs of its subordinate elements as the executive agent of the U.S. Army Contracting Support Agency, Office of the Assistant Secretary of the Army, and had done so since the PMR program had been reinstated by the DA in 1979. The reviews were carried out in accordance with DOD Directive 5126.34, Acquisition Management Review Program, and the DOD Manual for Review of Contracting and Contract Management Organizations. In FY88, the DCS carried out three such on-site reviews--at CECOM, at Corpus Christi Army Depot (CCAD), and at Red River Army Depot (RRAD). The CECOM PMR found that "overall procurement operations within the areas reviewed were being carried out in an effective manner," although a number of specific problem areas requiring management attention were highlighted.[93]

The PMRs conducted at the two depots focused on the relationship of the depots and the MSCs in regard to the purchase of spare parts to support depot overhaul operations. This issue had been

[93] AMC Procurement Management Review Program, Procurement Management Review, Communications-Electronics Command (CECOM), January 1988, 2 May 1988, pp. ii-iii. This document is included in the DCS for Procurement AHR submission for FY88.

raised in a 1987 AMC IG inspection of DESCOM which had stated that "depots were asked to buy more than just line-stopper spares by the various MSCs. . . practice is causing backlogs and contributing to small uneconomical buys that are not always competed as fully as they would be at the MSC level." The AMC CG had responded to these findings by stating that "we must clean this up. AMC should buy all spare parts--not the user."

The PMRs at the depots confirmed the finding that the depots were buying more than just the line-stoppers, those spare part items the failure of which could cause a repair, maintenance or overhaul line to shut down, but did not support the finding that this resulted in backlogs and uneconomical buys that were not fully competed. The PMRs found that operations in general were satisfactory but made several recommendations for further improvements.[94]

Acquisition Tracking Center (ATC)

Action continued to be taken in the effort to bring all the MSCs on line in an automated acquisition tracking center (ATC). The automated data transmission, storage, and processing of key acquisition milestones for procurements of over $3 million was completed, with the data being transmitted from the MSC ATCs to a DCS for Procurement INTEL storage device. This data was downloaded into a database and the pertinent data was disseminated to the appropriate DCS divisions and action officers. Work was underway to incorporate the supporting data and programming documentation into a Standard Operating Procedures handbook and program manual.

Technical Data Rights

Defense Acquisition Circular Number 86-3 was issued 15 May 1987 "to more clearly reflect DOD policy that the Government will only acquire data rights essential to meet its minimum needs" and establish the flexibility to allow contracting officers to take only Government Purpose License Rights (GPLR) when the funding contribution of large business contractors was less than 50 percent. This implemented changes in two laws, the Defense Procurement Reform Act of 1984 (Public Law 98-525) and the Defense Acquisition Improvement Act of 1986 (Public Law 99-500).[95] The changes were in keeping also with the Packard Commission's recommendation that the Department of Defense be less aggressive in seeking full data rights in joint government-industry funded programs.[96]

These changes obsoleted parts of the Joint Logistic Commanders regulation on that policy, which were geared more toward securing technical data rights to further competition. As a result, the DCS hosted a videoconference in March 1988 with all of AMC's MSCs to discuss this issue, and then prepared an updated uniform guideline for them to use.

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[94] AMC Procurement Management Review Program, Procurement Management Review, Corpus Christi Army Depot, April 1988, pp. ii-iii and AMC Procurement Management Review Program, Procurement Management Review, Red River Ammunition (*sic*) Depot (RRAD), April 1988, pp. ii-iii. These documents were included in the DCS for Procurement AHR submission for FY88.

[95] Defense Acquisition Circular, 86-3, 15 May 1987, p. 2.

[96] *A Quest for Excellence: Final Report to the President by the President's Blue Ribbon Commission on Defense Management,* June 1986, pp. 64-65.

Rapid Acquisition of Spare Parts (RASP)

AMC was participating with the Navy in a demonstration project for state-of-the-art Computer Integrated Manufacturing (CIM) of small parts. Navy was conducting the project--Rapid Acquisition of Spare Parts (RASP)--as a possible way to minimize spare parts manufacturing response time and costs; a Just-in-Time Flexible Manufacturing System would use CIM technology and would be integrated into the Navy's logistics system. AMC was attempting to determine if this technology should be transferred into an Army facility. In order to test the Navy process, MSCs which were also National Inventory Control points were tasked to identify a total of 102 Level III Technical Data Packages for the project. Primary consideration was to be given to Diminished Manufacturing Source (DMS) items, obsolete parts with anticipated replenishment requirements, and parts for which no known sources existed. The project was scheduled for completion in the fourth quarter of calendar year 1990.

Replenishment Parts Purchase or Borrow Program (RPPOB)

The RPPOB program allowed contractors to view, purchase, or borrow replenishment parts for the purpose of reverse engineering (copying) and becoming an approved source of supply for what would otherwise be a limited or sole source item. Unlike the Reverse Engineering Pilot Program in which the government paid a contractor to reverse engineer an item in order to prepare a level III technical data package that could be used to compete the item, the cost of the reverse engineering in the RPPOB was borne by the contractor who was endeavoring to become an additional source of supply for the item.

The program was managed for the Army by the HQ AMC Competition Management Office, with the Competition Management Offices at each MSC acting as MSC focal points for the program, and reporting to HQ AMC on it on a quarterly basis.

AMC published guidance for the program on 1 June 1988 in AMC Circular 715-9, which implemented DOD Directive 4140.57 within AMC.

Acquisition Plans/Justifications and Approvals

In FY88 AMC critiqued 103 MSC Acquisition Plans and 201 justifications and approvals, with some of the recommendations being incorporated by the MSCs and others not.

Office of Small and Disadvantaged Business Utilization

Personnel

In February 1988 Mr. Frank Brda, Chief of the Office of Small and Disadvantaged Business Utilization, retired. He was replaced by Kurt E. Wussow on 23 May 1988. A clerk-typist authorization

which had been lost in FY86 was restored early in the fiscal year, only to be again lost during the third quarter as a result of the headquarters personnel space reduction.[97]

Changes in Policy and Law

In May 1988 the Deputy Secretary of Defense issued a memorandum which placed a moratorium on most contracts. As a result, contract actions that would have supported the small and disadvantaged business programs were placed on hold until the moratorium was lifted in late June 1988. This moratorium had a negative impact on overall small and disadvantaged business statistics for FY88.

In FY87 Congress had passed Public Law 99-661 which required DOD to award at least 5 percent of its procurement budget to small disadvantaged business firms and institutions.[98] A considerable amount of effort was expended early in FY88 in providing guidance to the MSCs on the new law both by letter and telephone.

Another new law which would impact AMC in the future was P.L. 100-656. It established a four year program, starting 1 January 1989, in which DOD would be required to participate in small business competitiveness demonstration program testing. This would involve contract solicitations for procurement of services in construction, refuse systems, architectural design and engineering, and non-nuclear ship repair.

House Rule 9917, reflected in 13 Code of Federal Regulations (CFR) Part 21, was passed late in the last session of the 100th Congress. Most of its provisions primarily impacted the Small Business Administration but it would increase the AMC workload also. Its provisions included a change in the size limitation requirements for small businesses and included Native Hawaiians among those whose businesses were classed as disadvantaged.

National Industries for the Blind (NIB)/National Industries for the Severely Handicapped (NISH)

The Small Business Office continued its support for the NIB and NISH; members of the office attended the annual meetings of both organizations. In addition, informational literature and letters urging support for these programs were sent to the MSCs.

Conferences

Representatives of the AMC Small Business program attended the Black Hawk County Redevelopment Summit. This Iowa county was undergoing severe economic problems, and the summit had been sponsored by both Iowa senators and by the local Congressman in an effort to help improve the situation.

The chief of the office led a team of technical personnel to Puerto Rico to evaluate 15 precision machine shops and five electronic component manufactures. The goal was to increase contract awards to small disadvantaged firms in Puerto Rico, thereby assisting DA in achieving its 5 percent goal, broadening the industrial production base, and decreasing Puerto Rican unemployment.

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[97] Unless otherwise noted, the information for this sections comes from the Office of Small and Disadvantaged Business Utilization's submission for the FY88 AHR.

[98] For more on this law, see the AMC AHR for FY87.

Statistical Performance Data

The statistical trend was generally favorable as the fiscal year progressed; however, the limited funds available for small business participation adversely impacted the achievement of the goals. Overall in FY88, 14.6 percent of the business dollars expended by AMC were awarded to small businesses. AMC awarded 6.6 percent of its dollars by small business set-asides, thus bettering its 6.4 percent goal. Small disadvantaged business awards, including both direct awards to businesses and section 8(a) awards to the Small Business Administration, totalled $402 million. This was an increase of 0.1 percentage points over FY87, but was not enough to meet the congressionally mandated 5 percent goal. It was anticipated that improvements would continue to be made in FY89. In the category of awards to Women Owned Business AMC exceeded its goal of $101.2 million by awarding $115.5 million. The category of small business subcontracting consisted of a percentage of prime contractor subcontracting dollars which the prime contractor subcontracted to small businesses. AMC's FY88 goal was 45.4 percent, a significant increase over FY87's goal of 40.1 percent. It was, however, met, with the total amount subcontracted out to small businesses amounting to 48 percent of their subcontracting dollars. The small disadvantaged business subcontracting category was similar to the previous category, except, of course, that it applied only to small disadvantaged businesses rather than to all small businesses. AMC's FY88 goal was 5 percent, but only 2 percent was actually subcontracted. AMC's goal for awards of research and development contracts to small businesses had increased from 11.3 percent in FY87 to 12.3 percent for FY88. AMC was able to achieve, however, only an 11.8 percent rate in this category.

DCS for Production

Organization and Resources

The DCS for Production started FY88 with 85 civilian and six military spaces for a total authorization of 91 spaces. It ended the year with 71 civilian and six military spaces for a total authorization of 77 spaces. Nine of the spaces were lost as the DCS's proportional share of a general headquarters civilian space reduction, two were lost as a result of an effort to make up a funding shortfall in P7S (operations and maintenance, Army supply) funding and in response to an FY89 Program Budget Guidance which directed a further reduction, and the remaining three spaces were lost as a result of a realignment of functions with PEO-Ammunition.

As a result of the reduction in spaces the Weapons and Munitions Division of the ADCS for Weapon System Production was abolished, its functions assumed by the Aircraft and Depot Operations Division and the Tracked Wepons and Combat Vehicles Division.

Manufacturing Methods and Technology (MMT) Program

The Manufacturing Methods and Technology Program was revitalized through identification of major thrust areas. In addressing the FY88 Atlanta Conference (annual AMC-industry conference co-sponsored by the American Defense Preparedness Association and HQ, AMC), General Wagner drew attention to the revitalization of MMT program and the DCS for Production, Mr. Darold Griffin, provided additional guidance on the implementation of the major thrust areas to the industry representatives at the conference on this AMC initiative.

In a Program Decision Memorandum, OSD increased the funding of MMT for FY90 to $33.8 million and FY91 to $35.8 million. The Under Secretary of the Army, Mr. Michael P. W. Stone, in his 31 August 1988 policy memorandum, expanded the program to include efforts in privately owned as well as government owned facilities.

The Program Budget Decision moved the Army Industrial Modernization Incentives Program (IMIP), which performs the role of modernizing the Defense Industrial Base, from the RDTE appropriation to the Other Procurement, Army appropriation and increased the Army funding to $9.0 million. Major thrust areas were selected for the FY90-94 program which exhibited the greatest potential for the following: high leverage of Army funds through cooperation with other services, other Government agencies, industry, and academic institutions; and significant impact on Army programs and the U.S. Industrial Base. Thrust areas identified include soldering, adhesive bonding techniques, and optics manufacturing. Seven other thrust areas have also been proposed by the MSCs.

North American Defense Industrial Base--Ammunition Task Force

On 23 March 1987, E. J. Healey, the Canadian Assistant Deputy Minister (Materiel), Department of National Defence, and R. B. Costello, the U.S. Assistant Secretary of Defense for Acquisition and Logistics, signed a charter establishing the North American Defense Industrial Base Organization.

One of the North American Defense Industrial Base Organization's five subgroups was the Ammunition Task Force (ATF), which was co-chaired by the DCS for Production. During 1988, the ATF met several times at AMCCOM, DND, and HQDA. Among the achievements of the FY88 meetings were the determination as to which items were to be studied, an appreciation for the regulatory guidance involved in the exchange of information and technical data, and a general enhancement in cooperation in industrial preparedness planning.

The final report on Phases I and II of the ATF was due in 1989. It will serve as the basis for a more complete analysis of joint capability for the identification of peace time actions that would provide greater industrial support to the combined armed forces.

Lethal Munitions Policy

AMC prepared a white paper on policy and justification for an exception to the initiative of the Undersecretary of Defense (Acquisition) to reduce ownership of Government plants. Continuation of Government-ownership of ammunition plants engaged in the production of lethal munitions was asked. The white paper was sent by General Wagner to the Acting Undersecretary of the Army on 7 March 1988. On 11 March 1988, the Under Secretary of the Army forwarded the request to the Undersecretary of Defense for Production and Logistics, endorsing the need for continued ownership of industrial facilities used to produce lethal munitions. All other facilities were subject to case-by-case review for continual ownership. The Undersecretary of Defense on 12 August 1988, replied that OSD supported the policy and included it in a report to Congress (House Appropriations Committee) on Ammunition Production Base Management Policies. The report also agreed that lethal munitions was the one major exception to private financing.

Policy for Sale of Plants and Equipment as "Excess to Ownership"

The increased emphasis by DOD on disposal of all non-essential Government-owned property highlighted the need for a uniform AMC policy on the sale of Government-owned plants and equipment. The DCS for Production investigated the best method to comply with the 12 August 1988

initiative and still maintain the production mobilization capabilities required by AMC and Army to sustain industrial preparedness.

Based on discussions with legal staff at AMC, DA, and GSA, the concept of "excess to ownership" was used which allows the sale of Government-owned plants and equipment required for mobilization as long as the purchaser agrees to maintain the DOD production capability as a condition of the sale. The GSA must still perform the sale IAW Federal Property and Administrative Service Act, 40 USC 400 et seq. The new policy overturned a 25-year roadblock in selling Government-owned plants and equipment as "excess to ownership."

Depleted Uranium Policy Joint DOD - DOE Task Team

In the FY87 Congressional Appropriations, Congress directed that "[t]he Secretary of Defense may only procure ammunition containing a DU [Depleted Uranium] penetrator component if the procurement of such component is done competitively and procured from at least two sources in the existing production base." Following a review, a letter was sent on 5 July 1988 to Mr. James Hall, Special Advisor to the Assistant Secretary for Research, Development, and Acquisition, stating that two producers were currently capable of manufacturing the item, and that the retention of this capability was recommended. In addition, the Department of Energy (DOE) was facing a choice between making major capital outlays to modernize its source of DU or to shut down and buy from commercial sources.

A Task Team was formed consisting of personnel from the Department of Energy staff and from DOD-AMC (DCS for Production, Production Base Advocate). The Task Team prepared a study on U.S. Government DU requirements and DU process capabilities. The study provided a forecast of DU requirements through the year 2000, and ore requirements were compared to current DOE and commercial capability.

Armored Family of Vehicles

The Armored Family of Vehicles (AFV) was Army's effort toward acquiring and modernizing its armored forces with maximum commonality and modularity of materiel. Historically, the Army had developed and acquired combat tanks, armored personnel carriers and other armored equipment as needed, without considering the interrelationships among the weapon systems and designing for interoperability.

Three contractors were selected to perform the concept exploration phase of the program. They were: Armored Vehicles Technologies Associated (AVTA), a joint venture between General Dynamics and FMC Corporation; General Motors Military Vehicles Operations (GM-MVO); and Teledyne Continental Motors (TCM). An AFV Task Force was formed at Fort Eustis, Virginia, under MG Robert J. Sunnell, former PM, Abrams Tanks, to oversee the development and to act as liaison between DCSOPS and TRADOC. To fulfill its mission, HQ AMC formed an AFV Integration Group which drew members from each of the DCS's.

There were some 26 variants of the AFV planned on two common chassis. The total program was projected to cost $415 billion over a 25-year period. The DCS for Production had a major role in the planning for the AFV and developed alternative plans for producing the new family of vehicles. Program planning for the AFV included a projected $2.8 billion in initial production facilities, tooling, and production support. The first planning efforts began in the first quarter of FY88 with existing tank plants at Lima and Detroit, and were to include additions to those facilities following the end

of Abrams production in FY91. Other alternatives include contractor self-facilitization and constructing--"cornfielding"--a new tank production facility for the AFV.[99]

Army Total Quality Management (TQM) Implementation for Acquisition

On 19 August 1988, the Under Secretary of Defense (Acquisition) tasked the Secretary of the Army to prepare an Army TQM Implementation Plan for Acquisition and submit it for his review by 31 October 1988. The Assistant Secretary of the Army (Research, Development, and Acquisition) (SARDA) convened an Army TQM Working Group to prepare the plan on 22 September 1988. The Assistant Deputy Chief of Staff (ADCS) for Production Support, Office of the Deputy Chief of Staff for Production, was the AMC member of the Working Group. The ADCS for Production Support volunteered to prepare a strawman plan for the Working Group's consideration. This strawman was completed and provided to the Working Group on 28 September 1988. It was accepted by the Working Group with some minor changes in format.[100] The strawman plan was accepted by SARDA and approved by the Under Secretary of the Army on 2 November 1988. The Under Secretary of Defense (Acquisition) subsequently complimented the Under Secretary of the Army on the outstanding quality of the implementation plan.

Contractors Requiring Special Attention (CRSA) Program

The CRSA program was implemented on 14 December 1987 with the publishing of AMC Circular 70-3. Six AMC MSCs: AMCCOM, AVSCOM, CECOM, MICOM, TACOM, and TROSCOM participate in the program. Its objective was to provide a production control tool for identifying poorly performing contractors and then to initiate actions to either improve performance or stop awarding contracts to known poor performers. On 14 July 1988, the first AMC consolidated listing of 113 poor performers was published and distributed to MSCs and the Defense Logistics Agency (DLA). During the First Annual AMC/DLA Contracting Conference conducted on 2-3 November 1988, the CRSA program was compared with the DLA Contractors Improvement Program (CIP), and consideration was given to merging the two programs. However, it was determined the CRSA program provided highlighting of contractors creating problems for the Army while the CIP might not. Also, DLA representatives stated DLA would not have the resources to accept the additional CRSA contractors into the CIP and provide the same level of management now applied to CIP contractors.

Production Study

On 27 May 1988, MG Orlando Gonzales (Ret.) completed a study of the production control practices and procedures in the AMC MSCs. From the initial report of the study, 49 action items were selected for review by the MSCs and HQ, AMC. They were to determine if action could be taken to improve production practices and how that action was to be implemented. An action matrix was planned for 15 December 1988 to begin implementing improvements.

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[99] Memo, MAJ Gail A. Saseen, Special Project Office (AMCSP) to AMCHO, subj.: OPSEC Review for FY88 Annual Hstorical Reiview, 4 Dec 89.

[100] "Quality Service to the Soldier": Army Total Quality Management (TQM) Implementation Plan for Acquisition (DRAFT), DA, October 1988.

Aviation-Acquisition Improvement Review (AIR)

A series of ten Acquisition Improvement Reviews in the field of aircraft production were held during the period from July 1987 to March 1988. In each, a team of consultants, usually numbering around 15, was contracted to study a manufacturer and their suppliers. The ten included four producing aircraft, two producing engines, and two producing transmissions in addition to one government-owned government-operated (GOGO) bearing rebuild facility and one GOGO aircraft overhaul depot. Over 100 corrective actions were assigned to the contractors, together with recommendations for changes to attack systemic problems.

Aviation Industry Study

As a consequence of the ten Aviation-Acquisition Improvement Reviews (AIR's) discussed above, an aviation industry study was completed in April of 1988 by consolidating and analyzing data from the ten AIR's. The general categories reviewed included management, design, software, production, and quality. Many meaningful trends, dispositions, shortcomings, and needed improvements were formalized into 32 findings with corrective actions for AVSCOM and HQ, AMC. These corrective actions were to improve the acquisition process and form a baseline for future improvements in both the aviation sector and in other commodity sectors for other MSC's.

AMC Data Central

In August 1988, the DCS for Production agreed with the DCS for Procurement to take on the task of developing a personal computer software program for a data base known as AMC Data Central. The data base would provide information on past contractor performance for contracts of over $500,000 in value, based on the DD350 forms completed by contracting agencies. In mid-September, the DCS for Production tasked COMNET to provide the required software by 1 November 1988. Coordination between AMCPD, AMCCC, DLA, CECOM, and Vint Hills Farm has been very good on this project. The target date for starting system operation was early January 1989.

PRIDE System Review

In June 1988, the DCS reviewed the existing Production Review Integration Database (PRIDE). Marietta Energy Systems was tasked through a contract with the Department of Energy to identify and quantify the PRIDE strengths and weaknesses, compare PRIDE with similar systems, and provide options for improving the system. Martin Marietta Energy Systems provided a draft final report in October 1988, suggesting a rather costly course of action which could not be undertaken because of funding constraints. Lower cost options were under consideration in order to make the PRIDE system more useful to AMC and the MSCs.

Integrating Industrial Preparedness Planning into the Acquisition Process

The DCS for Production sponsored a Management Engineering Activity study on efforts to integrate Industrial Preparedness Planning (IPP) into the acquisition process. The results of the study were presented to the Assistant Deputy for Materiel Readiness on 5 October 1988. The study had evaluated the effectiveness of AMC's efforts to integrate IPP into the acquisition process and had addressed improvements in institutional procedures, organization, and personnel. On 14 October 1988, detailed comments were provided for the Defense Systems Management College handbook on the subject. The handbook, for program managers, described industrial preparedness processes and provides tools and techniques to implement IPP into the acquisition process.

Production Planning Schedule Contract

The Production Planning Schedule contract and AMC Form 446 received approval from DOD's Office of the Deputy Under Secretary (Industrial and International Programs) to be tested by the Army. The Army will test the form 446 internally for a two year period. The Form will be used to collect mobilization data at each MSC. The test results will be evaluated by the Defense Logistic Agency and HQ, AMC. AMC will provide semi-annual updates on the status of the Production Planning Schedule contract and AMC Form 446.

Commercial Required Item Substitute Planning (CRISP)

CRISP items were commercial "off-the-shelf" products identified as potential replacements for items built according to military specifications, but which were to be used only as an emergency mobilization measure. In FY88, the DCS for Production began the search for additional critical equipment beyond those listed on the DA Critical Items List (CIL). An additional 17 items of combat support/combat service support (CS/CSS) critical equipment had CRISP substitutes identified. A link was established between CRISP and the Non-developmental Items (NDI) Program to coordinate efforts. CRISP policy was added to the newest update of AR 700-90, *Army Industrial Preparedness Program.*

Hughes Aircraft Corporation Corrective Action Program

In March 1986, HQ AMC and Hughes Aircraft Corporation had entered into a Memorandum of Agreement (MOA) the terms of which were intended to improve Hughes performance on several Army contracts, including PLRS, Firefinder, and TOW2SS. Hughes agreed to monthly on-site reviews, teleconferences, and implementation of 175 specific corrective actions.

Throughout the course of 1987/88, significant progress was made on these programs. TOW2SS and Firefinder regained contract schedule and were removed from all terms and conditions of the MOA. The PLRS program, although behind schedule, has initiated deliveries to the Marine Corps. However, some technical issues remained to be resolved before removal from the MOA could be accomplished.

Implementation of corrective actions is on schedule with 164 actions completed and approved. An audit of selected corrective actions indicated that implementation has had a significant positive impact upon the Hughes operation.

Tracking of Materiel Using Microchips

Recent technological advances in miniature solid state electronic devices made it possible to store and transmit information on individual items using a device (microchip) attached directly to that item. The microchip was encoded with information which could be read or updated by a reading device which did not have to make physical contact. Such technology was already being used to identify the contents of large shipping containers being moved into and out of storage areas and to provide information on the options being assembled into individual automobiles on production lines. The AMC CG directed that an evaluation of the technology be conducted to determine if it could be applied to the operations at Army depots. A contract was let to Proxim, Inc. on 30 October 1986 for three applications--vehicle storage, ammunition accountability and maintenance/overhaul tracking. During FY88 Proxim developed various pieces of hardware and software, including tags, Portable Transceiver Work Stations (PTWS), receiver/transmitter devices, and Transceiver Work Stations (TWS). System and subsystem test and integration have been initiated by the contractor. The contractor successfully completed ammunition accountability Site Acceptance Testing (SAT) in July 1988 at Red

River Army Depot. SAT for vehicle storage and maintenance overhaul tracking was scheduled to begin on 5 December 1988. The Government was to have a 90 day evaluation period following completion of SAT.

AMC Bonding Improvement Initiative

With the increased usage of adhesive bonding technology in development of lightweight structures in Army systems came the need to assure reliability of such systems, especially where structure failure could affect the safety of the soldier. Therefore, to decrease the occurrence of debonding in Army systems, AMC instituted the AMC Bonding Improvement Initiative in September 1986.

In 1988 the Bonding Program realized gains in the areas of nondestructive testing, the chemistry of adhesives, and information exchange. To enhance information exchange among engineers and scientists who design our weapon systems, the Armament Research Development and Engineering Center (ARDEC), in conjunction with Materials Technology Laboratory (MTL) and American Defense Preparedness Association (ADPA), conducted a successful symposium at Picatinny Arsenal in November 1987.

In another area of information exchange, the development of the Adhesive Data Base at ARDEC was expanding to include an expert systems capability. This would provide diagnostic and design capabilities for engineers and scientists engaged in designing with composite materials and adhesives.

Identification of weak bonds in composite structures without destroying the structure is an area where extensive work was being done by MTL. To date there no system capable of identifying a weak bond. Several areas were being investigated by MTL.

MTL was the lead laboratory in the development of new adhesives and preparations for the AMC Bonding Improvement Initiative. The past year has seen much work in a number of areas ranging from predictive modeling to the development of surface pretreatments and adhesion of thermoplastic fiber-composites. MTL has enlisted the help of the contractor and academic communities in this research.

DCS for Product Assurance and Testing

Organization and Personnel

The manpower authorization for the Deputy Chief of Staff for Product Assurance and Testing (AMCQA) at the beginning of FY88 was 47 civilian and two military spaces. In April 1988 the DCS was reduced by five spaces as a result of the 15 percent reduction to Headquarters civilian strength. One GM-346-14, one GS-1910-14 and three GS-801-14 positions were identified to meet the assessment. The FY88 end strength was 42 civilian and two military spaces.

A significant organizational change was the abolishment of the Warranty Division as of 23 October 1987. It had been established to formulate and implement warranty policies and procedures and to manage the Army warranty program as the AMC executive agent for Department of the Army. Once the warranty policy was in place, the decision was reached to transfer responsibility for management to the DCS's Engineering Division.

The most significant issue that the Deputy Chief of Staff for Product Assurance and Testing had to face during FY88 was the stress caused by a workload that continued to increase while the workforce decreased. However, the declining workforce had one positive effect; that is, the workforce productivity increased.

Deficiency Reporting System

In January 1988, AMC contracted with the BDM Corporation to assess the quality of AMC's products and services as viewed by its customers, with the emphasis on the U.S. Army in the field. The study included visits to the MSCs, DESCOM depots, DA, and various field units/activities. The final report was presented to the CG in May 1988 and contained approximately 37 suggested actions in Supply/Maintenance and Product Assurance and Testing (PA&T). The bulk of the PA&T actions concerned deficiency reporting.

As a result of the BDM study and AMC's own research into customer feedback, several initiatives were pursued with the objective of improving customer feedback. The most visible effort was to simplify the form used to report quality deficiencies. Through the coordinated efforts of AMC, TRADOC and FORSCOM, a new form, AMC Form 2818, was developed and was being tested in selected Army units through June 1989. The form was self-contained, with all needed instructions on the back, and was pre-addressed and franked so that all the originator had to do was fold the form and drop it in the mail. The form was much simpler to use than the SF 368 that it was replacing, greatly reducing the amount of data requested from the soldier. Another attraction of the form was that the submitter did not have to decide which of six MSCs should be the recipient. It went to a central receiving point which retransmitted all reports electronically (via e-mail) within 24 hours. Where the capability existed in the servicing logistics assistance office (LAO), the report could be originated as e-mail, allowing the LAO to get involved early in the process and eliminating mail delays at both the sending and receiving points. The field's reaction to the form and new transmitting procedures was very favorable. The joint service work group on customer feedback was following the test in anticipation of a DOD-wide effort with the new form.

In addition to the electronic transmission of the test form, DESCOM depots were now sending all deficiency reports via e-mail. This reduced the submittal time to days instead of weeks. The use of e-mail was expanded to the Defense Logistics Agency (DLA) to allow the use of the electronic format in lieu of the SF 368 required by regulation. The joint service regulation on deficiency reporting was also being revised to encourage as well as allow the electronic transmission of all correspondence associated with deficiency reporting. The use of e-mail was eliminating the 5 to 10 day mail delays with favorable impact on the overall processing time of deficiency reports. The Central Systems Design Activity-East (CSDA-East) was in the process of programming DOD standard screens and formats for the electronic transmission of the SF 368, SF 364, and DD Form 1225. Testing of the programs was to occur in the third quarter of FY89.

In another joint AMC/DLA initiative, the DESCOM depots were acting as their own screening points and forwarding deficiency reports directly to DLA in lieu of one of the MSCs when the item in question was DLA-managed. This initiative reduced overall processing time by more than 30 days. It also allowed DLA to notify their depots that much sooner and had resulted in a reduction in the number of repeat shipments made by the DLA depots. The other branches watched the initiative very closely and indicated a desire to have their major overhaul/storage activities process deficiency reports in the same manner.

Contractor Performance Certification Program ((CP)2)

The Contractor Performance Certification Program was a Total Quality Management strategy to hold contractors responsible for the quality of products and services furnished to AMC with minimum government quality assurance effort at the contractors' facilities.

Regulatory guidance (AMC-R 702-9) for this program was issued in June 1988. Harley Davidson of York, Pennsylvania, (500 lb bomb casing) and Norden Systems of Norwalk, Connecticut, (Battery computer system, AN/GYK-29) were certified, joining Raytheon of Andover, Massachusetts (Patriot/Hawk), which had been certified last year. Twenty-six additional contractors were in various stages of the certification process.

Statistical Process Control (SPC) Initiative

Efforts under the Statistical Process Control (SPC) initiative were directed towards enhancing the use of probability theory and statistical techniques to control and improve manufacturing processes and product quality. Successful SPC program implementation was a key component driving Total Quality Management continuous performance improvement. Effective SPC implementation was a prerequisite for certification consideration under the AMC Contractor Performance Certification Program.

Employment of SPC at Army in-house facilities and contractor plants reaped tangible benefits. It saved $1.4 million in materiel and labor costs at the tank plants. At the depots, 4,900 people received training on SPC which was then applied on some 900 projects. Application at a missile manufacturing facility yielded a 50 percent reduction in rework, a 60 percent reduction in scrap, and a six-fold increase in demonstrated reliability.

Ammunition Stockpile Reliability Program (ASRP)

Significant progress was made in several subprogram areas of the Ammunition Stockpile Reliability Program (ASRP). Numerous improvements went into a complete rewrite of SB 742-1, Ammunition Surveillance Procedures, published on 19 February 1988. A consolidated AMCCOM/MICOM ammunition suspension/restriction program was implemented on 1 July 1988. Work began on the development of a single joint service ammunition malfunction and suspension/restriction reporting system.

In addition, progress was continuing in the ammunition surveillance modernization and automation efforts. The Depot Surveillance Record card files at six ammunition storage locations world-wide were automated. A thorough study of ammunition periodic inspection intervals was instituted to increase the inspection intervals, where prudent and possible, for each ammunition item involved.

The M55 Rocket Follow-on Program was reassessed in August 1988. The reassessment recognized that the primary purpose of the program was to protect the public and the environment, but instituted important changes to reduce the hazardous handling/sampling operations as much as possible without sacrificing vital data acquisition and public safety. This reassessment was accomplished as a part of the ongoing comprehensive program of surveillance of the existing chemical stockpile and assessment of the condition of the stockpile as required by Public Law 99-145.

Quality Assurance Specialist (Ammunition Surveillance) (QASAS) Career Program

Personel in the QASAS career program are assigned to world-wide positions under a mandatory rotational system managed by the Deputy Chief of Staff for Product Assurance and Testing as the Functional Chief's Representative. There was an increase from 696 to 700 in the authorized spaces in the career program during the past fiscal year. At the same time the number of vacant positions decreased from 121 to 109. The other services continued to show high interest in the use of QASAS for their ammunition stockpile reliability programs. A proposed chapter covering this use was submitted for inclusion in DOD 5160.65M, Single Manager for Conventional Ammunition.

Soldering

During the January and February 1987 the DOD-2000 Soldering Tri-Service and DLA representatives formed an ad hoc committee to address various concerns relative to preparing and publishing the "DOD-2000 Soldering Standard Requirements for Soldered Electrical and Electronic Assemblies." A DOD-STD-2000 Certification Board was chartered to provide oversight in implementation of a standardized soldering training and certification program. The committee was instrumental in the services' development of policy guidance for application of DOD-STD-2000 soldering requirements in procurement programs. They also assembled and directed DOD-STD-2000 series technology standardization issues to the permanently established Soldering Technology Standardization Working Group (STSWG) and provided early management in the establishment of the ongoing tri-service/industry initiative for reducing or eliminating the 100 percent visual inspection requirements of DOD-STD-2000.

Army Warranty Program

In 1988, the Army Warranty Program continued in a fairly stable environment with no major redirection to the program. Contract warranty clauses continued to be tailored to reduce user burden, reduce warranty costs, and standardize the execution by the field user. Such tailoring was encouraged under the statutory provisions and implementation regulations mandating the warranty program. A comprehensive plan to reevaluate the implementation of the Army Warranty Program was instituted based upon the lessons learned since the Congressional mandate for warranties. Major areas addressed were warranty coverages, user implementation procedures, the ability to gather information necessary for the identification of failures covered under warranties, and feedback from the field users about their perception of the program. Assessment of early results was that no more than a fine tuning of the program would be necessary. Implementation of corrective actions would not be completed until 1989, however.

The MSCs continued to reevaluate their internal functional processes and to make changes both to comply with the statute and to ensure that proper planning, tailoring, and execution of warranties became an integral part of normal MSC operations.

Reliability, Availability and Maintainability (RAM)

AMC and TRADOC recognized the importance of a handbook that outlined how to develop clear, realistic requirements for reliability, availability, and maintainability (RAM) that tied in with operational needs. TRADOC/AMC pamphlet 70-11, "RAM Rationale Report Handbook," was revised and issued August 1988 with a cover date of 1 July 1987. The pamphlet was expanded to describe a three-tier RAM requirements process. The first tier (RAM-1) established RAM goals and constraints. The second tier (RAM-2) included a feasibility analysis and ended with a required operational capability (ROC) or a training device requirement (TDR). Finally, the third tier (RAM-3)

incorporated contractor comments/feedback into a draft request for proposal and ended with an updated ROC/TDR. This process led to clear, realistic and achievable RAM contractual requirements all tied to RAM operational needs. Implementation was being facilitated through a series of on-site workshops being conducted by Army Management Engineering College in coordination with various RAM personnel.

Materiel Release Program

Significant improvements were made in the materiel release process during FY88. Many of the improvements resulted from a review by the CG AMC of the status of systems under conditional release in USAREUR. AMC requested and received from the Vice Chief of Staff of the Army delegation of authority to the CG AMC to approve all conditional releases. To avoid the problem of equipment being released to tactical users under training release procedures, MSCs, PEOs, and PMs were notified that a training release of tactical equipment could only be to "Trainer Personnel," i.e., training institutions and schools. To get command level user personnel involved in release approvals, user acceptances signed at the general officer level were required. The CG AMC and the DCGRDA briefed the materiel release issues to the AMC Commanders' Conferences in June and September 1988 and asked for the commanders' personal involvement and recommendations for improvements of the process.

Other features of the materiel release program included a requirement for the Materiel Readiness Support Activity (MRSA) to make an assessment prior to a materiel release by AMC. The PM or MSC seeking the release had to obtain the MRSA assessment and include it in the release request. The PM or MSC also had to ask OTEA for a release recommendation for all systems that were classified as either Major, Designated Acquisition Program, Joint Service, or Director, Operational Test & Evaluation (DOT&E) Oversight systems. To ensure compliance with statutory requirements, requests for materiel release in the future had to include a statement by the developing PMs or MSCs that reporting required by 10 USC §138(F)(2) either had been accomplished or was not applicable. It was also reiterated that the materiel release regulation requirements applied to new "version" software. Revised/updated/new software had been issued without benefit of materiel release.

A working group was established to update and streamline materiel release policy. The final draft of the policy revisions were to be prepared during the week of 20 March 1989. A materiel release tracking database was established within AMC's DCS for Quality Assurance. A database module was added to AMMS by MRSA. An On-Line-Update-System (OLUS) was developed. The MSC were feeding data into the database, with an expected completion date of the third quarter of FY89. It was anticipated that this would ultimately eliminate Materiel Release Forecasting/Reporting by hardcopy.

Class 3 Fasteners

The Defense Logistics Agency's Defense Industrial Supply Center (DISC) advised AMC in March 1988 that their investigative studies of Class 3 fasteners had determined that 40 percent of the inventory had thread nonconformances, 20 percent of new receipts had thread nonconformances, and 4 percent of inventory had nonplating nonconformances. A Joint Services committee was established to provide a coordinated effort to correct this condition. AMCQA was appointed the Army representative on the committee. The first order of business was to determine the safety critical applications by all Services. The Army completed this effort by identifying 235 applications. DISC froze the stock of safety critical fasteners, tested the inventory and provided results to AMC. The Commander AMC provided his personal approval on the fitness for use of nonconforming material.

Safety of flight messages have been issued to the field on specific actions necessary to assure quality of fasteners on Army equipment.

Test and Evaluation Publications

A revised AR 70-10, *Research, Development, and Acquisition, Test and Evaluation,* was issued. It amplified AR 1000-1 and AR 70-1 on the test and evaluation of Army materiel systems. It implemented the Army's continuous evaluation program, defined the role of the independent evaluators, and included policies for the Test and Evaluation Master Plan, Master Evaluation Plan, and the Army-Wide Test and Evaluation Data Base.

DA Pamphlet 70-21, A Test and Evaluation Guide, was issued. It incorporated all current technical and operational test and evaluation (T&E) initiatives. Planning, test integration, technical testing, operational testing, independent evaluations, and T&E management were covered in detail to provide a common baseline within the test community upon which to build system-level T&E programs.

Army Corrosion Prevention and Control (CPC) Program

HQDA asked AMC to prepare an Army Regulation to set the policy, responsibilities and procedures to be followed to minimize corrosion of Army equipment. An effective Army program would stress corrosion/materiel deterioration as part of the primary design criteria for all systems and equipment. Of particular importance in the design was the selection of materiels, components configuration and coating systems, especially in those areas not accessible for regular maintenance. CPC was a central feature of design and maintenance activities on systems and equipment. CPC (materiel deterioration) programs had been established at each MSC. CPC laydowns in FY88 included AVSCOM (21 Nov 87), MICOM (4 Jan 88) and DESCOM (27 Jun 88). The Materials Technology Laboratory/Corrosion Center of Excellence (MTL/CTX) conducted five field corrosion surveys with the MSCs.

Army Regulation 750-59, Army Corrosion Prevention and Control Program, was implemented 25 August 1988. An AMC regulation was drafted and would be staffed within AMC in FY89.

Army Targets Development and Acquisition

The establishment of the Office of Management of Targets and Threat Simulators (MATTS) at TECOM in 1986 provided a focal point for the development and acquisition of all Army targets. Work conducted in 1988 by the MATTS Office resulted in the compilation of the draft Program Management Plan (PMP) for Army targets. This PMP was a plan for the management of Army target requirements to assure that the Army's test and training agencies will have adequate aerial and ground targets available. It provided a way to document requirements, requirements approval, research and development, evaluation, certification, acquisition and utilization of all Army targets.

Chapter IV

Materiel Readiness

DCS for Readiness

Personnel

On 29 July 1988, BG Michael J. Pepe departed AMC to report to Defense Logistics Agency on 1 August 1988. Mr. Ronald L. Treusdell acted as DCS for Readiness until 15 August 1988, when MG Leon E. Salomon assumed those duties. General Salomon came to Readiness from Aberdeen Proving Grounds, Maryland, where he had served as the Ordnance Center and School commander.[101]

Aviation Office

Reduction of Aviation Resources. Program Budget Decision (PBD) 731 required the Army to cut 2,200 military spaces and 450 helicopters from the active force in FY88. HQDA initially assessed AMC with a cut of 298 spaces (25 officer, 18 warrant officer and 255 enlisted spaces) and 83 aircraft (58 UH-1 and 25 OH-58). After a series of meetings, a final AMC cut of 37 (25 UH-1 and 12 OH-58) aircraft and 190 (22 officer, 8 warrant officers, and 160 enlisted) aviation spaces were taken. Additionally, 96 enlisted aviation spaces were identified to be replaced by contract personnel. The total personnel recuction amounted to 23 percent of AMC's dedicated aviation manpower, while the helicopter fleet was cut by 28 percent.

Centralized Scheduling of Army Aircraft. As a result of a VCSA decision in March 1986 to centralize scheduling of CONUS C-12/U-21 aircraft assets, the Centralized Army Aviation Support Office (CAASO) was established at Davidson Army Airfield, Fort Belvoir, Virgina. On 1 August 1988 CAASO initiated centralized scheduling in the Northeast region. To assure successful implementation, four AMC flight activities--AMCCOM Dover, CECOM Lakehurst, DESCOM Chambersburg, and TECOM Aberdeen Proving Ground--provided CAASO with documentation of passenger and cargo missions requested and moved.

Concepts and Analysis Division

Organization and Mission. The former Concepts and Doctrine Division experienced several organizational changes during FY88. In November 1987, the missions of Strategic Long Range Planning, Design for Discard, and AMCLOG 21 Mission Area Analysis were transferred to the DCS for Management and Productivity. One GS-13 and three GS-14 spaces were transferred with these functions.

On 4 January 1988, a Readiness Analysis Branch 1was formed within the Concepts and Doctrine Division from spaces in the Logistics Assistance Division (AMCRE-L) and additional spaces from the AMC Chief of Staff's office. A total of six spaces were reassigned. The Concepts and Doctrine

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[101] Unless otherwise noted, all material in this taken is taken from the DCS for Readiness (DCSRE) AHR submission for FY88.

Division was renamed the Concepts and Analysis Division (AMCRE-C) with a total authorized strength of 22.

In August 1988, plans were announced to transfer the mission of Functional Area Assessments (FAA) from the Office of Project Management (AMCDRA-PM) to DCS for Readiness, Concepts and Analysis Division. The effective date of this transfer was to be 3 October 1988. Three spaces--one GS-14 and two GS-12s--were to transfer together with the mission.

Logistics System Program Review. The Concepts and Analysis Division was assigned responsibility for coordinating all AMC input to the Logistics System Program Review (LSPR) and for monitoring the overall review. The seventh semi-annual update of the LSPR was held on 25 January 1988 at the Casey Building, Humphrey Engineering Center, Fort Belvoir, Virginia. This update, hosted by LTG William Tuttle, CG, U.S. Army Logistics Center, was designed to brief the VCSA on the latest Army logistics improvement programs. Briefings were presented by both TRADOC schools and AMC on the programs, which were both doctrinal and materiel in nature. The update, however, was adjourned early due to heavy snowfall.

Computer-Aided Acquisition and Logistic Support (CALS). Several major milestones for the Army's implementation of the OSD Computer-Aided Acquisition and Logistic Support (CALS) program occurred during FY88. Key among them were the successful reviews of the Army CALS Program through the MAISRC review process. An initial Army-level MAISRC review of CALS was held on 5 October 1987. Approval was granted for Concept Development (MAISRC Milestone 0) pending a directed revision of the CALS Acquisition Strategy. A revised Acquisition Strategy was approved when the Army MAISRC reconvened on 16 October 1987. Because of the magnitude of the Army CALS effort, a MAISRC was required at the OSD level as well. On 11 May 1988, the OSD MAISRC granted approval for the Army CALS Program to proceed into Concept Development.

Another major milestone for Army CALS was the transition of the acquisition management aspects of the program to PEO, Standard Army Management Information Systems (STAMIS) control. The provisional PM office for CALS, which had reported to AMC through CECOM, began reporting directly to PEO, STAMIS on 1 October 1988. The prior August, a new program manager, COL Edward L. Wills, had assumed control of the PM, CALS office. Along with the transition of the PM, CALS office to STAMIS control, the contracting responsibilities for the Army CALS System moved from CECOM to the Information Systems Selection and Acquisition Activity (ISSAA). ISSAA performed a major review of the draft Request for Proposal (RFP) for the development and implementation of Army CALS capabilities, and released a revised draft RFP for industry and government comment on 30 January 1988. The feedback received went into the final RFP released to industry on 29 June 1988. Before the end of the year, a source selection procedure was established to review the proposals, which were due for receipt no later than 14 October 1988.

After the transition to PEO and ISSAA responsibility, AMC continued to perform the role of Army CALS Program functional manager. AMC worked closely with the OSD CALS Policy Office, the Army Secretariat, and DCSLOG to coordinate Army CALS development with the CALS initiatives of the other Services and weapon system contractors. AMC had been the primary player in the development of the Army CALS Functional Analysis contract effort that began on 12 May 1988. AMC helped to develop the technical approach for the Functional Analysis and worked with 20 Army organizations that were being visited to determine current CALS-related processes and data flows. AMC organized and hosted an Interim Validation Workshop for the Functional Analysis on 27-29 September 1988; a final workshop was anticipated prior to completion of the Functional Analysis contract effort.

CG Congressional Testimony. The DCS for Readiness was assigned responsibility for preparation of the CG's 25 March 1988 testimony before the Senate Armed Services Committee, Subcommittee on Readiness, Sustainability, and Support. COL John A. Bohm, Concepts and Analysis Division, was designated team chief, and MAJ Gary L. Juskowiak, Analysis Branch, was responsible for coordinating the efforts of the DCSRE testimony team as well as the efforts of some twenty representatives from throughout AMC headquarters. He also dealt with the Army Congressional Liaison and with the subcommittee staff. From the testimony Record Copy prepared by DCSRE, the AMC Public Affairs office scripted the oral presentation for General Wagner, including charts. DCSRE also prepared vugraphs, a Point Paper book, and a Question and Answer book for General Wagner's use before and at the hearing. The testimony highlighted the impact of FY89 budget cuts on AMC's ability to provide support to the soldier and maintain readiness. It emphasized that, for the first time in many years, AMC was in a position where, "We will do less with less." The testimony was very well received by the subcommittee.

CG Article For *Army Logistician*. The *Army Logistician* magazine solicited a feature article from General Wagner to be entitled "AMC - The Army's Logistician" for its May-June 1988 publication. General Wagner's speech writer was unable to prepare this article because of other obligations. Therefore, the task was assigned to Melissa J. Pittard of the DCS for Readiness, whose name also appeared in the by-line along with General Wagner's. Topics dealt with in the six-page article included "Who We Are and What We Stand For," "Today's Environment," " Research and Development," "Logistics Readiness and Support," "People -- The Key to AMC's Future," and "Automation and the Future."

Readiness Reporting - AR 700-138, *Army Logistics Readiness And Sustainability*. Change 2 of AR 700-138, *Army Logistics Readiness and Sustainability,* was published in September 1987 and became effective in October 1987. However, a considerable amount of the work in early FY88 focused on the revised "Phase II" version of the regulation which was staffed worldwide from 1 October 1987 to mid-January 1988. The changes being considered would consolidate ground, missile, and aircraft materiel condition status reporting systems, institute a consolidated form for reporting (which would replace DA Forms 2406, 3266, and 1352), and utilize fault codes for reporting subsystem failures. Most comments received in response to staffing were favorable; however, nonconcurrences were received from FORSCOM and TRADOC. Their nonconcurrences were based on a number of issues. It was urged that the use of fault codes would be an additional burden to the field and overlooked that failure data could be drawn from other sources such as the Standard Army Maintenance System (SAMS) as well as other automated databases. Also objectionable, rules on the use of Not Reportable (NOREP) time differed when applied to different types of weapon systems. Also, the Installation Materiel Condition Status Reporting System (IMCSRS), which automates ground equipment reporting at installation/MACOM level, would have to be expanded to reflect the new consolidated form and other aspects of "Phase II" prior to implementation of the revised regulation, it was pointed out, since otherwise the installations and MACOMs would be forced back to "stubby pencil" processing and analysis of materiel readiness reports.

The nonconcurrences effectively put the "Phase II" revision on hold pending further analysis of failure data sources and development of automation capabilities in the field/MACOM/installation levels. Toward this end, MRSA coordinated extensively with FORSCOM/Information Software Support Development Center (ISSDC)-Atlanta and with the Army Logistics Center on issues and actions pertaining to Army Readiness Reporting System (ARRS)-related modifications to IMCSRS and SAMS/Unit Level Logistics System (ULLS). Engineering Change Proposals (ECPs) for these software modifications were prepared by MRSA and submitted for review and analysis by respective software development centers. Flowcharts depicting current and future materiel readiness reporting processes were also developed by MRSA and presented to HQ AMC, HQDA, and the AR 700-138 Task Force,

consisting of representatives of HQDA DCSLOG, HQ AMC, and the AMC MSCs, which was at work on a revision.

Action to transfer the Flying Hour Database from AVSCOM to MRSA was initiated in FY88 with the HQ AMC approval of four MRSA spaces in FY89 to accomplish this work. Transfer was scheduled for completion in June 1989 with full operational capability in early FY90. Also included in future plans was the transition of the MICOM materiel readiness database, thereby giving the MRSA Readiness Integrated Data Base (RIDB) centralized control of all Army-wide materiel readiness data. Although the ARRS "Phase II" was impeded, an update of the existing AR 700-138 was necessary. During February-September 1988, the AR 700-138 Revision Task Force and MRSA turned their attention to this requirement. The changes being wrought were so extensive, the U.S. Army Printing and Publications Agency (APPA) determined that the regulation would be revised rather than simply changed. Major projected changes included: revising the reportable item list to include only equipment coded ERC-A/P (resulting in dropping some and adding other LINS for a net gain of approximately 100 LINS); declassifying materiel condition status reports at the Division level and below; melding the provisions of AR 700-5, *Total Logistics Readiness/Sustainability (TLR/S),* and Logistics Net Assessment with AR 700-138; deleting the equipment on hand (EOH) goals; requiring Effect on System (EOS) code reporting (DA Form 2406) for all equipment reported at less than 100% Fully Mission Capable, and the adding a second position EOS code to indicate shortages of equipment.

The ARRS/AR 700-138 Executive Agent Charter delineating MRSA responsibilities as AMC Executive Agent was signed by the DCS for Readiness and provided to MRSA in August 1988. Finally, the ARRS Task Force took a special interest in an Army-wide Preventive Maintenance Checks and Services (PMCS) checklist initiative. PMCS checklists were considered deficient in several areas including the columns on which Army materiel readiness reporting depended, the "Equipment is not ready/available if" columns. Efforts by the readiness community to influence and contribute to the improvements being made in this area were expected to continue in FY89 and beyond.

Readiness Integrated Data Base (RIDB). The MRSA-maintained Readiness Integrated Data Base (RIDB) expanded in FY88 as a terminal was activated during second quarter at HQDA ODCSLOG. Personnel from DALO-SMD (Equipment and Readiness Division) and from DALO-AV (Aviation Logistics Office) were trained for operation of the terminal. Army National Guard personnel in the Maintenance Branch, Logistics Division, Office of the Director, Army National Guard Bureau, were also trained for terminal operation. They were using the ODCSLOG terminal pending receipt of their own dedicated terminal, which was scheduled for first quarter FY89. Personnel from each of these organizations were using the ODCSLOG terminal to extract readiness information on U.S. Army equipment for the purpose of tracking readiness trends, preparing monthly and quarterly readiness trends, and correcting equipment deficiencies affected U.S. Army unit readiness.

During FY88, requests were processed and approved for installation of additional RIDB terminals at the Army National Guard Bureau (Pentagon), the Aviation Logistics Office (DALO-AV) (Pentagon), and at the Communications-Electronics Activity (CEA), Vint Hill Farms Station, Virginia. KG-84 crypto devices were installed at the MRSA's facilities in Lexington, Kentucky, to support the additional remote terminals. New terminals, plotters, and printers were purchased to replace the RIDB terminals at HQ AMC, AVSCOM, and TROSCOM. The new equipment was to be installed in the second quarter FY89. Additional disk storage and central processing unit enhancements were purchased for the RIDB located at MRSA so that readiness information currently being processed by MICOM and AVSCOM could be transferred, consolidated, and processed at MRSA.

A Technical Working Group for RIDB (RIDB-TWG), composed of terminal operator and analyst personnel, was formed early in the fourth quarter of FY88 to provide a forum through which

recommendations and assistance could be initiated to improve and enhance RIDB. Specifically, the RIDB TWG was to establish requirements and priorities for RIDB hardware/software enhancements, provide training for RIDB users, and assist in the development, documentation, acquisition approval, and procurement of remote user hardware/software upgrade requirements. The TWG also was to present user initiatives on RIDB data utilization/analysis and assist in the resolution of RIDB related user problems.

Predictive Analysis Flagging System (PAFS). The prototype PAFS system was operational through 15 December 1987 with information on the Cobra, Apache, Chinook, Blackhawk, and the M1A1. During the early part of FY88, the Fielded Vehicle Performance Data System (FVPDS) and the Army Data Validation and Netting Capability Establishment (ADVANCE) systems were identified as complementary systems to PAFS and a plan to integrate the development of all three systems was proposed. This plan was briefed twice to the Logistics Systems Review Committee, which approved the concept plan. Necessary funding for the development of all three systems was identified and coordinated with the AMC Systems Management Office. The FVPDS system and further development of the PAFS system logic should be completed in FY89, with installation in early FY90.

Readiness Video Teleconferences. During the latter part of FY88, a video teleconference with the MSC Readiness Directorates was hosted each month to discuss the readiness issues affecting the Army, to share better ways of doing business, and to plan the future direction of the readiness program. The video teleconferences were proving extremely productive and were being continued into the future.

Artificial Intelligence. The DCSRE submitted four readiness systems as potential candidates for use of artificial intelligence. One of the systems, the AMC Flying Hour Program, was approved by the Chief of Staff for local development by AMC's DCS for Information Management (AMCIM). An initial interview process was conducted by AMCIM personnel, and system development was scheduled for FY89.

Quarterly Readiness Briefing To The DCGMR. During the second quarter of FY88, briefing the DCG for Materiel Readiness on readiness issues became institutionalized. The format continued to be refined toward provision of more meaningful analysis. Activity with the six commodity-oriented Major Subordinate Commands (MSCs) in support of the briefing continued to increase, with additional demands from the headquarters for more detailed analysis of deficiencies and plans for fixing the deficiencies. Excerpts from the quarterly briefing were presented to the AMC Commanders' Conference and at a Monthly Readiness Review (MRR) for the Chief of Staff, Army (CSA). Interplay with HQDA ODCSLOG to share analysis data continued to increase during the fiscal year, with AMC data and analysis being incorporated into the monthly briefing to the DCSLOG, and ODCSLOG data and analysis being incorporated into our monthly briefing to the DCGMR. During the fiscal year, the materiel condition status for the total Army continued to post slight gains.

Readiness Offensive. The AMC-initiated Readiness Offensive to improve the materiel condition status of the Army continued to complement the HQDA ODCSLOG initiative to improve the equipment on hand (EOH) status of the Army. Additional slight gains in materiel condition status were posted during the fiscal year, continuing the modest gains realized over the three-year history of the Readiness Offensive program. The gains were realized in spite of increased equipment densities and constrained Logistic Assistance Program (LAP) resources.

Command Logistics Review Program. The focal point for Command Logistics Review Program (CLRP) observations had been transferred from the DCS for Readiness to MRSA in April 1987. There was a break in coordination that led to CLRP observations not being responded to in a timely manner. When the Readiness Analysis Branch was established in January 1988, the responsibility to

answer CLRP observations requiring HQ AMC responses was assumed by the new branch. Agreement to suspend action on old observations (1986 and prior) was reached with the Logistics Evaluation Agency which left 78 backlogged observations, recorded between January 1987 and October 1987, still requiring answers. Worked on intensely during FY88, this backlog was eliminated. All old observations have been tasked, and most have been answered along with new FY88 observations. The CLRP program was now on track as a viable Army program.

Unit Status Reporting. HQ AMC continued active participation with other MACOMs on the rewrite and publication of the unit status reporting regulation, AR 220-1. An employee of the DCS attended the annual Office of the Joint Chiefs of Staff (OJCS) Status Of Resources and Training System (SORTS) conference as a representative of HQ AMC. Attendance at the conference influenced OJCS policy in the reporting of materiel condition status and provided a necessary link with AR 700-138, *Army Logistics Readiness and Sustainability.*

Reporting of AMC MTOE Units. During FY88, the Readiness Analysis Branch (AMCRE-CA) continued its proponency for the quarterly reporting under SORTS of AMC General Support Forces (GSF) and AMC deployable/forward deployed units. The reporting concerned the ability of the units to accomplish their mission in the general areas of personnel, training, equipment on hand, and equipment operational readiness. Data and analysis obtained from review of these reports were incorporated into monthly and quarterly briefings to AMC and DA staff senior command elements. AMC used the material internally to identify problems and to develop plans to correct deficiencies. As a result of visibility provided by the reporting process, AMC obtained new MTOEs for its Military Police (MP) units and had been successful in defending personnel requirements for its Test, Measurement and Diagnostic Equipment (TMDE) units. During the fourth quarter of FY88, the Information Systems Command discontinued the use of 80-column punched cards as a method of transmission of the SORTS reports. This necessitated the development of Worldwide Military Command and Control System (WWMCCS) procedures for the transmission of the reports.

ARNG Readiness Improvement Initiative. As a result of the second quarter readiness briefing to the DCGMR, a readiness improvement initiative was started on behalf of the Army National Guard (ARNG). This initiative pulled together several fragmented efforts including one by AMCCOM, another by MRSA, and a third by HQ AMC, in concert with the Chief, National Guard Bureau, and several other smaller initiatives by other MSCs. Second quarter data indicated that Guard forces in Kentucky rated the lowest within the ARNG and had suffered this rating the longest. The initiative began under the banner "Fix Kentucky!" To this end, personnel from the National Guard Bureau, HQ AMC, and MRSA visited Louisville, Kentucky, during the fourth quarter of FY88. The objective was to determine the root causes of the poor readiness and to see if remedial action could be initiated. A major finding was that many of the problems that Kentucky ANG were experiencing were internal, and could only be resolved by a change in management structure. The National Guard Bureau was working with Kentucky on this issue. A minor internal problem that surfaced was that the state readiness officer did not seek or use the advice of the LAO assigned to his geographical region when support was needed. Through coordination with HQ AMC and the Kentucky National Guard, the problem was resolved.

Also with the aim of improving ARNG readiness, HQ AMC and MRSA personnel attended the quarterly ARNG Surface Maintenance Officer's Conference in September 1988. In FY89 it was planned to continue the ARNG effort, but expand to other states and to the U.S. Army Reserve. The National Guard Bureau has requested that HQ AMC and MRSA compare procedures and performance in Kentucky with a state such as Pennsylvania, which has been consistently and significantly above the DA Fully Mission Capable goal.

Logistics Assistance Program Activity

Organization. In early FY88 the Logistic Assistance Division unofficially reorganized and began operating under a centralized concept. It adopted the name Logistics Assistance Program Activity (LAPA). Formal paperwork was submitted to DA at that time requesting approval of the changes. In September 1988, DA approved LAPA as a separate reporting activity (SRA). Basically, LAPA was a consolidation of the TDAs of the four geographic Logistics Assistance Offices (LAO) and the Logistics Assistance Division of HQ AMC's DCS for Readiness. LAPA was established with no new personnel resources, but the reorganization aimed at achieving centralized control over the worldwide logistics assistance program, including personnel and financial resources.

Supply LARs Centralization. As part of the centralization, which the CG, AMC had approved in May 1988, Supply Logistics Assistance Representatives (LAR) were to be transferred to the supervision of LAPA. This entailed transfer of 68 spaces and corresponding funding (P7S OMA) from the AMC MSCs to HQ LAPA. The logic for centralization was that supply was a generic function that did not vary significantly from commodity to commodity, unlike the more technology driven function of maintenance. When Supply LARs were under the control of the MSCs there was a tendency for MSCs to group them together, e.g., in V Corps there were 4 Supply LARs located at 3rd SUPCOM (Support Command) representing TACOM, AMCCOM, MICOM and CECOM. When centralized under HQ LAPA the authorization of Supply LARs for 3rd SUPCOM was reduced to two with the remaining assets distributed to units without previous Supply LAR support. The result of centralizing Supply LARs under HQ LAPA was that the number of units with Supply LAR support was increased from 19 to 34 without any increase in personnel. In addition, 14 Supply LARs were authorized to the AMC MSCs to provide a wholesale level interface for field Supply LARs.

LAPA Newsletter. To keep worldwide LAP personnel better informed of LAP program initiatives, technical issues and initiatives, and career program news, the *LAPA Newsletter* was initiated. The first issue was published in February 1988, with subsequent editions published monthly thereafter. Distribution was by MILNET to LAO offices worldwide for further distribution to all LAP personnel within the area.

SITREP Review. In June 1988 HQ LAPA initiated a Situation Report (SITREP) Review with the objective of providing timely resolution and feedback to field LAOs on technical or problems beyond the ability of the LAO to resolve. The review was a weekly formal meeting of HQ LAPA Technical Support Branch personnel to review the status of all open SITREPs, to determine their current status and to identify future courses of action. A synopsis of SITREPs reviewed was provided to the LAP community via MILNET. This synopsis identified the status of open SITREPs, closed SITREPs, and new SITREPs.

Entitlements Package. In July 1988 the AMC MSC Logistic Assistance Division Chiefs or their representatives met at HQ LAPA to develop proposals for an entitlements package for LAP personnel. LAP personnel represented 1,300 of the approximately 2,000 Army civilians who were both emergency essential and mandatorily mobile. The package was considered necessary to offset for the disruption caused by frequent "permanent" changes of station (PCS) and the personal hardship caused by the requirement to deploy on exercises and into combat with assisted units. Included in the proposal being developed were requests for a 6 percent special pay rate, removal of any earned leave limitation for LAP personnel serving in combat zones, payment of private life insurance policies, payment of PCS relocation expenses on retirement to place of intended residence, use of Judge Advocate General services for emergency essential or mobility related requirements, enhanced spousal priority placement for civil service jobs, CONUS use of commissary and AAFES facilities, and coverage under the Soldiers and Sailors Relief Act. The package was being staffed with the HQ AMC Command Counsel and the

DCS for Personnel (DCSPER). Upon completion of the staffing and integration of the staffing recommendations, the package will be forwarded via CG AMC letter to HQDA DCSPER for review and approval.

Quality Study. In May 1988 the results of the CG AMC-directed study by BDM Corporation of AMC quality were released. The study took an overall view of HQ AMC through interviews conducted down to the field Army unit level. Topics covered included review of LAR duties, LAR support for Natick products, improved LAP support to the Reserve Components, increased administrative support to field LAP offices, more timely fill of vacant military LAO chief positions, establishment of selection criteria for military LAO chiefs, and establishment of positive control at LAO level for LAR performance. HQ LAPA was staffing the Quality Study recommendations with the MSCs and expected to complete review and implementation during FY 89.

Military Plans and Operations Division

Reserve Components. The General Officer Reserve Components Policy Council met four times during 1988. The council identified eight new AMC Reserve Component Support issues. These initiatives provided for improved AMC support to RC in the areas of equipment maintenance and training. The addition of these issues brought the total to ten ongoing RC Support issues being reviewed and updated for the council.

High Tech Regional Training Sites-Maintenance were being constructed to provide transition and sustainment training for reserve component personnel holding low density and highly technical communications/electronics military occupational specialties (MOS). The sites were to be constructed at Sacramento and Tobyhanna Army Depots. Work was begun at Tobyhanna Army Depot in May 1988, while at Sacramento AD it was scheduled to begin in November 1988. Both sites were scheduled to become fully operational in 1989.

During FY88, 1,852 mandays of Active Duty for Special Work (ADSW) site support was provided to 12 AMC installations or activities which hosted reserve component unit training.

Dugway Proving Ground and Tooele Army Depot provided support for the HQ I Corps artillery sponsored exercise FIREX 88. This exercise, held from 12-25 June 1988, engaged 17 thousand active and reserve component soldiers in testing mobilization and deployment/redeployment of selected Corps Artillery and Combat Service Support units. The training support provided 12,678 reserve component soldiers in 88 reserve component units with approximately 166 thousand mandays of training during the exercise.

An updated version of AMC-R 350-5 was published on 14 December 1987. It provided the responsibilities and duties of all commands and functions involved with reserve component training within AMC.

Mobilization Planning and Automation. In FY87 AMC, in coordination with FORSCOM and TRADOC, had developed and tested a system to preposition materiel requirements (in the form of prepositioned requisitions) to support the mobilization base. This related to materiel to support units and individuals at mobilization stations and training base installations. In FY88 the system was expanded to include additional classes of supplies. It was also modified so as to answer the transportation requirements of the Military Traffic Management Command.

AMC developed and fielded the automated Mobilization and Operations Planning and Execution System (MOPES). Previously AMC had used a 700-page document that covered only one mobilization

scenario, full emergency mobilization of the current 28 division force. With MOPES, AMC was acquiring the ability to plan for the full spectrum of possible conflicts, from low intensity to global war. MOPES had a planning module to facilitate the development of a planning document and speed up the revision process. In addition, it contained an operations module that supported the decision process and assisted in crisis management.

AMC participated in a FORSCOM study of total mobilization beyond the current 28 divisions. AMC provided estimates as to the requirement for new installations, such as depots, ammunition plants, arsenals and proving grounds, as well as industrial preparedness items selected by FORSCOM. The assumptions of a period of heightened tension during which industrial preparedness measures could be instituted and a period of surge during which a warm industrial base could be established were essential for AMC's ability to both support operations and equip newly formed units.

AMC provided a considerable amount of detailed logistical data to assist in the JCS-mandated recomputation of logistics requirements to support the Base Case family of Operations Plans. This included time-phased nonunit movement cargo data and OPLAN requirements and capability information. The information was to be used by Army component commanders and CINCs to assist in assessing the logistics feasibility and supportability of their Operations Plans.

Exercise Participation/Support. The DCS supported or monitored the following JCS/regional command post exercises in FY88: Proud Scout 88, REFORGER 88, Crested Eagle 88, Able Archer 87, Ulchi Focus Lens 88, Fuertes Caminos 88, Bold Eagle 88, Gallant Eagle 88, Team Spirit 88, and WINTEX/CIMEX 89.[102]

OPLAN 4102 Conference. The DCS participated in the USAREUR/FORSCOM Initial Planning Conference to determine and refine USAREUR OPLAN 4102 Prepositioning of Materiel Configured to Unit Sets (POMCUS). The objective of the conference was to identify POMCUS materiel shortfalls that would require equipment to be moved with CONUS units when deploying to the theater.

Despite reduced manpower and staffing turbulence, the Branch was able to update or revise four LOGPLANS--4102, 2348, 1002, and 1008. Work was also underway on the following LOGPLANS: 1011, 2200, 5000, 5027, 5051, 6157, 6600, 6601, 6666, and 7120.

Pacific Operations and Logistics Conference. The traditional Pacific Operations and Logistics Conference, sponsored by the Commander in Chief, Pacific (CINCPAC), was cancelled due to funding problems.

EXCAP Support. EXCAP (Exercise Capability Programs) was a unique AMC-designed automated system which, using data on the prepositioned requisitions stored at the National Inventory Control Points, was used to determine AMC's ability to support the materiel requirements of all claimants for AMC-managed items in the initial stages of conflict in an exercise environment. EXCAP support was provided for planning for the simulated execution of AMC logistics plans for WINTEX/CIMEX 89. It provided a basis for the realistic evaluation of AMC's capability of providing logistics sustainment to the supported CINCs (Commanders in Chief). EXCAP was also used in support of Proud Scout 88.

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[102] For a classified report on Proud Scout, as well as the Exercise Capabilities (EXCAP) system used in support of it, see the classified portion of the AMCRE AHR submission for FY88. See the same source for a classified discussion of AMC support of Patriot Pride 88 and of Operation Elaborate Maze.

Joint Operations Planning and Execution System. In July 1988 AMC participated in the 1988 Joint Planning and Execution System (JOPES) Conference held at the Armed Forces Staff College at Norfolk, Virginia, at which the joint planning community addressed current problems and possible changes to the JOPES as well as other significant issues.

Operation Elaborate Maze. The DCS for Readiness was involved in planning logistics support for Elaborate Maze contingency operations.[103]

Prepositioned Ships (PREPO SHIPS). The DCS continued to act as the HQ AMC focal point for prepositioned ships. The Third U.S. Army memorandum of understanding on accountability of assets aboard PREPO SHIPS was in effect, officially transferring asset accountability from AMC to WESTCOM. The DCS also continued to act as the HQ AMC coordinating authority for the Third U.S. Army's aggregate storage problem.

War Reserve, LOGPLAN, and Sustainability--WARLOGS. The DCS played a leading role in the development of WARLOGS, an automated system designed for the computation of war reserve and LOGPLAN requirements. In FY88 the functional description was completed, and a contract for the development of a prototype system and an operational functional description for wartime asset allocation procedures was awarded to SRA.

Logistics Capability Estimator (LCE). AMC continued its support of the JCS-directed LCE but the targeted completion date was delayed due to higher priorities and budgetary constraints.

AMC LOGPLAN Reports. Prototype revision and expansion of the development of LOGPLAN sustainability reports had been completed by the Computer System Design Activity-East.

7th ID Emergency Supply Package. The DCS acted as the HQ AMC central point of contact for the assembly and packaging of the prepositioned emergency supply package for the 7th Infantry Division (light).

Meetings. The DCS was involved with broad variety of other meetings, briefings, and conferences related to the overall AMC logistic support planning responsibilities. These included: Phase I Time-Phase Force Deployment Data Refinement Conferences for OPLANs 1021 and 6666 held at Scott Air Force Base, various global and regional OPLAN development meetings with various agencies and commands, planning support requirements coordination with Logistics Programs Support Activity, LOGPLAN automation and related system refinements with the Computer System Design Activity-East, exercise planning and coordination with HQDA, and meetings with FORSCOM to resolve OPLAN TPFDL (Time Phased Force Development List) discrepancies and to refine the Ammunition Basic Load support requirements of deploying units. Other similar activities included a support plan review/update with the 75th Ranger Regiment; representation on a panel that developed policy and procedures for requisitioning, handling, and shipping Toxic Chemical Munitions; acting as the AMC point of contact on Third U.S. Army initiatives to preposition war reserve assets in the CENTCOM (Central Command) area of responsibility; and being the AMC monitor/expeditor in support of Third U.S. Army Operational Projects for Intermediate Staging Facilities, South West Asia Petroleum Distribution System, and Water Storage and Distribution Equipment.

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[103] For information on the classified aspects of Elaborate Maze, see the DCS for Readiness AHR submission for FY88.

Emergency Regional Reporting System. The DCS, together with the MSCs, depots, ammunition plants, and selected installations, participated in FORSCOM's Emergency Regional Reporting tests. These tests were used to evaluate and refine procedures used by installations to report during crisis situations, such as a nuclear attack on CONUS, when normal peacetime communications might be lost or disrupted. ERRS provided for regional communications connectivity through State Area Commands, CONUS Army Areas, and FORSCOM to the National Command Authorities as a backup system for AMC's organizational communications network. Testing of the system was extended into FY89.

Continuity of Operations. As part of the maintenance of the AMC Continuity of Operations plan, the Essential War Functions Check List in the AMC Mobilization and Operations Planning and Execution System (AMC-MOPES) was reviewed and revised. The revised checklist was published as Change 3 to the AMC-MOPES and was distributed in February 1988.

Also as part of the maintenance of the AMC Continuity of Operations plan, the Mobilization/Emergency Actions (MEA) Checklist was reviewed, and the revised checklist was to be published at a later date.

High Frequency (HF) Radios. As part of the HQDA HF Radio Program, HQ AMC received two HF radios. Action was started to install them on the tenth floor of the AMC building (where the Command Group was located), with a remote terminal in the Operations Center.

KL-43 Offline Encryption/Decryption Devices. HQ AMC received 14 KL-43 encryption/decryption devices from HQDA for use in emergencies, and additional devices were received by MSCs, depots, ammunition plants, and separate installations. The keying material, however, was not received, with the result that AMC was unable to use these devices during the ERRS test discussed above. A request for the keying material was submitted to FORSCOM in October 1988, and the material was expected to be available in FY89.

INF Treaty. Although not the AMC office of primary responsibility for the Intermediate-Range Nuclear Treaty, the DCS had responsibilities in the area of command and control. The Operations Center, part of the DCS, was the focal point for notification of inspections during normal duty hours. Readiness and the DCS for Intelligence jointly developed a set of notification procedures for the inspections, which were based on the procedures used by DA to notify Major Commands of projected inspections. These procedures were tested and refined in May and June 1988 and then used for the first on-site inspection in early July 1988.

DCS for Supply, Maintenance and Transportation

Organization and Personnel

At the start of the fiscal year the DCS had an authorized strength of 255 civilian spaces and 21 military spaces. At the end of the fiscal year, following the headquarters personnel decrement, the DCS was authorized 19 military and 209 civilian spaces.[104]

[104] Unless otherwise noted, the information for this section was taken from the DCS for Supply, Maintenance and Transportation AHR submission for FY88.

In January 1988 the DCS was realigned for the purpose of creating a more effective and efficient organization, and the Program Management Division was replaced by a Special Programs Office.

Other organizational changes included the implementation in May 1988 of the charter for the Objective Supply System Task Force. It was co-chaired by Major General E. B. Leedy, the DCS chief, and by Ms. M. E. Harvey, Special Assistant to HQDA DCS for Logistics (DCSLOG). This was the first effort under a logistics modernization umbrella.

In June 1988 a Logistics Systems Division was formed out of two branches to direct the development and implementation of newly evolving automated logistics systems.

Integrated Logistics Support Division

Logistics Planning and Requirements Simplification System. A personal computer-based expert system for Integrated Logistics Support (ILS) managers was in development as the Logistics Planning and Requirements Simplification System (LOGPARS). In FY88, working through a General Services Administration contract, American Management Systems developed an operational LOGPARS prototype consisting of four modules: warranty advisor, milestone advisor, ILS Plan advisor, and ILS Statement of Work advisor. Full development of these and of additional modules was planned for the future.

New Equipment Training (NET). A variety of interrelated advances were made in the New Equipment Training arena. HQ AMC had served as the PM for The Army Modernization Training Automation System (AMTAS) since 1984, and in FY88 was working toward an upgrade of the system and revision of associated regulations.

The AMTAS software had been developed in 1986 by AIM, Inc., under contract with HQ, AMC, and had been in operation for about 18 months as a central database system. It was used by all major commands and HQDA to develop, coordinate and improve New Equipment Training Plans. It also served as a telecommunication system for NET managers and force modernization planners.

As a result of the coordination made possible by AMTAS, TDY costs were reduced and the need to continue publication of Consolidated NET Plans (last published in November 1987) was eliminated. FY88 saw considerable effort by HQ AMC NET managers, the MSCs, TRADOC, HQDA, and Aim, Inc. in planning for an upgrade of the system. By the end of the year the software reprogramming was approximately 90 percent completed. Specific enhancements included a revision of the NET plan format, standardization of input data, redesign of the menu driven software to make it more user friendly, and an online tutorial.

Testing of these enhancements was scheduled for the second quarter of FY89, subject to the availability of funding. The second contract option year began 1 December 1988 and required $225 thousand to exercise.

AR 350-35 was revised and staffed Army-wide with a projected publication date of 1 January 1989. The primary revisions were related to the AMTAS upgrade, deleting the NET plan forms and instructions from the regulation. These, in turn, would go into the projected DA PAM 350-XX which would supplement the online tutorial in the AMTAS upgrade. The pamphlet had been developed and staffed Army-wide, and had the same projected publication date of 1 January 1989 as the corresponding regulation.

Army ILS Executive Committee (AILSEC) ILS Master Plan. The AILSEC had been chartered by DA DCSLOG in June 1987 in order to aid in the planning, discussion, and resolution of ILS policy and procedural issues and aid DCSLOG in its implementation of the Army ILS program. It was chaired by HQ AMC's ILS Office and included key ILS executives from throughout the Army. It had established six subcommittees--ILS Reviews, ILS/MANPRINT Interface, ILS System Assessments, ILS Policy, Acquisition Management Milestone System (AMMS), and ILS Master Plan--to resolve specific taskings. In FY88 three of these subcommittees completed their taskings and were closed out. They were ILS Reviews, ILS/MANPRINT Interface, and ILS Master Plan.

The AMC ILS office under the auspices of the AILSEC developed the DA ILS Master Plan, which was approved by DA DCSLOG on 3 October 1988. It contained long range planning initiatives and current issues that impacted the Army Logistics System. Categories covered included ILS Reviews, ILS System Assessment, ILS Policy, and Acquisition Management Milestone System.

Design Influence Action Plan. AMC developed a plan to emphasize ILS planning in system design in FY88. The Design Influence Action Plan (DIAP) included such elements as training, public relations (getting the word out on the program), regulatory guidance, and interface with TRADOC.

ILS Primers. Two new ILS primers were developed and published in FY87/88. One was AMC-P 700-26, *ILS and the Army Streamlined Acquisition Process (ASAP) Primer,* which described the ILS actions required during each phase of ASAP. The other was DA Pamphlet 700-127, *The ILS Manager's Guide,* which replaced an AMC primer that had been upgraded into a DA publication.

MANPRINT\Logistic Support Analysis (LSA) Technical Work Group. he MANPRINT/LSA TWG was established in FY88 to identify and define data relationships (both overlaps and voids) between MANPRINT and LSA documentation and to establish Logistics Support Analysis Record (LSAR) data requirements that interfaced with MANPRINT. The TWG, which was concerned with MANPRINT and LSA throughout AMC and TRADOC, established four subgroups: Manpower, Personnel and Training; Human Factors Engineering; System Safety and Health Hazards; and Task Analysis. The TWG's work was scheduled to be completed by April 1989.

LSA Enhancement Plan. The LSA Enhancement Plan, which identified and scheduled the tasks needed to carry out the Army's LSA and LSAR missions, was updated annually. The FY89 plan was approved by MG Leedy.

AMMS Milestone Reduction. The Acquisition Management Milestone System (AMMS) was the Army's standard milestone tracking system designed to track weapons system acquisition and major ILS events. It had developed into a system that tracked program developments of interest to a wide range of weapon system acquisition and logistic interests, including ILS managers, PMs, and acquisition logistics managers. As a result, the number of milestones tracked had increased to where the AMMS was unmanageable. AMC undertook a review of the AMMS to ensure that milestones of little use were deleted from the system and that AMC resources were used to manage those milestones which were most crucial in acquiring and fielding equipment. At the end of the year there were 252 milestones tracked in the AMMS, but it was anticipated that this would be reduced to 100 or less. The changes would be published in DA Pamphlet 700-26, AMMS, which was expected to be out in the third quarter of FY89.

ILS Review and Analysis. The ILS Review and Analysis was published quarterly by MRSA, but was discontinued in the fourth quarter of FY88 because of a variety of flaws. Assessments between total weapon systems and individual ILS elements were sometimes inconsistent. The format was confusing. The publication date was two months after the end of the quarter. These limitations,

coupled with the availability of ILS review and analysis data to managers on computers without the need for expensive hard copy publications, factored into the decision to allow its discontinuance. MRSA had an ongoing effort to redesign the ILS Review and Analysis into a user friendly automated format with a target completion date of January 1991.

Materiel Fielding/Transfer Policy. A new regulation, AR 700-124, *Materiel Release, Fielding and Transfer,* containing consolidated guidance on these topics, was published and distributed during the third quarter of FY88. In the same quarter, DA Pamphlet 700-124, *Instructions for Materiel Release, Fielding, and Transfer,* which implemented the guidance in the AR, was also published and distributed.

Logistics Resources Division

P7M Materiel Maintenance and Maintenance Support Activities. The President's budget for the FY88 Depot Maintenance Overhaul/Repair/Conversion Program (Program Element 732207) was $1.521 billion, and that amount was programmed by AMC. The P7M (OMA maintenance funds) account was made the bill payer for shortfalls occurring with foreign currency exchange or the military CHAMPUS health plan. DA withheld a total of $110 million from AMC, reducing the the PE 732207 account by that amount. Later incremented by $3.4 million to fund the M60A1/A3 Tank Conversion program, the resources ended up at $1.415 billion.

The depot maintenance program was also impacted when the the FY88 depot maintenance programs were repriced without additional funding. Also, a number of major depot maintenance

Depot Maintenance Actual Obligations for Overhaul/Repair/Conversions by Type

Contract	**$.407B**
DESCOM	**.750**
Mainz Army Depot	**.160**
Other	**. 98**

Source: SMT AHR submission for FY88.

programs were accomplished despite being unfunded (such as the M60 tank conversion program at Anniston Army Depot) or were DA required new programs (M151 Roll Over Protective Structures).

Congressional language in the Defense Authorization Act mandated a 60 percent organic versus 40 percent contract split for depot maintenance programs. It also required communications electronics depots to meet the same manpower levels as they had in FY85. The 60 percent versus 40 percent split was met, but the communications-electronics depots (Lexington, Sacramento, and Tobyhanna) did not meet the manpower goals, primarily because of the level of available communication-electronic workload.

Depot Maintenance Actual Obligations by MSCs

Command	Contract	Organic	Mainz AD	Other	
AMCCOM	15	77	10	26	
AVSCOM	217	197	0	0	
CECOM	77	124	3	12	
MICOM	71	83	5	0	
TACOM	20	252	142	5	
TROSCOM	7	17	0	1	
OTHER	0	0	0	46	
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	$407M	$750M	$160M	$98M	Total = $1.4B

Source: SMT AHR submission for FY88.

Maintenance Support Activities (Program Element 738017). Money for maintenance support to the field forces fell under Program Element 738017. It covered the fielding of new systems, maintenance engineering support including Product Improvement Program engineering, new equipment training for units receiving new equipment, training depot maintenance personnel, updating publications and technical manuals, and technical assistance to support equipment after fielding. The program in FY88 decreased to $581 million from the $674 million in FY87. Since funding did not keep pace with requirements, significant unfunded requirements remained at the end of the fiscal year, such as post production engineering.

Maintenance Support Activity Obligations, FY88

AMCCOM	$ 81M
AVSCOM	109M
CECOM	87M
DESCOM	32M
MICOM	122M
TACOM	79M
TROSCOM	33M
MRSA	13M
USACTA	3M
HQ	14M
PEO Comm/CCS	6M
AMSAA/AMC Europe/LABCOM	2M
TOTAL	$581M

Source: SMT AHR submission for FY88.

PE 721111 Supply Depot Operations. The fiscal problems which required the early out retirement program also restricted the availability of workyears at the depots. First priority was given to shipping and receiving at the depots; lower priority activities were harder to accomplish within the available workyears.

Efforts were underway to improve workload forecasting and to make unit prices more representative of the effort required. Also underway were actions to transfer the cost of supply support for maintenance to the depot maintenance program. Unfunded requirements in this category were funded by congressional and AMC internal reprogramming of resources from other supply accounts.

PE 721112 Supply Management Operations and PE 722829.1 Program/Project/Product Management. Major problem in these accounts were resolved by congressional reprogramming to payroll accounts. By the end of the year there were no major unfunded requirements in these program elements.

PE 728009 First Destination Transportation. All known requirements were met in this program element.

PE 381011 Cryptological Activities. All known requirements were met in this program element.

PE 393401 COMSEC. All known requirements were met in this program element.

PE 728010 Second Destination Transportation. In order to conserve transportation funds, shipments were consolidated to the maximum extent possible, shipments by premium modes were restricted, and less than full truck load shipments were eliminated. As a result of these actions, AMC was able to fully fund all of its known transportation requirements.

FY88 Obligations (in $000) for Supply and Transportation

PE	Title	Direct	Reimb	Total
721111	Supply Depot Ops	542.6	29.1	571.7
721112	Supply Mgt Ops	178.9	24.7	203.7
722829.1	Proj/Prod Mgt	95.0	10.5	105.5
728009	First Dest Trans	40.6	2.5	43.1
728010	Second Dest Trans	58.2	1.1	59.3
728013	Overseas Port Ops	2.1	0.0	2.1
	TOTAL	917.4	67.9	985.3
393401	COMSEC	19.2	0.7	9.9

Source: SMT AHR submission for FY88.

Transfer of Acquisition Function. In January 1988 AMC transferred the management of the Procurement Appropriation (PA) from the DCS for Supply, Maintenance, and Transportation to the DCS for Development, Engineering, and Acquisition. The functions transferred included responsibility for the Multiyear Procurement Report, Line Item Number Procurability Data Base, Equipment Readiness Code A Reports, Dedicated Procurement Program, Army Materiel Plan Modernization

(AMP MOD), and most functions associated with procurement appropriation interface with the Long Range Research, Development and Acquisition Plan (LRRDAP) and the Mission Area Materiel Plan (MAMP). However, the DCS did retain management responsibility for PA Secondary, War Reserves, and LRRDAP and MAMP responsibilities related to those programs.

FY88 Stock Fund Program Reductions. The operating obligation authority approved by HQDA in FY88 was $1,374.6 million. HQDA, however, only released $1,272.6 million to AMC because of negative operating cash outlays. This reduction of $102 million impacted AMC's ability to support fielded units and depot maintenance programs. A similar reduction occurred in the war reserve obligation authority. It was initially approved at $105 million but OSD reduced it by $70 million to $35.9 million. HQDA then withdrew 26.9M of the $35.9 million for congressional reprogramming to Operations and Maintenance, Army (OMA). Thus the total war reserve obligation authority for FY88, $9 million, was less than 9 percent of the level initially approved, and AMC was unable to build a war reserve inventory because of the instability in funding.

Maintenance Division

Army Oil Analysis Program. In FY88 the Standard Data System (SDS) software was updated to version 4.0 and installed in all 29 Army Oil Analysis Program (AOAP) laboratories during the second quarter of FY88. The upgrade of the AOAP-unique software enhanced the ability of the laboratories to process oil samples and would provide user units with more effective and efficient reports.

In the third quarter of FY88 MRSA initiated action to collect The Army Maintenance Management System (TAMMS) equipment usage data for those items enrolled in the AOAP. Each month the AOAP data was inserted in the TAMMS equipment database for use in operating tempo (OPTEMPO) calculations.

An AOAP laboratory was established at Fort Richardson, Alaska, to provide AOAP support for all equipment in Alaska included in the AOAP program. In addition, since the laboratory was certified by the Joint Oil Analysis Program, it could provide support to the other services if required.

During the fourth quarter of FY88 a new standard performance work statement applicable to all field operating laboratories was approved for implementation by HQDA DCSLOG. Also in the fourth quarter an operating charter for the AOAP program director was approved by the CG, AMC.

The AOAP program director completed an evaluation of ferrography as a diagnostic procedure to be used in field operating laboratories. A significant development using this process resulted in the analysis of grease from Army helicopter swashplates and gearboxes. This was significant in that it could help in the early identification of insidious problems and thus prevent catastrophic failures.

Army Materiel Maintenance, Wholesale Operations. In February 1987 AMC had been tasked by DA to prepare a new regulation, AR 750-2, to cover maintenance operations above field level. It provided policy guidance on all wholesale maintenance operations, that is, on those above field level. It defined the responsibilities of the combat developers and materiel developers in planning and implementing maintenance support during the acquisition cycle. Guidance was included for support of fielded equipment by national maintenance points. The guidance on depot maintenance was substantially expanded over that found in previous regulations, covering such topics as source of repair for depot maintenance, use of logic trees, and reserve component training at AMC depots. The new regulation was sent to DA for publication in October 1988. It would replace AR 750-4, *Army Depot Materiel Maintenance;* AR 750-17, *Maintenance of CONEX/MILVAN Equipment;* AR 750-36, *Rebuild and Retread of Pneumatic Tires;* AR 750-37, *Sample Data Collection;* and AR 750-58, *Painting,*

Camouflage Painting and Marking of Army Materiel. It would also replace part of AR 750-1, *Army Materiel Maintenance,* although that regulation would remain in effect as it contained detailed guidance on field level maintenance.

Theater Aviation Maintenance Program. The Theater Aviation Maintenance Program (TAMP) was a joint AMC and USAREUR initiative to enhance aviation maintenance capabilities in USAREUR. AVSCOM had developed the program outline, and HQDA gave the go-ahead on 11 February 1987. It called for two maintenance contracts, both handled by a USAREUR administrative team. The components contract was awarded to CASA, Spain, in September 1987. The airframe contract was awarded to Agusta-Teamco, Belgium, in December 1987. Under the components contract, CASA provided depot level repairs and overhaul on selected components. USAREUR indicated that TAMP, which was continuing its activities into FY89, was having a positive effect on its readiness.

Chemical Agent Resistant Coating. On 14 July the CG, AMC and the DA DCSLOG briefed the Chief of Staff of the Army on the results of the DA/AMC/TRADOC/TROSCOM CARC relook program, undertaken out of health concerns raised concerning CARC. The Chief of Staff approved the continuation of the CARC program, which was developing CARC coatings that would be lead and chromate-free, and directed an increase in publicity to make the Army aware of the positive aspects of CARC. This was to include having TRADOC tell about CARC in its schools, articles about CARC in logistics journals, and the production of a videotape in November 1988 about spot painting CARC with a brush and roller.

Modification Work Order Application Program. Changes were being developed in the way AMC processed changes to fielded equipment. A Subject Matter Assessment on the Product Improvement Program/Modification Work Order process and the PEO realignment drove the changes. The first step was taken on 1 September 1988 with the publication on an Interim Operating Instruction for materiel change management. The next step was to be publication of a combined AR 70-15 and AR 750-10. This regulation was in draft form in FY88, and was to be staffed in the first quarter of FY89.

The modification work order (MWO) program in AMC suffered from a combination of limited funds for travel and a high turnover of key MSC MWO personnel. The most visible casualty was the FY89 Modification Coordination Workshop for both CONUS/PACIFIC and USAREUR, which had to be cancelled. These workshops had brought together MWO coordinators from the MSCs and from the user installations to coordinate and plan the coming year's MWO activities. HQ AMC management experience over the past five years had shown the workshops to be invaluable to the successful execution of the MWO program.

In FY88, 178,500 MWO's were applied to fielded equipment. This was considerably more than normal because of the number of M-10 gas mask canister MWO's, which totaled over 120,000 applications by themselves.

Supply Division

War Reserves. A worldwide war reserve in-process review was held at the Catalog Data Agency, New Cumberland Army Depot, from 26-31 October 1987 to cover system oriented problems. However, with the participation of DA in the IPR the agenda was expanded to include all war reserve issues. Of the 57 issues addressed by the IPR, four were withdrawn, 13 were completed during the IPR, and 40 were tasked to various agencies for resolution.

One key result of the IPR was the development of proposed procedures for AMC's FY88 assumption of the mission of centralized management of Army Stock Fund Class IX and maintenance

related Class II war reserves, which missions had previously been decentralized to the MACOMs. These procedures were given final form and published in January 1988 as Annex 2 of the Centralized Management Plan for War Reserves, and were implemented in March 1988. The centralized plan had been developed in early 1987 and forwarded to the MACOMs for review just prior to the IPR. The final draft was given to DA in January 1988. It consisted of three annexes. The first, Plan for Centralized Reporting of War Reserve Requirements and Assets, was delayed pending definition of changes underway at DA on this issue. The second annex was discussed above. The third annex, Plan for Prepositioning 30 Days War Reserves with New Equipment Fielding, was recommended for deletion by AMC because it was dependent upon resources which were unlikely to be available.

AMC developed a two-hour block of instruction on war reserves and presented it to the Logistics Executive Development Course at the Army Logistics Management College at Fort Lee, Virginia, in April 1988. It was well received, and AMC was invited to participate in future presentations.

At the request of the Third U.S. Army, AMC developed a reporting system designed to show asset visibility for all TR 2/3 War Reserve Stocks in the wholesale system. The longterm goal was to establish such reporting as part of the Commodity Command Supply Support (CCSS) System.

Operational Projects Database. The Operational Projects Stock Status Report was generated from data received in a non-automated format by the Central System Design Activity-East (CSDA-East). This resulted in a time-consuming, unwieldy, and inaccurate procedure that also met extensive resistance from the activities responsible for reporting the data. AMC recommended that CSDA-East develop and build an overall Operational Project database which could be updated as changes occur and be used to generate any needed reports. It was estimated that this would cost $9,600 to develop and would save the government $8.2 million per year.

Prepositioned Equipment Requirements List. FORSCOM had produced the Prepositioned Equipment Requirements List (PERL) with assistance from USAREUR. It was used for movement planning, telling deploying units what equipment they had to bring with them in the event of mobilization. Due to problems experienced in the production of the report and LPSA having more up-to-date data on-hand, LPSA was asked to take over production of the report. It did so, and further enhanced the report by adding additional data.

SMT Crisis Action Team. The crisis action team consisted of individuals from within the DCS who could be tasked to respond to real-world crises. To enhance their readiness, the DCS was able to procure beepers for them, thus allowing the members of the team unrestricted weekend activities without losing the ability to respond quickly to a crisis situation.

Standard Study Number System and Replacement Factors. In February 1988 Army guidance on SSNs was transferred from AR 710-60 to AR 710-1, thus reducing publication costs and assisting in the centralization of Army Major Item Management policy into a single AR. Replacement Factor policy and guidance, contained in AR 750-1, allows for collection of usage experience to be included in gross requirement computations for future procurements as a loss, was included in the SSN coverage in AR 710-1 (Chapter 10) as well.

Centralization of MIM Policy and Guidance. In February 1988 Major Item Management (MIM) policy and guidance (except for that dealing with depot maintenance policy) was transferred from AMCR 700-5 to AR 710-1, *Centralized Inventory Management of the Army Supply System.* The "how to" guidance in AMCR 700-5 was transferred into a single Automated Data Systems manual, *Army Materiel Plan Modernization System.* The Army Materiel Plan Modernization System was a series of related databases.

Tracking Hazardous Materiel Through the LIF. In July 1988, personnel from the Corps of Engineers Construction Engineering Research Laboratory (CERL) asked for AMC assistance in identifying a way to track and report hazardous materials received at Army installations in order to ensure the Army's compliance with various conservation and environmental laws. At the end of FY88, the Logistics Control Agency, the proponent for the Logistics Intelligence File (LIF) was developing a prototype report derived from the LIF data for review by CERL.

Supply Management Career Field. An updated version of the AMC pamphlet on the Supply Management Career Field program, AMCP 690-3-13, was published on 2 August 1988. In the third quarter of FY88 there were 5,523 supply careerists within AMC, about 77 percent of the total 7,129 within the Army. Of that group, 44 percent were women and 23 percent were minorities. An ad hoc Skills, Knowledge, Abilities and Personal Characteristics (SKAP) panel was held from 28 to 30 June 1988 at the Total Army Personnel Agency (TAPA) to process reconsiderations, add-ons, and initial submission SKAP packages. Those who passed the panel's review were added to the Supply Management Career Program FY87-88 referral roster for promotion to GS/GM-13/14/15 effective 15 August 1988.

Materiel Return Program/European Redistribution Facility (ERF). Centralized stockage in Europe became available at European Redistribution Facility (ERF) sites in September 1988. ERF Main, located at Nahbollenbach, Germany, was the single turn-in point for the 21 SUPCOM (Support Command)/V Corps west of the Rhine. Concurrently, it acted as the redistribution center for serviceable high-demand items. It also started accepting turn-ins from the Southern European Allied Forces (SETAF), Livorno, Italy, in July 1988. The ERF site at Boeblingen was the turn-in point for VII Corps. The third and final ERF was scheduled to open in the fourth quarter of FY89 at Grossauheim to service the V Corps. A new fund code was added to MILSBILS, the Military Standard Billing System, to identify ERF transactions and return credits to the unit that turned in the equipment.

DOD Activity Address Code. Efforts to improve the management and control of DOD Activity Address Code (DODAAC) continued in FY88. The major emphasis in improving this system for providing addresses for all DOD activitieis and units for movement of materiel documentation was upon improving automated processing of DODAAC additions, changes, and deletions, as well as improving automated means for reconciliation at the Army Central Service Point.

Stock Control and Requisition Processing. The stock control functional coordinating group workload at the start of the year was 28 System Change Requests (SCARS) scheduled for future release, with no deferred or unscheduled SCARS. At the end of the year the deferred and unscheduled SCARS were six and the number scheduled for future release was 22. This was in part due to the heavy workload imposed by extending CCSS stock control applications to the General Materiel and Petroleum Activity.

The final two phases of the Message Driven Item Accounting, an initiative to obtain near real time requisition processing at the National Inventory Control Points, were implemented. Two NICPs ran four or more item accounting cycles a day. The other NICPs were awaiting installation of their large scale computers which would allow them to do the same. In August 1988 the Disposal Materiel On-line Requisitioning System (DMORS) was fielded. It allowed timely requisitioning of needed materiel from disposal prior to the procurement of new stocks.

A total of 450 Reject and Reentry Correction Technique (REACT) terminals were obtained, but installation in many cases was delayed because local area networks (LAN) were not installed or

because older mainframe terminals did not have enough ports. However, large scale mainframes were delivered to all NICPs, and AMCCOM completed its LAN and hooked up all of its terminals with the reject capability loaded for processing. The other NICPs were expected to complete the process in FY89.

Requisition volume dropped slightly when OSD imposed a funding constraint in June 1988 that remained in effect throughout the remainder of the fiscal year. Average requisition processing time dropped due to a major improvement TACOM achieved in the last two quarters of the fiscal year.

Major initiatives started during FY88 included the automation of the Management Control Activity (MCA) to track and control Government Furnished Materiel to contractors, the development of access to NICP assets by other outside sources, and automation of the Depot Supply Workload Forecasting from CCSS source data. In addition, relational software acquisition and database design moved the Software Technology for Adaptable Reliable Systems (STARS) closer to reality.

Depot Supply Workload Forecasting. As an outgrowth of a study conducted by the Deputy for Management and Analysis, the CG tasked the DCS to develop an action plan to improve depot supply workloading. The plan called for the development of a Decision Support System for managers at HQ AMC and the MSCs, standardized procedures for forecasting at the depots and NICPs, update of AR 740-16, and establishment of a command review for the P7S (supply) program.

Management of Depot Level Reparables. HQDA in March 1987 directed AMC to assume responsibility and accountability for depot level reparables in USAREUR. The 200th TAMMC was then the source of supply for reparables in USAREUR, but AMC's plan would take them out of the requisitioning process. It was believed that the plan, by giving AMC visibility of assets in USAREUR, would improve the operational readiness of USAREUR units by insuring that unneeded procurement was not initiated for items available from the depot repair program. This proposal was briefed at the Executive Session of the European Logistics Conference on 27 October 1988, and was accepted as a one-year test program, to be started in FY89.

SESAME '88. The Selected Essential Item Stockage for Availability Method (SESAME) project was redesignated as SESAME '88. It was a stock targeting system to insure that essential items were given priority for stocking. Prototyping of the modeling system was initiated in November 1987 for completion in May 1988. The Test and Evaluation Package was delivered to all users on 11 July 1988. This package contained a user's guide and tapes for use by the NICPs in testing the program within their own supply systems. The MSCs were required to run it on their own computers in order to isolate any problems peculiar to them. Effective 15 September 1988, the Central System Design Activity, supported by the Inventory Research Office (IRO), became responsible for the SESAME '88 Program. In October 1988 the MSCs were to have an improved computation model for requirements determination for the initial provisioning process.

Transportation and Equipping Division

Battlefield Communication Review II. In FY88, 767 system fieldings, displacements, and redistributions were made under the Battlefield Communication Review II (BCR II) and its related programs. BCR II was the on-going Signal Corps modernization program. Various AMC development programs were impacting the program to a significant degree, notably the Mobile Subscriber Equipment and the Joint Tactical Communications programs. The 13th Signal Battalion at Fort Hood was the first unit equipped with the Mobile Subscriber Equipment. It began its equipment handoff procedures in October 1988.

Activations/Conversions of Light Infantry Divisions. The 7th and 25th Light Infantry Divisions (LID) reached their HQDA established goals for equipment on hand (EOH) and were then treated in their normal DA Master Priority List (DAMPL) sequence, thus ending AMC's intensive management efforts for these two divisions.

Major progress was also made in the 6th and 10th LIDs. The 6th LID had activated/converted 25 of its 28 units, and 21 of those 25 met the DA EOH objective. The 10th Mountain Division (Light) had activated/converted 30 of its 34 units, and 26 of the 30 met the DA EOH objective. Although critical shortages still existed, most of those were items of which the Army as a whole was in short supply.

The 29th Infantry Division (National Guard), however, was not progressing as well because the division had a low priority in the Equipment Release Priority System. The division had converted 32 of its 33 authorized units, but only 22 of them met the EOH goal.

Army Materiel Loan Program. The loaning of Army equipment to other DOD and federal agencies increased in FY88, as did the number of delinquent accounts. To control the latter problem, MSC reporting procedures were made more timely and greater command visibility was given to the issue. This resulted in substantial improvements by the fourth quarter of FY88 in delinquent accounts, which were resolved either by the return of the equipment or by an extension of their due date. The division received several commendations about the support being given through loaned equipment to programs such as the Pan American Games, the World XVI Scout Jamboree in Australia, and the annual United States Military Academy cadet training. In addition, AMC was in a standby mode to support the Seoul Olympics.

Forward Area Air Defense Army of Excellence (FAAD AOE). The FAAD AOE was a three-phase program designed to transition the Army from its current to its proposed FAAD structure. The three phases were reconfiguration of division air defense units, reconfiguration of echelon above corps units, and worldwide fielding of the FAAD's family of new air defense systems. The FAAD's system had five components--command, control, and intelligence (C2I); line of sight-rear (LOS-R); non line of sight (NLOS); line of sight-forward (LOS-F); and combined arms initiatives. The early work on the system through the end of FY88 was managed by the PEO FAAD, PM Stinger, and PM Chaparral, with support from MICOM and AMCCOM. The pacing item was the modification of the Chaparral from the M48A1 to the M48A3 configuration.

9th Infantry Conversion. Late in the fourth quarter of FY88, AMC learned of the plan to convert the 9th Motorized Division into a mechanized division with five mechanized battalions and five armored battalions. The 3/47 Infantry Battalion, the first unit to be converted (to armor), had a planned conversion date of the third quarter of FY89. This conversion would require extensive planning and an additional workload upon AMC to accomplish. Initial planning for the conversion had the division receiving displaced equipment from other units being upgraded to Bradley Fighting Vehicles and M1A1 tanks.

Logistics Applications of Marking and Reading Symbols. The use of bar coding technology in shipping materiel from depots was implemented in AMC's three Area Oriented Depots in FY88, including Defense Logistics Agency and General Services Administration materiel stored at those depots. LOGMARS--Logistics Applications of Marking and Reading Symbols--was implemented for general supplies at Red River Army Depot in April 1988, at New Cumberland Army Depot in June 1988, and at Sharpe Army Depot in August 1988. It was implemented for ammunition at Red River Army Depot, the only AMC Area Oriented Depot to store munitions, in September 1988.

Operational Project Support for Airdrop Resupply. The Army tasked AMC to establish operational projects which would provide three-day emergency airdrop resupply packages for the 7th and 25th Light Infantry Divisions. Preparation included assembly of stocks for each division, rigging for airdrop, palletizing, inserting the packages into A-22 containers, and holding them. The stocks consisted of Meals Ready to Eat rations, chemical protective clothing, barrier materiels, ammunition, non-sensitive non-shelf life medical supplies, gas mask filters, and gas, diesel, and jet fuels. The assembly of the equipment was being performed at Tooele Army Depot where the stocks would be stored after assembly. The project for the 7th Light Infantry Division was complete except for a small quantity of anti-aircraft and antitank missiles. Assembly of the stock for the 25th Infantry Division started in May 1988 and was to be completed in April or May 1989, subject to stock availability.

As part of this project, two Tooele Army Depot personnel were trained at the Army Quartermaster School at Fort Lee, Virginia, in the assembly and construction of airborne pallets. This eliminated the need for a costly TDY of riggers to Tooele Army Depot and enhanced DESCOM's and Tooele's ability to support the Army in the field.

Serial Number Tracking. The transition of controlled cryptographic items (CCI) from a stovepipe communications security system into the standard supply system progressed satisfactorily. The initial transition for Fort Polk and the Louisiana Army National Guard was essentially complete by February 1988. A transition schedule for the rest of the Army was also established. The radio transmitter (RT) for the Mobile Subscriber Equipment required reclassification from Class IX to Class II to enable the standard logistics system to track RT serial numbers. A panel was established to develop a standard DOD automated serial number tracking system and determine which serial numbers required tracking.

Inventory Control Effectiveness. The Inventory Control Effectiveness (ICE) program for measuring depot and National Inventory Control Point (NICP) inventory performance against established DA goals raised some concerns. On the positive side, supply elements maintained an inventory accuracy rate of 90.8 percent versus an Army goal of 90 percent. The agreement of depot computer records and NICP records had increased steadily over the past three years, reaching a level of 96.8 percent agreement, slightly under the Army goal of 97 percent. The materiel release rate at 1.05 percent barely failed to meet the Army goal of 1 percent. DOD consolidated performance factors of all of the services.

The decline in P7S funding did show up in the areas of on-time stowing and on-time posting of receipts, however. These were, respectively, 78.1 percent and 88 percent versus an Army goal of 90 percent. Although not immediately impacting the Army in the field, this trend together with the high percentage of covered storage space occupancy at Area Oriented Depots (97 percent) created "a strong potential for declining performance" in the future, according to DCS estimates.

Revision of MIL-STD-129. MIL-STD-129, Marking for Shipping and Storage, was one of the most widely used standardization documents in DOD since it was used by all vendors selling to the Army and by all DOD shippers. In FY88 it was revised and the new edition, MIL-STD-129K, with a publication date of 1 June 1988, contained expanded guidance on bar coding of ammunition, special commodities such as subsistence and shelf life items, and more easily understood illustrations. The draft revision had been circulated to some twenty industrial societies and associations for comments, and many of their comments, as well as others received directly from users, had been followed in the final revision.

Dehumidization of DEPMEDS. Deployable Medical Systems Modules (DEPMEDS) were prepositioned medical equipment packages stored in forward areas. For the year ending in May 1988 AMC Packaging, Storage, and Containerization Center had evaluated dehumidification techniques to

prolong the useful life of the packages whether in conventional MILVANs or new ISO containers. The evaluation had been requested by the U.S. Army Medical Materiel Agency under a memorandum of understanding for packaging support. The dehumidification techniques tested were static free breather, venting, and static loading of desiccants, all coupled with various combinations in the way the container was sealed. The most successful technique was static free breather coupled with total sealing of the container. This resulted in a 40 percent humidity level, and all the high technology medical equipment within the container functioned properly after the test period. This method was recommended for all DEPMEDS modules.

International Packaging Standards. Regulations and conventions of the International Civil Aviation Organization and the International Maritime Organization pertaining to the international shipment of dangerous goods were to become effective 31 December 1990 for air transportation and 1 January 1990 for water transportation. The U.S., acting through DOT and the Coast Guard, its representative to the body, asked that the International Maritime Organization to slip its date so that the two would effective at the same time. The AMC Packaging, Storage, and Containerization Center was conducting tests based on those federal and military packaging specifications with the greatest application across commodity command lines. The results of the test would be used to change old or develop new hazardous materiel packaging requirements for use in procurement actions, commodity specifications, or depot level packaging.

Assistance to the Government of Egypt. A six-man technical team led by the AMC Packaging, Storage, and Containerization Center went to Egypt at the request of the Egyptian government to develop preservation techniques for U.S. supplied tracked vehicles. The development of techniques to cover specific deterioration problems caused by the environmental and storage conditions in Egypt, and the development of a training course to teach Egyptian officers how to apply these techniques, took over three months and involved travel to several U.S. Army installations. The training of 22 students in Cairo from 3 July to 9 August 1988 was a "hands on" program to allow them both to become thoroughly familiar with the procedures and to help them prepare to teach other personnel. The instruction included innovative techniques that should allow Egyptian personnel to preserve/depreserve vehicles quickly and inexpensively and should help mitigate the Egyptian claim that American equipment is difficult, expensive, and time consuming to maintain.

Packaging Simplification Study. In 1986 the DOD Joint Packaging Coordinating Group (JPCG) initiated a study of duplicative and excessively complicated military packaging requirements, methods, and materials. Five study groups were established to conduct the study, and the target completion date was set at May 1988. Although a considerable amount of work was accomplished, travel constraints and the heavy workload of the members of the study groups prevented the final report from being completed on time. As a result, in June 1988 an AMC Packaging, Storage, and Containerization Center representative who served as the chairman of one of the study groups was selected to coordinate the production of the final report and its presentation to the JPCG. The new projected completion date for the final report was June 1989.

Transfer of MILVAN and CONEX Mission. On 1 October 1987 the six-person Joint Container Control Office (JCCO) was transferred in place from the AMC Packaging, Storage, and Containerization Center to the Military Traffic Management Command Eastern Area. The physical relocation of the organization was to take place later. The transferred mission was to approve the transfer of Container Expresses (CONEX) with a new designation as a storage box to field organizations and units and also to approve the transfer of MILVAN chassis and bogies to the TDAs of units/installations. MTMC had asked that only MILVAN in the operational fleet be transferred and that the 800 MILVANs on the JCCO's books that were prestaged with FORSCOM not be transferred.

Direct Support System/Air Line of Communications (DSS/ALOC). At the end of FY88, the number of units supplied by the Direct Support System (DSS) was 1,005, of which 175 were ALOC units. This was a net drop of 26 DSS units and 12 ALOC units from the FY87 totals. The drop was due to a purge of units that had shown little or no DSS/ALOC activity, usually because of mission changes or deactivations. A number of new units were added to the system. FORSCOM added 14 DSS units, TRADOC one DSS unit, Information Systems Command two DSS units, and Korea added one medical ALOC (MEDALOC) unit.

Executive Director of Test, Measurement, and Diagnostic Equipment

Personnel

The Headquarters personnel reduction resulted in a TDA reduction for the office of the Executive Director for TMDE from 18 to 14 spaces. All recruitment actions were put on hold until the impacted personnel were placed. The only exception was the promotion of a GS-14 to replace a GS-15 who had retired under the early out program.[105]

Classification of Metrology/Calibration Technicians

As a result of the 27 April 1982 Army reorganization of TMDE management into a centralized structure (with the CG AMC assigned as the DA TMDE Executive Agent), two levels of calibration and repair of TMDE equipment were to be consolidated into one. This involved the services of personnel encompassing two pay plans--general schedule (GS) and wage grade (WG)--and nine occupational series. Due to the perceived complexity of the metrology/calibration mission the MICOM civilian personnel office recommended standardization on a GS classification as the desired goal of position consolidation.

The resulting reclassification standardized 87 percent of the positions in the GS category, primarily as Electronics Technicians, GS-856; the remainder remained under the WG system as Electronic Measurement Equipment Mechanics, WG-2602. However, three of the 60 civilian personnel offices participating took exception to converting the positions to the General Schedule. Then, in a grievance hearing, the Mid-Atlantic region of the Office of Personnel Management (OPM) determined that the position in question was properly a wage grade position, and directed AMC to conduct consistency classification review of other identical and similar positions.

As related in last year's history, in September 1987 AMC briefed OPM on the issue, asking for a one-year delay on the review and stating the need for a new Metrology Technician standard. OPM granted the yearlong delay but denied the request for a new standard. Instead it recommended that the positions be restructured within existing standards. AMC's review of the situation, however, determined that the positions were not adequately covered by any currently existing standards.

When in March 1988 OPM announced a continuing effort to simplify standards and asked agencies to nominate positions to be studied, the Army proposed that a metrology technician standard

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[105] Unless otherwise noted, the data in this section is taken from the FY88 AHR submission by the Office of the Executive Director for TMDE.

be developed under the category of "occupational standards developed by agencies under OPM oversight," with the U.S. Army Test, Measurement, and Diagnostic Equipment Support Group (for more on USATSG, see below) providing the manpower and funding. In September 1988 AMC completed the Intra-Agency Classification Consistency Report and forwarded it to the Total Army Personnel Agency. The report recommended the establishment of a new occupational series for Metrology Technicians and recommended that it use the USATSG developed job benchmarks for it.

Once the job classification series issue was resolved, AMC intended to establish a formal career field for Army metrology employees.

Inspector General Reviews

From 1 October 1987 to 30 May 1988 an AMC IG team conducted a systemic review of the Army TMDE program. The final report included a laudatory finding on the overall quality of the world wide TMDE program. Of the 20 specific findings made, most were of minimum impact and easily correctable. Others were systemic problems highlighted for the IG team by TMDE management in order to focus additional management attention upon them.

In a separate tasking from the CG AMC, the IG made specific recommendations for the reorganization of the centrally-managed TMDE structure in order to improve control and optimize the use of resources. The proposed implementation of these recommendations were undergoing command group review at the end of FY88.

Separate Reporting Agencies

Two Separate Reporting Agencies (SRA), the U.S. Army TMDE Support Group (USATSG) at the Redstone Arsenal, Alabama, and the U.S. Army Central TMDE Activity (USACTA) at Lexington, Kentucky, reported to the HQ AMC TMDE office.[106]

Single Manager for Conventional Ammunition

The Single Manager for Conventional Ammunition (SMCA) function was assigned by Department of Defense Directive (DODD) 5160.65, dated 17 November 1981, to the Secretary of the Army. In turn, the Secretary of the Army delegated that authority to the CG, AMC by Charter of 6 May 1983, and AMC's Deputy Commanding General for Materiel Readiness was designated the Executive Director for Conventional Ammunition (EDCA).[107]

Procurement

Integrated Conventional Ammunition Procurement Plan (ICAPP). The Integrated Conventional Ammunition Procurement Plan (ICAPP) annual quad-service review was held from 24 to 26 August

[106] The FY88 AHRs by these organizations are incorporated in the FY88 AHR submission of the Executive Director for TMDE.

[107] Unless otherwise noted, this section is based upon the EDCA AHR submission for FY88. This submission was based upon the annual report of EDCA to the Secretary of the Army, which, however, had not been released by the Department of the Army as of early CY90.

1988. At the review the EDCA staff made recommendations for changes to the Services' ammunition procurement plans in order to achieve efficiency, economy, and programmatic improvements. Their recommendations included 11 proposed changes to the Army's plan, 13 to the Navy's plan, eight to the Air Force's plan, and five to the Marine Corps' plan. The justifications for the proposed 37 changes fell into four categories: economy and efficiency, 21; plant work loading, eight; funded delivery period, two; and item problems such as testing, six.

The rate of acceptance of the EDCA recommendations was unusually low, 27 percent compared to the 88 percent acceptance rate in FY87.

> In large part, this low acceptance rate reflects the budget constraints placed upon the Services and their inability to make significant shifts of TOA [total obligation authority]. If the EDCA recommendations were completely executed, the cost avoidance and efficiencies have the potential to accrue to over $30 million in savings to the Services. However, the long-term benefits are precluded by near-term costs.[108]

In another issue related to the ICAPP, it was decided after consultation with the Office of Management and Budget and the Services that the FY87-94 ICAPP be marked "For Official Business Only" and treated as an internal DOD working document that was not releasable outside of DOD.

Conventional Ammunition Working Capital Fund (CAWCF). During FY88 the CAWCF accepted orders totaling $3.755 billion. This was 98.2 percent of the planned $3.811 billion, which included $742 million carry-in funds. CAWCF obligations were impacted by the actions of contractors in providing components, subassemblies, and load-assemble-pack operations. In FY88 CAWCF obligated $3.103 billion, 82.9 percent of the dollars received and 96.6 percent of the original plan.

A number of problems and issues were raised about CAWCF operations in FY88, although in most cases the evaluation of these issues was continued past the end of the fiscal year. One problem was that variances between the quantities of ammunition used as the basis for planning and the quantities actually ordered was so great as to make the preliminary procurement planning actions irrelevant.

Although over 41 percent of the funding program was available in October 1987, it took until the end of March 1988 for 42.8 percent of the program to be obligated. This indicated that the actual administrative lead time (ALT) was six months rather than the planned three months. The situation did not improve during the year, witnessed by 81 percent of the funding being available by February 1988 yet seven months transpiring before that level of funding was obligated (on 30 September 1988). As a result, both the obligation plan and goal were reduced in February 1988. One presumed cause of the increased ALT was the addition of restrictive legislation which made procurement actions more cumbersome.

As a result of the services' concerns with CAWCF policies and procedures, a CAWCF Management Council, consisting of General Officers or SESs from each Service and from HQ AMCCOM, was formed. It was paralleled by a working group at the action officer level which identified issues and handled day-to-day communications. The Council recommendations were to be presented to the EDCA and the Assistant Secretary of the Army for Financial Management for approval. At the end of the year the Council's draft charter was being reviewed for further improvements.

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[108] Ibid, p. 3.

At the close of FY88 a budget analysis from the Office of the Secretary of Defense questioned the CAWCF's backlog of unfilled customer orders. In the period from FY82 to FY88 this came to about $8 billion. A major focus of efforts in FY89 would be to identify all unfilled orders which had been made prior to and including FY86 and to determine ways to reduce the backlog. A major cause of the backlog was delinquently overdue production deliveries due to producibility problems. The cause of the producibility problems remained unclear, although faulty or immature technical or design data, unqualified producers, and deficient procurement techniques were seen as possible culprits.

Logistics

National Inventory Control Point for Conventional Ammunition. A significant portion of the SMCA logistics mission was to integrate the conventional ammunition logistics functions of the military services as far as was practical, in order to increase the efficiency and effectiveness of the system. Since 1981 substantial achievements in that area were made, and it was anticipated that more would be achieved if the SMCA was designated as the National Inventory Control Point for conventional ammunition. This would have the effect of making the SMCA the only agency that would maintain records in this area, and it would vest all wholesale controls in one agency.

Integrated Conventional Ammunition Maintenance Plan. The Integrated Conventional Ammunition Maintenance Plan (ICAMP) was a process which had been carried out on an annual basis since FY83. It included a line-by-line analysis of the services' major ammunition maintenance (modifications, conversions, and component replacements) and minor ammunition maintenance (external care, preservation, and packaging) programs, and resulted in recommendations to the services for changes to improve executability, economy, and efficiency. The services analyzed these recommendations for their impact on operational readiness and TOA constraints, and historically over 90 percent of the recommendations had been accepted.

The major maintenance stockpile had been reduced to a manageable level in FY84, and since then the individual service-funded programs had kept pace with the generation of unserviceables. Concern over the recurrance of a backlog, however, was caused by the fact that the current ICAMP for FY88-93 projected a slight increase in total unserviceables.

There had been a reduction in the level of accomplishment of SMCA-funded minor maintenance due to lowered personnel authorizations and budgetary constraints. No change in the trend was in the offing as no funding was projected for minor maintenance in FY89. Overall, the minor maintenance stockpile was being reduced at a satisfactory rate, but the rate of reduction was slowing down due to financial and manpower constraints. As the remaining workload consisted of "piecemeal" quantities, further efficiencies in performing minor maintenance was not anticipated, and without funding the backlog would begin to grow.

Plans were underway to replace the ICAMP process through modules within the Defense Standard Ammunition Computer System. The modules, which were planned to be tested in FY89, would be designed to improve major and minor maintenance visibility and to improve the management thereof.

Other issues and problems included initiatives to accommodate new ammunition scheduled to enter the inventory and funding and personnel constraints that required that plans for a model maintenance facility be dropped.

Supply Operations. Three of the five indicators of the Inventory Control Effectiveness (ICE) Report, which measured gross inventory and receiving performance, were down in FY88, one was

unchanged, and one was improved. This performance reflected the impact of the personnel and funding cuts of FY88.

Inventory Control Effectiveness

Performance Indicator	% FY87	% FY88	Goal
Materiel Denial Rate	1.4	1.4	=< 1.0
Inventory Variance Rate	3.7	4.0	=< 5.0
Receipts PST/STOW on Time	97.8	94.5	=>90.0
LOC Audit Reconciliation Accuracy	90.9	88.7	=>98.0
LOC Survey Accuracy	99.1	99.2	=>98.0

Source: EDCA AHR Submission for FY88.

The number of requisitions and the average time required to process one from its origination through the material release order to satisfy it were tracked through the quarterly Single Manager Support of DOD Customers Report. In FY88 the total number of requisitions remained stable, although shifting away from Issue Priority Group (IPG) I toward IPG II. The first dropped by some 22 percent, while the latter, already twice as frequent, climbed by 10 percent. The processing time showed no overall change.

Ammunition Requisition Data

IPG	FY87 Req. Processed/ Processing Time (in days)	FY88 Req. Processed/ Processing Time (in days)
I	8,481/1.7	6,574/1.8
II	16,555/1.7	18,342/1.8
III	23,666/1.8	23,345/1.6
Total	48,402/1.7	48,261/1.7

Source: EDCA AHR Submission for FY88.

Demilitarization. The need to find sources of adequate financing for demilitarization was listed by the EDCA as one of its main problems. A seven-year plan developed by a Blue Ribbon Panel in 1986 would, if followed, reduce the inventory of ammunition to be demilitarized to 40 thousand short tons by FY93. As part of the plan, proceeds of the sale of demilitarized scrap would be used to fund other demilitarization projects. In FY88, $1.06 million was turned into the demilitarization account from such sales. Efforts were also being made to find other ways to finance the demilitarization projects that would not be subject to decrements in the future, including possible DOD-wide management of the demilitarization program.

Defense Standard Ammunition Computer System. The DSACS was being developed to satisfy the demands of DODD 5160.65 that there be a centrally maintained DOD-wide automated data system covering the logistics functions of the SMCA mission. The DSACS was further expanded to include acquisition and financial aspects as well. It was to be a dedicated automated information system that networks to the individual military service ammunition management systems through telecommunications media. It was to encompass four major subsystems.

The Customer Acquisition Plan Entry (CAPE) would facilitate the entry of various customer requirements into the system.

The SMCA review allowed the SMCA item manager to perform an on-line evaluation of customer requirements in order to determine the source of supply.

Major item planning provided for the generation of component breakouts, identification of peacetime production unique data, and consolidation of common components and end items.

Pricing and budgeting provided budgetary documentation to support the planned acquisition, as well as pricing history and simulation.

Two additional subsystems were being developed, with approximately 80 percent of full functionality being achieved in FY88. These subsystems were the Production Scheduling and Surveillance subsystem, which provided the status of production, as well as the capability to modify production schedules, and the Procurement Work Directive subsystem, which consolidated ammunition requests and developed a Procurement Work Order Number (PRON). The later subsystem was given an independent verification and validation by RJO Enterprises, Inc.

In FY88 a variety of steps were taken towards developing DSACS. Quarterly in-process reviews were held with the services to ensure that all of their concerns were being met. The DOD ammunition acquisition program was loaded to DSACS by all four services (in parallel with the existing manual system) in order to provide a systems test of the CAPE subsystem, with debugging following the test. The Defense Data Network (DDN) between the services and the mainframe computer at HQ AMCCOM was completed. DSACS user training continued with on-site visits to various military installations.

The major problem with the program continued to be funding. The FY89 requirement for $9.6 million in OMA money was $5.7 million unfunded, and the FY89 $4.0 million OPA-2 (Other Procurement Army) requirement was completely unfunded.

Shipboard Pre-Positioned (PREPO) Munitions Assessment. In 1984 and 1985 some Army and Marine Corps munitions prepositioned on ships were found to have deteriorated. The JCS established a working group on this issue and also tasked the Army, as the SMCA, to assess the serviceability and combat readiness of the munitions prepositioned on ships. The analysis continued into FY88 and no new degradation problems were discovered. It was decided that the problem was not as significant as had been first thought.

Ammunition Logistics Training. The SMCA was tasked by DODD 5160.65 to provide education and training to personnel who served in the conventional ammunition logistics fields. A variety of programs were ongoing to satisfy this requirement. The Quality Assurance Specialist (Ammunition Surveillance) (QASAS) Program was an Army world-wide mandatory rotational career program. Despite briefings on it by the U.S. Army Defense Ammunition Center and School (USADACS), the services decided against establishing a DOD QASAS Program. Four QASAS, however, had been

trained under a Memorandum of Understanding for the Air Force, and it was anticipated that the next intern class would include four Air Force personnel. The Air Force and USADACS also had developed an MOU to provide training to Air Force personnel who would become future ammunition managers at Hill AFB. The USADACS also furnished mobile training teams on an "as needed" basis to the other services, procedures being developed case by case.

An analysis of these and other USADACS programs determined that there was a need for uniform policy and procedural guidance which would best be provided by an additional chapter in DOD 5160.65-M. In FY87 work started on this on a joint service basis under a USADACS lead, and by FY88 two drafts of the proposed Chapter V had been fully coordinated. The proposed publication date was FY89.

Production Base

General. The FY88 production base budget included 16 ammunition projects totalling $370.4 million. Of this amount, $30.5 million was for design, $1.2 million for initial production facilities (IPF), $274.5 million for expansion, and $64.2 million for modernization. Other production base programs not included in the above consisted of:

Components for Proveout, $8.3 million. This program provided for the procurement of materials and components to proveout PBSP programs.

Production Support and Equipment Replacement (PS&ER) Program, $36.2 million. This program consisted of projects to sustain the capability and capacity of active production lines at government owned facilities.

Layaway of Industrial Facilities (LIF) Program, $19.4 million. This included the projects needed for industrial facilities not used for current production but that were to be maintained for mobilization production.

McAlester AAP. The "A" line IPF project at McAlester Army Ammunition Plant (AAP) was to convert an inoperative line into a PBX bomb load facility to be used to support the Navy's insensitive munitions program. The Navy had provided $13.2 million FY85 funding to the Army for the program. Proveout was scheduled for the second quarter of FY89.

Another McAlester AAP IPF program was to provide a modernized large caliber, high explosive projectile press loading capability to produce Navy 16" ammunition essential for the Navy's battleship reactivation program. AMC had requested a reprogramming action in February 1986 to start in late FY86. The Corps of Engineers did not provide Major Construction Army funding support until October 1986. As the low bid for the project was higher than the allocated amount plus 25 percent, the Corps of Engineers deleted the project in FY87 and included it in FY88 at the higher project value. Construction was scheduled for completion in March 1989, with production to begin in the second quarter of FY90.

Nitroguanidine. The nitroguanidine facility at Sunflower AAP was producing quantities in excess of need in order to maintain an economically efficient rate. There was, however, the possibility that an expansion of the nitroguanidine production facilities would be needed as the Air Force was exploring its use, among other options, in producing less sensitive bomb explosive fills.

RDX/HMX. Implementation of the 1983-1991 strategy for modernizing, expanding, and reducing the vulnerability of the RDX/HMX facilities continued. Production from the HMX (high melt

explosive) Musall process demonstration model at Longhorn AAP was successful, auguring a change from the older Bachman process. The design baseline was achieved for the follow-on pilot facility, and equipment installation began. Prove-out was to begin in the second quarter of FY89.

The conversion of an RDX (research and development explosive) production line at Holston AAP to HMX production was completed, and prove-out of the facility began in the fourth quarter of FY88. At full production, the Holston AAP facility would be able to support the entire projected five-year Defense requirements for HMX.

The acquisition strategy for the design, construction and prove-out of the lead RDX facility at the Louisiana AAP was approved. The project was funded for $267.7 million in FY88.

Insensitive Munitions (IM). DOD policy was for use of insensitive munitions whenever feasible. The joint criteria for insensitive munitions were based upon the three common threats of fast cookoff, bullet impact, and sympathetic detonation. Policy implementation was vested in the joint logistics commanders, whose Joint Ordnance Commanders Group (JOCG) reviewed the services' insensitive munitions programs. The Navy's Insensitive Munitions Coordinating Group, whose membership included the Deputy Executive Director for Conventional Ammunition, addressed policy and waivers. The Air Force continued its efforts to improve munitions storage densities, and the Air Force VCS directed that an IM Master Plan be prepared and an IM program Office be established. In June 1987 the Assistant Secretary of the Army (Acquisition) had signed the IM joint requirement, which established IM policy for the Army. The Marine Corps completed their assessment of their munitions. The increasing trend towards less sensitive explosives and propellants would place increased emphasis on the production capability for RDX, HMX, and nitroguanidine.

Complex Munitions. The Air Force had opposed the transfer of complex munitions such as Sensor Fuzed Weapons and Direct Airfield Attack Combined Munitions to the SMCA. The JOCG had recommended that they be evaluated on a case-by-case basis, but in FY88 the issue was again raised by the Air Force. At the request of the Air Force and the JOCG, the office of the EDCA started a study to determine the validity of transitioning complex munitions to the SMCA.

Funding. As a result of a decrement of $500 million in the FY88 OMA appropriation, the Industry Preparedness Operations (IPO) Account was assessed $25.6 million. The Army decided in responding to the reduction to support near term readiness at the expense of maintaining the inactive production base. As a result, 474 contractor employees lost their jobs, 127 seasonal workers were furloughed, and 172 workers were transferred from IPO to other work centers. The impact of this loss of personnel was that:

- -- industrial plants and equipment were not maintained and laid-away lines were basically deserted in place;
- -- the annual maintenance backlog continued to grow;
- -- emergency repair bills continued to increase in number and cost;
- -- critical skills and knowledge of plant maintenance and reactivations procedures were being lost; and
- -- Response time and replacement costs for reactivation of inactive lines would increase.

A decrement in the ammunition procurement budget led to reductions in the overall procurement of munitions and the loss of 514 personnel in Government-Owned Contractor-Operated munitions facilities.

Industrial Committee of Ammunition Producers (ICAP). ICAP had been established in 1981 in collaboration with the American Defense Preparedness Association (ADPA) as a sounding board for issues impacting the ammunition community. Three meetings were held in FY88, and the following major issues were discussed:

-- AMCCOM's interface with Program Executive Officer (PEO) Ammunition and PEO Armaments;

-- A proposal to approve the sale through other than Foreign Military Sales procedures of government owned technical data which was not part of Technical Data Packages;

-- AMCCOM's Could Cost Program;

-- AMCCOM's Value Engineering Change Proposal (VECP) Process; and

-- Statistical Process Control.

SMCA Cost Avoidances

Cost avoidance achieved by the SMCA was verified by The Optimum Cost Avoidance Methodology (TOCAM), which provided a five-step method of verifying cost avoidance claims. The FY88 cost avoidance accomplishment amounted to $64.9 million, 35 percent of the year's goal, the lowest total performance since initiation of the program in FY85.

FY88 SMCA Cost Avoidance

TOCAM Category	Goal ($M)	Accomplished ($M)	% Achieved
Ammunition Inventory Mgt	**8.0**	**5.0**	**62.5**
Transportation & Traffic Mgt	**41.4**	**22.5**	**54.3**
Production Base Mgt	**52.1**	**21.2**	**40.7**
Value Engineering	**60.0**	**13.8**	**23.0**
Maintenance Mgt	**1.9**	**0.0**	**0.0**
Miscellaneous	**2.6**	**2.4**	**92.3**
Procurement Mgt	**18.7**	**0.0**	**0.0**
TOTAL	**184.7**	**64.9**	**35.1**

Source: EDCA AHR Submission for FY88.

From FY85, the cost avoidances achieved had fallen each year from a level of $478.2 million achieved in the first program year. As a result of the showing in FY88, suggestive that diminishing returns were being achieved, the goals for FY89 were trimmed to $79.3 million.

TOCAM Cost Avoidance Reports (in millions)

	FY85	FY86	FY87	FY88
Goal	211.3	175.9	203.4	184.7
Accomplishments	478.2	340.1	182.3	64.9
Cost Avoidance Since FY85 (Cumulative)	1,502.9	1,843.0	2,025.3	2,090.2

Source: EDCA AHR Submission for FY88.

Special Problems

The EDCA identified three special problems in FY88 that would continue to be issues in FY89. Two of the problems were the already noted backlog of undelivered CAWCF orders and the need to provide resources for demilitarization efforts. The third issue was that a separate funding line did not exist for the SMCA mission in the Army budget. The costs for accomplishing the mission were spread over several program elements, none of them unique to ammunition, making it hard to identify SMCA costs as was required by DODD 5160.65. A separate line item for the SMCA production base and its operating and maintenance requirements would permit the program to be separately evaluated and resourced by DOD, thus reducing the impact on the Army's TOA, the EDCA proposed.

AMC Europe

Manpower and Personnel

BG Melvin Byrd departed his post of commanding general of AMC-Europe on 22 July 1988 to become Deputy Commanding General of CECOM. He was replaced by BG Joseph S. Laposata who came from HQDA where he had been the Director of Plans and Operations, Office of the Deputy Chief of Staff for Logistics. Addressing the AMC-Europe community, BG Laposata assured the audience that AMC-Europe would continue to be a professional element of the AMC team in support of the U.S. Forces in Europe. He also delivered a portion of his speech in German, saying, "I'm looking forward to continuing the relationship with our NATO allies and especially with our German neighbors in Seckenheim."[109]

[109] Unless otherwise noted, the information in this section was taken from the AMC-Europe AHR submission for FY88.

At the start of FY88, the manpower authorization for HQ AMC-Europe was 88 civilian and 29 military for a total workforce of 117. By the end of the fiscal year this had declined to 76 civilians and 29 military for a total workforce of 104, due to an AMC-imposed hiring freeze from December 1987 through July 1988.

AMC-Europe Commanders Conference

Army Materiel Command-Europe (AMC-E) held its fourth annual Commanders' Conference on 11 December 1987 at the Schwetzingen Conference Center. At this conference, BG Byrd, then Commander AMC-Europe, stressed the importance of Senior Command Representatives keeping their major subordinate commanders well informed. He also stressed the importance of optimum management of available resources, and asked that personnel not let the current constraints cause undue alarm but instead inspire innovative approaches to doing business.

DCS for Readiness

Readiness and Sustainability Committee. Under the guidance of the Chief, Logistics Assistance Office-Europe (LAO-Europe), the Readiness and Sustainability Committee evolved into a forum that identified systemic or reoccurring readiness and logistics issues in order to focus the efforts of AMC-E and the LAO-E community on improving and sustaining readiness rates throughout USAREUR. Readiness trends of selected critical systems were analyzed by the committee to identify units that were having readiness problems or systems that were failing to meet DA goals throughout the theater. This allowed AMC-E to target these units or systems for either a formal "Readiness Offensive" whereby an AMC-E/LAO-E team was formed to offer assistance or for informal assistance directed by the LAOs and SCR staff.

AMC-E/USAREUR Study Group. As a result of analysis done by the Readiness and Sustainability Committee, and in close coordination with USAREUR, a joint AMC-E/USAREUR study group was formed to assess USAREUR's readiness problems with the Armored Vehicle Launcher Bridge (AVLB) and Combat Engineer Vehicle (CEV) systems. The study group conducted field visits and a literature search from November 1987 through March 1988. Several recommendations were made that had the potential to improve the readiness rates of these two critical systems significantly. Efforts were ongoing with USAREUR to formalize the results of this readiness offensive into cohesive procedures that would provide increased availability of repair parts, better visibility of supply transactions, and improved efficiency of maintenance management throughout USAREUR.

LAO-Europe Participation in REFORGER. LAO-Europe successfully deployed Logistics Assistance Teams from CONUS, augmented by personnel from LAO offices in the 21st Theater Army Area Command (TAACOM), V Corps, VII Corps, and the Southern European Task Force (SETAF) to support REFORGER 88 and "Display Determination" in Italy. All LAO offices in USAREUR were activated in support of these exercises, gaining significant insight and training in their Transition to War planning.

Supply Support. Through a direct mandate by the AMC Commander, LAO-Europe assumed the mission of providing supply support/assistance to USAREUR units in the field. This necessitated the transfer of twenty-one supply Logistics Assistance Representative positions to LAO-Europe. The spaces were filled by MSC LARs on a voluntary basis. Their addition increased the overall mission accomplishment of each LAO office throughout Europe.

DCS for Force Modernization

Weapon System Fielding. At the start of the fiscal year, 87 systems were scheduled to be fielded. During the course of the year 12 systems were added, three were dropped, and two systems were combined with two others, resulting in a year-end total of 94 systems. Over the year, 29 system handoffs were completed, 30 were ongoing, and 35 had slipped to the next fiscal year. AMCCOM staged nine of its 16 scheduled, AVSCOM performed seven of eight, CECOM 20 of 33, MICOM two of three, TACOM 10 of 19, TROSCOM eight of 12, and PM TRADE three of three. The most frequent cause for schedule slippage was hardware problems; 26 percent of the slippages had that listed as the reason. Package shortages for Total Package Fielding accounted for another 15 percent, while contract problems and distribution problems accounted for 13 and 10 percent, respectively.

Conditional Releases. Of the 59 systems fielded in FY88, 21 were released conditionally. The reasons for conditional release were numerous, with every system having more than one problem with which to contend. During FY88, 22 systems were scheduled to achieve a full release but only seven did. At the end of the fiscal year, there were 45 systems within USAREUR in the conditional release status.

Transportation Study. The DCS conducted a study from July through September 1987 on transportation issues impacting First Unit Equipped dates for new materiel fieldings in USAREUR. Data for the study was obtained from the Geinsheim and the Friedrichsfeld Staging Activities, the Tactical Vehicle Staging Facility, the Ramstein Air Terminal, and the Rotterdam and the Bremerhaven Water Port Terminals. The systemic problems uncovered dealt with the issues of receipt of TPF shipment advance notification requirements for the non-CONUS staging activities, the proper labeling and consolidation of TPF shipments, and problems resulting from non-standard manufacturer direct shipments. The report was forwarded to HQ AMC for review and action, with information copies being sent to DESCOM, the Military Traffic Management Command, and a number of organizations within Europe.

Force Modernization Guidance Committee. The Force Modernization Guidance Committee (FMGC) met monthly for the DCS for Force Modernization to brief the CG AMC-E, his staff, and representatives of AMC and USAREUR on force modernization issues. Action was being taken to develop a computerized database for the data elements covered in the briefing and to make the briefing exportable via a computer disk.

DCS for Supply, Maintenance and Transportation

Battlefield Damage Assessment and Repair Field Trials. The U.S. Army participated in the Battlefield Damage Assessment and Repair (BDAR) field trials held from 27 June 1988 through 15 July 1988 at Meppen, West Germany. This was the third year of U.S. participation, which included joint cooperation with the British and West Germans. AMC-Europe was the AMC representative in-theater, serving as the focal point for coordination of actions between USAREUR, the Germans, and the Army Materiel Systems Analysis Activity (AMSAA), which was the DA executive agent for the trials. AMC-Europe hosted an in-theater BDAR coordination meeting in April 1988 for representatives from all major participants, at which plans for the Meppen 88 trials were made final. During the trials, AMC-Europe provided a technical interpreter to facilitate communications. The trials were successfully concluded, with no major problems encountered.

Chemical Agent Resistant Coating. During FY88, Chemical Agent Resistant Coating (CARC) implementation in USAREUR experienced numerous difficulties. The USAREUR Commander in Chief (CINC) ordered a moratorium on the application of CARC below the General Support (GS)

level due to health concerns. At the same time, USAREUR paint facilities did not meet the safety and medical standards for spray painting, and this effectively curtailed CARC painting throughout USAREUR. In July 1988, the CINC moratorium was partially lifted and units were authorized to perform spot/touch-up painting. However, paint facilities could not begin CARC painting before meeting safety, health, and environmental standards. USAREUR estimated that $37 million was required to upgrade paint facilities, and requested DA to provide the funds. The DA response indicated that funds would not be available until perhaps FY90 or FY92. USAREUR made the decision to implement CARC, although resources to accomplish that had not yet been identified.

Theater Maintenance Program (TMP). AMC-Europe had been actively participating in the maintenance program working group that the USAREUR DCSLOG established in September 1987. Over the year, the program expanded from 12 to 18 issues, with several of the original actions being completed but kept in the program for tracking purposes. AMC-E contributions included involvement in the TRIAGE program run at 21st TAACOM to classify and obtain disposition instructions for unserviceable equipment and in the USAREUR audit of workload and funding at Miesau Army Depot. AMC-E was also involved in coordinating the actions to transfer the M-1 and M-2/3 Retrograde Programs from USAREUR maintenance facilities to AMC depots. At the end of the year AMC-E was concerned with management of depot level actions to increase their GS-level force structure.

European Redistribution Facility (ERF). In FY88, with both the Main and VII Corps redistribution sites operational and the V Corps site being prepared to begin operations, AMC enhanced the effectiveness of its redistribution activities by implementing a central storage concept with inventory leveling. Under central storage, serviceable Class IX excess was stored and redistributed only from the Main site. Inventory leveling ensured that only those stocks required by the theater were kept with the remainder sent to CONUS. Central storage officially commenced 31 August 1988 with the draw down of serviceable assets at the VII Corps site. Pending completion of the V Corps site, an Early Turn-In Program was established during the first quarter of FY88 to allow V Corps units to route serviceable materiel to ERF-Main for processing. Finally, the ERF expanded its area of responsibility and began accepting materiel from the Southern European Task Force (SETAF) in July 1988.

Based upon an AMC-E analysis of the ERF credit flow process, it was requested that AMC modify its credit procedures to provide an expedited credit flow to the turn-in activity. This was accomplished during the fourth quarter FY88. By establishing unique fund and signal code combinations, credit dollars for ERF turn-ins were now routed back to the appropriate accounts. During the two years the ERF had been in operation through 30 June 1988, it had processed $496.5 million of serviceable and unserviceable materiel. Of this, 26 percent, or $128 million, was serviceable. Considering materiel routed to theater storage activities and credit allowed by the wholesale system, the theater received 68 cents on the dollar for every serviceable item turned in.

The ERF Order Ship Time (OST) objective of 21 days was established in the fall of 1985. Through FY88, this objective had not been reached. AMC-E completed a 30-day ERF OST evaluation in August 1988. It highlighted the fact that the Uniform Military Movement and Issue Priority System (UMMIPS) standards for theater transportation elements were not in consonance with the 21-day objective. Since the evaluation, significant improvements had been made in all ERF OST pipeline segments. The total OST was down 28 percent and the ERF processing time segment was down 54 percent for the report period ending 30 September 1988.

DCS for Operations

Command Post Exercises. HQ AMC-Europe's participation in Command Post Exercises (CPX) and Field Training Exercises (FTX) continued to reinforce its presence in theater and gave support to the overall Joint Chiefs of Staff exercise effort. During FY88, AMC elements participated in CPX Able Archer 87, Crested Eagle 88, and exercise Reforger 88 with its active (FTX) period called Certain Challenge. Support to USAREUR during Able Archer and Crested Eagle consisted of battle staff participation at HQ AMC-E with response cells at the 517th Maintenance Battalion (TMDE), Mainz Army Depot (MZAD), and European Aviation Classification Repair Activity Depot (AVCRAD). LAP personnel supported their designated units. AMC-E represented the wholesale supply and in-theater depot maintenance aspects of AMC at large. The FTX, Reforger, required a different orientation since it involved actual deployment of troops. The headquarters maintained a response cell and interfaced directly with USAREUR DCSLOG for immediate resolution of AMC functional area problems. The 517th gave TMDE support to the field in addition to supporting the POMCUS draw. MZAD stood ready to repair any items at its level that would assist the Reforger forces to maintain the necessary readiness to play Certain Challenge. LAP personnel supported their designated units in the field as required and demonstrated their expertise on several critical occasions. CONUS LAP personnel deployed with their units, exercising deployment procedures as well as maintaining readiness of their designated units. The 1107th AVCRAD assisted 21st TAACOM in its reception mission by deprocessing and preparing helicopters for action from the Seaport of Debarkation (SPODS) of Antwerp and Rotterdam. For the first time AMC-E was on line with the UTACCS computer making it possible to communicate in a secure mode worldwide during exercises.

Update of Transition to War Plan. Changes of missions, organization and nomenclature required that HQ AMC-Europe review and update its transition to war plan dated September 1986. Change one was distributed to AMC and USAREUR activities in August 1988. The AMC-E field war standing operating procedure, although in the staffing phase, was held in abeyance pending coordination with USAREUR on certain points resulting from the Commander's guidance. AMC-E's integration into theater wartime planning was further achieved by the designation of certain AMC facilities as activities critical to the war effort and therefore requiring USAREUR protection, relocation, or site hardening. AMC elements throughout theater were also instructed to make their transition and wartime host nation requirements known to their designated communities. All host nation requirements would be administered by 2lst TAACOM.

Intermediate-Range Nuclear Force (INF) Treaty

The INF treaty, previously discussed, generated much action and exposure for AMC-E. AMC-E, through its EMC-Hausen site, was charged with eliminating the Pershing II erector launchers in theater as part of the nuclear reduction agreement. Although eliminations were to begin in FY89, the planning, coordination and rehearsal inspections were conducted in FY88. Numerous rehearsal inspections were conducted in FY88 prior to actual baseline and elimination inspections by the Soviet inspection team. Elimination and destruction procedures were reviewed and implemented by the EMC-Hausen personnel. This brought the United States into compliance on destruction of the launchers, to the satisfaction of the Soviet inspectors. The public affairs responsibilities associated with this event, although challenging, were successfully met. Verification and elimination was to continue for 36 months.

Corporate Wellness Program

AMC-Europe initiated a "Corporate Wellness program" in FY88 with a three-phase approach. Phase I, Fitness Evaluation, was an initial monitoring of individuals by a health care team from the

130th Station Hospital. Confidential results and the recommendations for healthy lifestyles were presented by the Occupational Health Nurse. This phase was completed.

Phase II, Health Risk Appraisal Screening, called for a more intensive health assessment complete with demographic data and recommendations provided to the Commander concerning the total wellness of HQ AMC-Europe personnel, again keeping individual results confidential. Phase III, AMC-Europe Wellness Program, was to consist of remedial actions both by the individuals and the commander. The program would continue as an ongoing effort to foster more healthy lifestyles, thereby benefiting the individual and the command.

DCS for Resource Management

USAREUR/AMC MZAD Recycling Agreement. The USAREUR/AMC agreement on the recycling program at Mainz Army Depot was concluded on 31 December 1988. The agreement outlined management responsibilities for the program and detailed the distribution that would be made of proceeds from recycling materials generated at MZAD. The agreement ensured that at least 50 percent of the profits would go to support Morale, Welfare, and Recreation projects.

Development of Contracts Database. A 1983 DARCOM finding determined a need for HQ AMC-E to maintain a consolidated listing of AMC contracts in the European theater. An AMC quarterly report was developed to provide data from the Major Subordinate Commands in FY86. An automated data base was developed and data was loaded in February 1988. A revised quarterly format was developed and a request for an AMC report and form number was submitted to HQ AMC in December 1988. The new report format was sent to the MSCs for data input in December 1988.

Office of the Special Assistant for Joint Activities

The Office of the Special Assistant for Joint Activities was responsible for the AMC Commander's participation in the quarterly meetings of the Joint Logistics Commanders (JLC). Only three meetings were actually held in FY88 because the meeting normally held in October 1987 was instead moved to September of that year, in FY87. The meetings took place on 22-23 September 1987, 8-9 December 1987, 15-16 March 1988, and 15 June 1988. The September meeting was hosted by AMC at AMCCOM headquarters, Rock Island, Illinois, and the June meeting was hosted by AMC at the U.S. Army Center for Night Vision and Electro-Optics at Fort Belvoir, Virginia. Attending the meetings were the commanders of the primary logistics commands of the Army, Air Force, and Navy. The Marine Corps participated as a guest. In the December meeting it was decided to invite the Director of the Defense Logistics Agency to participate as an invited guest also, and he attended the meetings held after that date.

Topics

A wide variety of topics were discussed and actions taken at each of the meetings. Discussions were held on the briefings that were given and the other issues that were raised. A fuller discussion of the topics and issues can be found in the record memoranda completed after each meeting, a copy of which is maintained in the AMC Historical Office files, than in the following summations.[110]

[110] Joint Activities Office (AMCJO) FY88 AHR submission.

At the 22-23 September 1987 meeting, these areas were covered:

- Charter of 16 July 1987 establishing JLC Panel on Standardization
- JLC *Guide for the Management of Joint Service Programs*
- Defense Systems Management College increased acquisition training requirements
- Civilian Personnel Management
  - JLC Support for Civil Service Simplification Act
  - Disestablishment of Joint Panel on Civil Service Management
- Update of Joint Regulation on Joint Publications
- Depot Maintenance Interservicing (DMI)
  - Integration of joint service posture planning into source of repair decision process
  - Increasing DMI on regional basis
- Single Service Certification of Helicopter Transported Loads
  - Natick RDEC designated certifier for helicopter external transported loads
- Joint Directors of Laboratories
  - Combat Aircraft Cockpit Automation
  - Strategic Computing, including parallel processing on "Connection Machine"
  - Defense Science Board report
- Joint Ordnance Commanders Group
  - Insensitive Munitions review
  - Designation of 63 programs as joint
  - Production Base for Infrared Countermeasure Flares
  - Demil/Disposal Capability Catalog
  - Conventional Ammunition Renovation Documentation
  - MIL-STD1760A
  - Ammunition Inventory Records
  - 40mm Machine Gun program review completion
  - Critical Interoperability Survey completion
- Joint Commanders Group on Communications/Electronics
  - Microwave Landing Systems
  - Battlefield Lasers
  - Fiber Optics
  - Electronic Warfare Panels
  - COMSEC
  - National Air Space Plan
- Joint Aeronautical Commanders Group
  - Status report
  - Common Computer-aided Acquisition and Logistics (CALS) for LHX/ATA/ATF--Light Helicopter Experimental/Advanced Tactical Aircraft/Advanced Tactical Fighter
- Volatile Organic Compounds
  - Progress in reducing noncomplying paints and coatings
- Industrial Base
  - Joint Group Action
  - OSD strategy to strengthen industrial base
- War Resources Working Group on Global War Game, 1987
- Expedited Program Execution of Military Interdepartmental Purchase Requests (MIPRs)
- Justification and Approvals under Competition in Contracting Act (CICA)

At the 8-9 December 1987 JLC meeting the following areas were covered:

- Hazardous Waste - review of prior JLC actions
- Joint Group on Industrial Base
  - Policy conflict blocking implementation of past JLC recommendations for revision of DOD documents concerning Foreign Dependency
- Review of JLC Groups
  - SDI Technology
  - Laser Eye Protection
  - Depot Maintenance Interservicing
  - Industrial Base
  - Joint Panel on Physical Security
- Joint Ordnance Commanders Group
  - Insensitive Munitions - strengthened subgroup
- Joint Commanders Group-Communications/Electronics
  - Electronic Warfare, more aggressive JLC role
  - National Airspace Systems Plan and acquisition council recommendation
  - Microwave Landing Systems interoperability/commonality
- Joint Aeronautical Commanders Group
  - Cockpit Automation - coordination with Joint Directors of Laboratories
  - LHX/ATA/ATF CALS progress report
  - LHX/ATA/ATF Avionics - working group progress report
- Joint Directors of Laboratories
  - 1987 Defense Science Board Summer Study on Technology Base Management
- Joint Technical Coordinating Group on Calibration and Measurement
  - R&D Funding for New Measurement Technology
- Joint Panel on Standardization
- Hardware Performance Predictions for Combat Commanders in the Field
- JTCG-Logistics RDT&E Group
  - Rapid Acquisition of Spare Parts
  - Reliability and Maintainability in Computer Aided Design (RAMCAD)
  - Automated Technical Information/Computer Aided Acquisition and Logistics Support
  - Battlefield Materials Handling
  - Integrated Diagnostics
- Expedited Program Execution of MIPRs
  - Pursuit of near term solutions through memorada of understanding
- DLA Director included as invited guest on permanent basis

The following areas were covered at the 15-16 March 1988 meeting:

- Joint Policy Coordinating Group on Logistics RDT&E
  - Aggressive scheduling for Integrated Diagnostics Work Station
- Joint Group on Industrial Base
  - Bearings Forecast Study and recommendations update
  - Joint agreement on balance between organic and contract bearing refurbishment
- Joint Policy Coordinating Group on Computer Resource Management
  - STARS, Ada, SEI Consolidation
    - Recommendation to USD(A) for joint program approach
  - DOD-STDs on Software Development and Software Quality

Joint Directors of Laboratories
- Strategic Defense Initiative advantages/disadvantages to services
- Explosive Ordnance Disposal Robotics
- Electronic Warfare Program - coordination progress despite funding cutbacks

Joint Commanders Group on Communications/Electronics
- Fiber Optics
- COMSEC
- Battlefield Lasers
- Electronic Warfare - unfocused development, no commonality in definitions
- Serial Number Tracking Panel chartered

Joint Aeronautical Commanders Group
- Long-range plan to spot and exploit joint program potentials early on
- Aircraft Survivability - Joint Live Fire program innovations
- ATA/ATF/LHX/CALS Plan development completed

Joint Ordnance Commanders Group semiannual status brief
- Insensitive Munitions - coordination with Joint Requirements Oversight Council
- Group Organizational Structure consolidation
- MIL-STD-1760A Aircraft/Store Electrical Interconnection System implementation
- Conventional ammunition inventory records accuracy improvement actions

Joint Policy Coordinating Group on Depot Maintenance Interservicing
- Update and proposal for complying with 1988 Defense Appropriations Bill requirements on interservice and public/private competition of depot workloads

Volatile Organic Compounds (VOC)
- VOC group disestablished as noncompliant (hazardous) "operational unique" paint/coating specifications are cut from 161 to 34 with total solution in offing

DLA initiatives on contractor delinquencies
- JLC agreement to support initiatives in award process

Nondevelopmental Items (NDI) survey and establisment of ad hoc group on NDI

MIL-STD-1567A, Work Measurement, lack of progress in implementation

At the 17 June 1988 meeting the following subjects were covered:

Automation of MIL Handbook 300
- Air Force progress since 1983 toward increased visibility of support equipment

Industrial Preparedness - Item Selection indicator
- DLA model for selecting critical/essential items needing preparedness planning
- DLA management of consumable items on CINC Critical Items List

AFLC Contracting Initiatives review and need to standardize way contractor delinquency rates are determined

Joint Group-Industrial Base
- Industrial planning review of conflicting policy interests, foreign source dependency, and industrial mobilization capability

JLC Panel on Standardization update

Test and Evaluation Group
- Group's charter signed, tasked to review test facility support for EW

Joint Electronic Warfare Group
- Group's charter signed, tasked to review service POMs in EW area

JACG-Radar Warning Receiver alternatives study briefing

Past Performance in Source Selection
- AFSC initiative using annual assessments of gathered data reviewed

Aerospace Industries Association presentation of study findings that tax and acquisition policy changes from 1984 to 1987 threatened industry well-being and U.S. technological leadership

Depot Maintenance Group

- Depot maintenance candidate workload competition update
- Program Objective Summary 89, review of joint service depot maintenance posture
- Charter revision review and approval

Government/Industry Data Exchange Program, review of funding, program improvements, and service participation requirements

Defense System Management College

Tradeoffs between teaching Basic Defense Acquisition Course and Program Manager's Course (AMC concern for certification of Materiel Acquisition Manager's course as a BDAC equivalent)

Computer Resource Management Group

Need to interface with DARPA Interface on STARS, Ada, SEI

Chapter V

Security Assistance

International Logistics

Logistic support to the international community of allies and friends, primarily through the medium of Foreign Military Sales (FMS), continued in 1988. Its main agent in the U.S. Army was the U.S. Army Security Affairs Command, which included the project manager for Saudi Arabian National Guard Modernization (PM, SANG).

Also active in the field of international security assistance and formerly an element of USASAC, the Office of International Cooperative Programs, oversaw international programs dealing with research, development and associated topics. Its activities are covered within the chapter on material acquisition.

Organization

The U.S. Army Security Affairs Command (USASAC) is both a major subordinate command of AMC and, de facto, a staff element thereof as well. The commanding general of USASAC, Major General Thomas G. Lightner, who assumed command in June 1988, also held the staff position of Deputy Chief of Staff for International Security Partnerships.[111]

The change in commanding generals was due to the reassignment of MG Thomas W. Kelly (CG from August 1987 to January 1988) to fill the vacant position of J3, Operations, at the Joint Chiefs of Staff level, and the retirement of BG Walter W. Kastenmayer (CG from January to June 1988). The deputy commanding general (mobilization augmentation) position was established during this fiscal year and was filled by Colonel (Promotable) Robert L. Ruth. The USASAC deputy, a Senior Executive Service civilian, was Mr. Paul Donovan, who was also the Assistant Deputy Chief of Staff for International Security Partnerships.

Geographic centers of the command were unchanged: in Alexandria, Virginia; New Cumberland, Pennsylvania, and Riyadh, Saudi Arabia.

Directorates and offices located in Alexandria included three regional directorates (Europe, Mideast/Africa, and Asia/Pacific/Americas); the Policy, Plans and Operational Support Directorate; the Directorate for Resource Management; the Office for International Industrial Cooperation; and the Office of the Program Manager for Security Assistance Automation, Army. Also in the Alexandria location was the Training and Doctrine Command (TRADOC) Security Assistance Training, Washington Field Office, and the Washington Field Office of the Project Manager, Saudi Arabian National Guard (PM, SANG). Furthermore, the Training and Doctrine Command (TRADOC) had

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[111] USASAC FY88 Historical Submission. Hereafter, information in this chapter is from this source unless otherwise noted.

its Security Assistance Training, Washington Field Office colocated with the USASAC headquarters. Some 185 individuals were located in USASAC-Alexandria.

The New Cumberland element of USASAC, with 400 military and civilian employees, was headed by the Deputy for Operations, an O-6 position, filled by Colonel William C. Brown.

The New Cumberland organization reflected its operational orientation. Directorates and offices included the Europe/Africa Directorate, the Asia/Pacific/Mideast/Americas Directorate, the Directorate for Logistics Support, the Directorate for Product Assurance, the Security Assistance Support Directorate for Information Management, and the Egyptian Project Office. Some elements of the Resource Management Directorate were located in New Cumberland.

The element located in Saudi Arabia was the Project Manager, Saudi Arabia National Guard Modernization Program.[112]

Command Management Issues

At the close of FY87, under General Kelly, the mission and personnel of the Office of International Programs, which had been combined with the Security Assistance Center at the beginning of that fiscal year, was separated from USASAC and reassigned to HQ, AMC. This entailed the transfer of the Deputy for International Plans and Programs, the International Cooperative Research and Development Directorate, the Foreign Materiel and Technology Division, and the Standardization Groups in the United Kingdom, Germany, Canada, and Australia back to AMC to form the Office of the DCS of International Cooperative Programs.

Personnel staffing had become an issue in FY87 with studies undertaken by such organizations as the U.S. Army Manpower Requirements and Documentation Agency (USAMARDA) and the U.S. Army Management Engineering Activity (USAMEA). The USAMARDA survey, concluded on 17 July 1987, reviewed FMS activities throughout AMC, except for PM, SANG. Three hundred forty-one spaces were eliminated command-wide. USASAC submitted two reclamas to the reduction; the second one, sent to the Chief of Staff of the Army, requested restoration of 98 of the spaces. The request was approved on 25 March 1988, and the 98 spaces were distributed to MSCs. USASAC itself had lost 113 spaces by the survey; 30 of those, from the 98, were restored to the New Cumberland segment of the command.

Manpower and organizational changes recommended by USAMARDA resulted in the reorganization of the three Central Case Management Directorates at USASAC-New Cumberland to two directorates on 17 March 1988. Also recommended was the reorganization of the Systems Development Office. It was taken from the Security Assistance Support Directorate for Information Management and moved to the Directorate for Logistics Support. The Systems Development Office was combined with the Procedures Evaluation Division to form the Logistics Systems Support Division with two branches, the Evaluation Branch and the Systems/Procedures Branch, effective 30 August 1988.

New Concept for Foreign Military Sales

During the past year the Chief of Staff of the Army stressed the importance of the security assistance program as an essential instrument of our foreign policy. To obtain maximum benefits from

[112] See below for a summary of PM, SANG's activities.

the security assistance program, a new system of case management was developed by which major weapon systems could be fielded to foreign countries just as they were fielded for the U.S. Army.

This approach was designed to improve the responsiveness of the security assistance program, enhancing customer satisfaction.

The concept placed the primary responsibility for managing a major weapon system sale on the people who possess technical knowledge of the systems, i.e., the other AMC major subordinate commands. The responsible MSC was expected to coordinate procurement and other actions required during the execution phase of the program to ensure on-time delivery of all items and services within a reasonable expectation of the program's estimated price.

The new management system applied to the initial sale (first fielding) of 18 major systems, including two combat vehicles, three communications/radar systems, six missile systems, four aircraft, and three artillery systems.

Subsequent sales of a system already in a country's inventory would not normally fall under this new concept.

Implementation of Army centralized billing

During FY88, USASAC's major actions for the ongoing FMS Financial Management Improvement Program (FFMIP) included the SA3 (Security Assistance, Automation, Army) PBAS (Program Budgeting and Accounting System) interface, the automation of case management at the Army Commands, and the implementation of Army centralized billing. The most significant of these was the last.

As directed by FFMIP, USASAC-New Cumberland became the sole agent for reporting all Army FMS billing to the Security Assistance Accounting Center (SAAC). This meant all other Army commands as well as AMC MSCs. Centralized billing, which began in August, consisted of receiving, editing and validating all FMS billing transactions before sending them to SAAC.

USASAC-NCAD also became the single source of DD 1513 case data within the Army.

Automation

The Security Assistance Automation, Army (SA3) office supplied additional UNISYS mini-computers and Zenith PCs to the commodity commands and USASAC, as well as laptop PCs for use on travel. A computer-based SA3 training course was fielded to each of the commodity commands, and personnel at each command were trained as instructors.

Improved Communication

In order to enhance communications with Security Assistance personnel at DA level, regular meetings were initiated with the commanding general of USASAC and the Assistant DCSLOG, HQDA, Major General James R. Klugh. The meetings proved invaluable in decreasing any possibilities of misinformation or miscommunication occurring between the two levels within the Army security assistance community.

Bi-Monthly Bulletin

A bulletin to provide information to security assistance officers in the field was established in June 1987, but was not fully operational until December 1987, following the arrival of USASAC's first public affairs officer (PAO).

The *SAO Bulletin,* as it was named, provided a vehicle for USASAC's country program managers to communicate with those officials in U.S. embassies who deal with security assistance programs. Using information provided from policy, programs and operational personnel at both Alexandria and New Cumberland, as well as the security assistance elements at other MSCs, the Army Medical Materiel Agency, and other members of the SA community, the PAO edited and distributed the bulletin to desk officers for transmittal to the security assistance officers, as well as others interested in technical, procurement, maintenance and managerial developments.

Reliability Centered Maintenance

The program by which all major end items and secondary items in U.S. Army stocks are rehabilitated, Reliability Centered Maintenance (RCM), was not intended to rebuild materiel to like-new condition, as was once the case. A review by the USASAC Product Assurance Directorate determined, however, that the program may not meet the needs of FMS customers.

A study group recommended that foreign military sales should be exempt from the RCM program. The AMC Deputy Commanding General for Materiel Readiness was briefed on the study and stated the position that USASAC should pursue policy to control what FMS customers receive on reconditioned materiel deliveries.

This policy, formalized in November 1987, dictated that materiel supplied to FMS customers from overhaul will be rebuilt to pre-RCM standards. MSCs were to develop the procedure for intricate tear-down and reconditioning.

Programs Managed by the Office for International Industrial Cooperation (OIIC)

Munitions control. In FY88, 5,967 munitions cases were received and reviewed, with positions provided to DOD. Representatives from OIIC participated on the steering group for the High Technology Export Analysis and Control System for the 1990s (HI-TRAC 90), which will have a major impact on the process of reviewing export license applications and other means of technology transfer.

Coproduction. Three coproduction Memorandums of Understanding (MOUs) were concluded in FY88: Multiple Launcher Rocket System with Turkey; M109 howitzer with Switzerland; and Stinger, also with Switzerland.

The major project for the year was the preparation of the MOU for the M1A1 tank coproduction program with Egypt. In November 1987, the M1A1 was successfully demonstrated in Cairo, when U.S. government representatives met with their Egyptian counterparts to conduct exploratory discussions on the scope of programs and worksharing arrangements. Congressional notification was completed in May, and the MOU was formally released to the government of Egypt in August. It was not yet signed at the end of the fiscal year.[113]

[113] The MOU was eventually signed on 1 November 1988.

OIIC was also actively involved in developing and negotiating programs for the Hydra 70, Hawk, and UH-60 with Japan, M109 Howitzer Improvement Program with Israel, Modular FLIR Components with Germany and the Netherlands, and the M864 with the Netherlands.

Technology disclosure. Requisitions for 1,031 restricted and classified publications from 54 foreign countries were reviewed, involving coordination with 53 agencies and commands.

Fifty-nine technical data package releases for 19 countries were processed by this office. Thirteen packages allowed production in foreign countries. Forty were for operations and maintenance of systems previously sold. Nine requests were denied.

Quality Assurance Activities

Reorganization. The Directorate for Product Assurance was converted from a two-division directorate to a single directorate to enhance efficiency and effectiveness.

Liaison. Visits were conducted at MICOM, CECOM and TACOM to enhance the delivery and quality assurance and testing process for FMS materiel.

Deliveries. In FY88 the following deliveries were made:

- o 100 M48A5 tanks to Morocco.
- o Position and Azimuth Determining System AN/VSQ-70 to Turkey.
- o AN/TPQ-37 "Firefinder" Radar System to Saudi Arabia, Israel, China, Taiwan, Jordan and Egypt.
- o Ammunition/Guided Missiles to Chad, Bahrain, Cameroon, and Malawi.

Asia/Pacific/Americas Directorate

The Asia/Pacific/Americas Directorate managed cases with the following countries: Australia, Brunei, China, Fiji, India, Indonesia, Iran, Japan, Korea, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Taiwan, and Thailand in the Asia and Pacific regions, and Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Venezuela, Uruguay, and East and West Caribbean areas in the Americas.

Some of the more important activities in the Asia/Pacific region were as follows:

- o **China.** The Large Caliber Ammunition Modernization Program (LCAMP) involves setting up production lines to produce fuzes and detonators, as well as providing equipment and training. Two TPQ-37s were deployed in May, with two more on the case.
- o **India.** A delegation visited Fort Hood in May for briefings and showing of AN/APS-94F Side-Looking Airborne Radar.
- o **Iran.** A favorable finding by the World Court disallowed a claim of latent defect in Bell Helicopters.

o **Japan.** The Japanese program consisted mostly of coproduction of major systems as well as support through Blanket Open End and Cooperative Logistics Supply Support Arrangement cases. Japanese interest in coproduction of MLRS was very keen. While there has been receptiveness on the part of the U.S. government to the idea, no agreements were as yet reached.

o **Korea.** Hawk Phase I Product Improvement Program experienced problems due to unique employment factors, including terrain placement and manual mode operation of the the pulse acquisition radar. The Koreans claimed latent defects with the equipment. Mutual interference and Pulse Acquisition Radar (PAR) clutter were the main problems. A prototype fix, tested in June, seemed to satisfy the Koreans. The contractor, Raytheon, was involved with installation of modifications to radars through the end of the year.

o **Pakistan.** The government of Pakistan was dissatisfied with the overhaul of its second order of 100 tanks. Although the U.S. considered the M48A5 tanks to have met overhaul standards, as a good will gesture it offered to provide parts and assistance to Pakistan in an amount not to exceed $3.1 million.[114] The M1A1 tank was demonstrated to Pakistan. Although the demonstration was successful, debate within Pakistan concerned whether the country could afford to support the tank. A six-year plan was under development by Pakistan to reflect priority of requirements within available cash and credits. Pakistan received $260 million credits in 1988 of which $230 million was non payable. The DSAA had the lead.

o **Philippines.** Support to the Philippines continued to be a high priority. Deliveries of construction equipment, dump trucks, jeeps and cargo vehicles were accomplished during the year.

Eight helicopters belonging to the Philippines were overhauled at Corpus Christi Army Depot, Texas, then returned.

As a result of the coup attempt in August 1987, new emphasis was placed on troop-support items intended to improve the lot of the Philippine soldier. Natick Labs deployed a team in January 1988 to survey the ability to produce uniforms, boots and combat rations. Representatives from the Philippines came to Natick in June and visited vendors' facilities as well. Special approvals were obtained to permit FMS purchase of boots and uniforms to be made in-country according to U.S. specifications.

The thrust of the Philippine FMS program shifted to medical equipment communications and infrastructure improvements to sustain the large quantity of equipment shipped to the Philippines during the previous two years.

A key decision was made by the Philippine government to arm the civilian populace in outlying regions in order to defend against insurgent attacks. The U.S. agreed to provide carbines and rifles to support this effort.

o **Taiwan.** The Taiwan program continued to be the largest in the Pacific Theater, comprising approximately 40 percent of the FMS sales in that region. The test plan for the M48H tank program was agreed to in July 1988. The test period was projected for October 1988-April 1989. Other major programs include Hawk, Chaparral and TPQ-36 radar.

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[114] A team from Anniston Army Depot provided assistance in the October-November 1988 period and negotiations were continuing as to the parts required.

o **Thailand.** The Royal Thai Army was engaged in extensive operations along the Laotian border during much of the first half of FY88. Action by AMCCOM to expedite ammunition to Thailand was hailed by the Thai government and CINCPAC officials as a notable success. The USASAC program managers were cited by Admiral Hays for their efforts. The 40 M48A5 tanks being overhauled at Anniston Army Depot, Alabama for sale to Thailand were on schedule.

The more important activities in the Americas region are as follows:

o **Argentina.** The U.S. offered a program to assist in the restoration of operational readiness for armored personnel carriers and helicopters. An Army team presented LOAs, totalling approximately $13.2 million, in the fall of 1988 in Argentina. The program will be implemented in FY89.

o **Brazil.** The IMBEL (Brazil War Material Industry) program being worked in FY88 entailed potential sale of ammunition production equipment for single and double base powders, pyrotechnics and TNT.

o **Colombia.** Five Blackhawk helicopters were fielded in July. In February 1989, USASAC presented LOAs for five additional Blackhawks, 20 UH-1Hs and related support. Despite Colombian funding constraints for follow-on support spares, the program was extremely successful.

o **Costa Rica.** The Contractor Supported International Parts System (COSIPS) completed its first year. Successfully begun, a one-year option was exercised and ground work laid for a follow-on contract, pending the availability of funds.

o **El Salvador.** Significant deliveries to the country this year included three utility helicopters, four helicopter gunships (UH-1M), 96 Chevrolet pick-up trucks, and 768 metric tons of ammunition.

o **Guatemala.** Significant deliveries included 2 1/2 ton M35A2C trucks and AN/PRC-77 radios. The majority of Military Assistance Program (MAP) funds for FY86, 87 and 88 were used to purchase spare parts rather than major equipment.

o **Honduras.** FY88 deliveries totaled $25.9 million. Materiel delivered included 125 High Mobility Multi-purpose Wheeled Vehicles (HMMWVs), ammunition, demolition, rations and troop support items.

o **Jamaica.** The Hurricane Gilbert Disaster Relief program initially provided 10,000 cases of MREs and 4,200 water purification tablets, within seven days. A Presidential determination was signed on 26 October 1988, in accordance with Section 506A of the FAA. Supplies and services in the amount of $10 million were provided by 23 February 1989. Army materiel included construction, medical, communications, and subsistence items. Four no-cost lease UH-1H helicopters with support were also provided.

o **Panama.** Due to strained relations and in-country conflicts, the economic and military aid program to Panama was suspended in August 1987.

o **Venezuela.** An LOA was prepared and presented for eight UH-1H helicopters from excess MAP assets in Norway.

Activities of the Europe Directorate

Countries for which the Europe Directorate was responsible included Austria, Belgium, Canada, Denmark, Iceland, Ireland, Finland, France, Greece, Germany, Israel, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

The directorate was also responsible for FMS programs for the following organizations and programs: SHAPE, Supreme Headquarters Allied Powers, Europe; NACISA, NATO Communications Information Systems Agency; SACLANT, Supreme Allied Command, Atlantic; NAMSA, NATO Maintenance and Supply Activity; NAMFI, NATO Missile Firing Installation; PATRIOT weapon system; and SELPO, Secure Electronic Procurement Office.

The following activities occurred in FY88:

o **Germany.** Germany was a lead member of a European consortium with the Netherlands, Turkey, and Greece to produce the Stinger missile system. It had signed a pre-production MOU with General Dynamics that established a license agreement with a monthly royalty fee payment.

o **Italy.** An MOU for Patriot was signed in March. Under it, the U.S. will provide ground support equipment for 20 fire units and Italy will produce missiles/launchers under license with Raytheon. The estimated value of the program was $2.5 billion.

o **The Netherlands.** Holland initiated discussions for a major overhaul/modification program for 227 M109 howitzers.

o **Greece.** Greece was offered and had indicated its intent to accept an LOA for 500 Stinger missiles.

o **Luxembourg.** 31 HMMWVs were delivered to Luxembourg, with 38 scheduled to be delivered in FY89.

o **Portugal.** An LOA was signed and delivery was scheduled to begin in mid-FY90 for five launchers and 24 Chaparral missiles.

o **Spain.** Spain was offered and has indicated intent to accept an LOA for 50 Improved-Hawk missiles.

o **Turkey.** The tank modernization program in Turkey converted M48A5 tanks to the M48A5T1 and M48A5T2 configurations. To date, through FY88, more than 1,300 tanks were converted to the T1 configuration and more than 100 to the T2 version.

o **United Kingdom.** Both U.K. and Canada expressed interest in and were given technical, planning, and budgetary data on the M1A1 tank with the possibility of a Letter of Offer in FY89.

o **Israel.** AN/TPQ-37 (Firefinder radar) export model was fielded from Special Defense Acquisition Fund assets in May. Israel also completed its first battery Hawk Phase II upgrade from kits purchased under FMS. Completion of the program was expected in FY89.

Mideast/Africa Directorate

The Mideast/Africa Directorate was responsible for the country programs for Saudi Arabia, Jordan, Bahrain, Oman, Kuwait, the United Arab Emirates, the Yemen Arab Republic, Qatar, Algeria, Chad, Egypt, Morocco, Tunisia, Niger, Mali, Mauritania, Central African Republic, Kenya, Somalia, Zaire, and 16 other countries in Sub-Sahara Africa. Because of low funding allocations, a number of the African countries that relied on grant aid funding had little activity.

Activities of the directorate's Arabian Peninsula division were as follows:

o **Saudi Arabia.** Congress was notified of the Bradley Infantry Fighting Vehicle sale to Saudi Arabia in April 1988. This was the beginning of the Saudi Arabian Land Forces (SALF) $550 million Infantry Fighting Vehicle program, which consisted of 200 vehicles for delivery June 1990.

The SALF Army Aviation Command (SALFAAC) began a $350 million helicopter program that called for 13 UH-60 Desert Hawks, including one VIP aircraft, and 15 Bell 406 Combat Scouts.

SALF requested that an accredited liaison officer be allowed office space at AVSCOM and TACOM to assist with the large programs, with space to be paid from associated FMS cases.

SALF received 18 M198A2s in January, 19 M88A1s in February, 20 M113A2s and 12 M106A2s in March, and six AN/TPQ-76 radar units in June.

o **Oman.** Major General Abdul Alin visited USASAC in August. Eighteen TOW missiles were delivered to Oman that same month. Current monetary restrictions have reduced Omani expenditures on weapons.

o **United Arab Emirates (UAE).** UAE continuesd to upgrade its Hawk air defense system, which grew to five delivered batteries. One of the batteries was located at Fort Bliss, Texas for training of UAE personnel, another was deployed in the UAE; the remaining three were undergoing improvements.

o **Yemen.** Yemen requested an LOA for a language laboratory installation team. The LOA was expedited in October. Deployment of the team to Yemen was scheduled for November 1988. An LOA for cannon tubes for the M60A1 tank, M114A1 howitzer and 106mm recoilless rifle was expedited in October. An LOA for two consecutive technical assistance field teams was implemented in July. The teams were to establish a tactical training program for U.S.-equipped Yemeni units.

The activities occurring in the directorate's Mideast/Africa Division in FY88 included:

o **Central African Republic (CAR).** Five 2 1/2 ton trucks were received in July. Lessons resulting from delayed receipt were expected to be useful for future deliveries.

o **Kenya.** Continuing problems involved slow support for the MD 500 helicopter fleet and a delayed ammunition shipment. Support of the helicopter programs required constant long-range planning for funding and contracts.

After several attempts, lasting many months, to organize the ammunition shipment, the only remaining choice was to hire a dedicated ship at a flat rate in excess of $990,000, regardless of the volume of cargo, which resulted in a high unit cost.

o **Somalia.** International hostilities led Somalia to request an immediate supply of ammunition, medical supplies, and military equipment. After eventually finding a carrier for the ammunition, the U.S. representative in Somalia requested cancellation because the port of Berbera was in the zone of the hostilities. Because the shipment was booked, no refund was possible. The shipment proceeded anyway, with the hope and anticipation that upon arrival an open port would materialize.

o **Zaire.** Joint U.S.-Zaire exercises prompted repeated last-minute requests for parachutes and military clothing. Daily monitoring and interventions were necessary to meet the suspense dates.

The activities occurring in the directorate's North Africa Division in FY88 included:

o **Algeria.** The first Army FMS case for Algeria, written in 1987, was for 3,000 personnel parachutes. The parachutes were delivered in December 1988; follow-on support is currently being requested.

o **Niger.** The implementation of two FMS cases for two ambulances and one mobile dental clinic was significant to Niger. Delivery of the equipment in November 1988 was a nationally-televised event.

o **Tunisia.** In FY88, Tunisia made remarkable strides in upgrading its land forces. Twenty-five five-ton trucks which were among the major end items remaining to be delivered on the howitzer program were delivered, and an FMS case for 236 HMMWVs was implemented. A survey team was sent to evaluate the country's capability to upgrade/rebuild M48 tanks already in Tunisia. A program management review was held in Tunis in April 1988.

o **Egypt.** $1.3 billion in FMS credits in this fiscal year were earmarked for Egypt. In FY88, the U.S. Army implemented 45 cases worth $176.8 million. FY89 assistance was set to remain at the same level.

General Dynamics Service Company was in Egypt assisting in setting up the Zone Workshop, a depot level facility for tracked vehicles. An Army Program Management Office was established in Cairo in April to provide the interface between the Egyptian Army and General Dynamics. It appeared headed for completion in March 1989.

The Egyptian Armament Authority Computer Center opened in April 1988. The center was to be fully operational for cataloging and requisitioning by November 1988. The Center's goal was to provide the Egyptian Armament Authority with a modern logistics and FMS monitoring capability using state-of-the-art automation.

The Chaparral/TRACKSTAR Systems Integration Program conducted a successful firing in September 1988. Three fire units arrived in Egypt in July 1988. The remaining 18 fire units were scheduled to be shipped in December 1988 along with 100 missiles.

The Hawk Phase II PIP successfully started in June 1988 with the installation of the modification kits. The Air Defense Command elected not to participate in the Hawk missile upgrade program, but to purchase new missiles. A Hawk depot review was conducted in December 1987.

Sale of TOW II missiles, launchers and night sights was approved by Congress in mid-May 1988. FMS cases for 7,400 TOW II missiles and 180 TOW II launchers were provided to the Army of the Republic of Egypt (ARE) for its acceptance. Final signature was expected in November 1988.

The government of Egypt accepted an FMS case for two UH-60 helicopters with VIP configuration for use by the National Command. Delivery was set for October 1990.

A team of representatives from USASAC, PEO-CCV, TACOM and Watervliet Arsenal met with Egyptian government officials in November 1987 to discuss M1A1 Tank Coproduction worksharing arrangements, the program scope, and 120mm gun sublicensing. Congressional notification was completed in May 1988. A draft MOU released to the ARE in August 1988 was signed in November 1988. LOAs for the coproduction effort were accepted in December 1988.

o **Chad.** A series of expedited shipments of spare parts and air defense missiles supported the country's conflict with Libya. Significant major items requested included 1,543 I-TOW missiles, 10 TOW launchers, and 20 M998 cargo trucks (HMMWV). These items were on implemented FMS cases.

The first Army Program Management Review was held in April. It was considered quite successful in furthering mutual relations and resolving various logistics issues.

o **Morocco.** An FMS case for 100 M48A5 tanks was initiated in May 1988. Companion cases were prepared for a basic load of ammunition, training, and radios. Following a limited upgrade maintenance program at Anniston Army Depot, Alabama, all 100 tanks were delivered to the Morocco freight forwarder by September.

A case was also prepared for six M88A1 Medium Recovery Vehicles to support the tanks. Four vehicles were delivered as of September.

Project Manager
Saudi Arabian National Guard Modernization

Organization and Personnel

On 1 August 1988, BG Waldo D. Freeman, Jr. became the new Project Manager, Saudi Arabian National Guard (PM, SANG), vice MG William H. Riley. In his first meeting with BG Freeman in September 1988, the SANG commander, Crown Prince Abdullah Bin Abdul Aziz, expressed satisfaction

with past program managers and reaffirmed his commitment to the program.[115] COL Charles I. Smith, Deputy PM, replaced COL Martin C. Frey in June 1988.

From October 1987 to October 1988, the total civilian manpower authorization, including third country nationals (TCN) increased by 50 spaces while the military spaces remained constant.[116] As of 1 October 1987:

	OFF	ENL	GS CIV	TCN	TOTAL
Authorized	40	5	52	20	117
Assigned	32	5	77	29	143

(includes 52 overhires)

As of 30 September 1988:

	OFF	ENL	GS CIV	TCN	TOTAL
Authorized	40	5	99	23	167
Assigned	36	5	96	29	166

(includes 21 overhires)

In July 1988, the Training, Operations, and Logistics Division was reorganized to align it more closely with current programs and future initiatives. The Training Branch was split, a new Training and Schools Branch being made responsible for providing assistance and contractual supervision on National Guard Military School matters and a new Operations Branch doing the same for SANG operational units and staff agencies. The old Operations Branch was redesignated the Requirements Branch and its role was expanded from construction engineering and computer assistance to include force development, requirements analysis and development, and FMS case management.

Program

OPM continued to modernize the Saudi Arabian National Guard. Training not only continued in deployable units, but moved into the National Headquarters as well. Logistics functions progressed into automation, and establishment of a modern field medical program was begun.

Visits

In October 1987, the First Deputy Premier and Commander of the Saudi Arabian National Guard, HRH Crown Prince Abdullah Bin Abdul Aziz, was accompanied by the PM, MG Riley, on an official visit to the United States. The visit was at the invitation of the Vice President. The Prince met with President Reagan, Vice President Bush, and other key administration officials. The visit was considered very successful, reinforcing friendship between the two countries and increasing Prince Abdullah's visibility on the international political scene.

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[115] PM, SANG Quarterly Report, Jul-Sep 1988, p. 1.

[116] PM, SANG Annual Submission, p. 2. In AMC Historical Archives Call No. 65-PM SANG-88.

In September 1988, GEN Louis C. Wagner, AMC Commander, visited PM, SANG in Riyadh where he met with key Saudi Arabian officials. He toured the King Fahd National Guard Hospital and the OPM facilities.

Project Manager's Master Plan

The project manager's master plan (PMMP) addressed issues dealing with modernization of HQ, SANG, development and implementation of a combat medicine capability, organization and training of a field force signal unit, the development of National Guard military schools and logistics for SANG.[117]

Revision of the PMMP began in the 4th quarter. Whereas in the past the PMMP was a five-year plan providing for short- and intermediate-range goals, a longer outlook was being taken, one focusing on the ultimate capabilities desired for SANG. Completion of the revision was scheduled for the 1st quarter FY89.

Extension of the Vinnell Contract

The old contract with Vinnell Corporation to provide training and support to the SANG was to expire on 31 December 1987. OPM and SANG recognized a continuing need for Vinnell services through the period 1988-1990 and, at SANG's request, OPM prepared a contract extension for this period.

While the request for proposal to Vinnell was issued in May 1987, the contract negotiations took place in October 1987 and were concluded prior to the end of the calendar year. The extension provided for approximately 600 Vinnell personnel and $109 million over a three year period. SANG wanted a constrained contract to reduce costs and manpower. It was negotiated to provide the minimum acceptable level of support for logistics, training, and operations. However, it did contain several new undertakings, including HQ modernization, signal, and combat medical projects.

From a list of extensive requirements identified in the PMMP, SANG approved limited logistic support and brigade sustainment, limited National Guard Military School (NGMS) support, HQ SANG modernization, combat medicine requirements, the development phase of a chemical defense, and limited provincial assistance logistics advisory support.[118]

Training

During FY88 collective training was completed for the 8th Combined Arms Battalion, 2d Air Defense Artillery Battery, and 2d Engineer Company. Through the modernization effort, SANG had two complete modernized active duty brigades. In February, individual training began for the Field Force Signal Unit and in July for the SANG national headquarters. Despite severe SANG personnel shortages in the headquarters, training was expected to move to the collective stage in FY89.

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[117] Briefing on PMMP, revised 31 May 1988, in PM SANG Submission, op cit.

[118] PMMP briefing, op. cit.

Logistics

Logistical accomplishments included SANG's establishing the office of the G4 in the national headquarters. This was done to enhance SANG's capability to plan, oversee, and coordinate logistics operations, and was the result of a long-term effort on the part of OPM.

The Self Service Supply Center (SSSC) progressed from making "committee" directed purchases through the Joint Procurement Office (JPO) to utilizing basic ordering agreements (BOA) administered by a SANG logistical officer. This resulted in a significant decrease in the time required to get supplies on hand, and reduced SSC procurement costs by 65 percent.

Logistics automation was begun by developing, installing, and implementing the first increment of a logistics management program for repair parts and medical materiel.

A number of SANG's TDA-type logistics functions were civilianized. This reduced contractor support costs and also achieved more efficient use of limited military manpower. Vinnell assisted SANG in recruiting and hiring 175 Filipino technicians for the General Support Maintenance Unit (GSMU). Vinnell also provided all personnel, pay, and support services for the workers.

Field Medical Program

A limited medical program to train and field two medical companies and one ambulance company was incorporated into the contract for January 1988. Developmental work on the TOEs and curriculum by the contractor progressed in a satisfactory manner. In late August, the program was expanded, at SANG's request, to establish a medical school to field units and establish a future capability to train and provide medical technicians throughout SANG's medical services. This promised to be a much larger issue in FY89.

Dieselization

In May 1988, SANG signed an FMS case to contract for the conversion of over 400 gasoline-powered armored cars to diesel engines. As of the end of FY88, SANG received bids and, with the assistance of OPM, was in the process of selecting a contractor. OPM had responsibility for implementing the contract after the selection was made.

Funding

During FY88, $151.3 million was collected from SANG and deposited in the trust fund for open cases under the master FMS case (ZAC). Normal operations continued throughout the year with obligations being made in the following cases directly managed by OPM-SANG:

WEI	$ 33.1 million (Management)
WEJ	151.0 million (Training)
WEK	2.5 million (Freight forward)
WEN	.4 million (Spare parts)
WHA	15.5 million (Medical modernization)

As of 30 Sep 1988, the ZAC balance exceeded $163 million with additional deposits totaling $60 million expected by 30 January 1989.

Quality of Life Improvements

There were a number of utility projects begun in FY87 that were completed in FY88. These included the renovation of the existing power substation and the installation of new systems for water distribution, pressure, power distribution and street lighting, the enhancement of television and telephone systems, and the construction of a new 1,000 KVA power substation. Quarters renovations that had begun in 1985 were completed in August 1988.

New Initiatives

New initiatives promoted by OPM and accepted by SANG provided the rationale for the modernization program's continuation. The creation of the G4 and the initiation of a program for chemical defense development, both noted above, were two such major beginnings. By the end of September, the G4's office was manned and had begun functioning. Action Officers were reviewing chemical threats and establishing doctrine, and an equipment requirements analysis was in progress. In the closing weeks of the reporting period, steps were also being taken to begin modernizing forces that had not previously had involvement with the modernization effort. In FY89, this will consist of providing advice and assistance to the currently organizing Light Brigades, Provincial Logistics and Engineering Units, and, eventually, the irregular forces. Upon the completion of the PMMP revision, several more new initiatives were anticipated.

Field Training Exercise

SANG's annual FTX, this year coded Lion of the Peninsula 1408, was conducted in March. The exercise was planned, conducted, and controlled by SANG with advice and assistance from OPM and contractor personnel. The evaluation of the performance of the tactical units was primarily a SANG responsibility with advice and assistance from OPM. Overall, it was a successful endeavor, testing SANG's ability to operate over extended distances commanding and controlling almost 10,000 troops.

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GLOSSARY

A/AAMP	Army Armor/Anti-Armor Master Plan
A&T	Assignments/Terminations
A3MP	Armor/AntiArmor Master Plan
AAA	Army Audit Agency
AAE	Army Acquisition Executive
AAFES	Army and Air Force Exchange Service
AAP	Army Ammunition Plant
AATD	Aviation Applied Technology Directorate
AAWG	Army Armaments Working Group
AAWS/AMS-M	Armored Family of Vehicles, Advanced Antitank Weapon System/
AAWS-M	Advanced Antitank Weapons System-Medium
AAWWS	Airborne Adverse Weather Weapons System
ABCA	America, Britain, Canada, Australia
ACC	Architecture Control Committee
ACC	Army Commanders Conferences
ACOE	Army Communities of Excellence
ACP	Assault Command Post
ACPC	Arroyo Center Policy Committee
ACPERS	Army Civilian Personnel System
ACPERS	Army Chief of Staff for Personnel
ACPM	Aircrew Protective Mask
ADAPCP	Alcohol and Drug Abuse Prevention and Control Program
ADATS	Air Defense Anti Tank System
ADCS	Assistant Deputy Chief of Staff
ADEA	Army Development and Employment Agency
ADICP	Assistant Deputy for International Cooperative Programs
ADM	acquisition decision memorandum
ADP	automated data processing
ADPA	American Defense Preparedness Association
ADPE	automatic data processing equipment
ADSW	Active Duty for Special Work
ADVANCE	Army Data Validation and Netting Capability Establishment
AEARDA	Army Executive Agent for RDA Information
AEI	Armaments Enhancement Initiation
AEMS	Ammunition Executive Management System
AEMS	Ammunition Executive Management System
AERB	Army Educational Requirements Board
AFATDS	Advanced Field Artillery Tactical Data System
AFV	Armored Family of Vehicles
AIA	Army Information Architecture
AIF	Army Industrial Fund
AILSEC	Army ILS Executive Committee
AIM	Acquisition Information Management
AIMNET	Acquisition Information Management Network
AIR	Aviation-Acquisition Improvement Review
ALEX	AMC Library Expert
ALMC	Army Logistic Management Center
ALMC	Army Logistics Management College
ALMSA	Automated Logistics Management System Activity
ALT	administrative lead time
AMC	U.S. Army Materiel Command
AMC-MOPES	AMC Mobilization and Operations Planning and Execution System
AMCCC	AMC Commanders' Conference
AMCCOM	U.S. Army Armament, Munitions and Chemical Command
AMCIM	DCS for Information Management
AMCMEA	AMC Management Engineering Activity
AMCQA	Deputy Chief of Staff for Product Assurance and Testing
AMDF	Army Master Data File
AMHA	Army Management Headquarters Activities
AMMS	Acquisition Management Milestone System
AMP MOD	Army Materiel Plan Modernization
AMS	Army Management Structure
AMSAA	Army Materiel Systems Analysis Activity
AMTAS	Army Modernization Training Automation System
ANAD	Anniston Army Depot
AOAP	Army Oil Analysis Program
AOCs	Army Occupational Codes
AOD	Area Oriented Depot Modernization
APBMP	Ammunition Production Base Master Plan
APBMP	Ammunition Production Base Master Plan
APDS-C	Army Personnel Data System-Civilian
APG	Aberdeen Proving Ground
APGM	Autonomous Precision Guided Munition
APMA	American Productivity Management Association
APPA	U.S. Army Printing and Publications Agency
APPS	Automated Publications Production System
APU	Auxiliary Power Unit
ARDEC	Armament Research, Development and Engineering Center
ARE	Army of the Republic of Egypt
ARNG	Army National Guard
ARPMIS	Automation Resources and Planning Management Information System
ARPRO	Army Plant Representative Office
ARRS	Army Readiness Reporting System
AS	acquisition strategy
ASA (I&L)	Assistant Secretary of the Army for Installations and Logistics
ASA(RDA)	Assistant Secretary of the Army (Research, Development and Acquisition)
ASAP	Army Streamlined Acquisition Process

ASARC	Army System Acquisition Review Council
ASARDA	Assistant Secretary of the Army for Research, Development, and Acquisition
ASC	Advanced Storage Concepts
ASF	Army Stock Fund
ASIMS	Army Standard Information Management System
ASP	Army Suggestion Program
ASRP	Ammunition Stockpile Reliability Program
ATACMS	Army Tactical Missile System
ATC	Acquisition Tracking Center
ATCCS	Army Tactical C2 System
ATF	Ammunition Task Force
ATM	anti-tactical missile
ATRRS	Army Training Requirements and Resources System
ATTD	Advanced Technology Transition Demonstrator
AUTODIN	Automatic Digital Network
AUSA	Association of the United States Army
AVCRAD	Aviation Classification Repair Activity Depot
AVLB	Armored Vehicle Launcher Bridge
AVSCOM	U.S. Army Aviation Systems Command
AVTA	Armored Vehicles Technologies Associated
BATF	Biological Aerosol Test Facility
BBS	bulletin board system
BCE	baseline cost estimates
BCM	Basic Capability Module
BCM	Business Clearance Memorandum
BCR II	Battlefield Communication Review II
BCW	Binary Chemical Warhead
BDAR	Battlefield Damage Assessment and Repair
BDP	Battlefield Development Plan
BMAR	backlog of maintenance and repair
BOA	basic ordering agreements
BPRR	Budget Program Resource Review
BRDEC	Belvoir Research, Development and Engineering Center
BRL	Ballistic Research Laboratory
BZ	benzene
C/SCSC	Cost Schedule Control Systems Criteria
C2	Command and Control
C2I	command, control, and intelligence
C3I	command, control, communication, and intelligence equipment
CA	Computer Associates
CA	commercial activities
CAA	Clean Air Act
CAASO	Centralized Army Aviation Support Office
CADM	Cost Analysis Decision Making
CAIG	Cost Analysis Improvement Group
CALS	Computer-aided Acquisition and Logistics Support
CAM	Chemical Agent Monitor
CAMDS	Chemical Agent Munitions Disposal System
CAO	Contract Administration Office
CAPE	Customer Acquisition Plan Entry
CAR	Central African Republic
CARC	Chemical Agent Resistant Coating
CARRS	Cost Analysis Resource Reference System
CAS	Control Actuator System
CAWCF	Conventional Ammunition Working Capital Fund
CBRS	Concept-Based Requirements System
CCAD	Corpus Christi Army Depot
CCB	Configuration Control Board
CCI	controlled cryptographic items
CCSS	Commodity Command Standard System
CDA	Catalog Data Activity
CDA	Central Design Activity
CDMR	Cyclic Data Management Routine
CDS	Congressional Descriptive Summary
CDS	Child Development Services
CEA	Communications-Electronics Activity
CEL	civilian employment level
CENTCOM	Central Command
CER	cost estimating relationships
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERL	Construction Engineering Research Laboratory
CEV	Combat Engineer Vehicle
cfm	cubic feet/minute
CFR	Code of Federal Regulations
CG	Commanding General
CGRAB	Commanding General's Review and Analysis Book
CGS	Commander's Guidance Statements
CGSA	Commercial Generator Sets and Assemblies
CICA	Competition in Contracting Act
CICS	Customer Interface Control System
CIL	Critical Items List
CIM	Computer Integrated Manufacturing
CINC	Commander in Chief
CINCPAC	Commander in Chief, Pacific
CIP	Career Intern Program
CIP	Contractors Improvement Program
CK	cyanogen chloride
CLB	Columbia Lighthouse for the Blind
CLRP	Command Logistics Review Program
CLS	contractor logistics support
CMR	Contract Management Reviews
CNR	Combat Net Radio
COA	Comptroller of the Army
COB	Command Operating Budget
COE	Corps of Engineers
COEA	Cost and operational effectiveness analysis
COEMIS-PA	Corps of Engineers Management Information System - Personnel Accounting
COM	computer output micrographic
COMSEC	Communications Security
CONEX	Container Expresses
COOP	Continuity of Operations Plans
COSIPS	Contractor Supported International Parts System

(CP)2	Contractor Performance Certification Program
CPAS	Civilian Personnel Accounting System
CPC	Corrosion Prevention and Control
CPO	Civilian Personnel Office
CPX	Command Post Exercises
CRDEC	Chemical Research Development and Engineering Center
CRISP	Commercial Required Item Substitute Planning
CRSA	Contractors Requiring Special Attention
CRTC	Cold Regions Test Center
CS/CSS	combat support/combat service support
CSA	Chief of Staff, Army
CSDA-E	Central Systems Design Activity-East
CSDA	Central Systems Design Activity
CSDP	Chemical Surety Disposal Program
CSS	Combat Service Support
CTED	Civilian Training, Education, and Development
CTMP	CONUS Telephone Modernization Program
CUIL	Common User Item Lists
CUS	coherent unit set
CVC2	Combat Vehicle Command and Control
CVDOS	Combat Vehicle Defensive Obscuration System
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive Summary Report
DAIG	Department of the Army Inspector General
DAMPL	DA Master Priority List
DAP	Digital Autopilot
DAR	Defense Acquisition Regulation
DARPA	Defense Advanced Research Projects Agency
DASD	direct access storage device
DBA	Data Base Administrator
DBM	Data Base Manager
DCA	Defense Communications Agency
DCAA	Defense Contract Audit Agency
DCGICP	Deputy Commanding General for International Cooperative Programs
DCGMR	Deputy Commanding General for Materiel Readiness
DCGRDA	Deputy Commanding General for Research, Development, and Acquisition
DCS	Deputy Chief of Staff
DCSDE	DCS for Development, Engineering, and Acquisition
DCSLOG	DCS for Logistics
DCSOPS	DCS for Military Operations
DCSPER	DCS for Personnel
DCSRM	DCS for Resource Management
DCTN	Defense Communications Telephone Network
DDEP	Defense Data Exchange Program
DDSP	Defense Development Sharing Program
DEA	Data Exchange Agreement
DEPMEDS	Deployable Medical Systems
DERA	Defense Environmental Restoration Account
DESCOM	U.S. Army Depot System Command
DFD	Design for Discard
DIAP	Design Influence Action Plan
DIS	Defense Investigative Service
DISC	Defense Industrial Supply Center
DISC4	Director of Information Systems, Command, Control, Communications, and Computers
DISNET	Defense Integrated Secure Network
DKIE	Decontamination Kit, Individual Equipment
DLA	Defense Logistics Agency
DLSIE	Defense Logistics Systems Information Exchange
DMI	Depot Maintenance Interservicing
DMMP	dimethyl/methyl phosphonate
DMORS	Disposal Materiel On-line Requisitioning System
DMR	Data Management Routine
DMS	Diminished Manufacturing Source
DMWR	Depot Maintenance Work Request
DMZ	Demilitarized Zone
DOD	Department of Defense
DODAAC	DOD Activity Address Code
DODD	Department of Defense Directive
DODIG	DOD Inspector General
DOE	Department of Energy
DOIM	Director of Information Management
DOJ	Department of Justice
DOT&E	Director, Operational Test & Evaluation
DPEP	Defense Professional Exchange Program
DPG	Dugway Proving Ground
DSAA	Defense Security Assistance Agency
DSACS	Defense Standard Ammunition Computer System
DSARC	Defense System Acquisition Review Council
DSE	Decision Support Experimentor
DSMA	Decision Support Management Agency
DSREDS	Digital Storage and Retrieval Engineering Data System
DSS	Decision Support System
DSS/ALOC	Direct Support System/Air Line of Communications
DSS-W	Defense Supply Services of Washington
DSSP	Defense Standards And Specifications Program
DTC	Design to Cost
DTII	Development Test II
E&S	Engineer and Scientist
EA	Environmental Assessments
ECP	Engineering Change Proposal
ECR	Environmental Compliance Review
EDCA	Executive Director for Conventional Ammunition
EDT	enginering development testing
EDTIAR	Extended Duration Topical Insect/Arthropod Repellent
EEO	Equal Employment Opportunity

EEOO	Equal Employment Opportunity Officer
EMC	Environmental Management Committee
EMC	Equipment Maintenance Center
EMP	electromagnetic pulse
EMV/EMI	Electro-Magnetic Vulnerability/Electro-Magnetic Interference
EO	Executive Order
EO	Equal Opportunity
EOA	equal opportunity advisers
EOCM	Electro-Optical Countermeasure
EOD	Explosive Ordnance Disposal
EOH	equipment on hand
EOMIS	Equal Opportunity Management Information System
EOS	Effect on System
EPA	Environmental Protection Agency
EPA	Extended Planning Annex
EPIS	Environmental Projects Information System
EQD	Environmental Quality Division
ER	emergency response
ER	efficiency review
ERF	European Redistribution Facility
ERP	Environmental Restoration Program
ERPEB	Emergency Response Planning Executive Board
ESG	Executive Steering Group
EUSA	Eighth U.S. Army
EWAC	Electronic Warfare Advisory Council
EXCAP	Exercise Capability Program
EXCAP	Exercise Capability
FA	Functional Area
FAA	Functional Area Assessments
FAAD	Forward Area Air Defense
FAAD AOE	Forward Area Air Defense Army of Excellence
FAAD C2I	Forward Area Air Defense Command, Control and Intelligence System
FAAD NLOS	Forward Area Air Defense Non-Line-of-Sight
FAO	finance and accounting offices
FAR	Federal Acquisition Regulation
FASCAM	Family of Scatterable Mines
FAST	Field Assistance in Science and Technology
FAST	Fast, Accurate, Simple, Tempest
FAT	First Article Testing
FCFA	foreign currency fluctuation account
FCG	Functional Coordinating Group
FCRC	Federally Contracted Research Center
FEA	Front End Analysis
FEAP	Facilities Engineer Apprentice Program
FEDLINK	Federal Library and Information Center Network
FFCA	Federal Facility Compliance Agreements
FFMIP	FMS Financial Management Improvement Program
FME	Foreign Materiel Exploitation
FMGC	Force Modernization Guidance Committee
FMS	Foreign Military Sales
FOE	Field Operational Evaluation
FOE	Follow-on Evaluation
FOG-M	Fiber Optic Guided Missile
FOT&E	Follow-On Test & Evaluation
FOTL	Follow-On To Lance
FSD	full scale development
FTX	Field Training Exercises
FUE	First Unit Equipped
FVPDS	Fielded Vehicle Performance Data System
GAO	Government Accounting Office
GEMSS	Ground Emplaced Mine Scattering System
GM-MVO	General Motors Military Vehicles Operations
GO/SES	general officer/senior executive service
GOA	general operating agencies
GOGO	government-owned government-operated
GOSC	General Officer Steering Committee
GPLR	Government Purpose License Rights
GS	general schedule
GS	general support
GSA	General Services Administration
GSF	General Support Forces
GSMU	General Support Maintenance Unit
GW	groundwater
HARTS	Hardened Artillery Targets
HAZCON	hazardous conditions
HAZMIN	hazardous waste minimization
HC	hexacloroethene mix
HEAT	High Explosive Antitank
HF	High Frequency
HHA	health hazard assessment
HIMAD	High/Medium Air Defense
HISA	Headquarters Installation Support Activity
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMX	high melt explosive
HOD	Heads of Delegation
HOMES	Housing Operations Managment System
HQDA	Headquarters, Department of the Army
HRS	Housing Referral Survey
HSC	Health Services Command
HVM	Hypervelocity Missile
HW	hazardous waste
HWDMS	Hazardous Waste Data Base
I&SA	Installations and Services Activity
IA	Incentive Awards
IACOP	International Armaments Cooperative Opportunities Plan
ICAMP	Integrated Conventional Ammunition Maintenance
ICAP	Industrial Committee of Ammunition Producers
ICAPP	Integrated Conventional Ammunition Procurement Plan
ICBAD	Improved Chemical/Biological Agent Decontaminant

ICE	Inventory Control Effectiveness
ICUZ	Installation Compatible Use Zone
IDA	Institute for Defense Analysis
IDSS	Interoperability Decision Support System
IFF	Identification Friend or Foe
IG	Inspector General
IGA	Inspector General Activity
ILS	Integrated Logistics Support
IM	Insensitive Munitions
IMA	Information Mission Area
IMBEL	Brazil War Material Industry
IMCO	Information Management Control Officer
IMCSRS	Installation Materiel Condition Status Reporting System
IME	International Materiel Evaluation
IMIP	Industrial Modernization Incentives Program
IMMP	Information Management Master Plan
IMP	Information Management Plan
INF	Intermediate Range Nuclear Forces
INF	Intermediate Nuclear Forces
IOC	Initial Operating Capability
IOC	Initial Operational Capability
IOE	Initial Operational Evaluation
IOI	Interim Operating Instruction
IPAC	Inspection Planning and Advisory Committee
IPF	Information Processing Facility
IPF	Initial Production Facility
IPG	Issue Priority Group
IPO	Industry Preparedness Operations
IPP	Industrial Preparedness Planning
IPR	Intelligence Production Requirement
IPR	in-progress review
IPR	In-Process Review
IPS	Integrated Procurement System
IPT	Initial Production Test
IR&D/B&P	Independent Research and Development/Bid and Proposal
IRAC	Internal Review and Compliance
IRO	Inventory Research Office
IRV	Improved Recovery Vehicle
ISA	International Standardization Agreements
ISC	U.S. Army Information Systems Command
ISC-AMC	U.S. Army Information Systems Command-AMC
ISCB	Information Systems Control Board
ISEC	Information Systems Engineering Command
ISM	Information Systems Management
ISM	Improved Skill Management
ISSAA	Information Systems Selection and Acquisition Activity
ISSD	Image Systems Support Directorate
ISSDC	Information Software Support Development Center
IST	Institute for Simulation and Training
JACADS	Johnston Atoll Chemical Agent Disposal System
JAST	Japan Armaments Study Team
JCCO	Joint Container Control Office
JCS	Joint Chiefs of Staff
JLC	Joint Logistics Commanders
JOCG	Joint Ordnance Commanders Group
JOPES	Joint Planning and Execution System
JPCG	Joint Packaging Coordinating Group
JPO	Joint Procurement Office
KEM	Kinetic Energy Missile
JSTAR	Joint Surveillance and Target Attack Radar System
JTIDS	Joint Tactical Information Distribution System
LAN	local area network
LAO	Logistics Assistance Office
LAO-Europe	Logistics Assistance Office-Europe
LAPA	Logistics Assistance Program Activity
LAR	Logistic Assistance Representative
LBTS	Large Blast/Thermal Simulator
LCA	Logistics Control Activity
LCAMP	Large Caliber Ammunition Modernization Program
LCE	Logistics Capability Estimator
LDS	Lightweight Decontaminating System
LHX	Light Helicopter Experimental
LID	Light Infantry Divisions
LIF	Logistics Intelligence File
LIF	Layaway of Industrial Facilities
LOA	Letter of Agreement
LOGAMP	Logistics and Acquisition Management Program
LOGPARS	Logistics Planning and Requirements Simplification System
LOI	Letter of Instruction
LOS-F-H	Line of Sight-Forward-Heavy
LOS-F	line of sight-forward
LOS-R	line of sight-rear
LPSA	Logistics Programs Support Activity
LRC	Learning Resource Center
LRIP	Low Rate Initial Production
LRRDAP	Long Range Research and Acquisition Plan
LRSS	Long Range Stationing Study
LSA	Logistic Support Analysis
LSAR	Logistics Support Analysis Record
LSPR	Logistics System Program Review
LSSA	Logistics Systems Support Activity
LSV	Logistics Support Vessels
LTF	Lead-the-Fleet
LUPS	Logistics Unit Productivity Systems
MAA	Mission Area Analysis
MAB	Materiel Acquisition Base
MACOM	Major Army Command
MAISRC	Major Automated Information Systems Review Committee
MAIT	Mission Area Integration Team
MAM	Mission Area Manager
MAM	Materiel Acquisition Management
MAMP	Mission Area Materiel Plan
MANPRINT	Manpower and Personnel Integration
MAP	Military Assistance Program
MARB	Materiel Acquisition Review Board

MARTHA	(French acronym for a developmental C3I system for coordination of surface-to-air missiles and aviation assets)
MAS	Military Agency for Standardization
MASC	materiel acquisition system coordinator
MASS	Managing Analytical Support Services
MASS	Maintenance and Assembly Secure Storage
MATTS	Management of Targets and Threat Simulators
MAX	Maximum Army Expansion Model
MCA	Management Control Activity
MCB	Managing the Civilian Work Force to Budget
MCBD	Multipurpose Chemical/Biological Decontaminant
MCM	Materiel Change Management
MCR	Management Consulting and Research, Inc.
MCS	Maneuver Control System
MDEFD	Master Duplicate Emergency Files Depository
MDEP	Management Decision Package
MDRIII	Milestone Decision Review III
MDS	Modular Decontaminating System
MEA	Management Engineering Activity
MEA	Mobilization/Emergency Actions
MEDALOC	medical air line of communications
MEO	most efficient organization
MEP	Mission Equipment Package
MICOM	U.S. Army Missile Command
MILES	Multiple Integrated Laser Engagement System
MIM	Major Item Management
MIN	Mail Information Network
MIP	Model Installation Program
MIPRs	Military Interdepartmental Purchase Requests
MIR	management information requirement
MLRS	Multiple Launch Rocket System
MLRS-TGW	Multiple Launch Rocket System, Terminal Guidance Warhead
MMT	Manufacturing Methods and Technology
MMW	millimeter wave
MOC	management of change
MOI	memorandum of instruction
MOPES	Mobilization and Operations Planning and Execution System
MOPMS	Modular Pack Mine System
MOS	military occupational specialty
MOU	Memorandum of Understanding
MP	military police
MQS	Military Qualification Standards
MR	Materiel Release
MRDC	Medical Research and Development Command
MRR	Monthly Readiness Review
MRSA	Materiel Readiness Support Activity
MS-3	Manpower Staffing Standards System
MSC	major subordinate command
MSCR	materiel systems computer resources
MSDOS	Multi-System Disc Operating System
MSE	Mobile Subscriber Equipment
MSGL	Multi-Salvo Grenade Launcher
MSIP	Multi-Stage Improvement Programs
MTL	Materials Technology Laboratory
MTL/CTX	Materials Technology Laboratory/Corrosion Center of Excellence
MWO	modification work order
MWR	morale, welfare, and recreation
MZAD	Mainz Army Depot
NAAG	NATO Army Armaments Group
NAEDS	Nonaqueous Equipment Decontaminating System
NAF	non-appropriated funding
NAMSA	NATO Maintenance and Supply Agency
NARA	National Archives and Records Administration
NAVAIR	Naval Air Systems Command
NBC	Nuclear, Biological, Chemical
NBCRS	NBC Reconnaissance System
NC	Non-Construction
NCAD	New Cumberland Army Depot
NCP	Non-Conformance Penalty
NDI	Nondevelopmental Item
NEPA	National Environmental Policy Act
NET	New Equipment Training
NFFE	National Federation of Federal Employees
NGMS	National Guard Military School
NIAG	NATO Industrial Advisory Group
NIB	National Industries for the Blind
NICP	National Inventory Control Point
NISH	National Industries for the Severely Handicapped
NLOS	non line of sight
NOREP	Not Reportable
NPL	National Priority List
NRL	Navy Research Laboratory
NSA	National Security Agency
NSE	National Security Exemption
NSN	national stock numbers
NSNFS3	Non-Strategic Nuclear Forces Safety, Security And Survivability
NTC	National Training Center
O&O	Operational and Organization
OASA(I&L)	Office of the Assistant Secretary of the Army for Installations and Logistics
OB/OD	open burning and open detonations
OBCE	Operational Baseline Cost Estimate
OCLC	Online Computer Library Center
ODISC4	Office of the Director of Information Systems for Command, Control, Communications and Computers
ODP	Officer Distribution Plan
OEO	Office of Equal Opportunity
OICP	Office for International Cooperative Programs
OIIC	Office for International Industrial Cooperation
OJCS	Office of the Joint Chiefs of Staff
OLUS	On-Line-Update-System
OMA	Operations and Maintenance

OMB	Office of Management and Budget
OPA	Other Procurement Army
OPM	Office of Personnel Management
OPMS	Officer Personnel Management System
OPSEC	Operational Security
OPTEMPO	operating tempo
ORSA	Operations Research/Systems Analysis
OS	operating system
OSCAR	Outside Cable Rehabilitation
OSD PIF	Office of the Secretary of Defense Productivity Investment Funding
OSD	Office of the Secretary of Defense
OST	Order Ship Time
OTIIB	Operational Test IIB
OTSG	Office of The Surgeon General
P2NBC2	Physiological and Psychological Effects of NBC and Sustained Operations on Systems in Combat
P3I	Pre-Planned Product Improvement
P7S	Central Supply
PA	procurement appropriation
PA&T	Product Assurance and Testing
PAFS	Predictive Analysis Flagging System
PAR	Pulse Acquisition Radar
PARR	Program Analysis and Resource Review
PBAS	Program Budgeting and Accounting System
PBD	Program Budget Decision
PBG	Program Budget Guidance
PCB	polychlorinated biphenyl
PCDS	Procurement Congressional Data Sheets
PCI	Productivity Capital Investment
PCM	plug compatible machines
PCN	Product Control Number
PCR	Policy Compliance Review
PCS	permanent change of station
PDIP	Program Development Increment Package
PDM	Program Decision Memorandum
PDS-C	Personnel Data System - Civilian
PECIP	Productivity Enhancing Capital Investment Program
PEO	Program Executive Office
PERL	Prepositioned Equipment Requirements List
PIF	Productivity Improvement Funding
PIF	Productivity Investment Fund
PIP	Product Improvement Program
PLRS	Position Location Reporting System
PLS	Palletized Load System
PM TRADE	PM Training Devices
PM	program manager
PM-NUC	PM, Nuclear
PMCS	Preventive Maintenance Checks and Services
PMF	Patriot Missile Facility
PMIS	Program Management Information System
PMMP	project manager's master plan
PMO	Project Management Office
PMP	Program Management Plan
PMR	Procurement Management Reviews
PMS	Pedestal Mounted Stinger
PMSA	PM/Materiel System Assessment
PO	permanent orders
POM	Program Objective Memorandum
POMCUS	Prepositioning of Materiel Configured to Unit Sets
POP	Proof-of-Principle
PPBES	Planning, Programming and Budget Execution System
PREPO	Pre-Positioned
PRIDE	Production Review Integration Database
PRON	Procurement Work Order Number
PS&ER	Production Support and Equipment Replacement
PSR	Project Status Review
PTWS	Portable Transceiver Work Stations
PUDA	Pueblo Army Depot Activity
PVT	Production Validation Test
PWLF	Potential Workload Factor
QASAS	Quality Assurance Specialist (Ammunition Surveillance)
QDR	Quality Deficiency Report
QRIP	Quick Return on Investment Program
R/E	Retrograde/Elimination
R&A	Review and Analysis
RAAP	Radford Army Ammunition Plant
RAM	Reliability, Availability and Maintainability
RAMCAD	Reliability and Maintainability in Computer Aided Design
RASP	Rapid Acquisition of Spare Parts
RCM	Reliability Centered Maintenance
RCRA	Resource Conservation and Recovery Act
RCS	Requirements Control Symbol
RDA	Research, Development and Acquisition
RDAIN	Research, Development and Acquisition Information Network
RDAISA	Research, Development, Acquisition Information Systems Agency
RDE	Research, development and engineering
RDEC	Research, Development and Engineering Center
RDTE	research, development, test, and evaluation
RDTE, A	Research, Development, Test, and Evaluation, Army
RDX	research and development explosive
REACT	Reject and Reentry Correction Technique
RESPO 21	Respiratory Protection System 21
RFP	Request for Proposal
RIDB	Readiness Integrated Data Base
RIDB-TWG	Technical Working Group for RIDB
RMES	Resource Management Evaluation Survey
ROBOT-X	Rocket Powered Target
ROBUST	Redistribution of BASOPS/UNIT Structure within TDA
ROC	required operational capability
ROWPU	Reverse Osmosis Water Purification Units

RPMA	Real Property Maintenance Activities
RPPOB	Replenishment Parts Purchase or Borrow Program
RRAD	Red River Army Depot
RRCC	realignments, reductions, closures, and consolidations
RSCAAL	Remote Sensing Chemical Agent Alarm
RSI	rationalization, standardization and interoperability
RT	radio transmitter
S&TB	Science and Tech Base
SA	security assistance
SA3	Security Assistance, Automation, Army
SAAC	Security Assistance Accounting Center
SAEDA	Subversion and Espionage Directed Against the Army
SAIG	Secretary of the Army Inspector General
SAIMS	Selected Acquisition Information and Management System
SALF	Saudi Arabian Land Forces
SALFAAC	SALF Army Aviation Command
SAMS	Standard Army Maintenance System
SANG	Saudi Arabian National Guard
SAP	Special Access Programs
SAR	Selected Acquisition Report
SARA	Superfund Amendments and Reauthorization Act
SARDA	Secretary of the Army for Research, Development and Acquisition
SASC	Senate Armed Services Committee
SAT	Site Acceptance Testing
SBDP	Soviet Battlefield Development Plan
SCAN	Summary Command Analysis Notebook
SCARS	System Change Requests
SCCR	Supplemental Contractor Cost Report
SCIPMIS	Standard Civilian Personnel Management Information System
SCMR	special contract management review
SCOTT	Single Channel Objective Tactical Terminal
SCPE-P3I	Simplified Collective Protection Equipment Preplanned Product Improvement
SDC	Strategic Defense Command
SDK	Skin Decontamination Kit
SDS	Standard Data System
SE	scientific and engineering
SECDEF	Secretary of Defense
SEEP	Scientists and Engineers Exchange Program
SEMA	Special Electronics Mission Aircraft
SESAME	Selected Essential Item Stockage for Availability Method
SETAF	Southern European Task Force
SGS	Smoke Generator Set
SIAM	Standard Integrated Ammunition Management
SIMA	Systems Integration and Management Activity
SIMNET	Simulation Networking
SINCGARS	Single Channel Ground and Airborne Radio System
SIP	System Improvement Plan
SITREP	Situation Report
SKAP	Skills, Knowledge, Abilities and Personal Characteristics
SLEP	Service Life Extension Program
SMA	Subject Matter Assessment
SMCA	Single Manager for Conventional Ammunition
SOC	Survivability Overpack Container
SOF	Special Operations Forces
SOI	surety and operational inspections
SORTS	Status Of Resources and Training System
SPC	Statistical Process Control
SPODS	Seaport of Debarkation
SQL	Structured Query Language
SRA	separate reporting activity
SRF	Service Response Force
SRFX	Service Response Force Exercise
SRP	Stockpile Reliability Program
SRT	Special Reaction Teams
SSA	service support activities
SSEB	Source Selection Evaluation Board
SSSC	Self Service Supply Center
SST	Software Systems Technology, Inc.
STACOM	Standard Computer Output Microfilm
STAMIS	Standard Army Management Information Systems
STANAG	standardization agreement
STARS	Software Technology for Adaptable Reliable Systems
STCEUR	Science & Technology Center - Europe
STCFE	Science & Technology Center - Far East
STEPO	Selfcontained Toxicological Environmental Protective Outfit
STSWG	Soldering Technology Standardization Working Group
STTWG	Security and Technology Transfer Working Group
STU	Secure Telephone Units
SUPCOM	Support Command
SUPLCAM	Surveillance Program for Lethal Chemical Agents and Munitions
SWS	Sniper Weapon System
T&E	Test and Evaluation
TAA	Total Army Analysis
TAACOM	Theater Army Area Command
TACOM	U.S. Army Tank-Automotive Command
TAMMS	The Army Maintenance Management System
TAMP	Theater Aviation Maintenance Program
TAPA	Total Army Personnel Agency
TBM	Tactical Ballistic Missile
TC	Type Classification
TCC	telecommunication center
TCM	Teledyne Continental Motors
TDA	Table of Distribution and Allowances
TDP	Technical Data Package
TDR	training device requirement

TECOM	U.S. Army Test and Evaluation Command
TEDA	triethylenediamine
TEXS	Tactical Explosive System
TIWG	Test Integration Working Group
TLR/S	Total Logistics Readiness/Sustainability
TMDE	test, measurement, and diagnostic equipment
TMP	Theater Maintenance Program
TOCAM	The Optimum Cost Avoidance Methodology
TOD	Trade-Off Determination
TPFDL	Time Phased Force Development List
TPGID	Tank Precision Gunnery Inbore Devices
TQM	Total Quality Management
TRACE-P	Total Risk Assessing Cost Estimate for Production
TRADOC	Training and Doctrine Command
TROSCOM	U.S. Army Troop Support Command
TSCA	Toxic Substances Control Act
TSM	TRADOC Systems Manager
TTC	Tropic Test Center
TTCP	The Technical Cooperation Program
TVF	Tactical Vehicle Fleet
TWS	Transceiver Work Stations
UAE	United Arab Emirates
UCR	Unit Cost Report
UIC	Unit Identification Code
ULLS	Unit Level Logistics System
UMMIPS	Uniform Military Movement and Issue Priority System
USACEAC	U.S. Army Cost and Economic Analysis Center
USACTA	U.S. Army Central TMDE Activity
USADACS	U.S. Army Defense Ammunition Center and School
USAEHA	U.S. Army Environmental Hygiene Agency
USAF	U.S. Air Force
USAISC-AMC	Army Information Systems Command-Army Materiel Command
USAISSAA	U.S. Army Information Systems Selection Acquisition Activity
USAMARDA	U.S. Army Manpower Requirements and Documentation Agency
USAMEA	U.S. Army Management Engineering Activity
USAMMDA	U.S. Army Medical Materiel Development Activity
USASAC	U.S. Army Security Affairs Command
USATSG	U.S. Army TMDE Support Group
UST	Underground Storage Tanks
VCSA	Vice Chief of Staff, Army
VECP	Value Engineering Change Proposal
VENUS	Video Enhanced User System
VOC	Volatile Organic Compounds
VOLCANO	Multiple Launch Delivery System
VTC	video teleconferencing
WADS	Weapons Access Delay System
WAM	Wide Area Mine
WG	wage grade
WLACC	working level of ACC
WP	white phosphorous
WRAMC	Walter Reed Army Medical Center
WRF	Woodbridge Research Facility
WSMR	White Sands Missile Range
WSMTA	weapon system technical assessments
WWMCCS	Worldwide Military Command and Control System
XDB	Extended Data Base
YPG	Yuma Proving Ground

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