AD-A174 489 UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA IN/FA/AR)(U) ARMY CONCEPTS ANALYSIS AGENCY BETHESDA MD C L FRAME ET AL JUL 86 1/5

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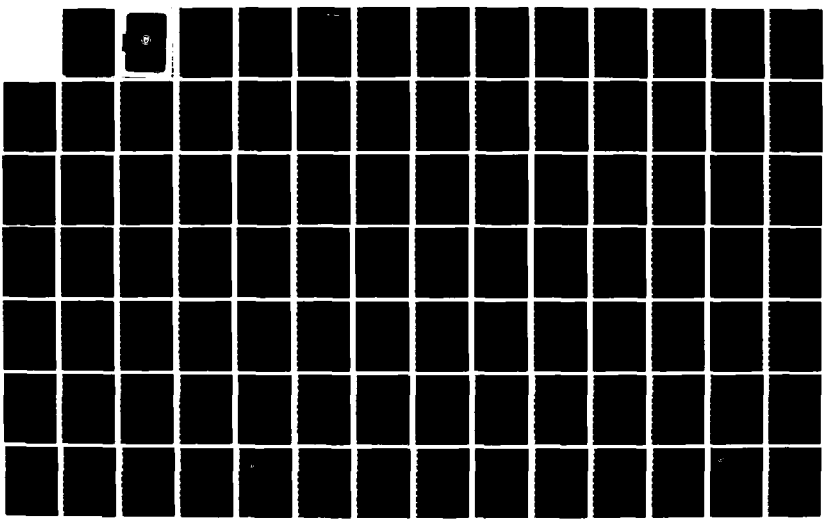

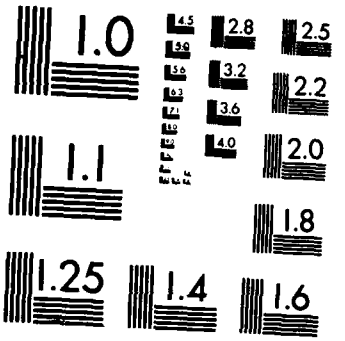

STUDY REPORT
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UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA IN/FA/AR)

JULY 1986

PREPARED BY
FORCE SYSTEMS DIRECTORATE
US ARMY CONCEPTS ANALYSIS AGENY
8120 WOODMONT AVENUE
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CAA

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STUDY REPORT
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UNIT REPLACEMENT SYSTEM ANALYSIS

INFANTRY/FIELD ARTILLERY/ARMOR

(URSA IN/FA/AR)

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

--In an effort to enhance the combat effectiveness of its units, the Army is developing and implementing a manning system which keeps soldiers together longer in units. The New Manning System (NMS) accomplishes this through two subsystems; the COHORT Unit Movement System and the U.S. Army Regimental System. The COHORT Unit Movement System fills personnel requirements in OCONUS combat arms units by the scheduled deployment of combat arms battalions on a programmed rotation or replacement cycle between CONUS and OCONUS. Concurrently,

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the U.S. Army Regimental System groups these units into regiments for the purpose of allowing recurring assignments to the same units and locations over the length of a soldier's career. The purpose of this study is to assess the sustainability of the NMS's COHORT Battalion Movement Plan for infantry, field artillery, and armor units operating within the U.S. Army Regimental System.

The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria while in the CONUS cycle. However, there are short periods during the OCONUS phase where some strength profiles are below the 90 percent floor. Positions in organizations other than the regimental battalions are known as extraregimental assignment (ERA) positions and were not initially affiliated with any particular regiment. Using a sequential linear goal programming model, this study distributed the extraregimental positions among the regiments to minimize the differences between career opportunities experienced by soldiers in different regiments. Average career patterns for armor and infantry soldiers in the regiments show very few differences regarding promotion opportunity, assignment type, assignment location, reassignment pattern, and turnaround time. However, there are some differences in the average career patterns for cavalry and artillery soldiers due to variations in authorization structures.

The personnel policies of the COHORT Battalion Movement Plan enhance stability within regimental units by restriction of assignments to and from those units to specific assignment windows. These policies thus restrict the access of both the units and the extraregimental assignment positions to replacements and therefore affect the personnel readiness indicators (total strength, NCO strength, and turnover rate) of all regimental organizations. The impact of these policies on the personnel readiness indicators of regimental organizations was analyzed by the simulation of the flow of individual soldiers through regimental assignments (both unit and ERA) by a computer simulation model developed for the URSA IV Study. The sustainability of the COHORT Battalion Movement Plan was thus evaluated in terms of the personnel readiness indicators of AR 220-1.

DEPARTMENT OF THE ARMY
US ARMY CONCEPTS ANALYSIS AGENCY
8120 WOODMONT AVENUE
BETHESDA, MARYLAND 20814-2797

REPLY TO
ATTENTION OF

24 OCT 1986

CSCA-FSP

SUBJECT: Unit Replacement System Analysis Infantry/Field Artillery/Armor (URSA IN/FA/AR) Study

Deputy Chief of Staff for Personnel
Department of the Army
ATTN: DAPE-MPU
Washington, D.C. 20310

1. Reference:

a. Letter, DAPE-PSB, 8 August 1985, subject as above.

b. Letter, DAPE-PSB, 21 February 1986, subject as above.

c. Letter, U.S. Army Concepts Analysis Agency, CSCA-FSP, 27 August 1986, subject as above.

2. The Unit Manning System Division of the Deputy Chief of Staff for Personnel requested that the U.S. Army Concepts Analysis Agency conduct a study to analyze the effects of large-scale battalion rotation in terms of unit readiness and individual career patterns. The study determined that large-scale battalion rotation is possible with little degradation in unit readiness. Individual career patterns were very similar for infantry soldiers, but varied for armor and artillery soldiers due to differences in authorization structures. Your critique of this study effort is included at Appendix I. All comments with the exception of 4 and 11 were incorporated into this report. These comments were based upon a misunderstanding of the internal workings of the model and the logic rules applied. Through mutual agreement with the sponsor, they were left unchanged.

3. This agency appreciates the support by all activities which contributed to this study. Questions and inquiries should be directed to the Chief, Personnel Systems Analysis Division (ATTN: CSCA-FSP), Force Systems Directorate, U.S. Army Concepts Analysis Agency, 8120 Woodmont Avenue, Bethesda, MD 20814-2797, AUTOVON 295-5289.

E. B. VANDIVER III
Director

CAA	UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA-IN/FA/AR)	STUDY SUMMARY CAA-SR-86-14

THE REASON FOR PERFORMING THIS STUDY was to assess the sustainability of the New Manning System's (NMS) Cohesion, Operational Readiness and Training (COHORT) Battalion Movement Plan for infantry, field artillery, and armor units operating within the US Army Regimental System. This study will assist the Office of the Deputy Chief for Personnel (ODCSPER) in its analysis of a unit movement plan for the NMS.

THE PRINCIPAL FINDINGS of the work reported in this study are:

(1) The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria while in the CONUS (Continental US) cycle; however, there are short periods during the OCONUS (outside US) phase where some strength profiles are below the 90 percent floor.

(2) Extraregimental assignment (ERA) pools are almost always maintained at or above the desired 70 percent strength level.

(3) Turnover patterns in rotating battalions demonstrate the concentration of turnover at predictable points in a unit's life cycle and a significant reduction in turnover between those points.

(4) The number of permanent change of station (PCS) moves are somewhat increased under the COHORT Battalion Movement System when compared to the Individual Replacement System (IRS).

(5) Average career patterns for armor and infantry soldiers in the regiments show very few differences regarding promotion opportunity, assignment type, assignment location, reassignment pattern, and turnaround time. However, there are some differences in the average career patterns for cavalry and artillery soldiers due to variations in authorization structures.

THE MAIN ASSUMPTIONS upon which this study is based are:

(1) The enlisted operating strength of each branch is the sum of the authorized enlisted positions of that branch. It is less than the programed branch enlisted end strength by the number of authorized enlisted positions in the Individuals Account.

(2) The available and operating strength of each unit is equal to its authorized strength for the purposes of allocation.

(3) The number of assigned soldiers by grade and military occupational specialty (MOS) is equal to the number of authorized positions by grade and MOS.

THE PRINCIPAL LIMITATIONS of the work are:

(1) Analysis is limited to enlisted personnel authorizations in career management fields (CMF) 11, 13, and 19.

(2) Only peacetime, steady-state personnel operations are considered for the Active Component force.

(3) Attrition and promotion rates for careerists are developed for each regiment to ensure compliance with the study assumption that each regiment will be manned by grade and MOS to its authorized level. Grade imbalances within individual regiments resulting from Army-wide attrition and promotion rates are not considered.

THE SCOPE OF THE STUDY is a steady-state analysis of the sustainability of the COHORT Battalion Movement Plan operating within the infantry, field artillery and armor regimental structures.

THE STUDY OBJECTIVES are to:

(1) Describe and compare the personnel readiness indicators of regimental units and ERA pools operating under the COHORT Battalion Movement Plan and the Individual Replacement System.

(2) Determine the differences in PCS moves between the COHORT Battalion Movement Plan and the Individual Replacement System.

(3) Describe the average career pattern for soldiers serving in CMFs 11, 13, and 19 under the COHORT Battalion Movement Plan.

THE BASIC APPROACH followed in the study is to define the ERA structures of the regiments by distributing ERA spaces among regiments using a sequential linear goal programing model. The personnel flow patterns within these regiments are then analyzed using a computer simulation model to assess the capability of regimental units and ERA pools to maintain prescribed personnel readiness levels while operating under specific personnel and unit movement policies.

THE STUDY SPONSOR is the Office of the Deputy Chief of Staff for Personnel.

THE STUDY EFFORT was directed, in turn, by LTC Charles L. Frame, LTC Richard V. Oehrlein, and MAJ(P) George Captain, all of Force Systems Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-FS, 8120 Woodmont Avenue, Bethesda, MD 20814-2797.

Tear-out copies of this synopsis are at back cover.

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UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA - IN/FA/AR)

CHAPTER 1

EXECUTIVE SUMMARY

1-1. PROBLEM. The manning of military units by the Individual Replacement System (IRS) creates high personnel turnover and detracts from the capability of the unit to achieve high standards of readiness. In order to reduce this turnover and to create a unit environment which encourages and permits the attainment of enhanced combat effectiveness through the realization of high personnel readiness standards, the Office of the Deputy Chief of Staff for Personnel (ODCSPER) has initiated the implementation, testing, and analysis of a battalion-level unit rotation system. The ability of this unit movement system to operate within the context of the US Army Regimental System and to achieve the objectives for which it was designed requires analytical evaluation so that the impact of implementation on the Army, individual units, and personnel might be ascertained.

1-2. BACKGROUND

a. The process by which the Army mans its TOE (table of organization and equipment and TDA (table of distribution and allowances) organizations has changed over the past several years with the development and implementation of a New Manning System (NMS). The objective of the NMS is to reduce the personnel turbulence associated with the Individual Replacement System by keeping soldiers together in units* longer. This, in turn, enhances the combat effectiveness of units through the development and sustainment of cohesive, thoroughly trained squads, crews, and sections.

b. Since its inception in 1981, the NMS and its two subsystems, the COHORT (cohesion, operational readiness, and training) Unit Movement System and the US Army Regimental System, have been evolving as a result of constant analysis and field evaluations designated to determine how best to sustain the NMS in Army-wide implementation. The COHORT Unit Movement System provides for units (instead of individuals) to move from a Continental United States (CONUS) duty station to locations outside the Continental United States (OCONUS). As a result of a July 1983 Vice Chief of Staff, US Army (VCSA) decision, linked battalions are being rotated between CONUS and OCONUS at 36-month intervals. This system is known as the COHORT Battalion Movement System (BMS). It is also referred to as the COHORT Battalion Movement Plan.

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*The use of the term unit(s) throughout this report refers to TOE organizations, usually at battalion level.

The second element of the New Manning System is the Regimental System which provides for the affiliation of each soldier with one regiment so that soldiers serve repetitive tours with the same people in the same units.

c. Since 1981 the US Army Concepts Analysis Agency (CAA) has conducted a series of studies to assist in the analysis and implementation of the NMS. The URSA I and URSA II Studies[2,3] evaluated the impact of a unit replacement/rotation system on the Army and compared several alternative rotation plans. URSA III[4] and the US Army Regimental Personnel Allocation Study (REPAST)[5] addressed problems associated with the partitioning of career management fields into regimental sets by the process of regimental affiliation. URSA IV[6] evaluated the impact of the BMS on armor and cavalry units. URSA-IN/FA/AR is a continuation of CAA's involvement in the Army's efforts to enhance the combat effectiveness of its combat units through the implementation of the New Manning System.

1-3. PURPOSE AND OBJECTIVES. The purpose of this study is to assess the sustainability of the New Manning System's COHORT Battalion Movement Plan for infantry, field artillery, and armor units operating within the US Army Regimental System. Specific objectives are:

a. Given a force structure with a fixed operating strength and a personnel system operating in a steady-state condition under the COHORT Battalion Movement Plan, describe the personnel readiness indicators of authorized armor, field artillery and infantry positions in units and in extraregimental assignment (ERA) pools.*

b. Given a force structure with a fixed operating strength and a personnel system operating in a steady-state condition under an individual replacement plan, describe the personnel readiness indicators of authorized armor, field artillery and infantry positions in units and ERA pools.

c. Compare the personnel readiness indicators of the two systems.

d. Determine the differences in permanent change of station (PCS) costs between the COHORT Battalion Movement Plan and the Individual Replacement System.

e. Describe the average career pattern for soldiers serving in the specified Military Occupation Specialties (MOSs) under the COHORT Battalion Movement Plan.

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*Extraregimental assignment spaces are those authorized spaces in organizations not assigned to regiments. ERA spaces include all TDA and all TOE spaces above battalion level.

f. Describe the regimental career patterns for the specified officers who serve company-grade, field-grade, and command tours in regimental units under the COHORT Battalion Movement Plan.

g. A study directive modification (see Appendix B) in a DCSPER letter, subject: URSA-IN/FA/AR, dated 21 Feb 86 made the following changes to the original objectives:

(1) PCS costs are changed to number of PCS moves.

(2) The officer career pattern objective has been deleted.

(3) An excursion is to be conducted in which the lock-in period of 6 months after rotation from OCONUS to CONUS will be relaxed for career soldiers provided they have met overseas tour length requirements and the minimum unit stabilization requirement of 48 months.

1-4. SCOPE AND LIMITATIONS

a. Only peacetime, steady-state personnel operations are considered.

b. Only the Active Component force specified by the sponsor is considered.

c. Only the armor, field artillery, and infantry regimental structures specified by the sponsor are considered.

d. Only personnel authorization documents specified by the sponsor are used. No increase in personnel authorizations are permitted.

e. Only enlisted personnel authorizations in Career Management Fields (CMF) 11, 13, and 19 are considered.

f. The unit movement system includes COHORT battalion movement, company movement, and individual replacement.

g. The rotation battalion long-tour life cycle consists of 36 months in CONUS followed by 36 months OCONUS.

h. The replacement company long-tour life cycle consists of 18 months in CONUS followed by 18 months OCONUS.

i. The replacement unit short-tour life cycle consists of 24 montns in CONUS followed by 12 months OCONUS.

j. Unit stationing is specified by the sponsor.

k. Regimental homebases are specified by the sponsor.

l. The allocation methodology developed during the URSA III Study[4] is used for distributing extraregimental positions. The simulation methodology developed during the URSA IV Study[6] is used as a basis and further refined.

m. The personnel readiness indicators are analogous to those defined in AR 220-1 (assigned strength percentage, senior grade percentage, and personnel turnover percentage).

n. Sustainability of the movement system is considered from the unit perspective in terms of personnel readiness indicators and PCS move comparisons and from the individual perspective in terms of career patterns.

1-5. TIMEFRAME. Current (1986).

1-6. ASSUMPTIONS

a. The enlisted operating strength of each branch is the sum of the authorized enlisted positions of that branch and is less than the programed branch enlisted end strength by the number of authorized enlisted positions in the Individuals Account.

b. The available and operating strength of each unit is equal to its authorized strength for the purposes of allocation.

c. The number of assigned soldiers by grade and MOS is equal to the number of authorized positions by grade and MOS.

1-7. STUDY APPROACH AND METHODOLOGY

a. The approach employed in this study is depicted in Figure 1-1. The methodology utilizes already proven models for both the allocation of extra-regimental spaces and the simulation of the flow of soldiers through the personnel system of a regiment. The allocation of ERA spaces is accomplished by use of the Personnel Space Allocation Model (PSAM), which was developed for the URSA III Study.[4] The personnel flow assessment is accomplished by use of the Personnel Flow Assessment Model (PFAM), which was developed for the URSA IV Study.[6]

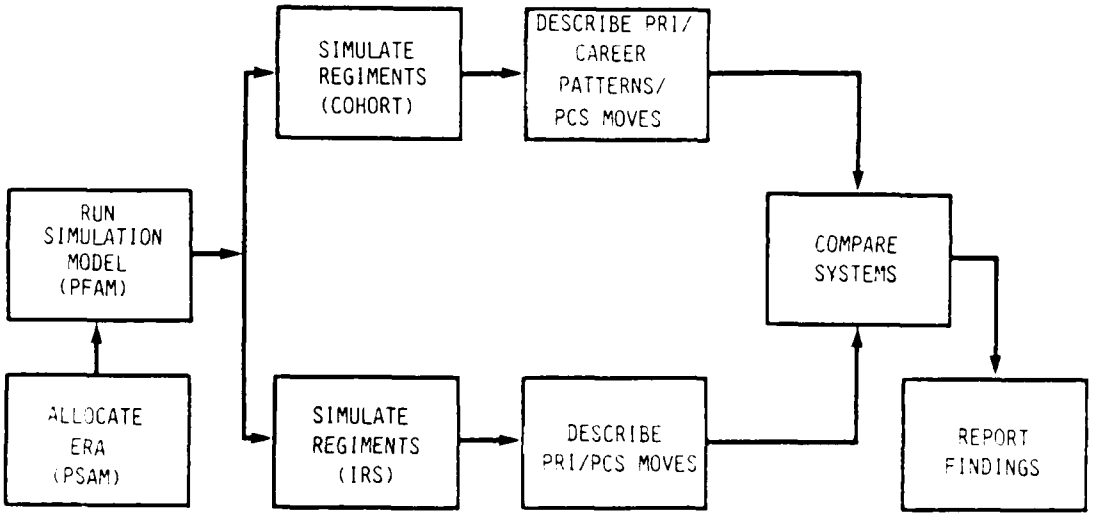

Figure 1-1. Methodology

b. At the study onset, the sponsor provided the infantry, field artillery and armor regimental structures and the enlisted personnel authorization documents in CMFs 11, 13, and 19. This input data is put into the proper format for PSAM, and the PSAM is operated to accomplish the ERA allocations for each MOS specified in the three CMFs. Results of these ERA allocations are used in the preparation of the authorization input data files for PFAM.

c. PFAM consists of the necessary personnel management processes required to move soldiers through the personnel system of a regiment. The model is operated twice for each regiment which has linked battalions that rotate.

Regiments are first run through PFAM using the Battalion Movement System (BMS), and then once again using the Individual Replacement System (IRS). Output data describing the personnel readiness indicators (PRI) of assigned strength, senior grade strength and turnover percentages and the number of PCS moves are provided on a regiment using first the BMS and then the IRS polices, and the two systems are then compared. In addition, individual career pattern statistics on soldiers in the regiments operating under the BMS are collected and compared.

1-8. SUMMARY OF FINDINGS AND OBSERVATIONS

a. Essential Elements of Analysis (EEA). The study is guided by four EEAs, as provided by the study directive (Appendix B). Summary answers to these questions are as follows:

(1) What are the strength profiles in regimental battalions and in ERA pools for both BMS and IRS? The policies of the COHORT Battalion Movement Plan for infantry, field artillery and armor maintain the unit strength profiles in rotating battalions at or above the specified minimum readiness criteria in the CONUS cycle. However, there are short periods during the OCONUS cycle where the strength profiles of some regiments are below the 90 percent floor. The Individual Replacement System always maintains the unit above the minimum readiness criteria. NCO strength is maintained above the minimum critera for both BMS and IRS. Extra-regimental assignment pools are almost always maintained at or above the 70 percent strength level.

(2) What are the turnover patterns in regimental battalions and ERA pools for both BMS and IRS? *Turnover patterns for rotating battalions* are concentrated at predictable points in a unit's life cycle with a lower reduction in turnover between those points when compared to the Individual Replacement System. ERA pools parallel the unit for both BMS and IRS.

(3) What are the differences in PCS moves between the COHORT BMS and IRS? PCS moves are somewhat increased under the COHORT BMS where compared to the IRS.

(4) What are the average career patterns in the BMS for armor, field artillery and infantry soldiers in terms of promotions, types of assignment, assignment location, destination upon reassignment from regimental unit, origin when reasigned to a regimental unit, and turnaround time? Each branch is addressed separately since there are differences:

(a) Armor/Cavalry. Average career patterns for soldiers in the armor regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from a unit, origin when assigned to a unit and turnaround time. However, for soldiers in cavalry regiments, a higher percentage are in unit assignments and there are wide variations in assignment locations due to differences in authorization structures.

(b) **Infantry.** Average career patterns for soldiers in the infantry regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from regimental units, origin when assigned to a regimental unit, and turnaround time.

(c) **Field Artillery.** Average career patterns for soldiers in the artillery regiments show few differences in promotion opportunity, assignment location and turnaround time but some differences do exist because of structural variations. Soldiers in divisional regiments have a higher probability of being assigned from one unit to another and, when arriving in a unit, an equal chance of having come from either a unit or an ERA. Soldiers assigned to corps regiments have a higher probability of being assigned from a unit to an ERA and, when arriving at a unit to have come from an ERA. As a result, a higher percentage of soldiers in divisional regiments are in unit assignments when compared to corps regiments.

b. **Summary of Observations.** Observations noted in this report include:

(1) Rotating battalions that have essentially the same structure show few variations in career patterns. Regiments with nonrotating battalions, either in CONUS or OCONUS, show wide variations in career patterns.

(2) Field artillery regiments show career pattern differences between divisional and corps artillery soldiers. Divisional soldiers average approximately 75 percent of a career in a battalion whereas a corps artillery soldier spends 20 to 55 percent. This is a result of both TOE structure and a majority of corps battalions being stationed OCONUS. As a result, corps regiments have large ERA pools to equalize turnaround time and promotions.

(3) Extraregimental assignment pools are always maintained at the 70 percent strength floor. The 70 percent strength floor for NCO authorizations could not always be maintained.

(4) The model does not take into account transients nor the length of travel time. Movements are made instantaneously. This could actually affect the unit strength and actually overstate it.

(5) NCO education is not addressed in the model. Assignments are only made to a unit or an ERA. NCOs will still have to attend schools on perhaps a TDY basis which would result in a reduction of unit readiness due to periodic absences of key supervisory personnel.

(6) Regimental homebases do not have enough ERA spaces to support alternating assignments.

(7) Time in grade for promotion was significantly extended in the simulations when compared to the DA averages. As an example, the time in grade for an E4 to be promoted to E5 is 24 months for the DA average and 43 months for average artillery soldiers in the regiments simulated. The extended times are due to the closed regimental system.

CHAPTER 2

THE REGIMENTS AND THE BATTALION MOVEMENT PLAN

2-1. INTRODUCTION. In order to understand the context within which the sustainability of the New Manning System's (NMS) unit movement plan was analyzed, it is necessary to become familiar with the two major subsystems of the NMS. These subsystems are the US Army Regimental System and the COHORT Battalion Movement System. Section I of this chapter presents a brief overview of the US Army Regimental System and a detailed description of the infantry, field artillery, and armor regimental structures developed and used during this study. Section II describes the COHORT Battalion Movement System and the primary personnel assignment policies that characterize the plan.

Section I. THE REGIMENTS

2-2. GENERAL

a. The New Manning System seeks to enhance the combat effectiveness of the Army's combat units through the development and sustainment of cohesive, thoroughly trained squads, crews, and sections. A key factor in the achievement of this goal is the Army's ability to keep soldiers and their leaders together longer in units by providing the individual soldier with stabilized assignments to the same units and locations on a recurring basis.

b. The concept by which the Army is striving to achieve recurring assignments for soldiers is the US Army Regimental System. With the initial implementation of this system, each of the Army's combat arms branches is organized into regiments, each of which is simply a grouping of like-type CONUS and OCONUS battalions. Each combat arms soldier is then affiliated with one of the regiments of his branch, i.e., each soldier in CMF 19 (armor) is affiliated with one of the armor regiments. Affiliation with a regiment means that a soldier will, under normal circumstances, serve all of his unit assignments with the battalions of his regiment.

c. Through the implementation of the US Army Regimental System and the affiliation of soldiers with specific regiments, individual soldiers are expected to experiencing recurring assignments with a relatively small circle of peers and leaders. This close association encourages the development of a cohesiveness and esprit within that group of individuals affiliated with each regiment. The identification of specific regimental structures and the affiliation of soldiers with these regiments is, therefore, the first step in the process of enhancing the Army's combat effectiveness.

2-3. THE TOE UNITS OF THE REGIMENTS

a. The TOE structures of the regiments used in this study were specified by the study sponsor. A DCSPER letter of transmittal[1] listed the approved regiments and their TOE units. The study sponsor also indicated which regiments have unit movement and specified the linked battalions that rotate with one another. There are other regiments that operate only under the individual replacement system.

b. It is understood that the armor CMF includes both armor and cavalry soldiers, and when referring to a specific regiment, the terms armor or cavalry will be used as appropriate. However, the term armor regiment is generally used throughout the report when referring to the block of regiments consisting of CMF 19 soldiers.

c. One other point is that, for the purpose of this study, infantry, artillery, and armor regiments consist only of the CMF 11, 13, and 19 positions respectively authorized in the TOE battalions. The support type MOS are not considered in this analysis. Also, one would expect that soldiers in the same CMF affiliated with different regiments would experience a wide variation in career opportunities. Fortunately, the severity of this problem is reduced by the judicious distribution of ERA spaces among the regiments.

2-4. THE ERA SPACES AND ALLOCATION

a. Extraregimental spaces are those authorized spaces in organizations not assigned to regiments. ERA spaces include all TDA spaces and all TOE spaces above battalion level. By properly allocating the specific CMF ERA spaces to the various regiments, and thus providing nonunit spaces in which soldiers affiliated with each regiment may serve, the differences in career opportunities experienced by soldiers in different regiments will be reduced.

b. The methodology used to allocate the ERA spaces was developed for the Unit Replacement System Analysis III (URSA III) Study conducted by this Agency and published in June 1983.[4] Spaces were allocated to regiments so as to minimize the enlisted career pattern differences among regiments in terms of:

- CONUS turnaround time
- Promotion opportunity
- Geographic proximity to regimental homebases
- Unit tour opportunity
- Short-tour opportunity
- Regimental size

A more complete discussion of this methodology may be found in Appendix D of this report. The following paragraphs will incorporate discussion and tables showing regimental strengths to include the ERA spaces.

2-5. THE INFANTRY REGIMENTS

a. Table 2-1 presents the authorized strengths of the infantry regiments as developed and used in this study. Notice that MOS 11B (infantryman) and 11M (fighting vehicle infantryman) have been combined into MOS 11Q, while 11C (indirect fire infantryman) and 11H (heavy antiarmor weapons infantryman) have been kept separate. Also, the only regiments listed are those that have some units that are scheduled to rotate with one another.

Table 2-1. Infantry Regimental Authorized Strengths after Allocation of ERA Spaces

Regiment	11Q[a]		11C		11H		Total
	TOE	ERA	TOE	ERA	TOE	ERA	
5 Cav[b]	1,668	958	136	162	220	76	3,220
6 Inf	2,926	1,236	238	516	385	141	5,442
7 Inf	1,688	939	136	94	220	76	3,153
8 Inf	2,088	783	170	218	371	174	3,804
9 Inf	2,328	991	264	169	114	22	3,888
12 Inf	1,616	766	136	226	348	116	3,208
14 Inf	1,664	568	176	87	76	11	2,582
15 Inf	2,099	849	170	82	275	119	3,594
16 Inf	1,668	958	136	94	220	76	3,152
17 Inf	1,552	674	176	116	76	21	2,615
18 Inf	1,764	5,674	136	1,381	220	461	9,636
21 Inf	1,552	511	176	88	76	11	2,414
22 Inf	1,552	463	176	88	76	11	2,366
27 Inf	1,570	462	176	88	76	11	2,383
41 Inf	1,668	958	136	172	220	76	3,230
87 Inf	1,590	1,182	176	184	76	37	3,245
325 Inf	1,604	1,553	176	88	384	618	4,423
502 Inf	2,340	2,483	444	446	150	614	6,477

[a] 11Q = 11B + 11M.

[b] Actually an infantry regiment.

b. Table 2-2 then further describes the distribution of authorized spaces by location for a sample infantry regiment--the 7th Infantry Regiment. The TOE units are listed first, followed by the five ERA groupings. Within CONUS, one ERA cell is always the regimental homebase followed by the last ERA cell that includes the remaining CONUS positions.

Table 2-2. 7th Infantry Regiment Authorized Spaces by Location

Unit/pool	Location	Authorized spaces			
		11Q[a]	11C	11H	Total
2-21 Inf	Ft Stewart	426	34	55	515
1-7 Inf	Germany	426	34	55	515
2-34 Inf	Ft Stewart	418	34	55	507
1-4 Inf	Germany	418	34	55	507
ERA	Germany	375	44	1	420
ERA	Other long tour	0	0	0	0
ERA	Short tour	71	5	12	88
ERA	Ft Stewart	0	0	0	0
ERA	Other CONUS	494	45	63	601
Regimental totals		2,627	230	296	3,153

[a]11Q = 11B + 11M.

2-6. THE FIELD ARTILLERY REGIMENTS

a. Table 2-3 presents the authorized strengths of the artillery regiments as developed and used in this study. Notice that MOS 13Q includes the following type cannon MOS: 13B (cannon crewmember), 13C (TAC FIRE operations specialist), 13E (cannon fire direction specialist), and 13F (fire support specialist); while MOS 15Q includes the following type missile MOS: 13M (MLRS crewmember), 15D (LANCE crewmember/MLRS sergeant), 15E (PERSHING missile crewmember), and 15J (MLRS/LANCE operator fire direction specialist). 13Y (cannon/missile senior sergeant) is included in 13Q or 15Q for the appropriate E-8 positions. Again, only regiments that have some units scheduled to rotate with other units are listed in Table 2-3.

Table 2-3. Field Artillery Regimental Authorized Strengths after Allocation of ERA Spaces

Regiment	13Q[a]		15Q[b]		Total
	TOE	ERA	TOE	ERA	
1 FA	2,018	548	--	--	2,566
3 FA	1,924	493	--	--	2,417
5 FA	1,490	276	--	--	1,766
7 FA	1,384	517	--	--	1,901
8 FA	2,274	2,027	--	--	4,301
14 FA	954	681	--	--	1,635
18 FA	1,257	3,670	--	--	4,927
26 FA	1,095	650	--	--	1,745
27 FA	--	--	1,288	1,139	2,427
29 FA	2,452	926	--	--	3,378
32 FA	--	--	688	3,247	3,935
41 FA	2,452	926	--	--	3,378
77 FA	1,308	553	--	--	1,861
82 FA	1,538	528	--	--	2,066
319 FA	768	831	--	--	1,599

[a] 13Q = 13B + 13C + 13E + 13F + 13Y.

[b] 15Q = 13M + 15D + 15E + 15J + 13Y.

b. Table 2-4 then further describes the distribution of authorized spaces by location for a sample artillery regiment--the 82d Field Artillery Regiment. This is a cannon type regiment (13 of the 15 artillery regiments are cannon type).

Table 2-4. 82d Field Artillery Regiment Authorized Spaces by Location

Unit/pool	Location	Authorized spaces, 13Q[a]
1-82 FA	Ft Hood	388
2-27 FA	Germany	388
1-77 FA	Ft Hood	381
2-6 FA	Germany	381
ERA	Germany	120
ERA	Other long tour	90
ERA	Short tour	20
ERA	Ft Hood	236
ERA	Other CONUS	62
Regimental totals		2,066

[a]13Q = 13B + 13C + 13E + 13F + 13Y.

2-7. THE ARMOR REGIMENTS

a. Table 2-5 presents the authorized strengths of the armor regiments as developed and used in this study. Because MOS 19E (M60 tankers) and MOS 19K (M1 tankers) were considered compatible and interchangeable and there are relatively few MOS 19Z (E-8s), these MOSs were combined into a composite MOS 19Q. Although the 12 regiments which are composed of only tank battalions have a small number of MOS 19D (scout) spaces in their TOE battalions, these 19D authorizations are included in the TOE spaces of the divisional cavalry regiments. The 12 armor regiments were therefore not allocated any MOS 19D ERA spaces.

Table 2-5. Armor Regimental Authorized Strengths after Allocation of ERA Spaces

Regiment	19D		19Q[a]		Total
	TOE	ERA	TOE	ERA	
8 Cav[b]	--	--	992	193	1,185
32 Arm	--	--	992	193	1,185
34 Arm	--	--	992	186	1,178
35 Arm	--	--	992	186	1,178
37 Arm	--	--	992	186	1,178
64 Arm	--	--	992	185	1,177
66 Arm	--	--	992	185	1,177
67 Arm	--	--	992	185	1,177
68 Arm	--	--	992	185	1,177
69 Arm	--	--	992	186	1,178
70 Arm	--	--	992	184	1,176
77 Arm	--	--	992	185	1,177
1 Cav	1,017	167	14	28	1,226
3 Cav	1,182	286	972	158	2,598
4 Cav	1,508	333	15	57	1,913
7 Cav	1,493	947	153	91	2,684
10 Cav	754	1,077	528	1,403	3,762

[a]19Q = 19E + 19K + 19Z.

[b]Actually an armor regiment.

b. Table 2-6 then further describes the distribution of authorized spaces by location for a sample armor regiment--the 34th Armor Regiment. As indicated by Table 2-5, the armor regiments enjoy a relatively simple structure. Each of the armor regiments has an equal number of authorized spaces in each of its TOE units. Also, the absence of authorized MOS 19D spaces contributes to the simple nature of the armor regiments' structure.

Table 2-6. 34th Armor Regiment Authorized Spaces by Location

Unit/pool	Location	Authorized spaces, 19Q[a]
1-34 Arm	Ft Riley	248
3-34 Arm	Germany	248
1-63 Arm	Ft Riley	248
4-69 Arm	Germany	248
ERA	Germany	21
ERA	Other long tour	0
ERA	Short tour	27
ERA	Ft Riley	0
ERA	Other CONUS	138
Regimental totals		1,178

[a]19Q = 19E + 19K + 19Z.

c. The regimental structures of the cavalry regiments, demonstrated by the five cavalry regiments shown at the bottom of Table 2-5, do not enjoy the same simplicity. In addition to having authorized spaces in two different MOSs, the cavalry TOE units vary in size, are generally located at different CONUS locations, and do not have simplified rotation schemes. Table 2-7 then further describes the distribution of authorized spaces by location of a sample cavalry regiment--the 1st Cavalry Regiment.

Table 2-7. 1st Cavalry Regiment Authorized Spaces by Location

Unit/pool	Location	Authorized spaces		Total
		19D	19Q[a]	
4-12 Cav	Ft Polk	138	4	142
1-1 Cav(-)	Germany	138	4	142
1-1 Cav(-)	Germany	61	1	62
2-1 Cav	Ft Hood	205	4	209
D/2-1 Cav(-)	Germany	7	1	8
Scout platoons	Ft Hood	120	0	120
Scout platoons	Ft Polk	86	0	86
Scout platoons	Germany	262	0	262
ERA	Germany	2	0	2
ERA	Other long tour	15	4	19
ERA	Short tour	28	2	30
ERA	Ft Hood	10	22	32
ERA	Other CONUS	112	0	112
Regimental totals		1,184	42	1,226

[a]19Q = 19E + 19K + 19Z.

2-8. REGIMENTAL STRUCTURE DESCRIPTIONS. Detailed descriptions of the regimental structures of a sample of all the infantry, field artillery and armor regiments are included in Appendix H of this report. It is within the context of these regiments that the sustainability of the COHORT Battalion Movement Plan was evaluated for this study.

Section II. THE COHORT BATTALION MOVEMENT PLAN

2-9. GENERAL

a. The COHORT Battalion Movement Plan is a battalion-level unit movement system through which OCONUS combat arms personnel requirements are filled primarily through the scheduled deployment of combat arms battalions on a programed rotation or replacement cycle between CONUS and OCONUS. The objective of this system is to significantly reduce the turnover caused by the constant movement of individual soldiers into and out of units being manned by the current IRS. Because not all unit personnel losses can be programed, the IRS will continue to supplement the COHORT Movement System as necessary. When implemented within the framework of the US Army Regimental System, the COHORT Battalion Movement Plan is intended to provide a more stable personnel environment within the Army's combat units and thereby contribute to the enhancement of combat effectiveness through the development and sustainment of cohesive, thoroughly trained squads, crews, and sections.

b. The COHORT Battalion Movement Plan is characterized by three types of units. These units are: (1) rotating units, (2) nondeploying units, and (3) replacing units. The life cycle model for each of these units incorporates the rules governing unit, first-termer, and careerist movement and stabilization policies. The life cycles are characterized by specific personnel actions occurring at programed critical points. Critical points include assignment windows for both first termers and careerists, periods of unit movement either to or from OCONUS locations, and periods during which predeployment checks are conducted. The movement and stabilization policies of the COHORT Battalion Movement Plan were developed through analysis and field evaluation since the initial concept of unit movement was first investigated in 1980. The remainder of this section will review the primary assignment and stabilization policies of this movement plan.

2-10. THE ROTATING UNIT LIFE CYCLE

a. The Battalion Rotation Model has a 72-month (6-year) life cycle based upon an exchange of linked CONUS and OCONUS battalions every 36 months. Each rotating battalion spends 36 months in CONUS, rotates to an OCONUS long-tour area for 36 months, and then returns to its original CONUS location to begin a new cycle.

b. The rotating unit life cycle, as described in the Battalion Movement Plan, is graphically presented in Figure 2-1.

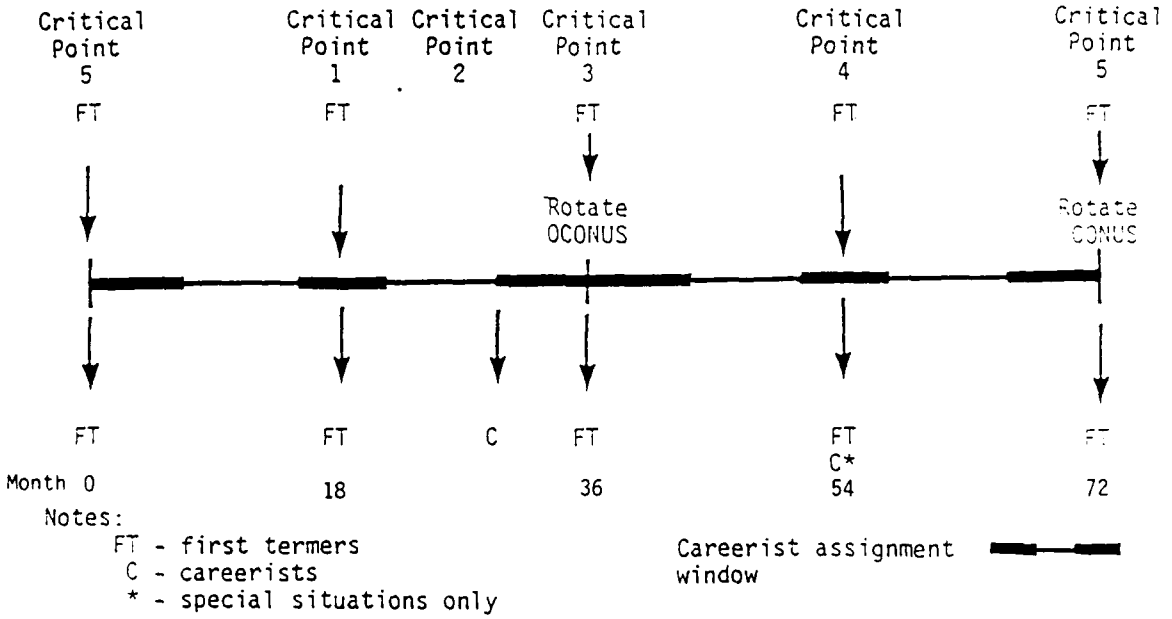

Figure 2-1. Rotating Unit Life Cycle, COHORT Battalion Movement Plan

(1) Under the policies of the plan, the rotating unit life cycle has two primary first-termer fill windows (Critical Points 1 and 4) and two first-termer "top-off" points at the unit rotation points (Critical Points 3 and 5).

(a) First-term soldiers are assigned to the battalion as a COHORT package at the midpoint of the CONUS phase of the cycle (month 18) and at the midpoint of the OCONUS phase (month 54). Since the usual enlistment period for first termers is 36 months plus the duration of initial entry training (IET), a package equivalent to 100 percent of the authorized number of first termers is required at each fill point to replace departing first termers from the previous fill. Those first termers who reach ETS (expiration term of service) and reenlist become careerists at Critical Point 2 and may or may not remain with the unit. First-term soldiers are stabilized in the unit for the duration of their initial enlistment.

(b) The addition of "top-off" first-termer packages at each rotation point allows for the replacement of first-termer attrition losses experienced since the primary COHORT fill package was received 18 months earlier. The rotation fill packages are structured to bring the unit to 100 percent fill of first termers and are, therefore, of variable size, i.e., dependent upon the losses experienced over the previous 18 months. Since first termers are still stabilized in the unit for 36 months, those who enter at the rotation points remain in the unit to the next rotation.

(2) Under the policies of the plan, there are four careerist fill windows of 9 months duration as indicated in Figure 2-1. Careerists are assigned to rotating units for a minimum of 48 months. Assignment of careerists during open assignment windows is in accordance with IRS policies. Individuals who have completed 48 months in the unit may depart if a valid requirement exists elsewhere in the regiment, and unit shortages are filled whenever appropriate replacements are available. No reassignments into or out of the unit are permitted during periods when the assignment windows are closed. Closed assignment windows exist for 6 months on either side of a rotation point and 3 months on either side of a first-termer reload point of the cycle. If, during periods when the assignment window is closed, the total unit strength drops below 90 percent, careerist assignments to the unit are made from available individuals so as to return the unit to the 90 percent level.

2-11. THE NONDEPLOYING UNIT LIFE CYCLE

a. Nondeploying units are of two types: nondeploying IRS units are manned only by the Individual Replacement System and have no distinguishable life cycles; nondeploying COHORT units are characterized by specific first termer and careerist assignment and stabilization policies and have a 36-month life cycle. As the name implies, nondeploying units remain at one location for the duration of their life cycle. Nondeploying units exist only in CONUS where they are formed, from zero strength, serve for 36 months, and are disestablished. The unit, once disestablished, is then immediately reconstituted to begin a new life cycle.

b. The nondeploying COHORT unit life cycle, as described in the Movement Plan, is graphically presented in Figure 2-2.

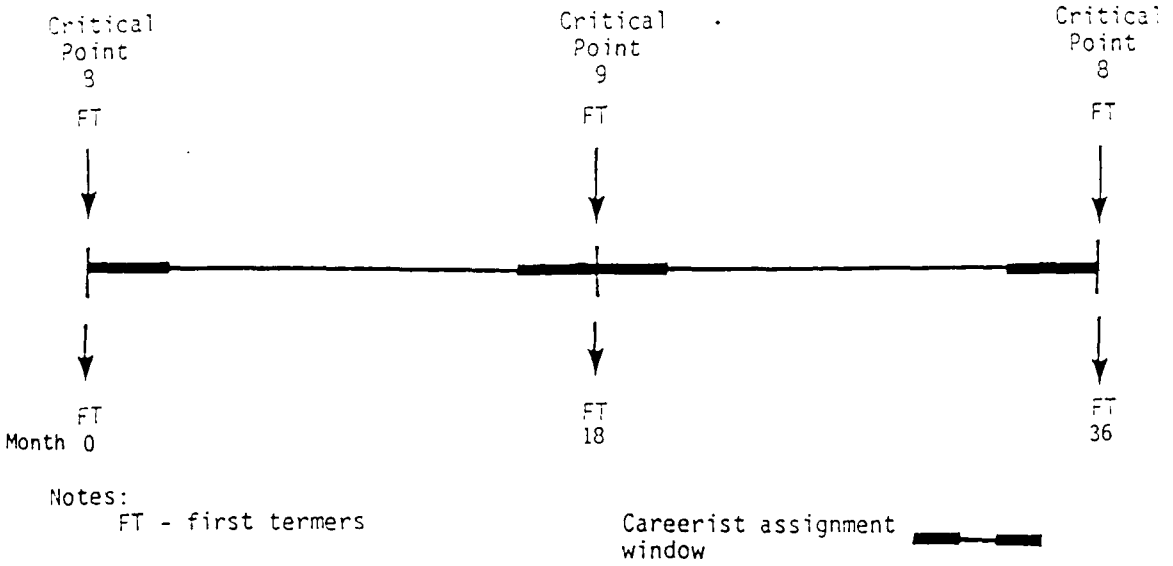

Figure 2-2. Nondeploying COHORT Unit Life Cycle, COHORT Battalion Movement Plan

(1) Under the nondeploying plan, first termers are filled to 100 percent of authorized strength at the beginning of the cycle (Critical Point 8) and are stabilized in the unit for 36 months. A first-termer "top-off" point (Critical Point 9) is added at the midpoint (month 18) of the unit cycle to allow for replacement of attrition losses. The first-termer "top-off" package is also structured to bring the unit to 100 percent of authorized first-termer fill, and this first-termer package is also stabilized for 36 months.

(2) Careerists are stabilized in this unit for 48 months, and may enter the unit during either of the two open assignment windows. Careerist assignment windows are closed for 3 months on either side of the first-termer reload points. Careerists, may however, be assigned into the unit during the closed windows if the unit drops below 90 percent of total strength.

2-12. THE REPLACING UNIT LIFE CYCLE

a. The Battalion Replacement Model has a 36-month life cycle based upon a one-way deployment from CONUS to an OCONUS short-tour (Korea) area. The battalion is formed in CONUS from zero strength, serves at a CONUS location for 24 months, and deploys to Korea for 12 months. At the end of its OCONUS service the unit is disestablished (i.e., brought to zero strength by the reassignment of all personnel) and is replaced at the OCONUS location by a 24-month old unit from CONUS. The disestablished unit is then reconstituted in its original CONUS location and begins another cycle.

b. The regimental structure under which the Battalion Movement Plan was analyzed contained only one replacement unit. The modeling changes required to incorporate the play of this replacement unit were extensive and could not be accomplished within the timeframe of this study. Therefore, an analysis of replacement unit policies was not accomplished. Most likely, the assignment and stabilization policies would be similar to those previously discussed. That is, first termers would be assigned to the unit at the beginning of the life cycle and at the time of deployment, and careerists would be assigned to the unit during established open assignment windows.

2-13. SUMMARY. The new manning system consists of two major subsystems, the US Army Regimental System and the COHORT Battalion Movement System. Combat arms soldiers are affiliated with one of the regiments of their branch and serve all their unit assignments with the battalions in that regiment. The COHORT Battalion Movement System is the method by which OCONUS combat arms personnel requirements are met primarily through the scheduled deployment of battalions on a programed rotation or replacement cycle between CONUS and OCONUS.

CHAPTER 3

STUDY METHODOLOGY

3-1. INTRODUCTION. The purpose of this chapter is to provide a general description of the methodology employed in the URSA-IN/FA/AR Study. A brief description of the problem requiring solution and the approach used in solving the problem will be followed by a discussion of the major tasks involved in the execution of the methodology. More specific descriptions of the computer models used in URSA-IN/FA/AR are presented in Appendices D and F.

3-2. PROBLEM

a. The manning of military units by the Individual Replacement System creates high personnel turnover and detracts from the capability of the units to achieve high standards of readiness. In order to reduce this turnover and to create a unit environment which encourages and permits the attainment of enhanced combat effectiveness through the realization of high personnel readiness standards, the Office of the Deputy Chief of Staff for Personnel has initiated the implementation, testing, and analysis of a battalion-level unit rotation system. The ability of this system, known as the COHORT Battalion Movement System, to operate within the context of the US Army Regimental System and to achieve the objectives for which it was designed requires analytical evaluation so that the impact of its implementation on the Army, its units, and its personnel might be identified. The purpose of URSA-IN/FA/AR is to conduct this analysis.

b. The specific analytical problem addressed by URSA-IN/FA/AR encompasses two separate, but related, subproblems. The first of these is to completely define the regimental structure in which the Movement Plan will be evaluated. This involves the allocation of extraregimental spaces to the regimental structures. The second problem is to assess the impact of the Battalion Movement Plan and its associated personnel policies on the units and personnel in a regimental structure. This assessment is focused on the sustainability of the movement system in terms of the AR 220-1 personnel readiness indicators (total strength, NCO strength, and turnover) of the TOE units and of non-TOE organizations operating under the movement plan. In addition, the average career patterns of soldiers of the same MOS affiliated with different regiments are investigated under the Battalion Movement System.

3-3. APPROACH. The approach adopted for the solution of the problem is depicted in Figure 3-1. It utilized an already proven methodology for the allocation of extra-regimental spaces, and also makes use of a computer simulation model in assessing the impact of the movement plan on personnel flows in regiments. The allocation is accomplished by the use of the Personnel Space Allocation Model (PSAM), which had been developed for the URSA III Study. The flow assessment is accomplished by use of the Personnel Flow Assessment Model (PFAM), which had been developed for use in the URSA IV Study.

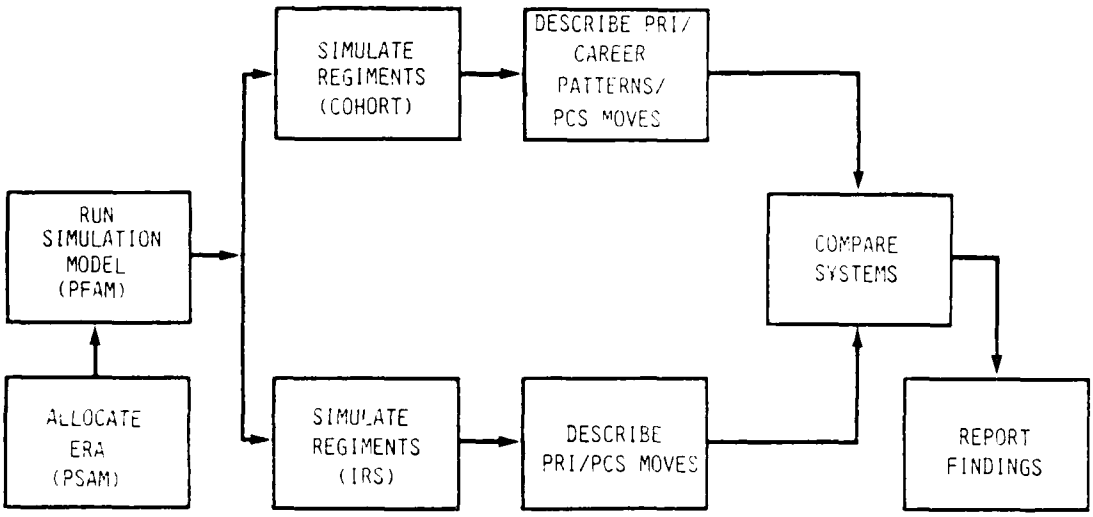

Figure 3-1. Study Methodology

3-4. EXECUTION OF THE METHODOLOGY. Each of the primary tasks involved in the completion of the study is discussed below.

a. Allocate ERA. Prior to executing PSAM, the study sponsor provides a listing of the regimental structures and a tape of the total authorizations for the appropriate career management field (CMF). The regimental structure lists the regiments with their battalions, and the rotation scheme of such units. The authorizations tape for a CMF lists all the authorizations--TOE and TDA types. This information is reformatted and adapted for PSAM use. PSAM is then executed so that all ERA jobs are properly allocated to all of the regiments. Appendix D provides an extensive description of PSAM and the specific manner in which the model allocates a fair share of the ERA spaces to each of the regiments.

b. Run Simulation Model (PFAM)

(1) PFAM is a computer simulation intended to assess the flow of personnel in a regimental system. It consists of a series of subroutines each of which accomplishes specific personnel actions (i.e., produce new recruits, promote soldiers, reassign soldiers, etc.). The Queueing Systems - Graphical Evaluation and Review Technique (Q-GERT) network is a control mechanism that directs and times the specific personnel actions of PFAM. More detailed information on both PFAM and Q-GERT can be found in Appendices E and F.

(2) Two PFAM input data files are required for each of the regiments with battalion rotation. One file provides necessary data with which to simulate operation of the regiment's personnel system under the policies of the COHORT Battalion Movement System, and the other provides data for operation under the policies of the Individual Replacement System. The data input files depict the regimental structure, unit descriptions, movement plan and the model parameters. Annex I to Appendix F contains a summary description of each input data element.

c. Simulate Regiments (COHORT and IRS). Each regiment with some unit rotation is run through the PFAM simulation. A specific regiment is first run through the PFAM using the Battalion Movement System and then once again using the Individual Replacement System. A total of 33 regiments were run through PFAM and analyzed. This report presents the results of a representative sample of these regiments, which includes three armor, two cavalry, five infantry, and five artillery regiments. The results pertaining to the other regiments are not included since they essentially parallel the results of the reported on regiments.

d. Describe Personnel Readiness Indicators/PCS Moves/Career Patterns

(1) The personnel readiness indicators (PRI) used in this study are analogous to those described in AR 220-1--that is, assigned strength percentage, senior grade percentage, and personnel turnover percentage. The output data from a PFAM run is converted to graphical output in these three PRI areas for both the COHORT BMS and the IRS. Assigned strength percentage and senior grade percentage are just the inventory of unit strength and NCO strength divided by unit authorizations and NCO authorizations, respectively, over time, while turnover is the sum of the last three months' losses from the unit divided by the present month's total unit strength.

(2) PCS moves are totaled by month for a regiment using both the COHORT BMS and the IRS policies.

(3) Individual Career patterns are analyzed for soldiers of the same MOS in different regiments operating under the COHORT BMS. Thus, statistics are collected on such soldiers in the following areas:

(a) Promotions

(b) Types of assignments (unit vs ERA).

(c) Assignment locations (CONUS vs OCONUS).

(d) Destination upon reassignment from COHORT unit.

(e) Origin when reassigned to COHORT unit.

(f) Turnaround time.

e. Compare Systems

(1) Comparisons are made in three main areas. First, the personnel readiness indicators discussed in the previous paragraph are compared between the BMS and the IRS; that is, the graphical output for a regiment on assigned strength percentage, senior grade percentage, and personnel turnover percentage is compared, using first the BMS and then the IRS policies. Second, the number of PCS moves per month for a regiment are compared, using first BMS and then IRS. Both the PRI comparisons and PCS move comparisons deal with unit sustainability issues.

(2) Career patterns for individuals are compared for soldiers in the same MOS in different regiments using only the 3MS policies. Career pattern data includes promotion data, assignment type, assignment location, destination after leaving unit, origin upon unit arrival, and turnaround time. Data is collected on such statistics for soldiers in a regiment, and this is compared to data collected on soldiers of the same MOS in the other regiments. Similarities or differences on such data comparisons are presented and analyzed.

f. Report Findings. This study report is approved for release by the study agency and delivered to the study sponsor in accordance with the policies of the US Army Concepts Analysis Agency.

3-5. SUMMARY. The Personnel Space Allocation and Personnel Flow Assessment Models are used to analyze and compare unit readiness and individual career patterns in the Battalion Movement System and Individual Replacement System.

CHAPTER 4

STUDY RESULTS

4-1. INTRODUCTION

a. The purpose of this chapter is to present study results which are directly related to the essential elements of analyses (EEA) of the study. The finalized EEA, as specified in the USRA-IN/FA/AR study directive dated 9 August 1985 and then modified as stated in an amended study directive dated 21 February 1986 are:

(1) What are the strength profiles in regimental battalions and in extraregimental assignment (ERA) pools for both the Battalion Movement System (BMS) and the Individual Replacement System (IRS)?

(2) What are the turnover patterns in regimental battalions and ERA pools for both the BMS and IRS?

(3) What are the differences in PCS moves between the COHORT BMS and IRS?

(4) What are the average career patterns for armor, field artillery, and infantry soldiers under the COHORT BMS in terms of promotions, types of assignment, assignment location, destination upon reassignment from regimental unit, origin when reassigned to a regimental unit, and turnaround time?

b. The modified study directive tasked CAA to conduct an excursion on an armor regiment in which the lock-in period of 6 months after rotation from OCONUS to CONUS was relaxed to allow for the reassignment of career soldiers at rotation provided tour length and unit stabilization criteria were met. The modified study directive also changed PCS cost to moves (as shown above in EEA 3) and deleted any requirement for an officer analysis.

c. Since the first three EEAs are unit related, results are presented in terms of regimental units and ERA pools. Results addressing the fourth EEA, which is individual related, are presented in terms of individual career statistics for soldiers assigned to regiments which operate under BMS policies.

d. Results presented in this chapter are illustrative examples of the results for the 15 regiments which are reported in Appendix H. Graphs are used to address EEAs 1 and 2 for a specific regiment and tabular output data on several regiments is used to address EEAs 3 and 4. Appendix H includes PFAM simulation summary reports and graphs on all 15 regiments.

e. The remainder of this chapter is divided into three sections. Section I addresses the four EEAs for armor and cavalry regiments plus the results of the excursion previously mentioned. Section II then addresses the four EEAs for infantry regiments and Section III the four EEAs for field artillery regiments.

Section I. ARMOR/CAVALRY RESULTS

4-2. GENERAL. Findings presented in this section were briefed to the study sponsor in January 1986 as "interim results" on armor/cavalry regiments. Twelve armor and five cavalry regiments were actually run through PFAM and analyzed.

4-3. EEA 1 - STRENGTH PROFILES

a. Profiles presented in this chapter are the mean values achieved by all units of the same type and size in each regiment. They were constructed by first determining if significant variance existed among observed values for each month of each unit's life cycle. This determination was made using standard ANOVA techniques. There being insignificant variance between the life cycles of each unit, a determination of the variance existing among the units' mean values was then made for each month of the cycle. ANOVA testing indicated that differences in variance were insignificant, and that each unit's cycle could be considered to be realizations of some "average" unit cycle. Life cycle data, by month, for each unit was then used to calculate the mean values presented in each profile. The dashed lines on both sides of the mean value depict the 90 percent confidence interval about the mean.

b. Figure 4-1 depicts the average total strength profile for the rotating battalions of the 34th Armor Regiment operating under the BMS. The total authorized CMF 19 strength of such a battalion at the 100 percent authorized level is 248, while the floor line represent 90 percent of the total authorized strength. Months 0 through 36 represent the CONUS phase of the unit's life cycle, while months 37 through 72 represent the OCONUS phase.

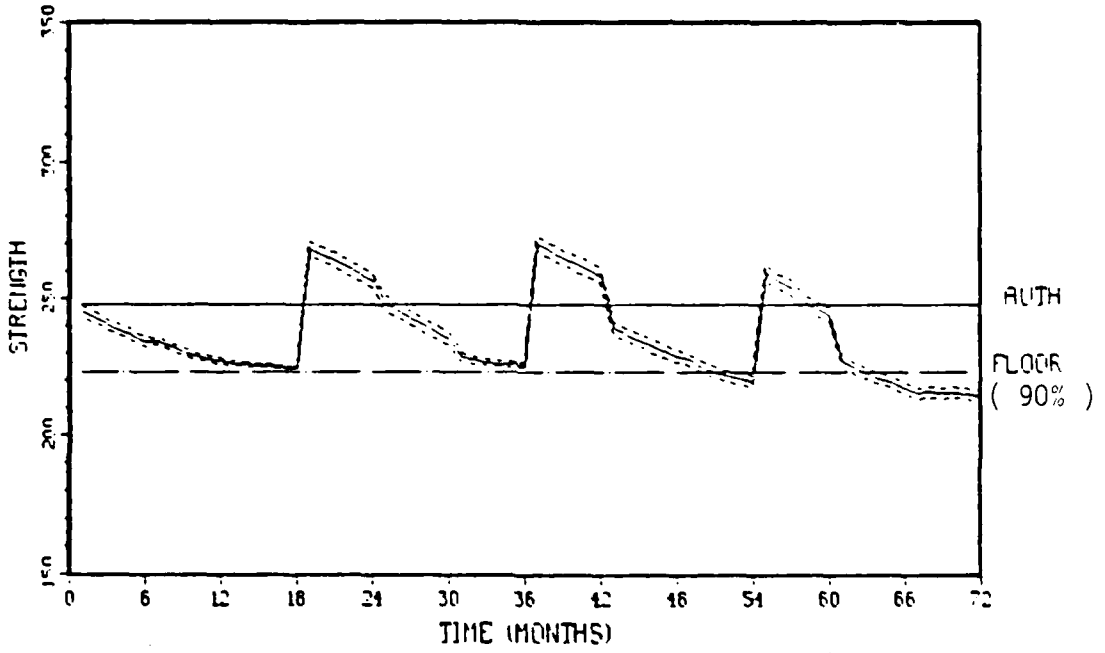

Figure 4-1. Battalion Total Strength Profile
34th Armor Regiment BMS

c. The spikes that occur every 18 months (as shown in Figure 4-1) reflect COHORT first-termer packages that arrive at the unit. There is some attrition that is not necessarily filled occurring during the 18-month time period following a COHORT fill, but the BMS does keep a rotating battalion above 90 percent fill in CONUS. However, the unit strength does go a little below the 90 percent floor in the last part of the OCONUS phase. This is due mainly to soldiers completing 5/6ths of their overseas tour, careerists on unaccomparied tours departing OCONUS after 18 months, and a not readily available OCONUS ERA pool that can be used for unit replacements.

d. Figure 4-2 depicts the unit strength profile for a battalion in the 34th Armor Regiment operating under the IRS. As shown, the unit strength profile stays on or about the authorized strength line. As there is a demand for a soldier under IRS, a replacement is almost always made available.

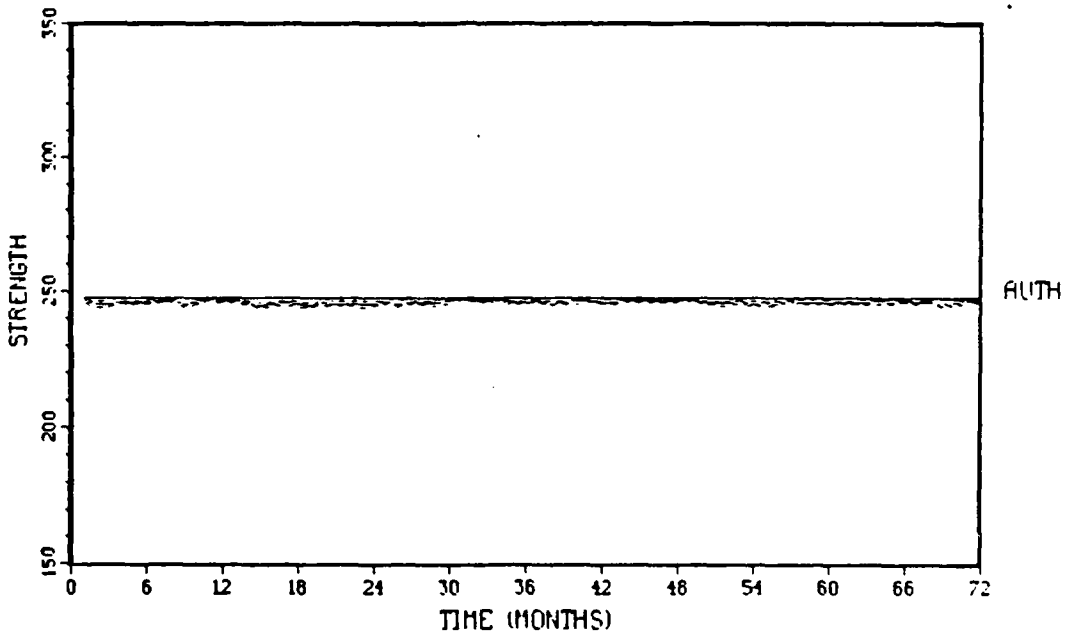

Figure 4-2. Battalion Total Strength Profile 34th Armor Regiment IRS

e. Figures 4-3 and 4-4 depict the BMS and IRS NCO strength profiles for the same battalions in the 34th Armor Regiment. Once again, the IRS keeps the NCO strength on or about the NCO authorized figure. For BMS, the NCO strength profile is above authorized for a great portion of the life cycle. A one down substitution policy allows E5s to be assigned to E4 positions, and potential promotions are not considered in the assignment process. The net effect is to have some NCOs in lower grade positions in an effort to maintain unit strength. Then in OCONUS, the NCO strength figures dip below the authorized due to 5/6ths tour completion, careerists completing an 18-month unaccompanied tour and a not readily available OCONUS ERA pool to replace departing careerists.

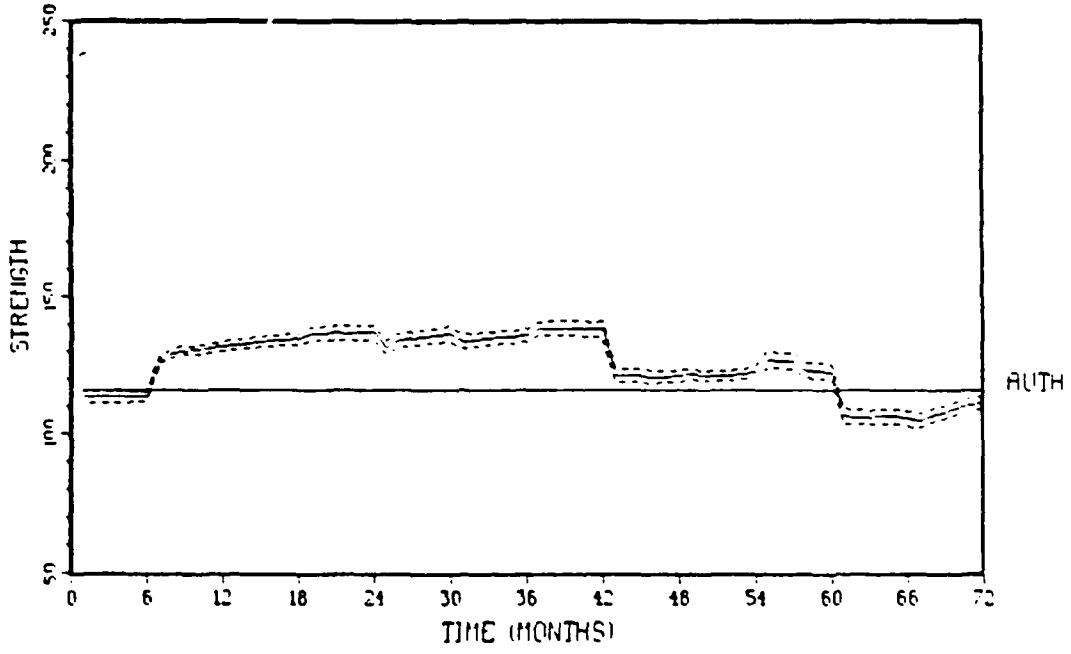

Figure 4-3. Battalion NCO Strength Profile
34th Armor Regiment BMS

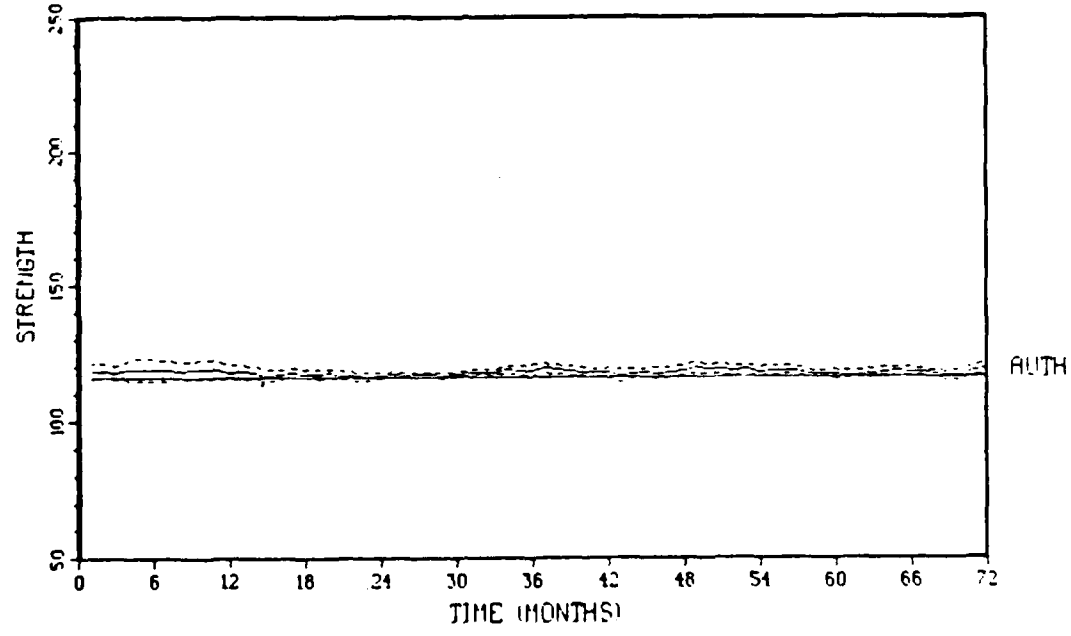

Figure 4-4. Battalion NCO Strength Profile
34th Armor Regiment IRS

f. The strength profiles for the ERA pools of the 34th Armor Regiment demonstrate that the policies of the COHORT BMS and the IRS generally provide sufficient personnel for assignment to ERA positions to permit the maintenance of average strength levels above the desired minimum level of 70 percent. Because of the limited number of time periods during which soldiers can be assigned into the rotating units, the regiment's ERA pools do operate at a combined strength level in excess of 100 percent of authorized. The simulation summary results in Appendix H show examples of ERA pool strength levels.

g. Unit and NCO strength profiles for a cavalry squadron in the 1st Cavalry Regiment for both MBS and IRS generally approximate those previously discussed on the 34th Armor Regiment. The same comments apply to the cavalry and their profiles are included in Appendix H.

4-4. EEA 2 - TURNOVER PATTERNS

a. Turnover is that statistic described by AR 220-1; that is, the sum of the last 3 months' losses from the unit divided by the present month's total unit strength. Figure 4-5 depicts the average turnover rate for the rotating battalions of the 34th Armor Regiment under BMS, while Figure 4-6 depicts the average turnover rate for those same battalions under the IRS.

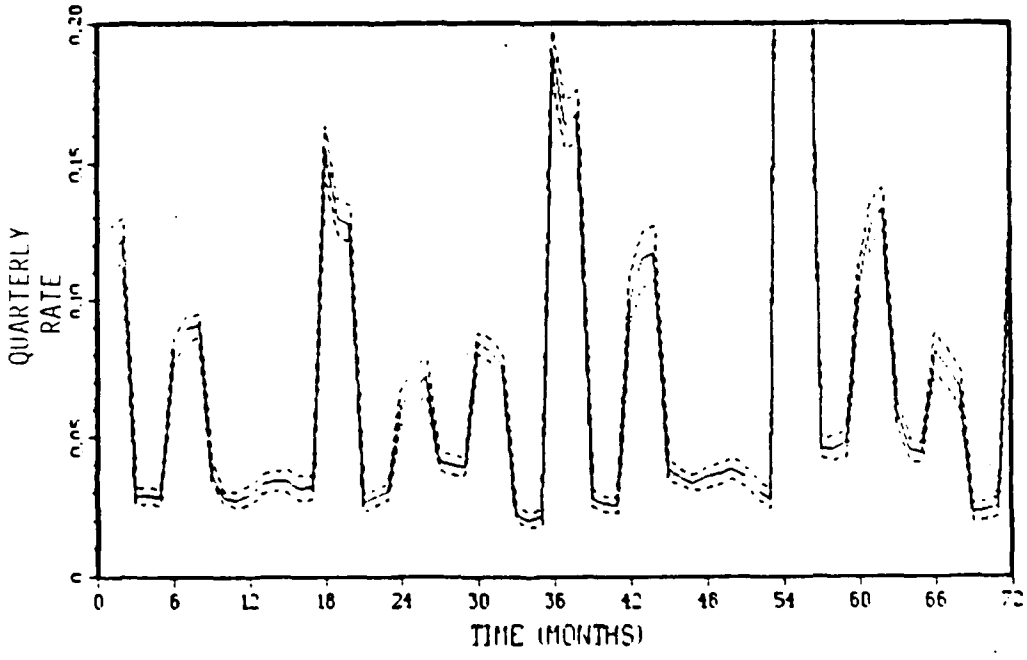

Figure 4-5. Average Turnover Rate 34th Armor Regiment BMS

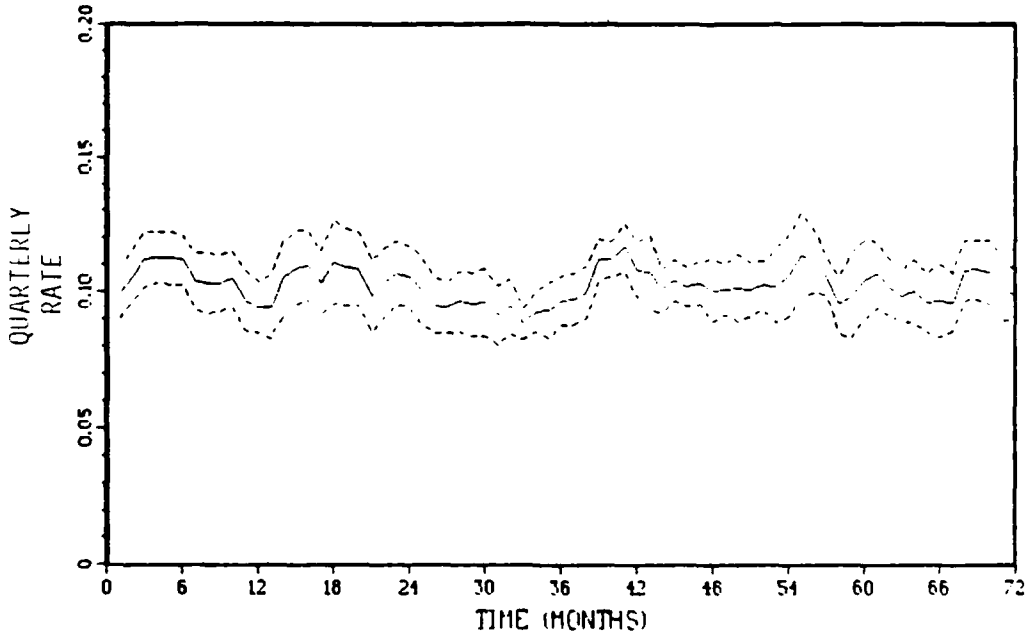

Figure 4-6. Average Turnover Rate 34th Armor Regiment IRS

b. While average turnover throughout the life cycle of units operating under the two systems must be approximately equal, there exist clearly identifiable concentrations of turnover in the BMS. As a consequence, periods between these concentrations demonstrate a much lower turnover rate than that experienced by units in the IRS.

c. Figure 4-6 shows an average turnover rate of approximately 10 percent for a battalion operating under the IRS. For the IRS, the turnover rate stays about the same. Figure 4-5 displays the predictable concentrations of turnover for the battalion operating under BMS. The vast majority of soldiers enter the regiment at 18-month intervals, reenlist for multiples of 12 months, and then some soldiers reach termination of service every 6 months. Particularly high losses are also experienced due to termination of service at months 18 and 36, as well as 54 and 72, as first termers complete their initial enlistment. The departure of unaccompanied service members at month 54 in addition to first termers completing their initial enlistment combines to push the average turnover at this period to approximately 40 percent. Of course, the closed assignment windows under BMS in which soldiers cannot enter or leave a unit reflect the greatly reduced turnover between the identifiable turnover concentrations.

d. The reduced turnover for BMS between the periods of turnover concentration reflect the increased stabilization of the New Manning System. Commanders can plan their training taking into account the predictable periods of turnover at the specific timeframe and the reduced turnover occurring at other times. The turnover patterns experienced by the units in the cavalry regiment also approximate those just described for the armor unit and are included in Appendix H.

e. The turnover experienced in ERA pools parallels that demonstrated by the unit. As soldiers depart the units, additional demand for replacement is placed on the ERA. If soldiers are available, they are reassigned, and there is a resultant rise in the turnover rate. Often, the ERA pools are small numbers, so the turnover rates can be very high.

4-5. EEA 3 - PCS MOVES

a. There are matrices in the PFAM output that show the permanent changes of station per month by grade. These matrices are printed out for both the IRS and BMS. For BMS, there is also a breakout of the individual and the rotation moves. For display purposes, the PCS numbers were added up over all grades for a regiment using first the IRS and then the BMS policies.

b. Table 4-1 compares the number of PCS moves/month for a sample of armor and cavalry regiments using first the IRS policies and then the BMS. There are more moves made for BMS than IRS, and that trend is followed by all the other armor and cavalry regiments that were run through PFAM.

Table 4-1. PCS Moves per Month (Armor/Cavalry)

Regiment	IRS	BMS
34 Arm	44	50
66 Arm	44	49
77 Arm	45	49
1 Cav	45	47
3 Cav	98	114

c. For BMS, there are both unit rotational moves and individual moves. Each individual who takes part in a unit rotational move counts as a PCS, plus there must always be individual moves for nonrotating units and ERA spaces. Recall from the strength profiles that there are periods for units operating under BMS to be overstrength. When first-termer packages arrive

at a unit, the strength profiles go above 100 percent, which adds to the number of PCS moves. If the unit strength profiles go below the 90 percent floor for the BMS case, personnel are made available to bring the unit back to the floor level. This also adds to the number of PCS moves. For the IRS case, a unit opening basically causes a demand to be placed on the system and a resulting PCS move.

d. Table 4-2 breaks out individual and rotational PCS moves for the BMS. The three armor regiments have four rotating battalions, and a higher percentage of rotational versus individual moves. The 3d Cavalry Regiment has six rotating squadrons and also has a very high percentage of rotational moves; the 1st Cavalry Regiment has less than two squadrons rotating with one another, and as such, has a higher percentage of individual moves.

Table 4-2. PCS Moves for the BMS (Armor/Cavalry)

Regiment	Individual	Rotational	Total
34 Arm	20	30	50
66 Arm	21	28	49
77 Arm	20	29	49
1 Cav	39	8	47
3 Cav	42	72	114

e. As part of a modification to the study directive, the ODCSPER sponsor requested that CAA conduct an excursion on one of the armor regiments in the BMS mode to determine if the following policy change would have an impact on the number of PCS moves. The change was to relax the lock-in period of 6 months after rotation from OCONUS to CONUS for careerists to allow for their reassignment at rotation to a valid assignment if the following criteria are met:

(1) They meet the overseas tour length requirements.

(2) They meet the minimum unit stabilization requirement of 48 months.

f. The excursion was accomplished for the 34th Armor Regiment utilizing the BMS, and the basic result indicated very little change. The number of PCS moves only decreased by 0.5/month for the excursion. With the removal of the 6-month lock-in after rotation, it was expected that the number of PCS moves would be reduced more than what occurred. With the lock-in period, a careerist could be forced to make two PCS moves (one upon rotation and one 6 months later, if he had met unit stabilization time requirements). With a relaxation of the 6-month lock-in period, it was hypothesized that a careerist would make one PCS move at rotation and not another one after 6 months.

4-6. *EEA 4 - AVERAGE INDIVIDUAL CAREER PATTERNS*

a. Career patterns for individuals are compared for soldiers in the same MOS in different regiments using only the BMS policies. Individual career pattern data includes the following:

(1) Promotion data.

(2) Assignment type.

(3) Assignment location.

(4) Destination upon reassignment from unit.

(5) Origin when assigned to unit.

(6) *Turnaround time.*

b. For promotion data, the PFAM uses DA rates for E3 to E4 and E8 to E9, while for other grades, promotions are based on vacancies in the regiment. This is done to satisfy the third study assumption of a properly assigned force and also serves to eliminate the effect of grade imbalance.

c. Tables 4-3 and 4-4 summarize promotion data for the pseudo 19Q tanker MOS and 19D cavalry scout MOS, respectively. The percentages in the tables refer to percent changes in terms of time-in-grade figures from a baseline regiment (34th Armor and 1st Cavalry). Thus, E4 personnel in the 66th Armor have 4 percent more time in grade than the E4s in the 34th Armor Regiment. When 0 percent appears there is no change compared to the 34th Armor, and minus signs indicate less time in grade. As can be seen in Table 4-3, there are very small differences among armor regiments for 19Q. That is, it does not matter which armor regiment a soldier is in, time-in-grade figures are essentially the same. For the 19D scout MOS, Table 4-4 indicates that the differences among cavalry regiments in terms of time in grade are not as small as those shown for the 19Q personnel in the armor regiment. The 29 percent figure can be attributed to a small number of E7 19Ds in the regiment.

Table 4-3. Promotion Data for 19Q
(expressed as percent change in terms of time in grade)

Regiment	E3	E4	E5	E6	E7	E8
34 Arm	---------- used as baseline ----------					
66 Arm	0%	4%	0.2%	-0.5%	-2%	1%
77 Arm	0%	-0.4%	-4%	0.4%	0.8%	1%
37 Arm	0%	0.4%	-2%	0.5%	-1%	1%

Table 4-4. Promotion Data for 19D
(expressed as percent change in terms of time in grade)

Regiment	E3	E4	E5	E6	E7	E8
1 Cav	---------- used as baseline ----------					
3 Cav	0%	-4%	5%	3%	29%	
4 Cav	0%	6%	-10%	2%	3%	

d. Assignment types are looked at in terms of unit and ERA assignments. Tables 4-5 and 4-6 show a sample of the percentage of soldiers in a specific grade and regiment in a unit type assignment for 19Q and 19D, respectively. The complement of the percentage equals the percentage of soldiers in an ERA for that grade and regiment. For 19Q, there are very small differences among armor regiments; that is, the percentage of soldiers in a specific grade that are in unit assignments is basically the same for all of the armor regiments. However, there are some differences among the 19D personnel in the cavalry regiments. The cavalry regiments do show force variations that contribute to such differences, while all the armor regiments are very similar in authorizations.

Table 4-5. Assignment Type for 19Q
(expressed in % - distribution of soldiers)

Regiment	Grade	Unit	Grade	Unit
32 Arm	E5	84	E6	85
34 Arm	E5	85	E6	84
77 Arm	E5	86	E6	84

Table 4-6. Assignment Type for 19D
(expressed in % - distribution of soldiers)

Regiment	Grade	Unit	Grade	Unit
1 Cav	E5	96	E6	80
3 Cav	E5	86	E6	71
4 Cav	E5	97	E6	81

e. Assignment locations are looked at in terms of CONUS and OCONUS assignment. Tables 4-7 and 4-8 show a sample of the percentage of soldiers in a specific grade and regiment in a CONUS type location for 19Q and 19D, respectively. The complement of the percentage equals the percentage of soldiers in an OCONUS location for that grade and regiment. Once again for 19Q, there are very small differences among the armor regiments, and for 19D there are some differences among the cavalry regiments. As stated previously, the armor regiments have very similar authorization structures, while the cavalry regiments do show force variations.

Table 4-7. Assignment Location for 19Q (expressed in % - distribution of soldiers)

Regiment	Grade	CONUS	Grade	CONUS
32 Arm	E4	54	E7	59
34 Arm	E4	54	E7	58
77 Arm	E4	55	E7	57

Table 4-8. Assignment Location for 19D (expressed in % - distribution of soldiers)

Regiment	Grade	CONUS	Grade	CONUS
1 Cav	E4	72	E7	61
3 Cav	E4	50	E7	59
4 Cav	E4	69	E7	66

f. Destination upon reassignment from a unit and origin when assigned to a unit will be discussed together. These measures are of interest in terms of where do soldiers go when they leave a unit, and where are they coming from when they arrive at a unit. There are matrices in the PFAM output that show the number of reassignments from units to ERA pools, unit to unit, ERA pool to ERA pool, and ERA pools to units across all grades. Tables 4-9 and 4-10 show the assignment patterns for 19Q and 19D soldiers, respectively. Under the column marked "To unit," the percentage refers to the percent of soldiers who depart a unit and go to another unit. The complement is then the percentage of soldiers who depart a unit and go to an ERA (marked "To ERA"). Under the column marked "From unit," the percentage refers to the percent of soldiers arriving in a unit from another unit, while the complement refers to the percent of soldiers arriving in a unit from an ERA (marked "From ERA"). As shown in the tables, for both 19Q and 19D MOSs, there is a high probability that when a soldier departs a unit he will go to another unit. This is in line with the priority of unit assignments being made wherever possible. Then when arriving in a unit, there is more of an equal chance of having either come from a unit or an ERA job.

Table 4-9. Assignment Pattern for 19Q (in percentage of soldiers)

Regiment	To unit	To ERA	From unit	From ERA
32 Arm	65	35	52	48
34 Arm	70	30	53	47
77 Arm	67	23	54	46

Table 4-10. Assignment Pattern for 19D (in percentage of soldiers)

Regiment	To unit	To ERA	From unit	From ERA
1 Cav	77	23	48	52
3 Cav	59	41	50	50
4 Cav	79	21	48	52

g. The final area to be discussed under individual career patterns is turnaround time. Turnaround time is defined as the time an individual spends in one or more CONUS assignments between OCONUS tours. Tables 4-11 and 4-12 show average turnaround times for 19Q and 19D soldiers. For both 19Q and 19D, the turnaround times for soldiers of a specific grade in the same MOS in different regiments are basically very similar.

Table 4-11. Turnaround Time (in months) for 19Q

Regiment	Grade	Turnaround time
32 Arm	E5	34
34 Arm	E5	34
77 Arm	E5	34
32 Arm	E7	35
34 Arm	E7	36
77 Arm	E7	34

Table 4-12. Turnaround Time (in months) for 19D

Regiment	Grade	Turnaround time
1 Cav	E5	36
3 Cav	E5	33
4 Cav	E5	32
1 Cav	E7	37
3 Cav	E7	39
4 Cav	E7	36

4-7. SUMMARY OF ARMOR/CAVALRY RESULTS

a. Unit Related. The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria in the CONUS cycle, whereas there are short periods during the OCONUS phase when the strength profiles are below the 90 percent floor. Extraregimental assignment pools are almost always maintained at or above the desired 70 percent strength level. Additionally, the turnover patterns in rotating battalions demonstrate the concentration of turnover at predictable points in the unit's life cycle and a significant reduction in turnover between these points when compared to that in the IRS. However, the number of PCS moves are somewhat increased under the COHORT BMS when compared to the IRS.

b. Individual Related. Average career patterns for 19Q soldiers in the armor regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from regimental units, origin when assigned to a regimental unit, and turnaround time. However, there are some differences in the average career patterns for 19D soldiers in the cavalry regiments due to variations in authorization structures.

Section II. INFANTRY RESULTS

4-8. GENERAL. Nine infantry regiments were actually run through PFAM and analyzed.

4-9. EEA 1 - STRENGTH PROFILES

a. Figure 4-7 depicts the average total strength profile for the rotating battalions of the 12th Infantry Regiment operating under the BMS. The total authorized CMF 11 strength of such a battalion at the 100 percent authorized level is 525, while the floor line represents 90 percent of the total authorized strength. Months 0 through 36 represent the CONUS phase of the unit's life cycle, while months 37 through 72 represent the OCONUS phase.

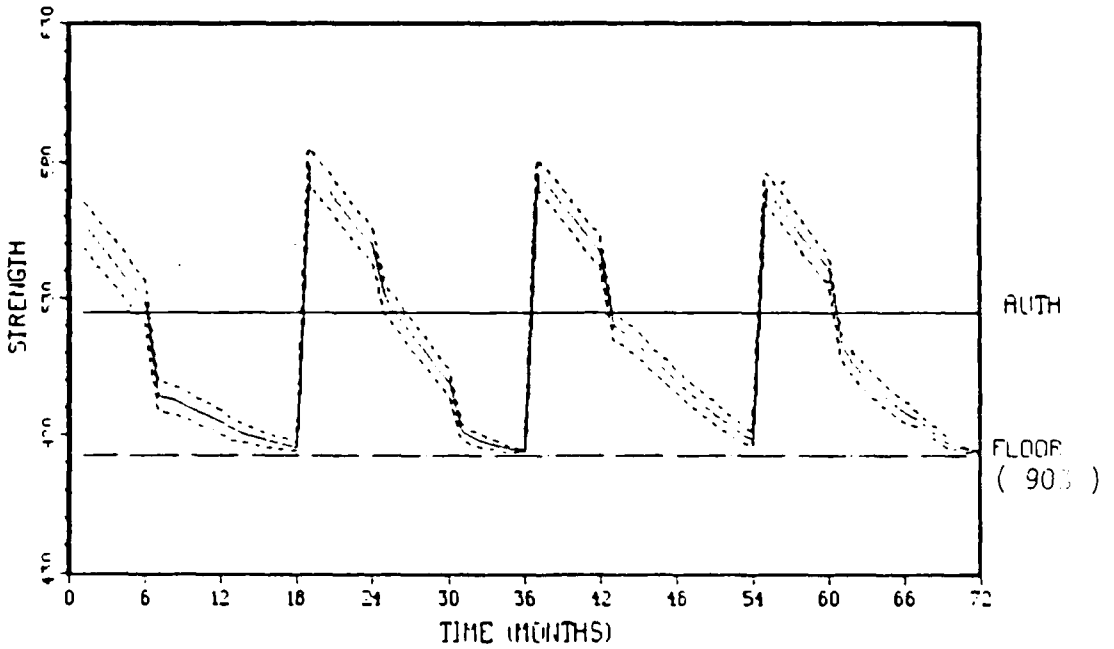

Figure 4-7. Battalion Total Strength Profile 12th Infantry Regiment BMS

b. The spikes that occur every 18 months (as shown in Figure 4-7) reflect COHORT first-termer packages that arrive at the unit. There is some attrition that is not necessarily filled occurring during tne 18-month time period following a COHORT fill. In this case, BMS keeps a rotating battalion above 90 percent fill in both CONUS and OCONUS. However, in some regimental strength profiles, units do go a little below the 90 percent floor in the

last part of the OCONUS phase. This is mainly due to soldiers completing 5/6ths of their overseas tour, careerists on unccompanied tours departing OCONUS after 18 months, and a not readily available OCONUS ERA pool that can be used for unit replacements.

c. Figure 4-8 depicts the unit strength profile for a battalion in the 12th Infantry Regiment operating under the IRS. As shown, the unit strength profile stays on or about the authorized strength line. As there is a demand for a soldier under IRS, a replacement is almost always made available.

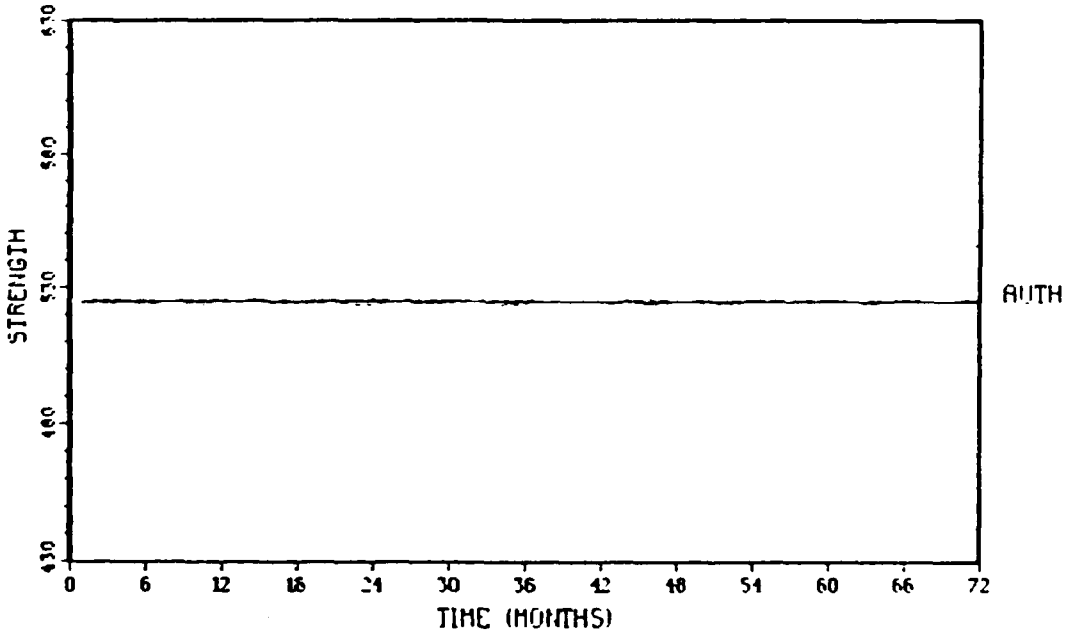

Figure 4-8. Battalion Total Strength Profile 12th Infantry Regiment IRS

d. Figures 4-9 and 4-10 depict the BMS and IRS NCO strength profiles for the same battalions in the 12th Infantry Regiment. Once again, the IRS keeps the NCO strength on or about the NCO authorized figure. For BMS, the NCO strength profile is above authorized for the life cycle. A one down substitution policy allows E5s to be assigned to E4 positions, and potential promotions are not considered in the assignment process. The net effect is to have some NCOs in lower grade positions in an effort to maintain unit strength. However, in some regimental strength profiles in OCONUS, the NCO strength figures dip below the authorized due to 5/6ths tour completions, careerists completing 18-month unaccompanied tours, and a not readily available OCONUS ERA pool to replace departing careerists.

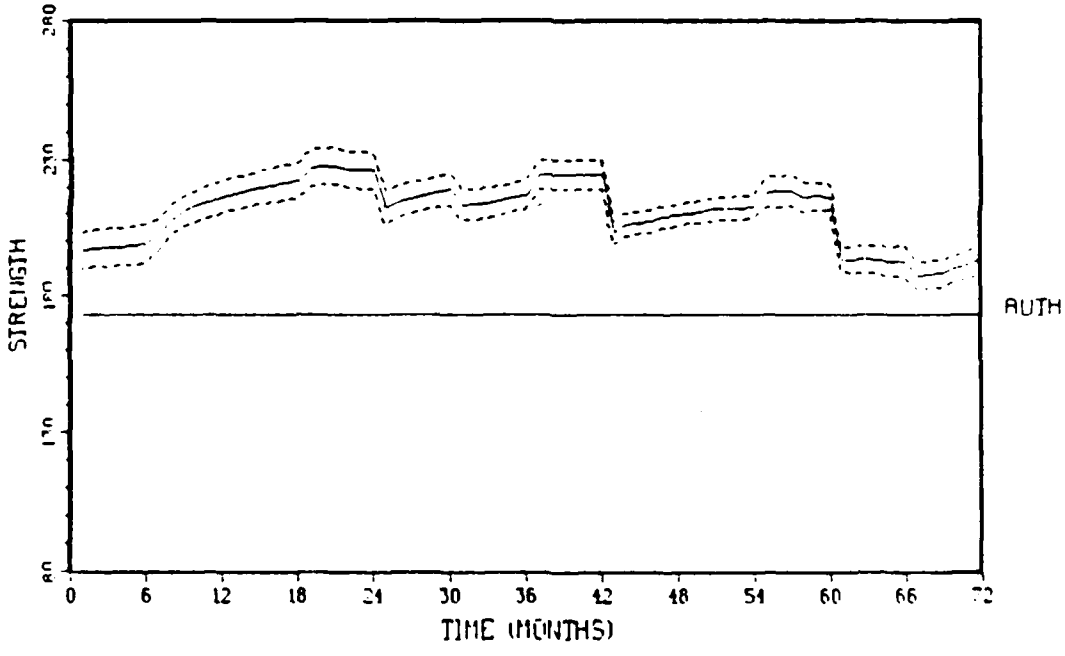

Figure 4-9. Battalion NCO Strength Profile 12th Infantry Regiment BMS

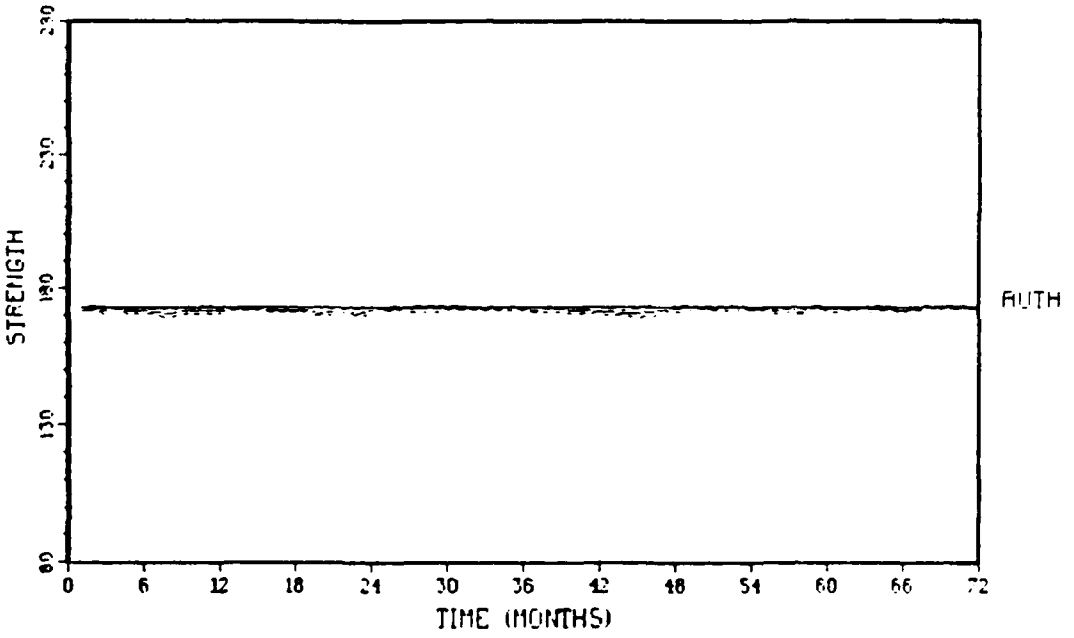

Figure 4-10. Battalion NCO Strength Profile 12th Infantry Regiment IRS

e. The strength profiles for the ERA pools of the 12th Infantry Regiment demonstrate that the policies of the COHORT BMS and the IRS generally provide sufficient personnel for assignment to ERA positions to permit the maintenance of average strength levels above the desired minimum level of 70 percent. Because of the limited number of time periods during which soldiers can be assigned into the rotating units, the regiment's ERA pools do operate at a combined strength level in excess of 100 percent of authorized. The simulation summary results in Appendix H show examples of ERA pool strength levels.

4-10. EEA 2 - TURNOVER PATTERNS

a. Figure 4-11 depicts the average turnover rate for the rotating battalions of the 12th Infantry Regiment under BMS, while Figure 4-12 depicts the average turnover rate for those same battalions under the IRS.

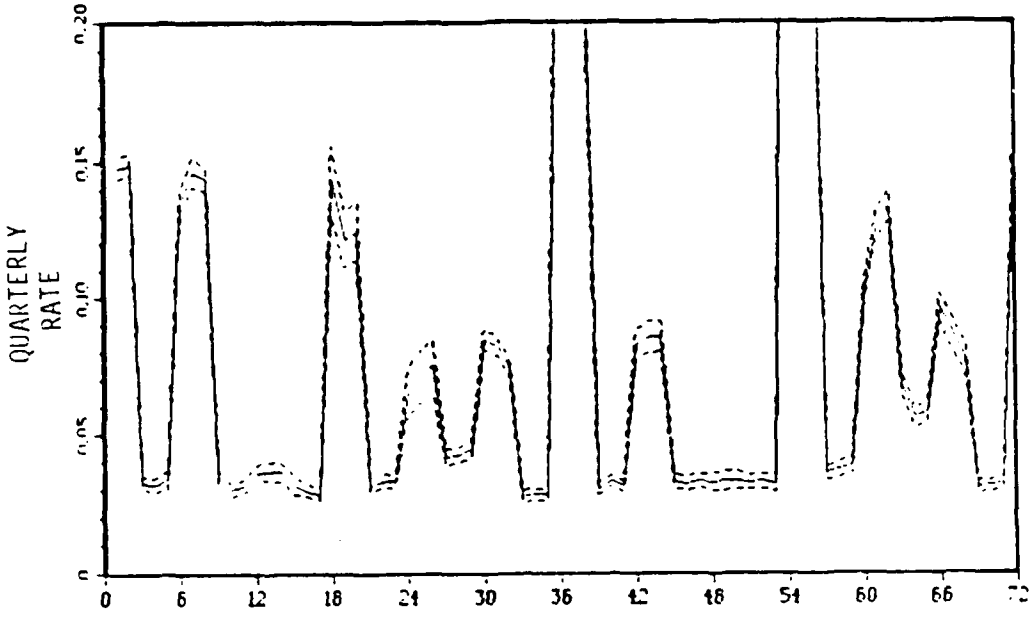

Figure 4-11. Average Turnover Rate 12th Infantry Regiment BMS

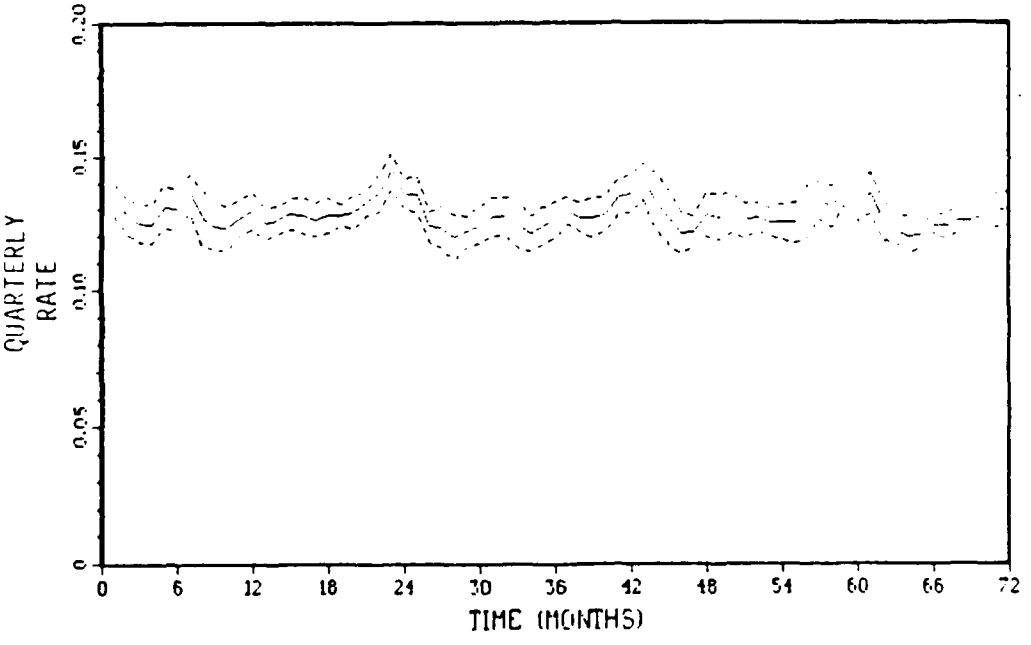

Figure 4-12. Average Turnover Rate 12th Infantry Regiment IRS

b. While average turnover throughout the life cycle of units operating under the two systems must be approximately equal, there exist clearly identifiable concentrations of turnover in the BMS. As a consequence, periods between these concentrations demonstrate a much lower turnover rate than that experienced by units in the IRS.

c. Figure 4-12 shows an average turnover rate of approximately 14 percent for a battalion operating under the IRS. For the IRS, the turnover rate stays about the same. Figure 4-11 displays the predictable concentrations of turnover for the battalion operating under BMS. The vast majority of soldiers enter the regiment at 18-month intervals, reenlist for multiples of 12 months, and then some soldiers reach termination of service every 6 months. Particularly high losses are also experienced due to termination of service at months 18 and 36, as well as 54 and 72, as first termers complete their initial enlistment. The departure of unaccompanied service members at month 54 in addition to first termers completing their initial enlistment combine to push the average turnover at this period to approximately 40 percent. Of course, the closed assignment windows under BMS in which soldiers cannot enter or leave a unit reflect the greatly reduced turnover between the identifiable turnover concentrations.

d. The reduced turnover for the BMS between the periods of turnover concentration reflect the increased stabilization of the New Manning System. Commanders can plan their training taking into account the predictable periods of turnover at the specific timeframe and the reduced turnover occurring at other times.

e. The turnover experienced in ERA pools parallels that demonstrated by the unit. As soldiers depart the units, additional demand for replacement is placed on the ERA. If soldiers are available, they are reassigned, and there is a resultant rise in the turnover rate. Often, the ERA pools are small numbers, so the turnover rates can be very high.

4-11. EEA 3 - PCS MOVES

a. Table 4-13 compares the number of PCS moves/month for a sample of infantry regiments using first the IRS policies and then the BMS. There are more moves made for BMS than IRS, and that trend is followed by all the other infantry regiments that were run through PFAM.

Table 4-13. PCS Moves per Month (Infantry)

Regiment	IRS	BMS
7th Inf	128	134
12th Inf	120	135
21st Inf	94	104
325th Inf	158	170
502d Inf	214	243

b. For BMS, there are both unit rotational moves and individual moves. Each individual who takes part in a unit rotational move counts as a PCS, plus there must always be individual moves for nonrotating units and ERA spaces. Recall from the strength profiles that there are periods for units operating under BMS to be over strength. When first-termer packages arrive at a unit, the strength profiles go above 100 percent, which adds to the number of PCS moves. If the unit strength profiles go below the 90 percent floor for the BMS case, personnel are made available to bring the unit back to the floor level. This also adds to the number of PCS moves. For the IRS case, a unit opening basically causes a demand to be placed on the system and a resulting PCS move.

c. Table 4-14 breaks out the PCS moves for the BMS by individual and rotational move.

Table 4-14. PCS Moves for the BMS (Infantry)

Regiment	Individual	Rotational	Total
7th Inf	73	61	134
12th Inf	72	63	135
21st Inf	53	51	104
325tn Inf	142	28	170
502d Inf	162	81	243

4-12. EEA 4 - AVERAGE INDIVIDUAL CAREER PATTERNS

a. Career patterns for individuals are compared for soldiers in the same MOS in different regiments using only the BMS policies. Individual career pattern data includes the following:

(1) Promotion data.

(2) Assignment type.

(3) Assignment location.

(4) Destination upon reassignment from unit.

(5) Origin when assigned to unit.

(6) Turnaround time.

b. For promotion data, the PFAM uses DA rates for E3 to E4 and E8 to E9, while for other grades, promotions are based on vacancies in the regiment. This is done to satisfy the third study assumption of a properly assigned force and also serves to eliminate the effect of grade imbalance.

c. Table 4-15 summarizes promotion data for the pseudo 11Q infantryman MOS. The percentages in the table refer to percent changes in terms of time in grade figures from the baseline regiment (12th Infantry). Thus, E5 personnel in the 7th Infantry have 3 percent less time in grade than the E5s in the 12th Infantry Regiment. When 0 percent appears there is no change compared to the 12th Infantry, and minus signs indicate less time in grade. As can be seen in Table 4-15, there are relatively small differences among infantry regiments. The 21 percent for E4s in the 21st Infantry Regiment equates to nine months more and the -11 percent for E7s to seven months less time in grade--that is, it does not matter which infantry regiment a soldier is in, time-in-grade figures are similar.

Table 4-15. Promotion Data for 11Q (expressed as percent change in terms of time in grade)

Regiment	E3	E4	E5	E6	E7	E8
12th Inf	---------- used as baseline ----------					
7th Inf	0%	-3%	-3%	0%	-1%	4%
21st Inf	0%	21%	-3%	-6%	-11%	-4%
325th Inf	0%	13%	-1%	2%	8%	0%

d. Assignment types are looked at in terms of unit and ERA assignments. Table 4-16 shows a sample of the percentage of soldiers in a specific grade and regiment in a unit type assignment. The complement of the percentage equals the percentage of soldiers in an ERA for that grade and regiment. There are very small differences among infantry regiments; that is, the percentage of soldiers in a specific grade that are in unit type jobs is basically the same for all of the infantry regiments.

Table 4-16. Assignment Type for 11Q (expressed in % - distribution of soldiers)

Regiment	Grade	Unit	Grade	Unit
7th Inf	E5	84	E6	68
12th Inf	E5	82	E6	68
21st Inf	E5	85	E6	65

e. Assignment locations are looked at in terms of CONUS and OCONUS assignment. Table 4-17 shows a sample of the percentage of soldiers in a specific grade and regiment in a CONUS type location. The complement of the percentage equals the percentage of soldiers in an OCONUS location for that grade and regiment. Once again, there are small differences among the infantry regiments. The higher percentage of E7s being stationed in CONUS for the 21st Infantry Regiment is due to very small ERA assignments in OCONUS.

Table 4-17. Assignment Location for 11Q (expressed in % - distribution of soldiers)

Regiment	Grade	CONUS	Grade	CONUS
7th Inf	E4	50	E7	58
12th Inf	E4	56	E7	58
21st Inf	E4	55	E7	76

f. Destination upon reassignment from a unit and origin when assigned to a unit will be discussed together. These measures are of interest in terms of where do soldiers go when they leave a unit, and where are they coming from when they arrive at a unit. There are matrices in the PFAM output that show the number of reassignments from units to ERA pools, unit to unit, ERA pool to ERA pool, and ERA pools to units across all grades.

Table 4-18 shows the assignment patterns. Under the column marked "To unit," the percentage refers to the percent of soldiers who depart a unit and go to another unit. The complement is then the percentage of soldiers who depart a unit and go to an ERA (marked "To ERA"). Under the column marked "From unit," the percentage refers to the percent of soldiers arriving in a unit from another unit, while the complement refers to the percent of soldiers arriving in a unit from an ERA (marked "From ERA"). As shown in the table, there is a high probability that when you depart a unit you will go to another unit. This is in line with the priority of making assignments to a unit. Then when arriving in a unit, there is more of an equal chance of having either come from a unit or an ERA.

Table 4-18. Assignment Pattern for 11Q (in percentage of soldiers)

Regiment	To unit	To ERA	From unit	From ERA
7th Inf	57	43	37	63
12th Inf	63	37	45	55
21st Inf	70	30	53	47

g. The final area to be discussed under individual career patterns is turnaround time. Turnaround time is defined as the time an individual spends in one or more CONUS assignments between OCONUS tours. Table 4-19 shows average turnaround times. The turnaround times for soldiers of a specific grade in the same MOS in different regiments are basically very similar.

Table 4-19. Turnaround Time (in months) for 11Q

Regiment	Grade	Turnaround time
7th Inf	E5	33
12th Inf	E5	33
21st Inf	E5	32
7th Inf	E7	35
12th Inf	E7	35
21st Inf	E7	41

4-13. SUMMARY OF INFANTRY RESULTS

a. Unit Related. The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria in the CONUS cycle, whereas there are short periods during the OCONUS phase when the strength profiles are below the 90 percent floor in some regiments. Extraregimental assignment pools are almost always maintained at or above the desired 70 percent strength level. Additionally, the turnover patterns in rotating battalions demonstrate the concentration of turnover at predictable points in the unit's life cycle and a significant reduction in turnover between these points when compared to that in the IRS. However, the number of PCS moves are somewhat increased under the COHORT BMS when compared to the IRS.

b. Individual Related. Average career patterns for soldiers in the infantry regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from regimental units, origin when assigned to a regimental unit, and turnaround time.

Section III. FIELD ARTILLERY RESULTS

4-14. GENERAL. Seven field artillery regiments were actually run through PFAM and analyzed.

4-15. EEA 1 - STRENGTH PROFILES

a. Figure 4-13 depicts the average total strength profile for the rotating battalions of the 82d Field Artillery Regiment operating under the BMS. The total authorized CMF 13 strength of such a battalion at the 100 percent authorized level is 388, while the floor line represents 90 percent of the total authorized strength. Months 0 through 36 represent the CONUS phase of the unit's life cycle, while months 37 through 72 represent the OCONUS phase.

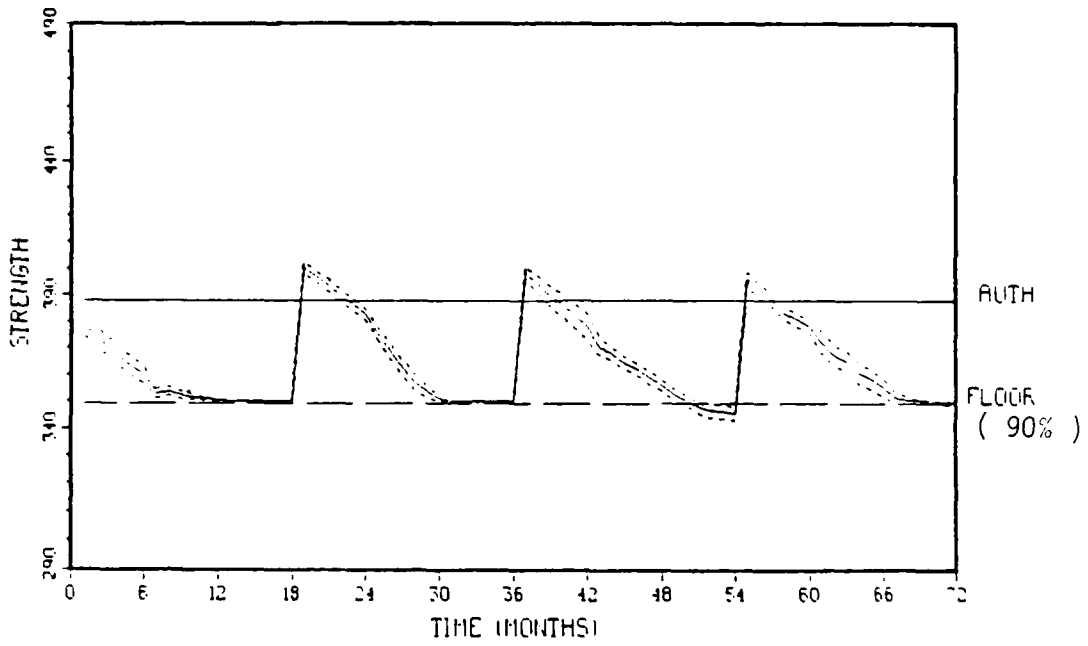

Figure 4-13. Battalion Total Strength Profile, 82d Field Artillery Regiment BMS

b. The spikes that occur every 18 months (as shown in Figure 4-13) reflect COHORT first-termer packages that arrive at the unit. There is some attrition that is not necessarily filled during the 18-month time period following a COHORT fill, but the BMS does keep a rotating battalion above 90 percent fill in CONUS. However, the unit strength does go a

little below the 90 percent floor in the last part of the OCONUS phase. This is due mainly to soldiers completing 5/6ths of their overseas tour, careerists on unacompanied tours departing OCONUS after 18 months, and a not readily available OCONUS ERA pool that can be used for unit replacements.

c. Figure 4-14 depicts the unit strength profile for a battalion in the 82d Field Artillery Regiment operating under tne IRS. As shown, the unit strength profile stays on or about the authorized strength line. When there is a demand for a soldier under IRS, a replacement is almost always made available.

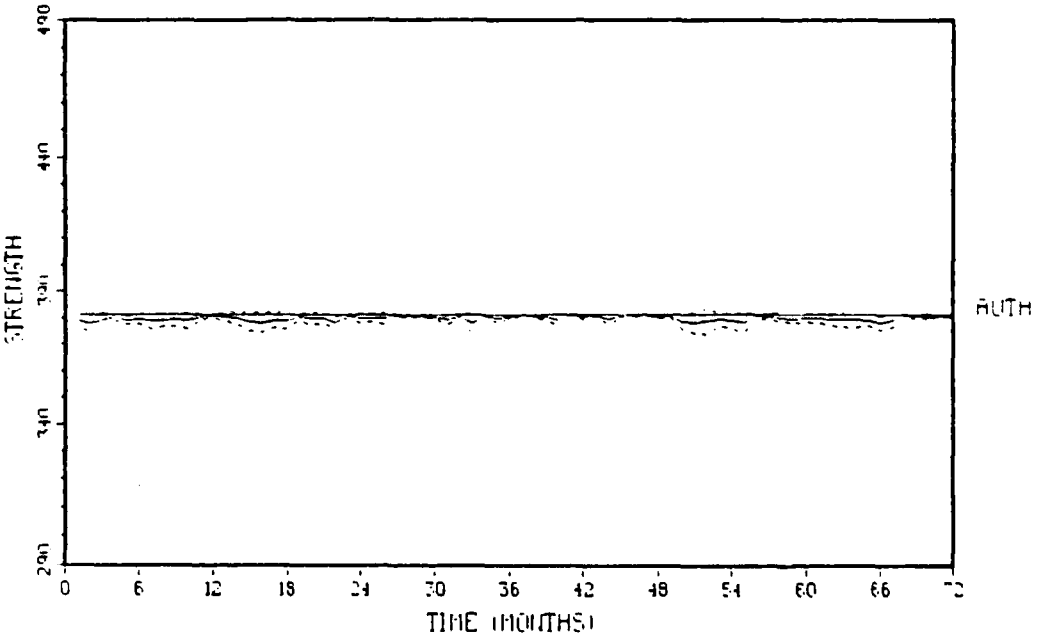

Figure 4-14. Battalion Total Strength Profile 82d Field Artillery Regiment IRS

d. Figures 4-15 and 4-16 depict the BMS and IRS NCO strength profiles for the same battalions in the 82d Field Artillery Regiment. Once again, the IRS keeps the NCO strength on or about the NCO authorized figure. For BMS, the NCO strength profile is above authorized for a great portion of the life cycle. A one down substitution policy allows E5s to be assigned to E4 positions, and potential promotions are not considered in the assignment process. The net effect is to have some NCOs in lower grade positions in an effort to maintain unit strength. However, for some regiments in OCONUS, the NCO strength figures dip below the authorized due to 5/6ths tour completion, careerists completing an 18-month unaccompanied tour, and a not readily available OCONUS ERA pool to replace departing careerists.

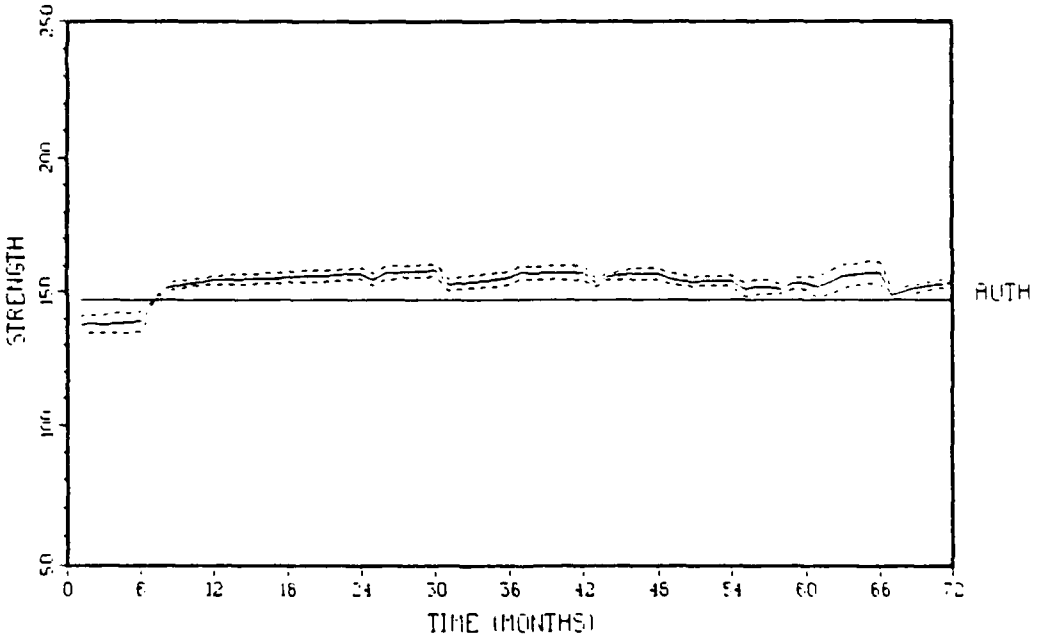

Figure 4-15. Battalion NCO Strength Profile
82d Field Artillery Regiment BMS

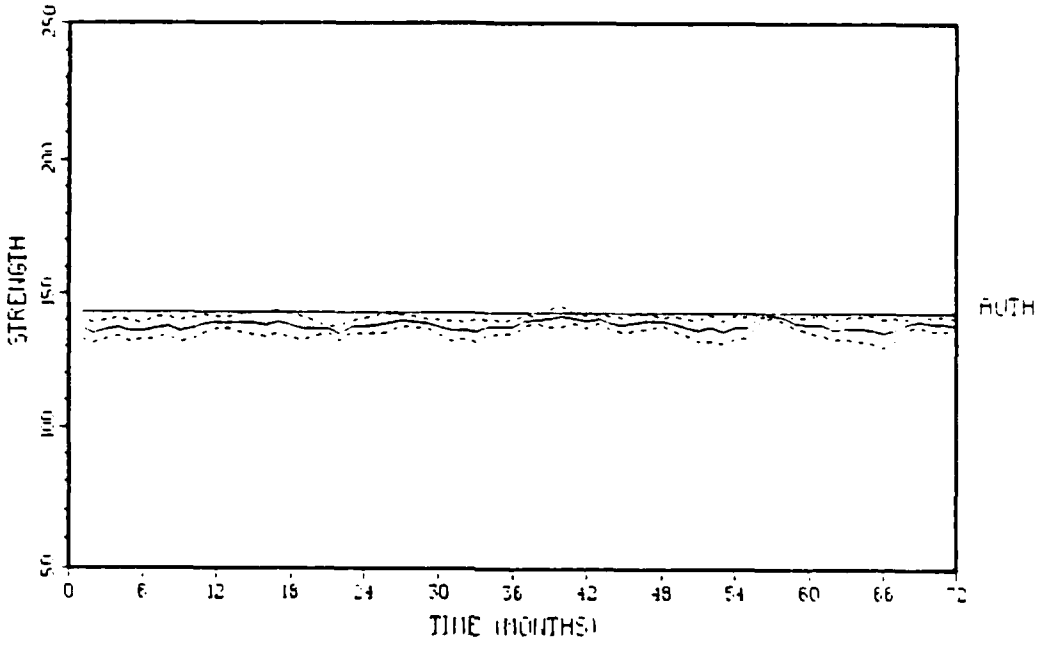

Figure 4-16. Battalion NCO Strength Profile 82d Field Artillery Regiment IRS

e. The strength profiles for the ERA pools of the 82d Field Artillery Regiment demonstrate that the policies of the COHORT BMS and the IRS generally provide sufficient personnel for assignment to ERA positions to permit the maintenance of average strength levels above the desired minimum level of 70 percent. Because of the limited number of time periods during which soldiers can be assigned into the rotating units, the regiment's ERA pools do operate at a combined strength level in excess of 100 percent of authorized. The simulation summary results in Appendix H show examples of ERA pool strength levels.

4-16. EEA 2 - TURNOVER PATTERNS

a. Figure 4-17 depicts the average turnover rate for the rotating battalions of the 82d Field Artillery Regiment under BMS, while Figure 4-18 depicts the average turnover rate for those same battalions under the IRS.

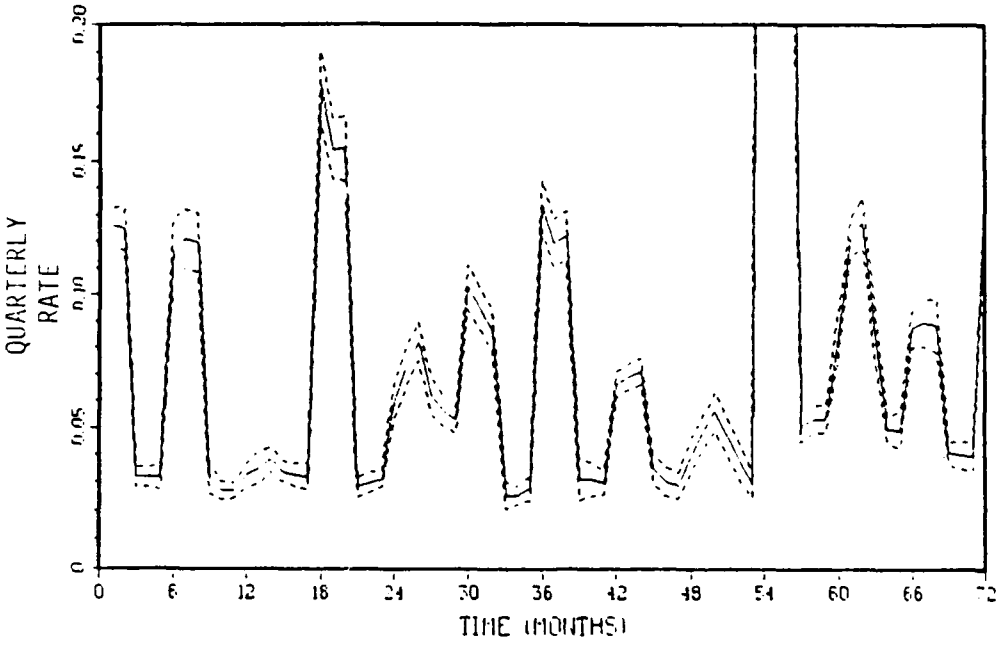

Figure 4-17. Average Turnover Rate 82d Field Artillery Regiment BMS

b. While average turnover throughout the life cycle of units operating under the two systems must be approximately equal, there exist clearly identifiable concentrations of turnover in the BMS. As a consequence, periods between these concentrations demonstrate a much lower turnover rate than that experienced by units in the IRS.

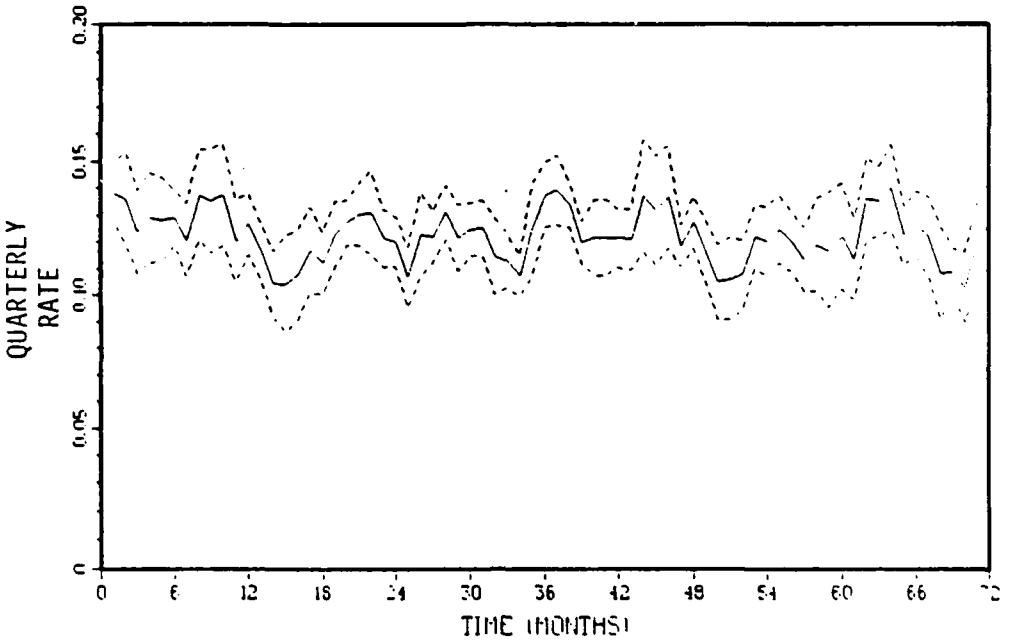

Figure 4-18. Average Turnover Rate 82d Field Artillery Regiment IRS

c. Figure 4-18 shows an average turnover rate of approximately 13 percent for a battalion operating under the IRS. For the IRS, the turnover rate stays about the same. Figure 4-17 displays the predictable concentrations of turnover for the battalion operating under BMS. The vast majority of soldiers enter the regiment at 18-month intervals, reenlist for multiples of 12 months, and then some soldiers reach termination of service every 6 months. Particularly high losses are also experienced due to termination of service at months 18 and 36, as well as 54 and 72, as first termers complete their initial enlistment. The departure of unaccompanied service members at month 54 in addition to first termers completing their initial enlistment combine to push the average turnover at this period to approximately 48 percent. Of course, the closed assignment windows under BMS in which soldiers cannot enter or leave a unit reflect the greatly reduced turnover between the identifiable turnover concentrations.

d. The reduced turnover for the BMS between the periods of turnover concentration reflect the increased stabilization of the New Manning System. Commanders can plan their training taking into account the predictable periods of turnover at the specific timeframe and the reduced turnover occurring at other times.

e. The turnover experienced in ERA pools parallels that demonstrated by the unit. As soldiers depart the units, additional demand for replacement is placed on the ERA. If soldiers are available, they are reassigned, and there is a resultant rise in the turnover rate. Often, the ERA pools are small numbers, so the turnover rates can be very high.

4-17. EEA 3 - PCS MOVES

a. Table 4-20 compares the number of PCS moves/month for a sample of artillery regiments using first the IRS policies and then the BMS. There are more moves made for BMS than IRS, and that trend is followed by all the other artillery regiments that were run through PFAM.

Table 4-20. PCS Moves per Month (Field Artillery)

Regiment	IRS	BMS
14th Arty	64	69
29th Arty	136	146
32d Arty	169	175
82d Arty	79	87
319th Arty	48	57

b. For BMS, there are both unit rotational moves and individual moves. Each individual who takes part in a unit rotational move counts as a PCS, plus there must always be individual moves for nonrotating units and ERA spaces. Recall from the strength profiles that there are periods for units operating under BMS to be over strength. When first-termer packages arrive at a unit, the strength profiles go above 100 percent, which adds to the number of PCS moves. If the unit strength profiles go below the 90 percent floor for the BMS case, personnel are made available to bring the unit back to the floor level. This also adds to the number of PCS moves. For the IRS case, a unit opening basically causes a demand to be placed on the system and a resulting PCS move.

c. Table 4-21 breaks out the PCS moves for the BMS by individual and rotational move.

Table 4-21. PCS Moves for the BMS (Field Artillery)

Regiment	Individual	Rotational	Total
14th Arty	51	18	69
29th Arty	77	69	146
32d Arty	165	10	175
82d Arty	46	41	87
319th Arty	52	5	57

4-18. EEA 4 - AVERAGE INDIVIDUAL CAREER PATTERNS

a. Career patterns for individuals are compared for soldiers in the same MOS in different regiments using only the BMS policies. Individual career pattern data includes the following:

(1) Promotion data.

(2) Assignment type.

(3) Assignment location.

(4) Destination upon reassignment from unit.

(5) Origin when assigned to unit.

(6) Turnaround time.

b. For promotion data, the PFAM uses DA rates for E3 to E4 and E8 to E9, while for other grades, promotions are based on vacancies in the regiment. This is done to satisfy the third study assumption of a properly assigned force and also serves to eliminate the effect of grade imbalance.

c. Table 4-22 summarizes promotion data for the pseudo 13Q artilleryman MOS. The percentages in the table refer to percent changes in terms of time-in-grade figures from the baseline regiment (82d Field Artillery Regiment). Thus, E5 personnel in the 319th Field Artillery Regiment have 4 percent more time in grade than the E5s in the 82d Field Artillery Regiment. When 0 percent appears there is no change compared to the 82d Field Artillery Regiment, and minus signs indicate less time in grade. As can be seen in Table 4-22, there are relatively small differences among artillery regiments. The -16 percent for E4s in the 32d Field Artillery Regiment equates to 7 months less and the +16 percent for E7s to 9 months more time in grade. That is, it does not matter which artillery regiment a soldier is in, time-in-grade figures are essentially the same.

Table 4-22. Promotion Data for 13Q (expressed as percent change in terms of time in grade)

Regiment	E3	E4	E5	E6	E7	E8
82d Arty	---------- used as baseline ----------					
14th Arty	0%	7%	0%	1%	4%	4%
32d Arty	0%	-16%	-9%	9%	16%	4%
319th Arty	0%	-5%	4%	3%	5%	0%

d. Assignment types are looked at in terms of unit and ERA assignments. Table 4-23 shows a sample of the percentage of soldiers in a specific grade and regiment in a unit type assignment. The complement of the percentage equals the percentage of soldiers in an ERA job for that grade and regiment. With the exception of the 319th Field Artillery Regiment, soldiers assigned to divisional regiments (i.e., 82d Arty), have a higher probability of being in a unit assignment than soldiers in corps regiments (i.e., 14th Arty). The 319th Artillery has a higher probability of an ERA assignment for some grades because, unlike other divisional regiments, it has more ERA spaces than unit spaces.

Table 4-23. Assignment Type for 13Q (expressed in % - distribution of soldiers)

Regiment	Grade	Unit	Grade	Unit
14th Arty	E5	64	E6	52
82d Arty	E5	75	E6	74
319th Arty	E5	60	E6	41

e. Assignment locations are looked at in terms of CONUS and OCONUS. Table 4-24 shows a sample of the percentage of soldiers in a specific grade and regiment in a CONUS type location. The complement of the percentage equals the percentage of soldiers in an OCONUS location for that grade and regiment. Once again, there are small differences among the artillery regiments. The higher percentage of soldiers being stationed in CONUS for the 319th Field Artillery Regiment is due to there being only one battery that rotates to an OCONUS location.

Table 4-24. Assignment Location for 13Q (expressed in % - distribution of soldiers)

Regiment	Grade	CONUS	Grade	CONUS
14th Arty	E4	49	E7	52
82d Arty	E4	53	E7	54
319th Arty	E4	80	E7	64

f. Destination upon reassignment from a unit and origin when assigned to a unit will be discussed together. These measures are of interest in terms of where do soldiers go when they leave a unit, and where are they coming from when they arrive at a unit. There are matrices in the PFAM output that show the number of reassignments from unit to ERA pool, unit to unit, ERA pool to ERA pool, and ERA pool to unit across all grades. Table 4-25 shows the assignment patterns. Under the column marked "To unit," the percentage refers to the percent of soldiers who depart a unit and go to another unit. The complement is then the percentage of soldiers who depart a unit and go to an ERA (marked "To ERA"). Under the column marked "From unit," the percentage refers to the percent of soldiers arriving in a unit from another unit, while the complement refers to the percent of soldiers arriving in a unit from an ERA (marked "From ERA"). Soldiers in most divisional units (i.e., 82d Arty) have a high probability that when departing a unit of being assigned to another unit, and when arriving at a unit, an almost equal chance of having either come from a unit or an ERA pool. Soldiers in corps units (i.e., 14th Arty) have a high probability of being assigned to an ERA pool when departing a unit, and when arriving at a unit, to have come from an ERA pool. Again, the 319th is an exception for divisional units.

Table 4-25. Assignment Pattern for 13Q (in percentage of soldiers)

Regiment	To unit	To ERA	From unit	From ERA
14th Arty	42	58	31	69
82d Arty	66	34	47	53
319th Arty	30	70	14	86

g. The final area to be discussed under individual career patterns is turnaround time. Turnaround time is defined as the time an individual spends in one or more CONUS assignment between OCONUS tours. Table 4-26 shows average turnaround times. The turnaround times for soldiers of a specific grade in the same MOS in different regiment are basically very similar with the exception of the 319th which only rotates one battery OCONUS.

Table 4-26. Turnaround Time (in months) for 13Q

Regiment	Grade	Turnaround time
14th Arty	E5	27
82d Arty	E5	30
319th Arty	E5	39
14th Arty	E7	28
82d Arty	E7	29
319th Arty	E7	60

4-19. SUMMARY OF ARTILLERY RESULTS

a. Unit Related. The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria in the CONUS cycle, whereas there are short periods during the OCONUS phase when the strength profiles are below the 90 percent floor in some regiments. Extra-regimental assignment pools are almost always maintained at or above the desired 70 percent strength level. Additionally, the turnover patterns in rotating battalions demonstrate the concentration of turnover at predictable points in the unit's life cycle and a significant reduction in turnover between these points when compared to that in the IRS. However, the number of PCS moves are somewhat increased under the COHORT BMS when compared to the IRS.

b. Individual Related. Average career patterns for soldiers in the artillery regiments show few differences regarding promotion opportunity, assignment location, and turnaround time but some differences do exist because of structural variations. Soldiers in divisional regiments have a higher probability of being assigned from one unit to another and, when arriving in a unit, an equal chance of having come from either a unit or an ERA. Soldiers assigned to corps regiments have a higher probability of being assigned from a unit to an ERA and, when arriving at a unit, to have

come from an ERA. As a result, a higher percentage of soldiers in divisional regiments are in unit assignments when compared to corps regiments.

4-20. SUMMARY OF STUDY RESULTS

a. Unit Related. The policies of the COHORT Battalion Movement Plan for infantry, field artillery, and armor maintain the unit strength profiles in rotating battalions at or above the specified minimum readiness criteria in the CONUS cycle. However, there are short periods during the OCONUS cycle where the strength profiles of some regiments are below the 90 percent floor. Extra-regimental assignment pools are almost always maintained at or above the 70 percent strength level. Turnover patterns for rotating battalions are concentrated at predicatable points in a unit's life cycle with a significant reduction in turnover between those points when compared to that of the Individual Replacement System. In addition, the number of PCS moves are somewhat increased under the COHORT BMS when compared to the IRS.

b. Individual Related

(1) Armor/Cavalry. Average career patterns for soldiers in armor regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from a unit, origin when assigned to a unit, and turnaround time. However, for soldiers in cavalry regiments, a higher percentage are in unit assignments and there are wide variations in assignment locations due to differences in authorization structures.

(2) Infantry. Average career patterns for soldiers in infantry regiments show very few differences regarding promotion opportunity, assignment type, assignment location, destination upon reassignment from regimental units, origin when assigned to a regimental unit, and turnaround time.

(3) Field Artillery. Average career patterns for soldiers in artillery regiments show few differences regarding promotion opportunity, assignment location, and turnaround time but some differences do exist because of structural variations. Soldiers in divisional regiments have a higher probability of being assigned from one unit to another and, when arriving in a unit, an equal chance of having come from either a unit or an ERA. Soldiers assigned to corps regiments have a higher probability of being assigned from a unit to an ERA and, when arriving at a unit, to have come from an ERA. As a result, a higher percentage of soldiers in divisional regiments are in unit assignments when compared to corps regiments.

CHAPTER 5

OBSERVATIONS

5-1. PURPOSE. The purpose of this chapter is to present observations which, while not directly related to the questions to be answered, are of significance in the process of implementing a battalion-level unit movement system within the context of the US Army Regimental System.

5-2. OBSERVATION: REGIMENTAL TOE STRUCTURES

a. Rotating battalions that have essentially the same TOE structure, such as armor and infantry, show few variations in career patterns. Regiments consisting of four rotating battalions are the most consistent in terms of career patterns. Regiments consisting of six rotating battalions result in a soldier spending approximately 75 percent of a career in a unit as compared to 50 percent for a four-battalion regiment.

b. Field artillery regiments show career pattern differences between divisional and corps artillery units. Divisional soldiers average approximately 75 percent of a career in a unit, whereas the corps artillery soldier spends 20 to 55 percent depending on the type unit. This is a result of both TOE structure and location. A majority of the corps artillery units are OCONUS and, when spaces are allocated by PSAM, the first two priorities are turnaround time and promotion equability. In order to satisfy these, large ERA pools are allocated.

5-3. OBSERVATION: EXTRAREGIMENTAL ASSIGNMENT POOLS. Extraregimental assignment pools are almost always maintained above the 70 percent total strength floor. This was accomplished by assignment of individual replacements from the training base. Without these replacements, total strength levels could not have been maintained above the floor. The 70 percent floor for NCO authorizations, however, could not always be maintained. This was especially true for regiments with nonstablized ERAs. However, due to the stabilization policies in COHORT units, ERA turnover is very high.

5-4. OBSERVATION: INDIVIDUALS ACCOUNT

a. An assumption used during this study is that the enlisted operating strength of each branch is the sum of the authorized enlisted positions of that branch. This strength is less than the programed enlisted end strength by the number of authorized enlisted positions in the Individuals Account. This has an effect on PFAM in terms of unit fill and NCO education.

b. The model does not take into account transients nor the length of travel time. As a result, when a reassignment is made, the individual is instantly transported from one assignment to another. This would definitely have an effect on all but intrastation moves. Overseas movements would probably take on an average of 30 to 45 days during which time the unit would be short personnel.

c. NCO schooling is not addressed in the model although it is currently required for promotion. PFAM will only let an NCO be assigned to a regimental unit or ERA. This being the case, NCOs would have to attend schooling on a TDY basis which would result in a reduction of unit readiness due to periodic absences of key supervisory personnel. The regimental system should be structured in such a way that all NCOs have the opportunity to attend schools to further their skills and to be eligible for promotion.

5-5. OBSERVATION: REGIMENTAL HOMEBASES

a. The concept of a regimental homebase is that a soldier would have a location to essentially call home. Throughout a soldier's career, he would alternate assignments between the homebase and other locations.

b. One of the criteria PSAM uses to allocate ERA spaces is the homebase. When ERA spaces are allocated, the spaces at a regiment's homebase are given to that regiment. These allocations are contained in Appendix H.

c. Based upon the ERA allocations, very few soldiers will have the opportunity for repeating assignments at the regimental homebase. For example, the 12th Infantry Regiment (Annex II to Appendix H) has a TOE strength of 2,100 and ERA allocations of 1,108. Two battalions are homebased at Fort Carson and two in Germany. Of the ERA allocations, only 322 are at the homebase. A soldier's chance of being assigned to the homebase after an OCONUS tour is less than 1 in 3 unless a back-to-back unit assignment is made. This is even more apparent in the field artillery. Fort Sill is the homebase for four field artillerly regiments which have a combined TOE strength of approximately 5,000 but only 1,818 ERA spaces. If the ERA spaces were evenly divided among the four regiments, a soldier would not have a very good chance of having repeat assignments at the homebase.

d. The basic problem with the regimental homebase concept is that there are not enough ERA spaces at homebases to support alternating assignments.

5-6. OBSERVATION: PROMOTIONS. When ERA spaces were allocated by PSAM the first goal was turnaround time and the second, promotion eligibility. As shown in Chapter 4, this goal was met with small variations in time in grade for promotion to the next higher grade. However, when the times are compared with the current averages for time in grade for promotion to the next higher grade, there is a wide desparity. Table 5-1 is a comparison of the time in grade. As shown, the times resulting from the simulation are much higher. This can be attributed to the model only promoting when a vacancy occurs at a particular grade in the regiment. This also results in grade imbalance between regiments due to the size of ERA pools that were allocated. Extended promotion times and grade imbalance are due to the closed regimental system. Promotion times were very similar for both BMS and IRS.

Table 5-1. Time in Grade (in months) to Promotion

Grade	DA avg	Inf avg	Arty avg	AR avg	Cav avg
E4	24	36	43	26	40
E5	42	72	79	86	76
E6	60	95	99	86	103
E7	60	68	64	79	54

APPENDIX A

STUDY CONTRIBUTORS

1. STUDY TEAM

a. Study Director(s)

LTC C. L. Frame, Force Systems Directorate (to September 1985)
LTC R. V. Oehrlein (September 85-June 86)
MAJ(P) G. J. Captain (June 86-August 86)

b. Team Members

Mr. John Haley
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2. PRODUCT REVIEW BOARD

Mr. Howard Whitley, Chairman
LTC George C. Bennett
Mr. Chester Jakowski
Mr. Yuan-Yan Chen
Mr. Kirk Reed

APPENDIX B

STUDY DIRECTIVES

Section I. ORIGINAL STUDY DIRECTIVE

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR PERSONNEL
WASHINGTON, DC 20310-0300

REPLY TO ATTENTION OF

DAPE-PSB

6 AUG 85

SUBJECT: Unit Replacement System Analysis Infantry/Field Antillery/Armor (URSA IN/FA/AR) Study

Director
US Army Concepts Analysis Agency
8120 Woodmont Avenue
Bethesda, Maryland 20814

1. PURPOSE OF STUDY DIRECTIVE. This directive provides for a study to analyze a movement system for the New Manning System (NMS).

2. BACKGROUND.

a. A primary goal of the Army is to enhance combat effectiveness. Turbulence in manpower (positions), personnel (people), and force structure (organizations) inhibits improved combat effectiveness and commanders from developing and maintaining cohesive, well-trained units. Over the past three decades, the Army has adopted management philosophies which focused on individuals and resulted in a high turnover in units. This turbulence has reduced readiness by inhibiting the development and sustainment of cohesive, thoroughly trained units.

b. Having recognized the systemic shortcomings of the manning process, the Chief of Staff, US Army (CSA) directed several initiatives designed to analyze and correct specific components of the Army manning system. Using the initiatives as a basis, the CSA further directed the formation and implementation of a manning system which enhances combat effectiveness by keeping soldiers together in units longer. He directed that this objective be pursued through the rotation and/or replacement of units in an environment where career soldiers are offered the opportunity to have repetitive assignments within the framework of a US Army Regimental System.

c. The New Manning System Division of the Office of the Deputy Chief of Staff for Personnel has been charged with development and implementation of a New Manning System (NMS) to reduce the turbulence associated with the current individual replacement system.

d. The US Army Concepts Analysis Agency (CAA) conducted two studies [Unit Replacement System Analysis (URSA 1) and Unit Replacement System Analysis Extension (URSA II)] in support of this effort. URSA I studied the impact of a steady-state unit replacement/rotation system on the Department of the Army.

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SUBJECT: Unit Replacement System Analysis Infant y/Field Antillery/Armor (URSA IN/FA/AR) Study

The unit rotation model periodically exchanged battalions between CONUS and OCONUS. The unit replacement model formed units in CONUS, moved them to OCONUS to replace units, then disestablished them. URSA II identified requirements and costs for five alternative unit rotation plans, each of which had different CONUS and OCONUS unit stay times.

e. The CSA selected a company movement plan for field evaluation and steady-state analysis. The long-tour unit rotation cycle consisted of 18 months in CONUS followed by 18 months in OCONUS. The unit short-tour cycle consisted of 24 months in CONUS followed by 12 months OCONUS.

f. CAA was tasked to determine how to distribute extra-regimental assignment (ERA) spaces to regiments so that soldiers of the same MOS serving in different regiments would have similar career patterns. The Unit Replacement System Analysis III (URSA III) Study recommended allocations for infantry, field artillery, and armor regiments.

g. Feedback from the field evaluation and analytical efforts has indicted the cost, sustainability, feasibility and manageability of the company replacement mode. In July 1983 the Vice Chief of Staff, US Army (VCSA) directed the development and evaluation of a battalion rotation system with a 36-month foreign service tour length to accompanied tour areas.

h. Selected battalions are participating in a field evaluation to identify the detailed policies and procedures that must be applied to implement the NMS and to assess the effects of battalion rotation. A study is needed to analyze the effects on DA when large-scale rotation is implemented. Findings from the evaluation and the study will be used to develop policies to best transition and sustain American regiments that enhance combat effectiveness by keeping soldiers together in units longer. CAA conducted the immediate predecessor of this study, Unit Replacement System Analysis IV (URSA IV), which assessed some effects of the rotation of armor units.

3. STUDY PROPONENT. The study is sponsored by the Deputy Chief of Staff for Personnel (DCSPER).

4. STUDY AGENCY. The US Army Concepts Analysis Agency will conduct the study.

5. TERMS OF REFERENCE.

a. Scope:

(1) Only peacetime, steady-state personnel operations will be considered.

(2) Only the active component force specified by the sponsor will be considered.

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(3) Only the armor, field artillery, and infantry regimental structures specified by the sponsor will be considered.

(4) Only personnel authorization documents specified by the sponsor will be used. No increase in personnel authorizations will be permitted.

(5) Only enlisted personnel authorizations in CMF's 11, 13, and 19 will be considered.

(6) Only officer authorizations in specialties 11, 12, and 13 will be considered.

(7) The unit movement system will include COHORT battalion movement, company movement, and individual replacement.

(8) The rotation battalion long-tour life cycle will consist of 36 months in CONUS followed by 36 months OCONUS.

(9) The replacement company long-tour life cycle will consist of 18 months in CONUS followed by 18 months OCONUS.

(10) The replacement unit short-tour life cycle will consist of 24 months in CONUS followed by 12 months OCONUS.

(11) Unit stationing will be fixed as specified by the sponsor.

(12) Regimental homebases will be fixed as specified by the sponsor.

(13) The allocation methodology developed during the URSA III Study will by used for distributing extra-regimental positions. The simulation methodology developed during the URSA IV study will be used as a basis and further refined.

(14) The personnel readiness indicators will be analogous to those defined in AR 220-1 (assigned strength percentage, senior grade percentage, and personnel turnover percentage).

(15) Sustainability of the movement system will be considered from the unit perspective in terms of personnel readiness indicators and PCS cost comparisons and from the individual perspective in terms of career patterns.

b. Objectives. Assess the sustainability of the New Manning System movemen system by doing the following:

(1) Given a force structure with a fixed operating strength and a personnel system operating in a steady-state condition under the COHORT Battalion Movement Plan, describe the personnel readiness indicators of

authorized armor, field artillery and infantry positions in the units and the ERA pools.

(2) Given a force structure with a fixed operating strength and a personnel system operating in a steady-state condition under an individual replacement plan, describe the personnel readiness indicators of authorized armor, field artillery and infantry positions in units and the ERA pools.

(3) Compare the personnel readiness indicators of the two systems.

(4) Determine the differences in PCS costs between the COHORT Battalion Movement Plan and the individual replacement plan.

(5) Describe the average career pattern for soldiers serving in the specified MOSs under the COHORT Battalion Movement Plan.

(6) Describe the regimental career patterns for the specified officers who serve company-grade, field-grade, and command tours in regimental units under the COHORT Battalion Movement Plan.

c. Assumptions:

(1) The enlisted operating strength of each branch is the sum of the authorized enlisted positions of that branch and is less than the programmed branch enlisted end strength by the number of authorized enlisted positions in the Individuals Account.

(2) The available and operating strength of each unit is equal to its authorized strength for the purposes of allocation.

(3) The number of assigned soldiers by grade and MOS is equal to the number of authorized positions by grade and MOS.

d. Essential elements of analysis:

(1) What are the strength profiles in regimental battalions and in extra-regimental assignment pools.

(2) What are the turnover patterns in regimental battalions, and in extra-regimental assignment pools.

(3) What are the differences in PCS costs for both intertheater and intratheater movement between the COHORT Battalion Movement system and the individual replacement system?

(4) What are the average career patterns for armor, field artillery and infantry soldiers in terms of:

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(a) Promotions?

(b) Types of assignments?

(c) Locations of assignments (including number of PCS moves, number of overseas assignments)?

(d) Destination upon reassignment from regimental units?

(e) Origin when reassigned to regimental unit?

(f) Turn-around time?

(5) What are representative regimental tour patterns for officers who serve one, two and three tours in regimental units in company-grade, field-grade, and command positions, respectively?

6. RESPONSIBILITIES:

a. ODCSPER will:

(1) Designate the proponent's study coordinator.

(2) Specify the following Armor data no later than 1 August 1985 and Infantry/Field Antillery data no later than 1 October 1985.

(a) Study force.

(b) Regimental structures and movement modes for each unit.

(c) Unit stations.

(d) Regimental homebases.

(e) Pertinent personnel management, attrition, promotion and assignment policies and data.

(3) Submit DD Form 1498 in accordance with DA Pam 5-5.

(4) Provide a critique of the draft study report for incorporation into final report.

b. CAA will:

(1) Designate a study director and establish a full-time study team.

(2) Communicate with appropriate agencies for data necessary for the

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SUBJECT: Unit Replacement System Analysis Infantry/Field Antillery/Armor (URSA IN/FA/AR) Study

study accomplishment.

(3) Provide ADP support as required for study accomplishment.

(4) Provide draft and final study report to the study proponent.

(5) Provide on tape to the study proponent the detailed data which support the study findings.

7. REFERENCES.

a. AR 5-5, Army Studies and Analysis, 15 October 1981.

b. AR 220-1, Unit Status Reporting, 1 June 1981.

c. DA Pam 5-5, Guidance for Army Study Sponsors, Sponsor's Study Directors, Study Advisory Groups, and Contracting Officer Representatives, 1 April 1982.

d. Report, Unit Replacement System Analysis I, CAA-SR-82-1, January 1982.

e. Report, Unit Replacement System Analysis II, CAA-SR-82-3, May 1982.

f. Report, Unit Replacement System Analysis III, CAA-SR-83-9, June 1983.

g. Letter, DAPE-ZXB, HQDA, 14 December 1983, subject: COHORT Battalion Movement System.

h. Letter, DAPE-PSB, HQDA, 26 December 1984, subject: HQDA DCSPER Policy Letter--COHORT Battalion Rotation.

i. Report, Unit Replacement System Analysis IV, CAA-SR-85-5, February 1985.

j. Letter, DAPE-PSB, HQDA, 4 June 1985, subject: HQDA DCSPER Policy Letter--COHORT Battalion Rotation.

8. ADMINISTRATION.

a. Support. Secretarial support will be provided by CAA.

b. Milestone Schedule.

(1) Armor results IPR: 6 November 1985.

(2) Final results IPR: 19 February 1986.

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(3) Draft study report: 31 March 1986.

c. Action Document. A final study report will be published and copies provided to the study proponent.

d. Coordination. This tasking directive has been coordinated with CAA in accordance with AR 10-38.

FOR THE DEPUTY CHIEF OF STAFF FOR PERSONNEL:

LESLIE E. BEAVERS
Brigadier General, GS
Director, Personnel Plans
and Systems

(NOT USED)

Section II. STUDY DIRECTIVE MODIFICATIONS

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR PERSONNEL
WASHINGTON, DC 20310-0300

REPLY TO
ATTENTION OF

DAPE-PSB

21 FEB 1986

SUBJECT: Unit Replacement System Analysis Infantry/Field Artillery/Armor (URSA IN/FA/AR)

Director
US Army Concepts Analysis Agency
8120 Woodmont Avenue
Bethesda, Maryland 20814

1. References:

a. Letter, Subject as above, DAPE-PSB, 9 Aug 85.

b. Briefing by LTC Oherlein, CAA, to NMSD, DAPE-PSB, subject as above, 7 Jan 86.

2. The purpose of this correspondence is to delete one requirement from the study directive (Reference a), modify one requirement in the study directive and request CAA conduct an excursion as discussed in reference 1b.

3. Issues relating to officer assignments within rotating units of the U.S. Army Regimental System have been referred to MILPERCEN for analysis. Therefore, the objective at paragraph 5b6 and the supporting essential element of analysis at paragraph 5c5 of reference 1a should be deleted.

4. During the conduct of the briefing at reference 1b it was determined that the CAA model can be used to determine the number of PCS moves. However, PCS costs should be determined by HQDA. Therefore, objective 5b4 should be changed to "number of PCS moves" where "PCS costs" currently appears. Paragraph 5d3 should be modified in the same manner.

5. During the conduct of the briefing at reference 1b the issue of reassignments under the Individual Replacement System and the Unit Rotation Model were discussed in detail. There appears to be an opportunity to reduce the number of reassignments under the unit movement model with minor modifications to the policies currently modeled. The impact of the policy changes on supportability and unit strength maintenance must be assessed. Request an excursion be conducted to evaluate a rotation model with the following policy changes from the base (current) rotation model.

a. The lock-in period of 6 months before to 6 months after rotation from OCONUS to CONUS will remain in effect for first-term soldiers.

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b. The lock-in period of 6 months after rotation from OCONUS to CONUS will be relaxed to allow the reassignment of career soldiers at rotation to valid assignments if the following criteria are met.

(1) They have met the overseas tour length requirements.

(2) They have met the minimum unit stabilization requirements of 48 months.

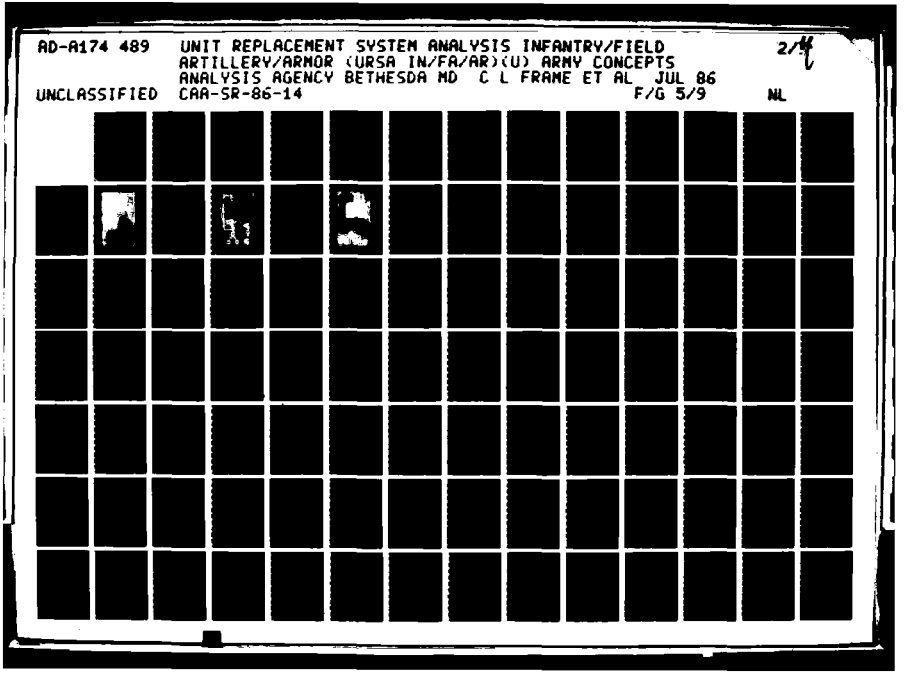
6. POC for this action is MAJ Eyrich, 695-5922.

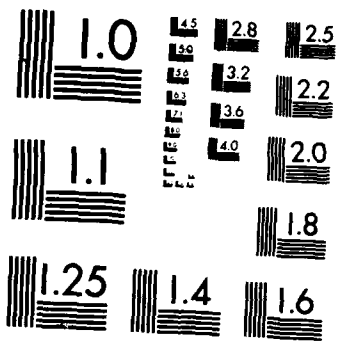
FOR THE DEPUTY CHIEF OF STAFF FOR PERSONNEL:

LESLIE E. BEAVERS
Brigadier General, GS
Director, Personnel, Plans
and Systems

AD-A174 489 UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA IN/FA/AR)(U) ARMY CONCEPTS ANALYSIS AGENCY BETHESDA MD C L FRAME ET AL JUL 86 2/4

UNCLASSIFIED CAA-SR-86-14 F/G 5/9 NL





APPENDIX C

REFERENCES

DEPARTMENT OF THE ARMY

Office of the Deputy Chief of Staff for Personnel (ODCSPER)

1. Letter, DAPE - PS, dated 18 November 1985, subject: Listing of US Army Regimental System (USARS) Regiments

US Army Concepts Analysis Agency (CAA)

2. Report, Unit Replacement System Analysis I (URSA I), CAA-SR-82-1, January 1982

3. Report, Unit Replacement System Analysis II (URSA II), CAA-SR-82-3, May 1982

4. Report, Unit Repalcement System Analysis III (URSA III), CAA-SR-83-9, June 1983

5. Report, US Army Regimental Personnel Allocation Study (REPAST), CAA-SR-84-8, February 1984

6. Report, Unit Replacement System Analysis IV (URSA IV), CAA-SR-85-5, February 1985

MISCELLANEOUS

7. Pritsker, A. A. B., Modeling and Analysis Using Q-GERT Networks, 2d Ed., John Wiley and Sons, NY, 1979

APPENDIX D

THE PERSONNEL SPACE ALLOCATION MODEL (PSAM)

D-1. INTRODUCTION

a. The PSAM was developed by the US Army Concepts Analysis Agency as a methodology to allocate ERA personnel spaces to regiments. It was developed in support of the URSA III Study and was first published in June 1983. The methodology was used in CAA's REPAST report and again in the URSA IV Study.

b. The PSAM allocates, by MOS, extraregimental personnel spaces to regiments in such a manner as to minimize the deviation among regiments in the prioritized goals depicted in Table D-1. It utilizes a sequential linear goal programing technique whereby the deviation for a goal is minimized by allocating all ERA spaces. This goal is then set as a binding equality constraint while the model minimizes deviation for the next goal by reallocation of the spaces. The process is repeated until the deviations among regiments for all six goals have been minimized. A general description of the model is contained in paragraph D-2, while a more mathematically oriented overview is included at Annex I to this appendix. Both of these portions of the report were taken in large part from the REPAST report.[5]

Table D-1. Allocation Goals

Goal	Priority
Individuals have same CONUS turnaround[a] time	1
Individuals have same promotion opportunity	2
Best geographic distribution	3
Equal chance to have unit assignment	4
Equal chance of short-tour assignment	5
Equal size regiments	6

[a]Turnaround time is the amount of time a soldier can expect to spend in one or more CONUS assignments between OCONUS tours.

D-2. THE MODEL. PSAM is a sequential linear goal programing model used to allocate available ERA spaces to regiments. In using this approach, the goals enumerated in Table D-1 were formulated as achievement functions which typically included a set of deviation variables, the sum of which was to be minimized, subject to a set of constraint equations. The remainder of this paragraph provides only a brief description of these topics.

a. Goals and Measures of Effectiveness

(1) In this model, the importance of goals is preemptive, that is, the weight attached to obtaining the best possible solution to the highest priority goal is infinitely more important than that attached to the second. Similarly, the second priority goal is infinitely more important than the third, etc. Because of this, the optimal value of each higher priority achievement function is imposed as a constraint on subsequent optimizations.

(2) The highest priority goal (see Table D-1) was that personnel of the same grade and MOS should have an equal interval between overseas tours regardless of regimental affiliation. In attempting to satisfy this goal, the model allocated CONUS spaces to those regiments which were initially CONUS light and OCONUS spaces to those which had an overage in CONUS. For each allocation, the measure of effectiveness (MOE) in achieving this goal was the sum of the deviations between the computed turnaround time for each regiment and the Army-wide turnaround time calculated for that grade and MOS.

(3) The promotion opportunity goal caused the model to attempt to distribute available spaces so that every regiment had a similar grade distribution pyramid. The MOE for this goal was the sum of the deviations between the higher-to-lower grade ratios for each regiment and those of the MOS as a whole.

(4) The geographic distribution goal was formulated as a maximization function in which a profit was associated with each location and regiment combination. Maximum profit was associated with the allocation of spaces at a CONUS installation to regiments which were homebased there. Similarly, maximum profit was associated with allocation of OCONUS spaces to appropriate regiments, i.e., spaces in Germany to those regiments which had their OCONUS components there. Other location and regiment combinations were awarded points on a diminishing scale. This goal was best satisfied when the highest achievement function value had been obtained.

(5) The unit opportunity goal sought to achieve the same ratio of ERA spaces to battalion (unit) TOE spaces for each regiment. The sum of the deviation between the ratio of each regiment and the Army-wide ratio for that grade and MOS provided the MOE used to evaluate achievement of this goal.

(6) In satisfying the short-tour opportunity goal, the model attempted to achieve the same ratio of spaces in short-tour areas to total spaces for each regiment. Again, the sum of the deviations between the regimental ratios and the Army-wide ratio provided the MOE for determining goal achievement.

(7) The equal-size goal caused the model to attempt to provide regiments with an equal number of total spaces for each grade and MOS.

F imental deviations from the average regimental size provided the MOE for determining goal achievement.

b. Constraints. In addition to the goals shown above, certain constraints were also operative:

(1) The model was required to distribute all of the available spaces (availability constraints).

(2) Homebase, non-homebase, and overseas flow requirements were to be satisfied as well as possible (capacity constraints). In situations where insufficient resources were available, however, the model was required to distribute CONUS and OCONUS spaces to accommodate the flow into and out of units on a fair share basis.

D-3. INPUT DATA. The PSAM requires input data of two types: policy data and authorization data.

a. Policy data completely describes the regimental unit structure under consideration. It describes the homebasing scheme for the regiments, the regimental affiliation of each unit, the policy stay time for each type of unit in each location, and the mixture of accompanied and unaccompanied personnel in OCONUS theaters.

b. Authorization data provides the specific number of space authorizations, by grade and MOS, for each TOE unit in the policy data file. Similarly, it includes all TDA and TOE above battalion authorized spaces (ERA spaces), by grade and MOS, for the career management field being allocated. URSA-IN/FA/AR authorization data is a listing of all PERSACS authorized spaces as of 30 September 1988 as edited by the study sponsor.

D-4. OUTPUT REPORTS. The PSAM provides a myriad of output reports sufficient to completely describe the model's achievement of the minimization of the deviation among regiments in each of the goals described in paragraph D-2. Each regiment's assigned (TOE) and allocated (ERA) authorizations by grade, MOS, and location are depicted, as well as each regiment's performance vis-a-vis each goal. For the purposes of URSA-IN/FA/AR, however, it is the final allocation of extraregimental spaces, and thus the completed regimental structures, that is of interest. ERA allocations, by grade, MOS, and location to each regiment, are presented in a simplified format in Appendix G.

D-5. OPERATION

a. Unlike the URSA III and REPAST Studies where the study objective was to identify the regimental TOE structure for which the least career pattern deviation among regiments could be achieved, in URSA-IN/FA/AR, the TOE regimental structure was fixed (by the study sponsor). PSAM was used only to allocate ERA spaces so that, within the given TOE structure, minimum career pattern differences would be experienced by individuals of the same grade and MOS serving in different regiments. When using the model in this way, the actual degree to which each of the six goals was achieved is of

only secondary importance. Of primary importance is the fact that, for the given TOE regimental structure, the allocation of ERA spaces was accomplished so as to achieve the most consistent career pattern opportunities available under the assumptions of the PSAM methodology.

b. Since the career pattern of an individual serving in a particular MOS is not directly affected by the career pattern of individuals in other MOSs, the PSAM considers only one MOS at a time. For example, career management field 11 (infantry) is made up of four MOSs; 11B (infantryman), 11C (indirect fire infantryman), 11H (heavy antiarmor weapon infantryman), and 11M (fighting vehicle infantryman). CMF 11B and 11M were combined into a composite 11Q MOS, and then separate allocation runs were made for each MOS (11Q, 11C, and 11H).

c. Special consideration must be given to the case where the promotion schemes of two or more MOSs converge; that is, upon promotion, soldiers change MOS designations. This case occurs in almost every CMF and does so in CMF 19 at the E-8 level. Promotions from E-7 to E-8 in all CMF 19 MOSs require a change of MOS to 19Z. In order to consider promotion opportunity in the allocation of E-8 spaces, all MOSs which promote into E-8 19Z (19D and 19Q) were consolidated and a separate run made to allocate the E-8 spaces.

d. Results from the allocation runs with MOS consolidation were merged into a single allocation report for each regiment. These reports are at Appendix G.

D-6. SUMMARY. PSAM, as used in this study, allocated ERA spaces based upon given TOE structure so that minimum career pattern differences would be experienced by soldiers of the same grade and MOS serving in different regiments.

ANNEX I TO APPENDIX D

PERSONNEL SPACE ALLOCATION MODEL (PSAM)

D-I-1. INTRODUCTION. The purpose of this annex is to provide an overview of the Personnel Space Allocation Model. For a more detailed description, to include the mathematical calculations of the goals, achievement functions,* and constraints, see Appendix C of the URSA III Study Report (CAA-SR-83-9).

D-I-2. GOALS AND ACHIEVEMENT FUNCTIONS

a. The Personnel Space Allocation Model is a sequential linear goal programing model in which the decision variables, X (I, J, K', are the number of grade K ERA spaces allocated from location I to regiment J. Goals are formulated as functions of the form

$$\sum_{I} [A(I,J,K) \times X(I,J,K)] = \text{Goal}$$

where: $A(I,J,K)$ = some coefficient associated with location I, regiment J, and grade K

$X(I,J,K)$ = decision variable

Goal = goal to be achieved

And, since the goals are not always perfectly achievable, positive and negative deviation variables, DP and DN, are introduced so that the final form of the rows is

$$\sum_{I} [A(I,J,K) \times X(I,J,K)] + DN(J,K) - DP(J,K) = \text{Goal 1}$$

and the achievement function is

$$\text{MIN} \sum_{J} \sum_{K} \left[|DN(J,K)| + |DP(J,K)| \right].$$

---

*The term achievement function is used throughout this report in lieu of the more frequently used term, objective function. This is done to emphasize the fact that it is the degree of achievement of the goal which is being measured.

b. In this model, the importance of goals is preemptive; that is, the model satisfies the first goal as well as possible, subject to the binding constraints. Then it satisfies the second goal as well as possible, subject to the binding constraints as well as the condition that the previous achievement function cannot be degraded. For example, assume the deviation variables for Goal 1 are DN1(J,K) and DP1(J,K); for Goal 2 they are DN2(J,K) and DP2(J,K). Then the problem formulation for the first priority goal is

$$\text{MIN} \sum_J \sum_K \left[|DN1(J,K)| + |DP1(J,K)| \right]$$

subject to satisfying the goal

$$\sum_I [A(I,J,K) \times X(I,J,K)] + DN1(J,K) - DP1(J,K) = \text{Goal 1},$$

and satisfying the binding constraints

$$\sum_I [B(I,J,K) \times X(I,J,K)] = C(J,K),$$

for every regiment J and grade K.

Then the solution of the priority 2 goal is formulated for every regiment J and grade K as follows:

$$\text{Min} \sum_J \sum_K \left[|DN2(J,K)| + |DP2(J,K)| \right]$$

subject to satisfying the goal

$$\sum_I [A2(I,J,K) \times X(I,J,K)] + DN2(J,K) - DP2(J,K) = \text{Goal 2},$$

satisfying the binding constraints

$$\sum_{I} [B(I,J,K) \times X(I,J,K)] = C(J,K)$$

and, in addition, satisfying the previous priority

$$\sum_{J} \sum_{K} \left[|DN1(J,K)| + |DP1(J,K)| \right] = Z1,$$

where: Z1 = optimal value obtained in satisfying the first priority goal.

Similarly, the third priority is solved by

$$\text{Min} \sum_{J} \sum_{K} \left[|DN3(J,K)| + |DP3(J,K)| \right]$$

subject to

(1) Satisfaction of the third goal,

(2) Satisfaction of the binding constraints, and

(3) Satisfaction of the additional constraints:

$$\sum_{J} \sum_{K} \left[|DN1(J,K)| + |DP1(J,K)| \right] = Z1$$

$$\sum_{J} \sum_{K} \left[|DN2(J,K)| + |DP2(J,K)| \right] = Z2$$

With one exception, all priorities are handled in a similar manner. The exception to this process is the geographic correctness goal which is explained below.

c. The geographic correctness goal states that as many positions as possible will be allocated in a "geographically correct" way. Profit coefficients are defined for every regiment and location combination with four as the highest profit and one the lowest. The geographic correctness achievement function is the only one that does not involve deviation variables. It is a maximization function of the form:

$$\text{Max} \quad \sum_{I} \sum_{J} \sum_{K} [P(I,J,K) \times X(I,J,K)]$$

where: $P(I,J,K)$ = profit coefficient

$X(I,J,K)$ = decision variable

D-I-3. CONSTRAINTS

a. There are two types of binding constraints in the model. The first consists of "availability" constraints, the second consists of "capacity" constraints. They require the model to do the following:

(1) Availability Constraints. Allocate all ERA positions.

(2) Homebase Capacity Constraints. Divide the ERA positions at a location among all rotational regiments homebased there to satisfy, as well as possible, flow requirements.

(3) Non-homebase Capacity Constraints. Allocate CONUS ERA positions to regiments to satisfy, as well as possible, each regiment's flow requirements. In the event there are insufficient CONUS ERA positions to satisfy the flow requirements, factor the flow requirements down to guarantee feasibility.

(4) Overseas Capacity Constraints. Allocate positions in overseas areas to regiments in that area to ensure that accompanied personnel with a 36-month OCONUS tour length requirement have a position for the nonunit portion of their tour. In many cases there are insufficient ERA positions to satisfy every regiment, so shortages are shared by all regiments rotating to the same overseas area.

b. Regimental flow requirements must be satisfied within the context of the capacity constraints applicable to each regiment.

APPENDIX E

INTRODUCTORY EXPLANATION OF Q-GERT AND THE PFAM NETWORK

E-1. GENERAL. Some of the material in this appendix is extracted from Modeling and Analysis Using Q-GERT Networks (2d ed), A. A. B. Pritsker, John Wiley and Sons, Inc., New York, 1979. For the reader desiring a more detailed explanation of Q-GERT than provided in this appendix, this book is highly recommended.

E-2. INTRODUCTION. Q-GERT is an analytical tool developed to provide a capability to model complex network systems and apply computer analysis to such systems. The name Q-GERT is an acronym for Queueing Systems-Graphical Evaluation and Review Technique. Q-GERT was designed and developed to satisfy the need for a network approach to modeling systems that involve procedural, risk, and random elements. This appendix will briefly introduce the Q-GERT symbols and terminology used in the graphical development of PFAM so that the reader might more fully appreciate the role of the Q-GERT network in the structure and operation of the model. This introduction will be followed by a description of the PFAM Q-GERT network itself.

E-3. Q-GERT TERMINOLOGY AND SYMBOLS

a. As discussed in Chapter 3, Q-GERT is an activity-on-branch network structure where a branch represents the activity. Nodes are used to separate branches and represent milestones, decision points, and queues. The items flowing through the network are referred to as transactions. A PFAM transaction represents either individuals moving through the personnel system of the regiment being simulated or control mechanisms by which certain scheduled personnel management actions are timed and initiated. The basic unit of time used in PFAM is 1 month. Transactions accumulate time passing through the branches of the network; and at specified nodes, the accumulated times trigger scheduled management actions, e.g., after 36 time periods (3 years), an individual may be subject to reassignment. Figure E-1 presents the PFAM network with standard Q-GERT notation. Notational information provided in this figure will assist the reader in understanding the model descriptions to follow.

b. Figure E-2 presents the PFAM network with User Function call nodes and node identifications. User Function call nodes provide the link between the Q-GERT network and PFAM's User Function subroutines which define and apply the specific policies being modeled. For a description of each User Function subroutine and its role in PFAM, see Appendix F.

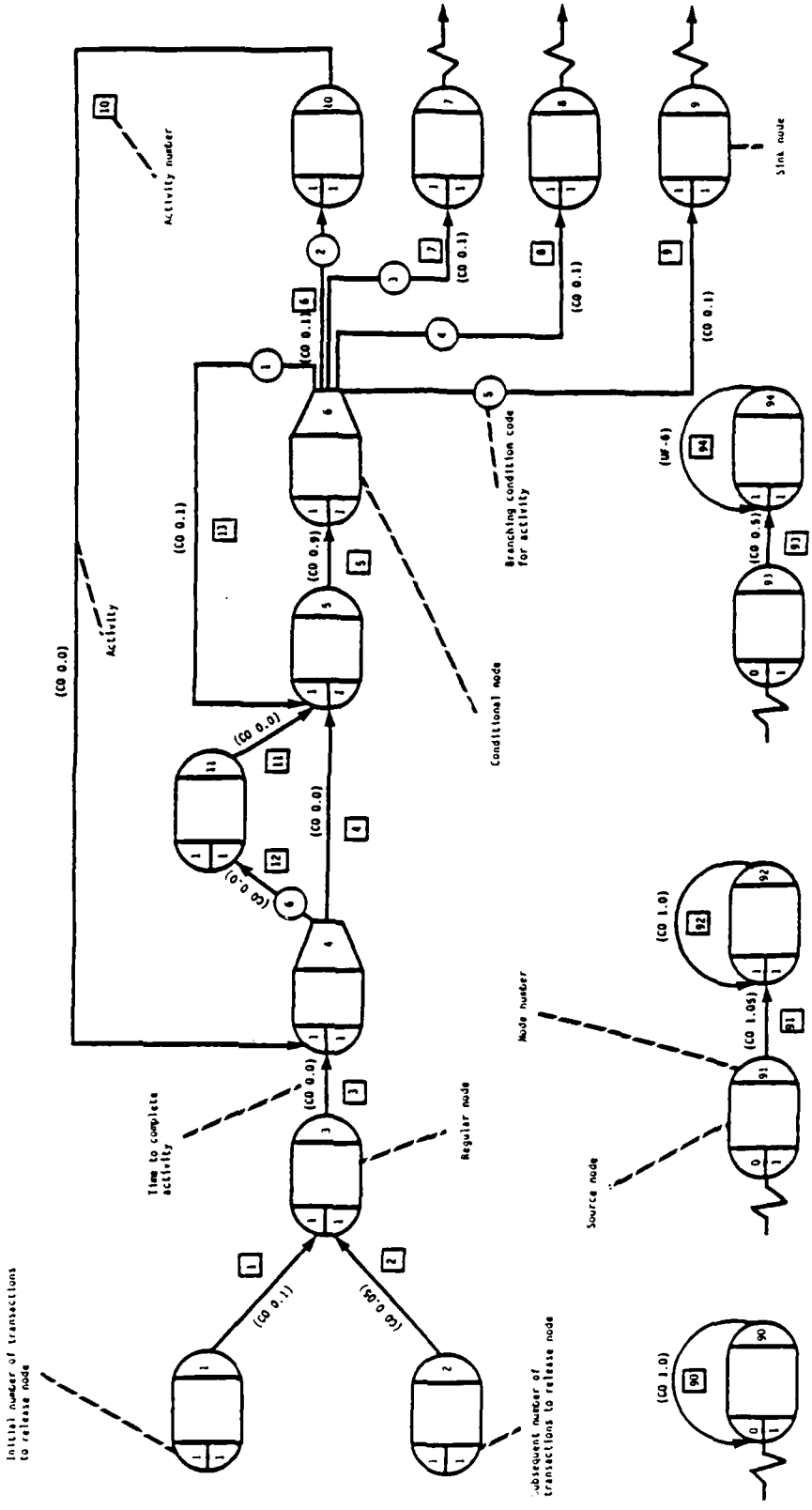


Figure E-1. PFAM Q-GERT Notation

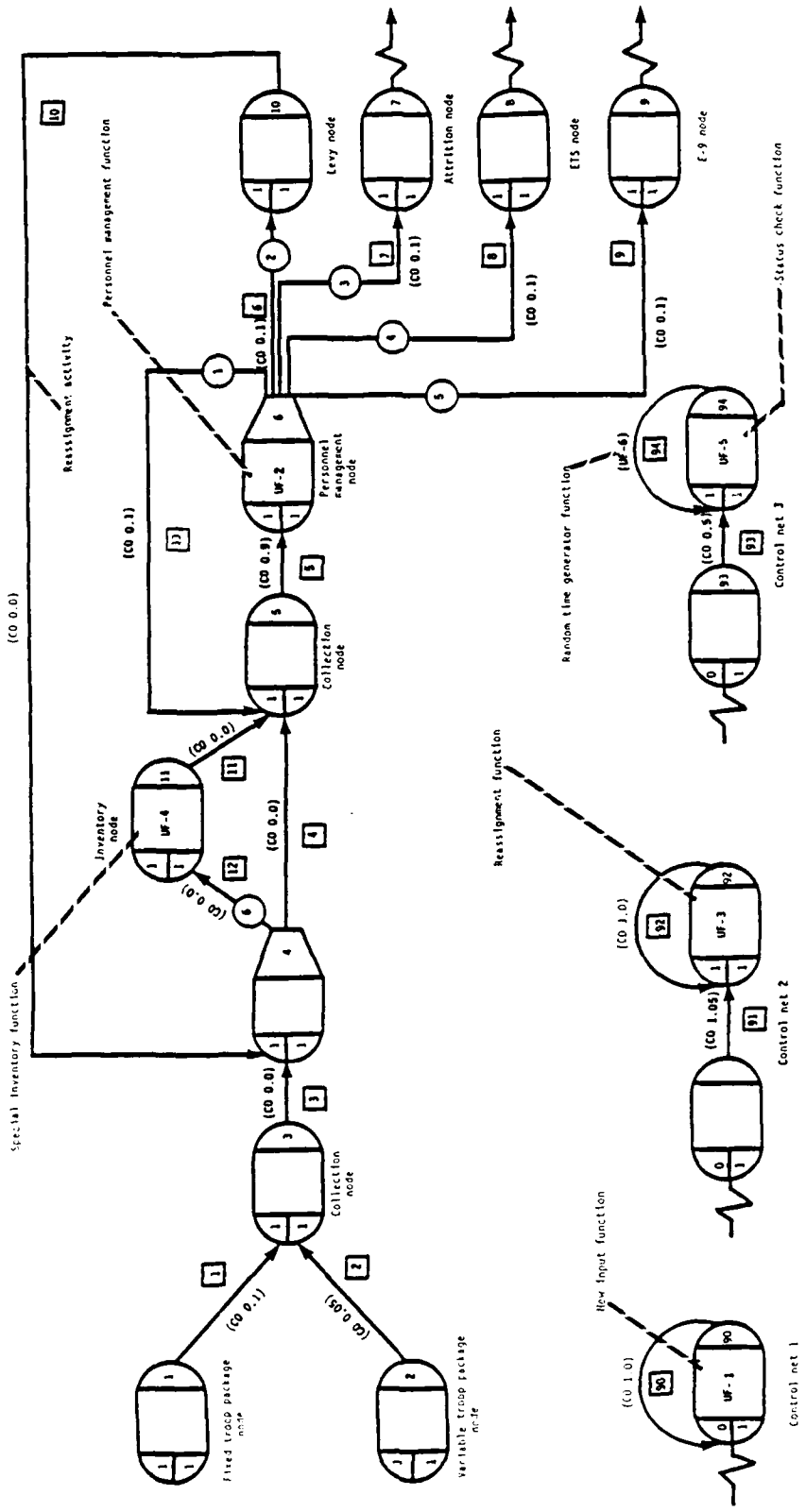


Figure E-2. PFAM Q-GERT Network

c. In order to facilitate understanding the Q-GERT representation of a regimental level personnel system, the PFAM network's events/activities have been broken into three major areas for discussion. The first area to be described is the PFAM representation of the Army's accession and training base activities; the second is day-to-day personnel management activities; and the third is the periodic reassignment of personnel from one duty position to another within the regiment. The remainder of this appendix discusses each of these areas and how it is modeled in the PFAM network.

E-4. TRAINING BASE ACTIVITIES

a. The series of PFAM nodes and activities shown in Figure E-3 represents the Army's accession and training base activities. These activities are modeled by the entry of new transactions, each representing a new first-term soldier, into the network at nodes 1 and 2. Fixed size COHORT packages and individual replacement packages enter the network via node 1 while variable size COHORT packages enter the network via node 2. Control of this portion of the model is exercised by the FORTRAN subroutines NWINPT (new input function) and REASGN (reassignment function).

b. Subroutine NWINPT (User Function - 1) is called and executed at the beginning of each time period by a control transaction which moves continuously through control net 1. At each time period when a fixed size first-termer package, either COHORT or individual replacement, is scheduled by input data describing the fill plans of all regimental units to enter the regiment, NWINPT determines the type and size package required and causes a Q-GERT subroutine to generate the proper number of transactions and enter them into the network at node 1.

c. The introduction of variable size COHORT packages (there are no variable size individual replacement packages) is initiated by subroutine REASGN (User Function - 3) also according to the input data schedule. REASGN is responsible for this action because the size of the variable package cannot be determined until the reassignment process described in paragraph E-6 has been completed. Subroutine REASGN is called and executed slightly after (.05 month) the beginning of each time period by a control transaction operating in control net 2. Once the reassignment process has been completed, REASGN checks for scheduled variable package inputs. If one or more such package is scheduled, REASGN calls NWINPT, which causes the proper number of transactions to enter the system. Because of the time delay in the execution of the reassignment process, these transactions are entered into the system through node 2.

d. Since there is a .1 month activity time between nodes 1 and 3 and a .05 month activity time between nodes 2 and 3 (to compensate for the .05 month later introduction of variable size COHORT packages), all new transactions (soldiers) entering the regiment at a given time period, regardless of their source, arrive simultaneously at node 3 and proceed to their initial assignments.

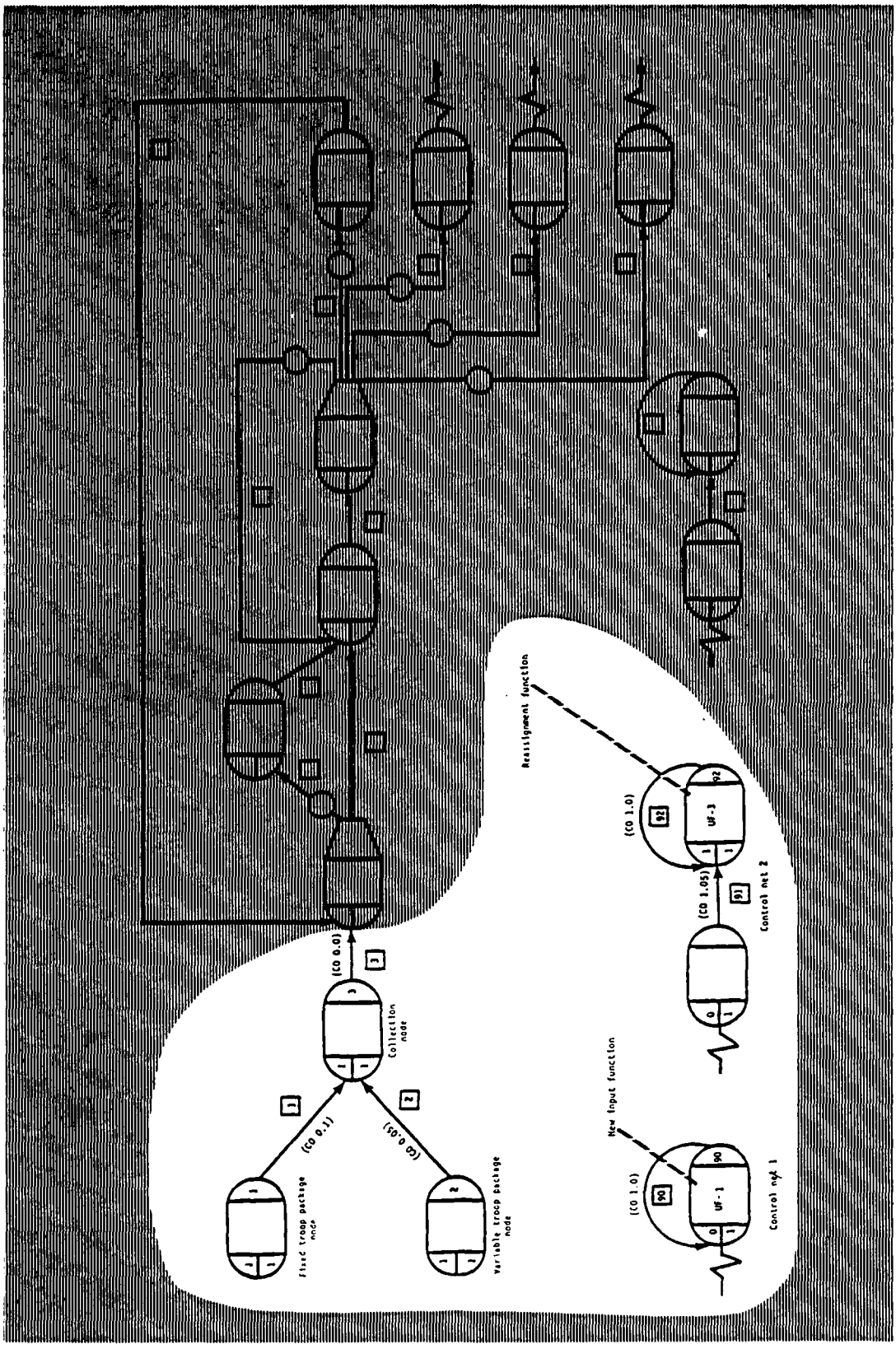


Figure E-3. PFAM Q-GERT Network, Training Base Activities

E-5. PERSONNEL MANAGEMENT ACTIVITIES

a. The series of PFAM nodes and activities shown in Figure E-4 represents those normal personnel management activities which influence a soldier's career opportunities and progression. The key portion of this section of the network is the loop defined by node 5, activity 5, node 6, and activity 13. This loop represents the current assignment of every soldier in the regiment. Both new first termers arriving at their initial assignments and soldiers reporting to new assignments enter the assignment loop via either activity 4 or activity 11. (These activities will be described in paragraph E-6.) Having arrived at node 5 through one of these activities, each soldier begins to accumulate time in his new assignment.

b. All soldiers (Q-GERT transactions) enter node 5 at .1 time unit (month) after the beginning of each time period. Each transaction then immediately proceeds along activity 5 where it spends .9 months "soldiering." As each transaction enters node 6 at the end of each time period (also the beginning of the next time period), subroutine PERMGT (User Function - 2) is called and executed. Subroutine PERMGT performs all modeled personnel management activities except the reassignment of individuals. Activities accomplished by PERMGT include the maintenance of personnel records, identification of soldiers who will attrite, reenlistment and promotion of eligible soldiers, identification of soldiers eligible for reassignment, and the inventorying of all regimental assignments. Each of these activities is described in detail in paragraph F-4c, Appendix F. Each will be discussed here in terms of its effect on a soldier's movement through the PFAM network.

(1) As described in paragraph F-4b(2), each soldier is uniquely identified by an identification number. This number is stored in the first of the two attributes which each Q-GERT transaction carries with it through the network. Attribute #2 is a routing code. The value of this attribute is set during each execution of PERMGT and determines the route by which the transaction leaves conditional node 6. Each PFAM soldier, like his real world counterpart, also has a set of personnel records. Data maintained in each soldier's personnel qualification record (PQR) (see paragraph F-4b(3) for a data list) is used to make personnel management decisions and is updated throughout the monthly execution of the various personnel management activities.

(2) If a soldier is identified as a loss due to unprogramed attrition, his routing code is set to 3. The transaction representing this soldier will depart node 6 on activity 7 to the attrition sink node where it will depart the network.

(3) If a soldier chooses not to reenlist, his routing code is set to 4. The transaction representing this soldier will depart node 6 on activity 8 to the ETS sink node where it will depart the network.

(4) If a soldier is promoted to grade E-9, his routing code is set to 5. The transaction representing this soldier will depart node 6 on activity 9 to the E-9 sink node where it will depart the network.

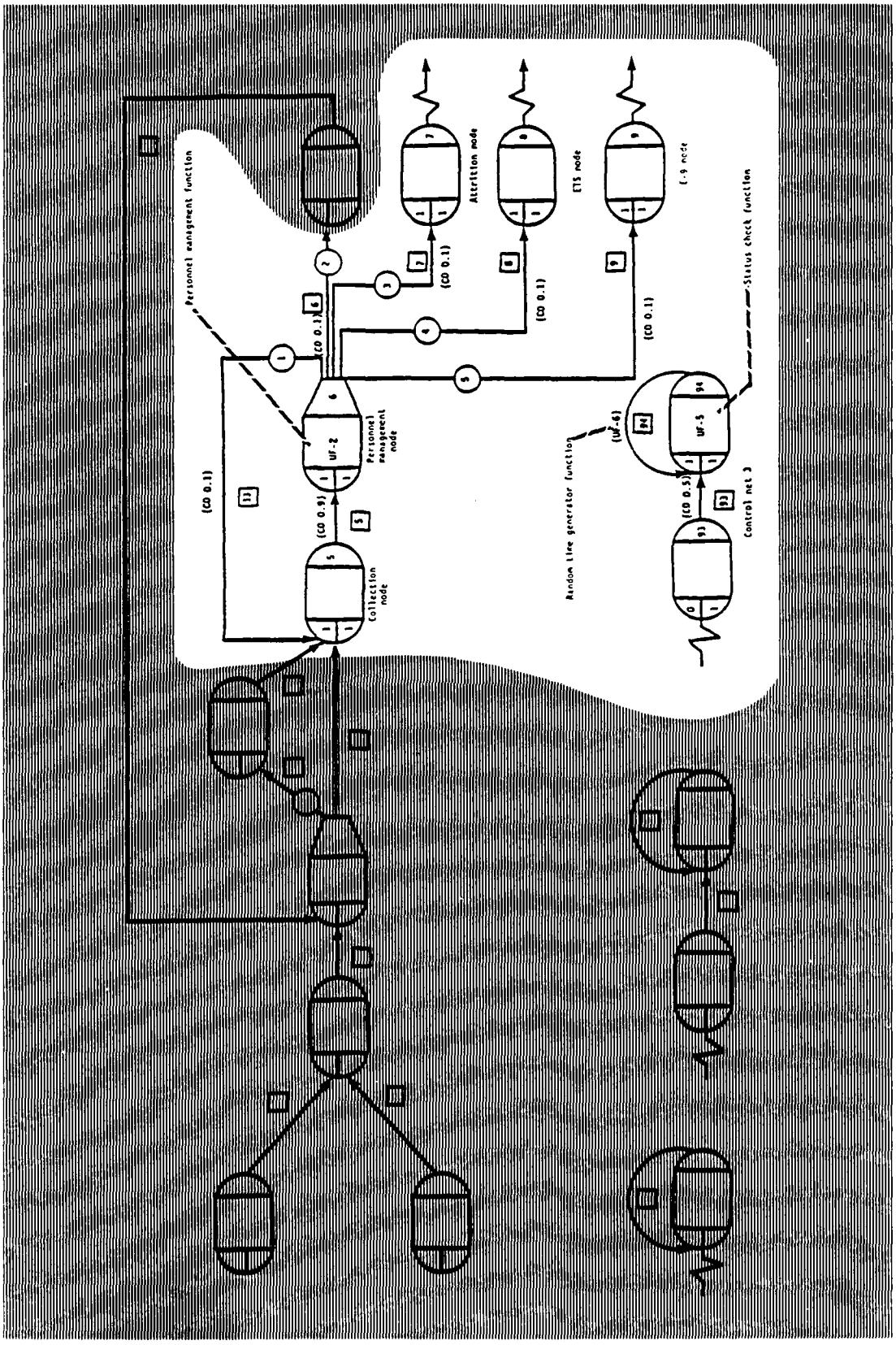


Figure E-4. PFAM Q-GERT Network, Personnel Management Activities

(5) If a soldier is identified as eligible for reassignment from his current assignment, his routing code is set to 2. The transaction representing this soldier will depart node 6 on activity 6 to the levy node where it will await results of reassignment processing described in paragraph E-6.

(6) Soldiers not routed as described in paragraphs (2) through (5) above will have their routing codes set to 1. Transactions representing these soldiers depart node 6 on activity 13 to collection node 5 to serve another month in their current assignment.

(7) Since each soldier in node 6 has just completed a month in his current assignment, the PERMGT subroutine causes the strength records of that assignment to be incremented.

c. Control net 3 serves as a quality control mechanism for PFAM. A control transaction continuously moves through the loop defined by node 94 and activity 94. The length of time required for this transaction to traverse activity 94 is a random integer determined by subroutine RANDOM (random time generator function, User Function - 6) and input data which establishes upper and lower bounds. Each time this transaction enters node 94, it causes subroutine STATCK (User Function - 5) to be called and executed. STATCK (status check function) conducts a 100 percent review of the regiment's PQRs in an effort to identify possible discrepancies in the operation of PFAM's personnel management and reassignment activities. Examples of PQR entries which might indicate improper model operation include assignment of a soldier to a nonexistent assignment or a soldier who has spent time in a particular assignment in excess of that prescribed by policy. Results of this status check are printed in PFAM's normal output reports.

E-6. REASSIGNMENT ACTIVITIES

a. Figure E-5 identifies the series of PFAM nodes and activities which represents PFAM reassignment activities. Soldiers identified during the monthly personnel management activities of subroutine PERMGT as eligible for reassignment enter this segment of the network from node 6 of the assignment loop via activity 6. During the .1 month time required for eligible soldiers to complete activity 6, the reassignment process has been completed so that by the time soldiers arrive at levy node 10 they have received their new assignment instructions.

b. Subroutine REASGN (User Function - 3) is called and executed at .05 months after the beginning of each month by a control transaction in control net 2. REASGN uses assignment inventory information compiled by the personnel management activities of node 6 and eligibility information from the PQRs of soldiers in activity 6 to calculate demand and to make reassignments in accordance with the various reassignment policies of the system being modeled. A more complete explanation of the operation of subroutine REASGN may be found at paragraph F-4d.

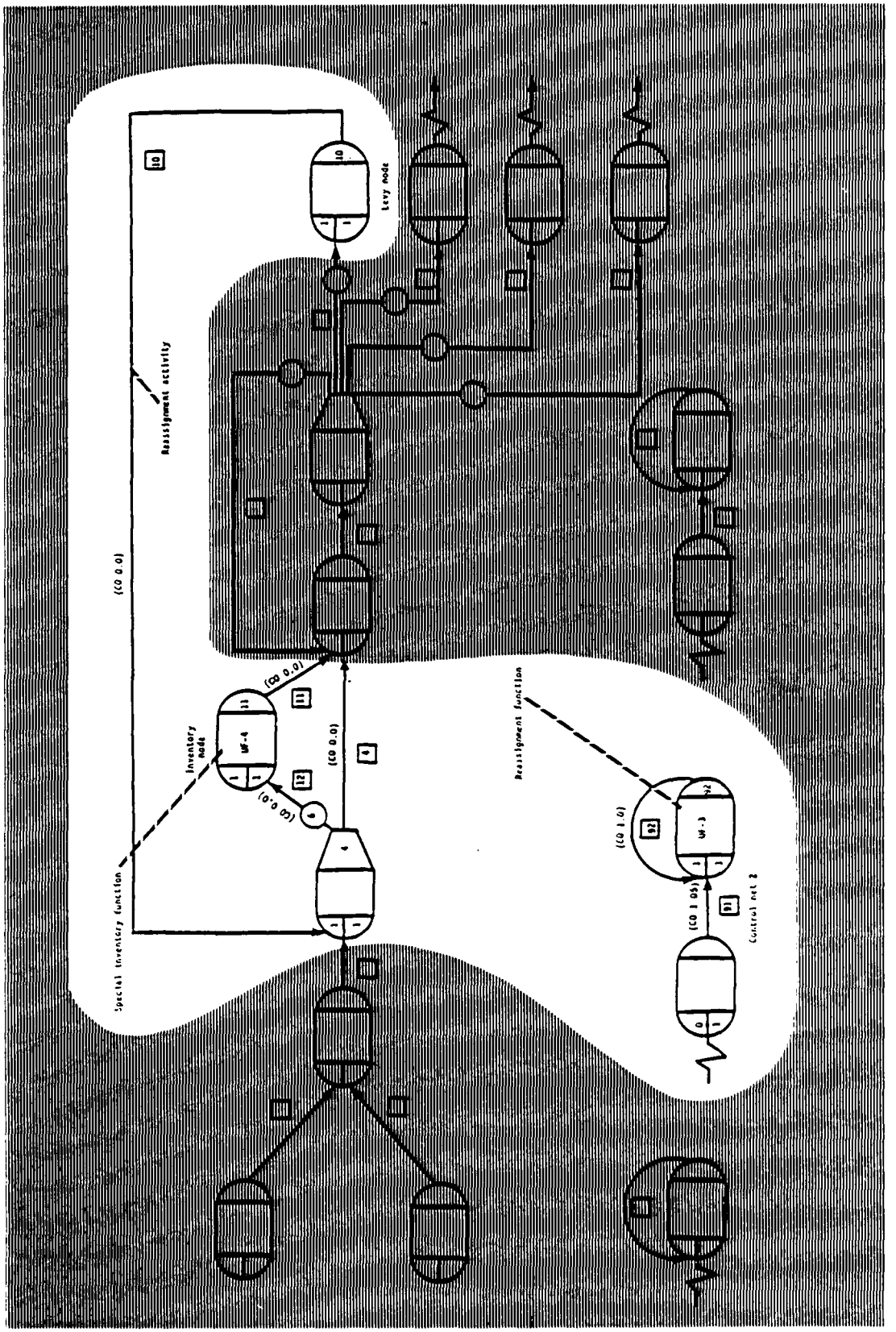


Figure E-5. PFAM Q-GERT Network, Reassignment Activities

c. Transactions (soldiers) arriving at levy node 10 with their new assignments (or perhaps instructions to return to their previous assignment) proceed without time delay through reassignment activity 10 to collection node 4. Like node 6, node 4 is a conditional node and transactions therefore leave this node according to the condition (value) of their attribute #2 routing code. If a transaction's routing code is anything but 6, it will proceed directly along activity 4 and arrive at node 5 of the assignment loop to begin its new assignment. A routing code of 6 will cause the transaction to travel to node 5 through node 11. This route and subroutine FLLINV (special inventory functions, User Function - 4) are used to conduct special inventories of replacement units being established from zero strength.

d. Regardless of the specific route taken, all transactions arrive at node 5 at .1 time unit (month) after the beginning of each period. Arrival of these transactions then coincides with the arrival of transactions from activity 13 which were not eligible for reassignment and remained in their current assignment. This completes the reassignment activities for this time period.

APPENDIX F

THE PERSONNEL FLOW ASSESSMENT MODEL (PFAM) OVERVIEW

F-1. GENERAL. This appendix provides a more extensive description of the PFAM than that provided in Chapter 3. While this appendix provides adequate detail about the logic used to apply the personnel policies under investigation, it should be used in conjunction with Appendix E in order to gain a more thorough appreciation of the overall operation of the model.

F-2. INTRODUCTION

a. PFAM is a discrete-time, steady-state, computer simulation designed to assess the flow of personnel implied by the application of specific personnel policies to a regimental personnel system. It was built using the Q-GERT described in Chapter 3. The Q-GERT provides the framework and timing of the model via the construction of a transaction flow network. This network is the foundation upon which the simulation is built and so must remain general enough to perform its functions within the context of all envisioned policies and regiments without modification. See Appendix E for a description of the PFAM Q-GERT network.

b. While the Q-GERT network adequately structures the general flow of personnel in a regiment, the application of personnel policies and specific regimental structures must be incorporated in the model. The design of Q-GERT allows the user to extend the model via FORTRAN subroutines called User Input (UI), User Function (UF), and User Output (UO). In PFAM, these links between the model and the network provide the means by which the simulation is tailored to fit the specific regiment and set of personnel policies under consideration. The remainder of this appendix describes these three FORTRAN subroutines.

F-3. USER INPUT (UI)

a. UI is the FORTRAN subroutine which communicates the specific configuration of the simulation to the model. It provides the user with the means to describe the particular regimental structure to be used, the personnel authorizations of units and organizations in the regiment, and the nature and parameters of policies to be applied to the regiment. Q-GERT calls this subroutine as part of its initialization routine and maintains access to the information provided by UI throughout the simulation. The inclusion of this subroutine in PFAM provides the user with an extensive, yet convenient, method for tailoring the model to simulate specific regiments and policies.

b. Annex I to this appendix identifies and describes each of the data read by UI and thereby incorporated in the model. Annex II provides a sample set of this input data.

F-4. USER FUNCTION (UF)

a. UF is the most extensive of the FORTRAN subroutines. It provides the logic necessary for the application of personnel policies by the model. It applies these policies in three major areas, also identified by subroutines: (1) the insertion into the regiment of new soldiers from the training base (NWINPT), (2) the personnel management of soldiers in the regiment (PERMGT), and (3) the reassignment of soldiers within the regiment (REASGN). PERMGT also consists of a number of subroutines. The hierarchical relationship of all UF subroutines is depicted in Figure F-1. A description of each subroutine is provided below.

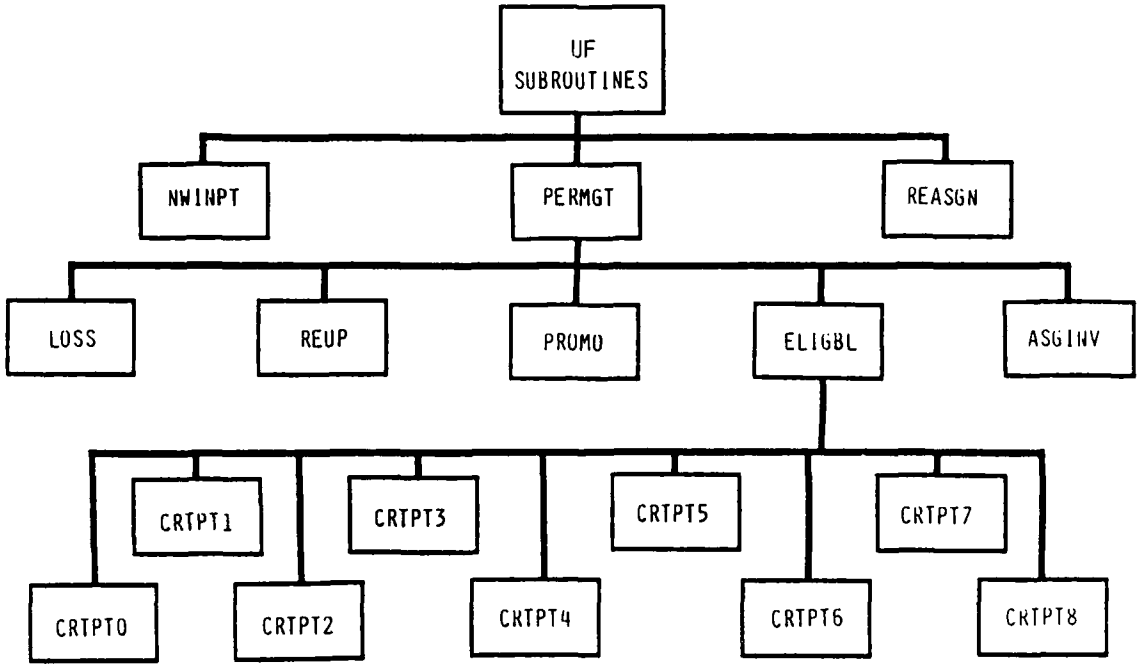


Figure F-1. User Function Hierarchy

b. NWINPT. The subroutine called when new soldiers (first termers) are to be inserted into the network is NWINPT. It is called at least once each time period (month) and performs its function in the following way:

(1) NWINPT loads all first termers in one of three ways: fixed size COHORT packages, variable size COHORT packages, and individual replacements. COHORT packages, both fixed and variable, are produced and assigned directly to units which operate under a COHORT fill plan (rotating, replacing, and nondeploying COHORT) according to a schedule provided by UI. Individual replacements are produced and inserted into the regiment without a specific assignment. They are then assigned, during the same month in which they are produced, to a unit or organization not operating under a COHORT fill

plan. These three methods can be mixed in any manner appropriate for the system being simulated. It should be noted that when a regiment is being simulated under Individual Replacement System policies, there are no COHORT packages produced, and all new first termers are inserted into the regiment at large as individual replacements.

(a) When fixed-size COHORT packages are being produced, a call each month from the Q-GERT network initiates a search by NWINPT to identify all units scheduled for a fixed-size COHORT package fill during that month. NWINPT then produces a fixed number of E-3 and E-4 first termers and assigns them directly to the appropriate unit. That fixed number is expressed as a percentage of the E-3 and E-4 soldiers authorized for that unit and is provided to the model via UI. That same number is produced at each scheduled fill regardless of the unit's first-termer strength at that time.

(b) Variable size COHORT package fills are initiated by a call from the UF subroutine REASGN. NWINPT is called from REASGN instead of the Q-GERT network in order that all reassignments can be accomplished prior to the calculation of the variable package size. This package size is the number of E-3 and E-4 first termers required to bring the unit's first-termer strength up to a specified number, and is also expressed as a percentage of authorized and provided to the model via UI. Clearly, in this case, the number of first termers on hand in the unit when it is scheduled for a variable fill influences the number of first termers produced by NWINPT and so the package size varies from scheduled fill to scheduled fill.

(c) A fixed number of E-3 individual replacements is produced each month and provided to the model for assignment as needed. This number is provided directly to the model as data read by UI.

(2) In NWINPT, each new soldier is assigned an attribute #1 containing his identification number and an attribute #2 containing a routing code. When soldiers leave the network (regiment), their identification numbers are made available to the system for reassignment to new first termers as needed. The routing code is used to guide the soldiers through the network and is reset each time certain personnel actions occur (e.g., reassignment, attrition).

(3) NWINPT establishes a personnel qualification record (PQR) for each new soldier. This PQR is maintained for each soldier throughout his life in the system and is used for making personnel action decisions. The 15 elements of information contained in the PQR are:

- MOS
- Current grade
- Current assignment
- Time in service
- Time in grade
- Time in assignment
- Time on station

- Scheduled ETS
- Travel status
- Current location of assignment
- Next PCS location
- Next organization
- Bar to reenlistment flag
- Temporary nondeployment status time
- Date expected return from overseas (DEROS)

c. PERMGT. PERMGT is the most extensive subroutine of User Function and has several subroutines of its own as depicted in Figure F-1. PERMGT performs all of the personnel management and career progression functions for the model. It is called every month for each soldier in the system and performs each of the activities described below. In addition, this subroutine maintains the PQR established for each soldier by NWINPT and updates the elements of the PQR as necessary.

(1) LOSS. This subroutine identifies soldiers who will leave the system due to unprogramed attrition. It does so by comparing a randomly generated number to attrition rates for each grade provided to the model via UI. Soldiers identified for attrition are routed to the attrition sink node of the Q-GERT network, their PQRs are closed, and their identification numbers are returned to the system for use by soldiers entering the system at a future time.

(2) REUP. This subroutine identifies soldiers whose enlistments terminate this month and then randomly selects those who choose to reenlist. It does so by comparing a randomly generated number to reenlistment rates for each grade provided to the model via UI. In addition, distribution functions for first termers, mid-termers, and careerists determine the length of reenlistment as 3, 4, 5, or 6 years.

(3) PROMO. This subroutine identifies those soldiers who have met time in service (TIS) and time in grade (TIG) requirements for consideration for promotion to the next higher grade and then randomly selects those who will be promoted this month. It does so by comparing a randomly generated number to promotion rates for each grade and MOS provided to the model via UI.

(4) ELIGBL. This subroutine determines each soldier's eligibility for reassignment from his present unit or organization. It not only determines if the soldier is eligible, but if he is, it determines the type and location of assignments for which he is eligible. ELIGBL performs this function by branching to one of nine subroutines based on the type of unit in which the soldier is presently serving, and if appropriate, the next scheduled critical point in that unit's life cycle. See Chapter 2 for a detailed description of life cycles and critical points for each type of unit. Each of the nine subroutines is briefly described below, and a logic flow chart for each is included at Annex III to this appendix.

(a) CRTPTO. This subroutine is called to determine the eligibility for reassignment of all soldiers serving in a unit which has no critical

points. These units are either extraregimental assignments or a TOE unit operating under Individual Replacement System policies. Additionally, when the regiment is being simulated under an Individual Replacement System, all soldiers' eligibility is determined by this subroutine. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(b) CRTPT1. This subroutine determines the eligibility of NCOs serving in a rotating unit which is between Critical Point 5 (month 72) and Critical Point 1 (month 18) and of first termers serving in a rotating unit which is at Critical Point 1 in its life cycle. First termers serving in a rotating unit which is not at one of its critical points are never eligible for reassignment, and so this subroutine is not called for first termers if the unit is not at the critical point. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(c) CRTPT2. This subroutine determines the eligibility of NCOs serving in a rotating unit which is between Critical Point 1 (month 18) and Critical Point 2 (month 30) and of first termers serving in a rotating unit which is at Critical Point 2 in its life cycle. For replacing units, it performs the same function between the start of the unit's life cycle and its Critical Point 2. First termers serving in a rotating or replacing unit which is not at one of its critical points are never eligible for reassignment, and so this subroutine is not called for first termers if the unit is not at the critical point. In addition, this subroutine conducts a predeployment check of all personnel in either type unit at Critical Point 2. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(d) CRTPT3. This subroutine accomplishes the movement of rotating and replacing units' personnel at rotation. Soldiers serving in a rotating or replacing unit which is at Critical Point 3 are moved from CONUS to OCONUS while soldiers serving in a rotating unit which is at Critical Point 5 (month 72) are moved from OCONUS to CONUS. Soldiers serving in a rotating or replacing unit which is between Critical Point 2 and Critical Point 3 are not eligible for reassignment, and so this subroutine is not called during this period. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(e) CRTPT4. This subroutine determines the eligibility of NCOs serving in a rotating unit which is between Critical Point 3 (month 36) and Critical Point 4 (month 54) and of first termers serving in a rotating unit which is at Critical Point 4 in its life cycle. First termers serving in a rotating unit which is not at one of its critical points are never eligible for reassignment, and so this subroutine is not called for first termers if the unit is not at the critical point. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(f) CRTPT5. This subroutine determines the eligibility of NCOs serving in a rotating unit which is between Critical Point 4 (month 54) and Critical Point 5 (month 72) and of first termers serving in a rotating unit which is at Critical Point 5 in its life cycle. First termers serving in a

rotating unit which is not at one of its critical points are never eligible for reassignment, and so this subroutine is not called for first termers if the unit is not at the critical point. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(g) CRTPT6. This subroutine determines the eligibility of soldiers serving in a replacing unit located in a long-tour theater. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(h) CRTPT7. This subroutine determines the eligibility of soldiers serving in a replacing unit located in a short-tour theater. It differs from CRTPT6 only in that the tour length in a short-tour unit is different from that in a long-tour unit and so DEROS is calculated differently. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(i) CRTPT8. This subroutine determines the eligibility of NCOs serving in an NDC unit and first termers serving in an NDC unit which is at Critical Point 8 (month 18) or Critical Point 9 (month 36) in its life cycle. First termers serving in an NDC unit which is not at one of its critical points are never eligible for reassignment, and so this subroutine is not called for first termers if the unit is not at a critical point. A logic flow chart depicting the application of policies appropriate to this CRTPT is provided at Annex III.

(5) ASGINV. This subroutine conducts a monthly by grade inventory of all assignments in the regiment. The inventory results for each period are stored and used in the User Output subroutine in support of report generation.

d. REASGN. The last subroutine of User Function is REASGN. REASGN simulates three of MILPERCEN's functions: (1) the identification of units' demand for replacements, (2) the identification of soldiers eligible to be reassigned to meet that demand, and (3) the actual reassignment of soldiers.

(1) Each period (month), REASGN calculates each unit's demand for replacements by comparing the on-hand strength of each unit in each MOS and grade to that unit's authorized strength in each MOS and grade. Additionally, REASGN calculates the total number of soldier replacements, if any, needed to restore the unit's total strength to its floor. Each unit's floor is expressed as a percentage of total authorized and is provided via data read by UI. If the policies in force for the simulation allow the free assignment of soldiers to a unit at this time (e.g., an open careerist assignment window), then the demand is equal to the number of replacements required to return the unit's strength to authorized. If, on the other hand, policies do not allow such free assignments at this time (e.g., a closed careerist assignment window), then demand is equal to zero. There is one exception. If the unit's total strength is below its floor and the unit is closed to reassignments, demand is equal to the total number of replacements needed to return the unit's total strength to its floor.

(2) REASGN next makes a list of all soldiers who have been identified by subroutine ELIGBL as eligible for reassignment to each of the units and locations. It then matches eligible soldiers to unit demands and makes assignments. It first makes all possible, no permanent change of station (no PCS) assignments and then completes reassignments which require a PCS. After it has attempted to fill all demand with soldiers of the appropriate grade, REASGN attempts to fill remaining demand through grade substitutions. These substitutions allow the assignment of an eligible soldier to a position one or two grades higher, or one grade lower, than his own grade.

(3) In the case in which a soldier must be reassigned from his present assignment, and no valid position can be found to which he may be assigned, he is assigned to the homebase, nonstabilized, ERA pool. In this case, he will be assigned there regardless of the personnel strength in that ERA pool.

(4) When the policies being simulated provide for variable size COHORT packages, REASGN calls NWINPT to produce those packages after all assignments have been made.

e. In addition to the three subroutines NWINPT, PERMGT, and REASGN, User Function has three additional subroutines which collect statistics and conduct model validation checks throughout each simulation run. These subroutines, which do not contribute in any way to the modeling of movement plan policies or personnel management activities, are discussed briefly in Appendix E.

F-5. USER OUTPUT (UO). FORTRAN subroutine UO is called by the Q-GERT network at the termination of the simulation. It provides to the user a method for generating tailored output reports to more fully describe the behavior of the personnel system being modeled than is provided by Q-GERT alone. An example of one of PFAM's tailored outputs, the simulation summary report, and a description of each entry is contained in Chapter 5.

ANNEX I TO APPENDIX F

SUMMARY DESCRIPTIONS OF INPUT DATA ELEMENTS

Data element	Description	Format type
IRSFLG	A flag set to 0 (off) or 1 (on) to allow modeling an individual replacement system. When IRSFLG = 1, E-3s enter the system and are individually selected to fill assignments. No COHORT packages are loaded.	Integer
IFTFIL	A flag set to 1, 2, or 3 to model alternative first-termer fill policies. IFTFIL = 1: Troops individually selected to fill assignments, no COHORT packages, used when IRSFLG = 1. IFTFIL = 2: Fixed COHORT packages and individual fill assignments are allowed, fill windows at Critical Points #1 and #4 are allowed. IFTFIL = 3: Variable COHORT packages and individual fill assignments are allowed, fill windows at Critical Points #1, #3, #4, and #5 are allowed.	Integer
PRTON	Management tracing statements to allow the printing of individual soldier and unit information beginning at the simulation time indicated. PRTON = 000.00 when option is not used.	Real
PRTOFF	Used in conjunction with PRTON. The simulation time when soldier and unit status information print is to be turned off. PRTOFF = 000.00 when option is not used.	Real
PCYCLE	A variable identifying the number of printed lines on each page of printout for the unit end strength report. Usually set at 36.00 representing a 36-month tour of duty.	Real
NO ASGs	The input for the variable (NASG) identifying the number of unique assignments to which an individual can be assigned. Upper limit for NASG is 30.	Integer

Data element	Description	Format type
NO MOSs	The input for the variable (NMOS) identifying the number of unique MOSs which are to be modeled. Upper limit for NMOS is 5.	Integer
MINTST	A variable identifying the minimum allowable time between calls to the status check subroutine (STATCK). This subroutine validates current assignments and locations; it also maintains a list of attempts to misassign troops.	Integer
MAXTST	A variable identifying the maximum allowable time between calls to the status check subroutine (STATCK).	Integer
IRS INPT	The user input identifying the number of scheduled individual replacement soldiers inserted into the system during each time period. IRS troop packages are loaded as E-3s, one packette for each MOS. A maximum of 5 packettes are allowed.	Integer
CAR ELIG	A flag set at 1 or 2 to model eligibility for reassignment of careerist troops. *CAR ELIG = 1: Original COHORT Battalion Movement* Plan policies. CAR ELIG = 2: Modified COHORT Battalion Movement Plan policies.	Integer
ROT LOCK	The lockout time, in time periods, before and after a unit is scheduled to rotate during which careerists cannot be reassigned out of the unit.	Integer
RELLOC	The lockout time, in time periods, before and after a unit is scheduled to reload first termers during which careerists cannot be reassigned out of the unit.	Integer
UNILOC	The minimum number of periods a careerist must remain in a rotating unit before becoming eligible for reassignment.	Integer
UNIMAX	The maximum number of months a careerist can serve in a rotating unit before he must be reassigned out.	Integer

Data element	Description	Format type
ARTE	A vector array (1 x 3) containing attrition rates for each of 3 enlisted career categories (first termers, mid termers and careerists). Each variable is presented as a fraction of EM attrited per time period (per month) as unprogramed losses.	Real
MINTIS	A vector array (1 x 9) containing the minimum time in service an EM (E-1 through E-9) must accumulate before becoming eligible for promotion.	Real
MINTIG	A vector array (1 x 9) containing the minimum time in grade an EM (E-1 through E-9) must accumulate before becoming eligible for promotion.	
RRTE	A vector array (1 x 3) containing the reenlistment rates for each of the 3 enlisted career categories (first termers, mid termers, and careerists). Each variable is presented as a fraction of elgible EM who will reenlist when given a reenlistment option.	Real
SELRTE	An array (NMOS x 9) containing the promotion rates for enlisted grades (E-1 through E-9) by MOS. Each variable is the fraction of promotion eligible EM who will be promoted per month. E-1, E-2, E-3, and E-8 are actual promotion rates, while E-4, E-5, E-6 and E-7 grades are promoted as needed via model logic. Thus, zeroes are shown for those grades.	Real
AUSTR	An array (NASG x 9 x NMOS) containing the authorized strength levels for each unit designated by assignment, grade, and MOS. Col #1 - data identifies each assignment's index (1 through NASG) Col #2 - data identifies the total authorized strength for this assignment. Col #3 through 9 - identifies this assignment's authorized strengths for each grade E-3 through E-9, respectively.	Integer
ASGDES	An array (NASG x 21) containing the description of each assignment.	Integer

Data element	Description	Format type

Col #1 - data specifies each assignment code. (See Table 5-1.)

Col #2 - data specifies the organization code.

Col #3 - data specifies the minimum job stay time, in months, for which an individual must remain before becoming eligible for reassignment from the unit but within the location (station). Not applicable for individuals in COHORT units.

Col #4 - data specifies the minimum station stay time, in months, for which an individual must remain before becoming eligible for reassignment to a new location (station).

Col #5 - data specifies the initial fill time, in months, from the start of the simulation at which the unit will receive its initial load of first termer troops.

Col #6 - data specifies the interval, in months, between scheduled fills of first termers.

Col #7 - data specifies the time, in months, from the start of the simulation when the unit will begin its initial life cycle.

Col #8 - data specifies the length, in months, of a units life cycle. 9999 implies the unit or pool is under IRS policies.

Col #9 - data specifies the assignment code of the unit that is the rotating counterpart of this unit (specified at the Col #1 data cell).

Col #10 - a counter which specifies the number of critical point timing flags that will be set in Cols #11 through #20. A maximum of 5 flags can be set.

Col #11, 13, 15, 17, 19 - a flag specifying a critical point ID number.

Data element	Description	Format type
	Col #12, 14, 16, 18, 20 - data specifies the time, in months, from the start of this unit's life cycle to the critical point identified in the previous column. Col #21 - data specifies the minimum percent of authorized fill which this unit must maintain (floor).	
MOSFLL	An array (NASG x 11) containing the percent fill of E-3s and E-4s for each MOS scheduled each time first termers are loaded into a unit. Col #1 - data identifies each assignment's index (1 through NASG). Col #2 - data identifies the percent fill of E-3s allowed for MOS #1. Col #3 - data identifies the percent fill of E-4s allowed for MOS #1. Col #4 and #5 - data identifies percent fills for MOS #2. Col #6 and #7 - data identifies percent fills for MOS #3. Col #8 and #9 - data identifies percent fills for MOS #4. Col #10 and #11 - data identifies percent fills for MOS #5.	Integer
SOURCE	An array (NASG x (NASG+1)) containing the prioritized list of alternative assignments from which individuals may be assigned to this unit. Col #1 - a counter which specifies the number of alternative assignments from which individuals may be reassigned to this unit.	Integer

Data element	Description	Format type
	Col #2 through (NASG+1) - identifies the alternative assignment's codes (units) from which individuals may be assigned to this unit. Col #2 units have the highest priority to provide personnel.	
TISDIS	An array (NGRD x 10MOS x 10 x 2) containing the cumulative probability distribution (CPD) used to determine the time in service (TIS) of each enlisted man initially loaded into the simulation model. A CPD is provided each grade designated by MOS by 10 probability intervals. Col #1 - data identifying the minimum TIS with which an EM could be initialized. Col #2-11 - data specifies the 10 CPDs associated with each EM by grade and MOS. Each CPD step represents a 12 month increase in TIS over the minimum TIS.	Real
TIGDIS	An array (NGRD x NMOS) containing the maximum time in grade (TIG) that each EM could have when initially loaded into the simulation model by MOS and grade (E5 - E8). Ten probability intervals are examined, and each interval represents a decrease of 2 months TIG.	Integer
CMFPYR	An array (NGRD x NMOSx10) containing the career management field pyramid (CMFPYR) by grade and MOS. it identifies the promotion paths available to EM by grade (E5 - E8) and MOS. Col #1 - a counter that specifies the number of MOS from which EM can be promoted into this grade and MOS. Col #2-10 - data specifies the prioritized list of MOS that can be promoted to this grade and MOS.	Integer

ANNEX II to APPENDIX F

SAMPLE PFAM USER INPUT FILE

The attached PFAM input file is the file used in the simulation of the 34th Armor Regiment operating under the policies of the COHORT Battalion Movement Plan. Each data element is described in Annex I.

```
IRSFLG  =:      0
IETFIL  =:      3
PRIOR   =:    900.00
PRIOFF  =:    900.00
PCYCLE  =: 36.00
NO ASG'S=:   .0016
NO MOS'S=:   0001
MINTST  =:
MAXTST  =:     25
IRS INPT=:      7
CAN ELIG=:.0002
ROT LOCK=:.0006
RELLOC  =:.0002
UNILOC  =:.0042
UNIMAX  =:.0026
ARTE    =:   .0120   .0052   .0023
MINTIS  =:        6       12       24       36       60        0        0        0        0
MINTIG  =:        6        4        6        8       24       48       40       40       40
RRTE    =:   .9505   .8321   .9512
**********************************************************************
     SELECTION RATE FILE  ( MMOS(I),GRD(I) )
GRADE #  :    1        2        3        4        5        6        7        8        9
**********************************************************************
MOS #190=: 1.0000 1.0000   .9100   .0648   .0323   .0485   .0265   .0178   .0000
**********************************************************************
     AUTHORIZED   STRENGTH   FILE  ( UNITS(J),GRD(I),MOS(K) )
COL NUMB :    1    2    3    4    5    6    7    8    9
**********************************************************************
AUTH     :    1  248   62   70   67   24   18    7    0
STRENGTH :    2  248   62   70   67   24   18    7    0
FILE     :    3  248   62   70   67   24   18    7    0
GRD(I)   :    4  248   62   70   67   24   18    7    0
UNITS(J) :    5  248   62   70   67   24   18    7    0
MOS(2)   :    6  248   62   70   67   24   18    7    0
******   :    7  248   62   70   67   24   18    7    0
******   :    8  248   62   70   67   24   18    7    0
******   :    9    5    1    0    1    1    1    1    0
******   :   10   16    2    0    0    7    5    2    0
******   :   11    0    0    0    0    0    0    0    0
******   :   12   27   10   10    0    4    3    0    0
******   :   13    0    0    0    0    0    0    0    0
******   :   14    0    0    0    0    0    0    0    0
******   :   15   28    0    2    3   17    4    2    0
******   :   16  110    0    6    9   53   36    6    0
**********************************************************************************************************
     ASSIGNMENT  DESCRIPTION  FILE  ( UNITS(J),DATA(I) )
COL NUMB :    1   2   3   4    5   6    7    8    9 10 11 12 13 14 15 16 17 18 19 20 21
**********************************************************************************************************
ASSIGN   : 111   1  36  36   18  72    0   72  141   3 18  1 30  2 36  3  0  0  0  0 90
DESCRIPT : 141   1  36  36   54  72    0   72  111   2 54  4 72  5  0  0  0  0  0  0 90
FILE     : 112   2  36  36   54  72   36   72  142   3 18  1 30  2 36  3  0  0  0  0 90
DATA(I)  : 142   2  36  36   90  72   36   72  112   2 54  4 72  5  0  0  0  0  0  0 90
UNITS(J) : 117   3  36  36   36  72   18   72  143   3 18  1 30  2 36  3  0  0  0  0 90
**********: 147   3  36  36   72  72   18   72  113   2 54  4 72  5  0  0  0  0  0  0 90
**********: 118   4  36  36   72  72   54   72  144   3 18  1 30  2 36  3  0  0  0  0 90
**********: 144   4  36  36  108  72   54   72  114   2 54  4 72  5  0  0  0  0  0  0 90
**********: 440   5  36  36999999999999999999 440   0  0  0  0  0  0  0  0  0  0  0 70
**********: 540   6  12  36999999999999999999 540   0  0  0  0  0  0  0  0  0  0  0 70
**********: 460   7  36  36999999999999999999 460   0  0  0  0  0  0  0  0  0  0  0 70
**********: 470   8  12  12999999999999999999 470   0  0  0  0  0  0  0  0  0  0  0 70
**********: 410   9  36  36999999999999999999 410   0  0  0  0  0  0  0  0  0  0  0 70
**********: 510  10  60  24999999999999999999 510   0  0  0  0  0  0  0  0  0  0  0 70
**********: 430  11  36  36999999999999999999 430   0  0  0  0  0  0  0  0  0  0  0 70
**********: 530  12  12  24999999999999999999 530   0  0  0  0  0  0  0  0  0  0  0 70
**********************************************************************************************************
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Figure F-II-1. Sample PFAM User Input File
(page 1 of 2 pages)

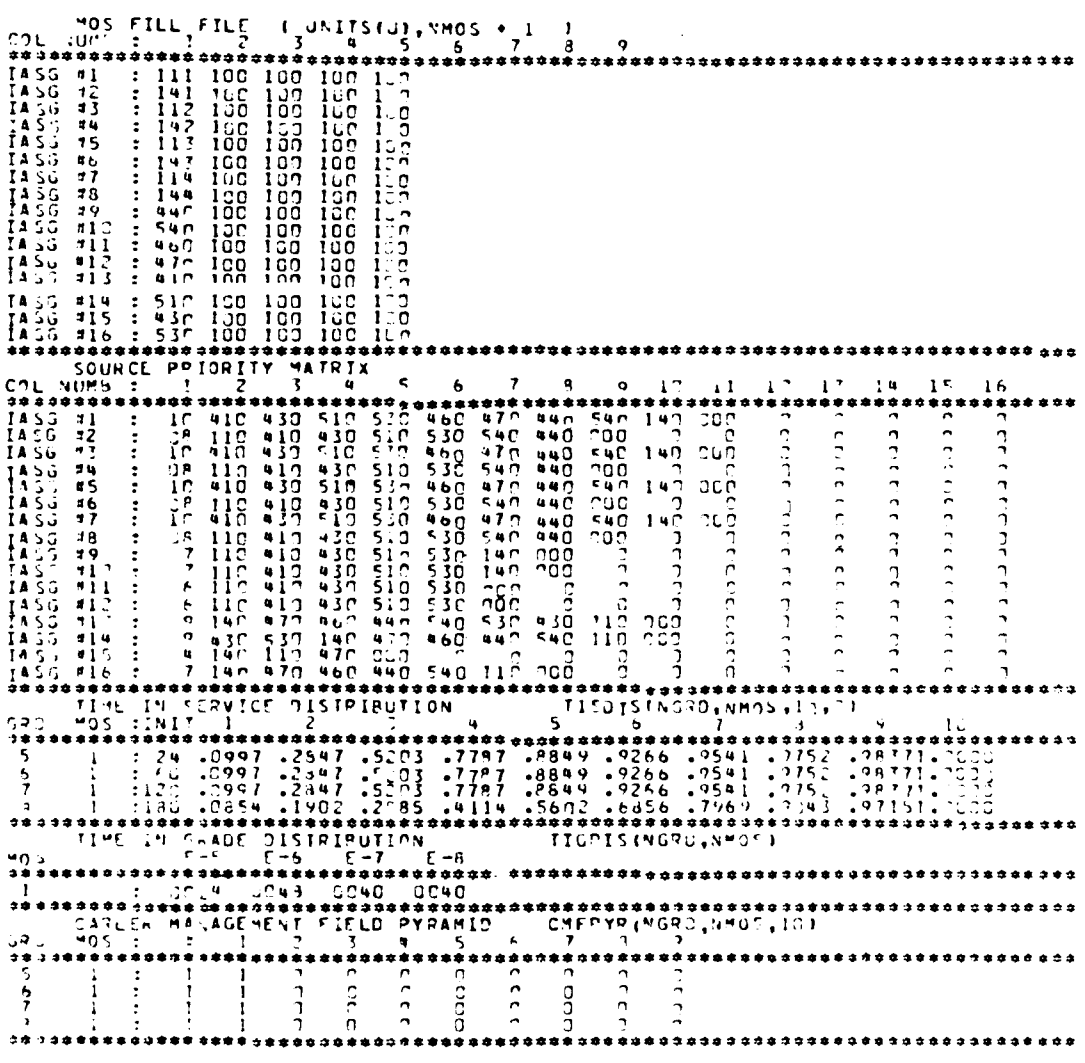

Figure F-II-1. Sample PFAM User Input File
(page 2 of 2 pages)

ANNEX III TO APPENDIX F

CRITICAL POINT LOGIC FLOW CHARTS

F-III-1. INTRODUCTION. This annex contains flow charts depicting the decision logic for each of the critical point (CRTPT) subroutines. These subroutines are briefly explained in paragraph F-4c(4).

F-III-2. LIST OF FIGURES

F-III-3. DEFINITION OF FLOW CHART TERMS

bar	bar service member (SM) from reenlisting
bar fm units	bar service member from assignment to any deploying unit
closed	used in decision nodes to ask, "Is service member's unit's careerist assignment window closed?"
CRTPT	represents the value of the time period when this critical point is next scheduled for this unit
period	represents the value of the current time period
rand	represents a number between 0 and 1 randomly generated by the PFAM
ROTLOC	the number of months on each side of a unit rotation during which the unit's careerist assignment window is closed

RRTE	the reenlistment rate for the service member's grade and MOS
station stay time	the number of months a service member must serve at his present station before being eligible for reassignment from the station
theater stay time	the number of months a service member must serve in his present theater before being eligible for reassignment from the theater
TIA	time in assignment
TOS	time on station
UNILOC	the minimum number of months an NCO must serve in a rotating unit before being eligible for reassignment from the unit
UNIMAX	the maximum number of months an NCO may serve in a rotating unit

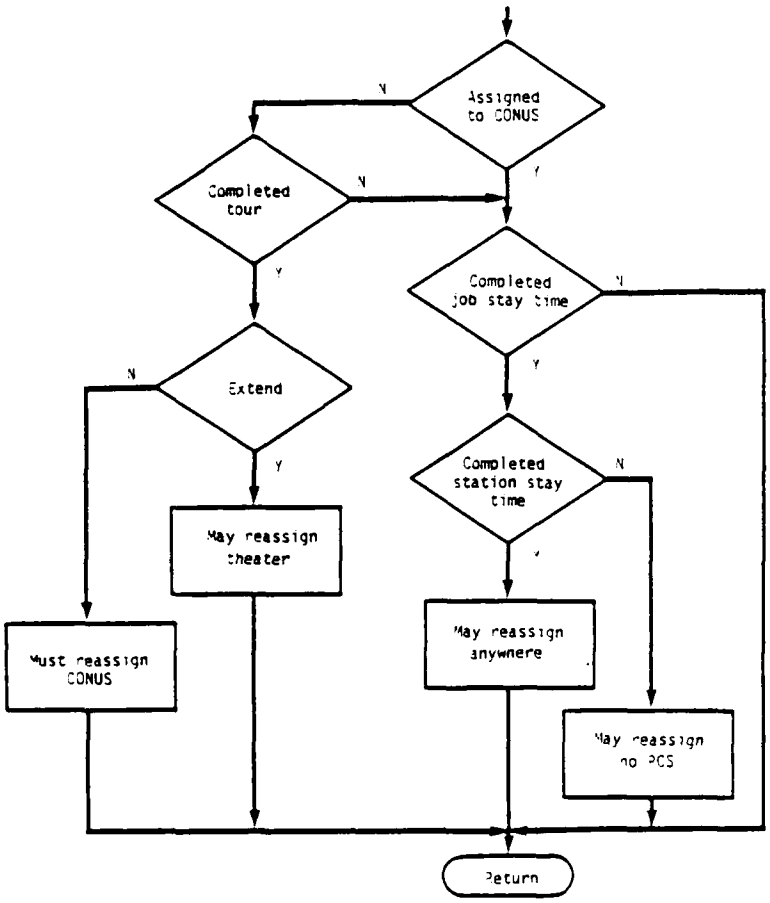

Figure F-III-1. CRTPTO Logic Flow Chart

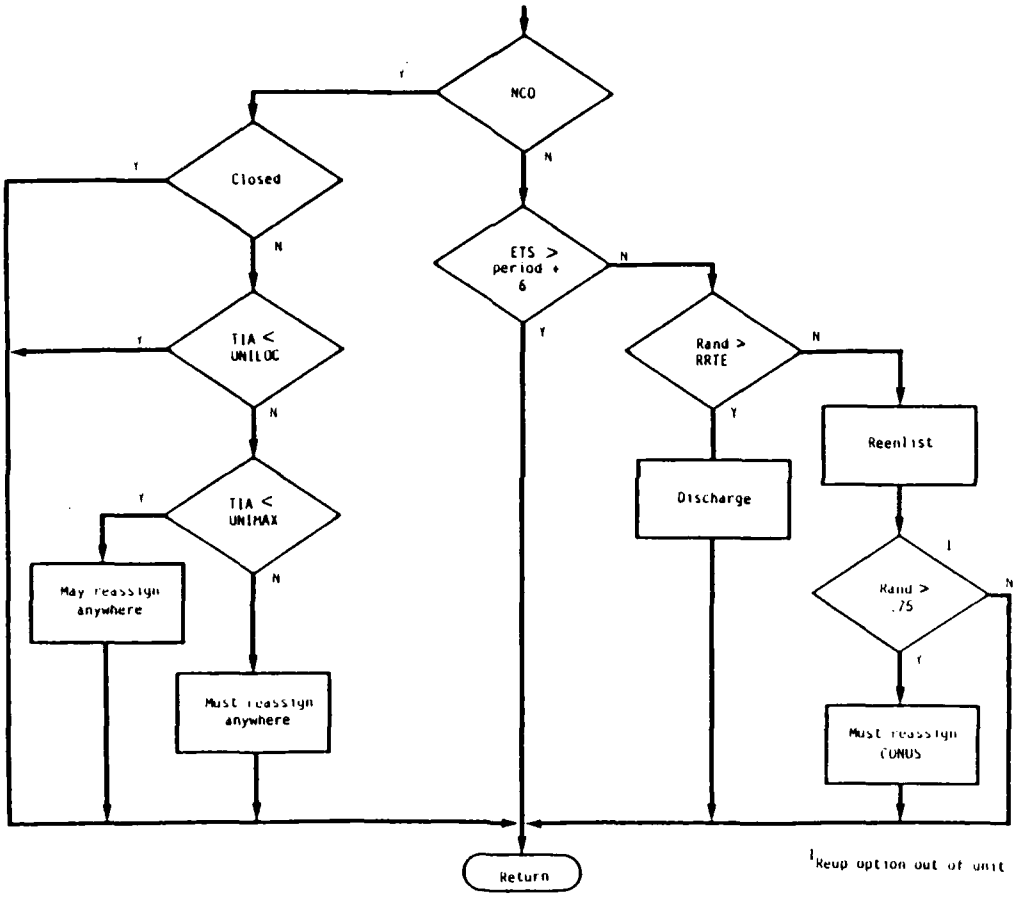

Figure F-III-2. CRTPT1 Logic Flow Chart

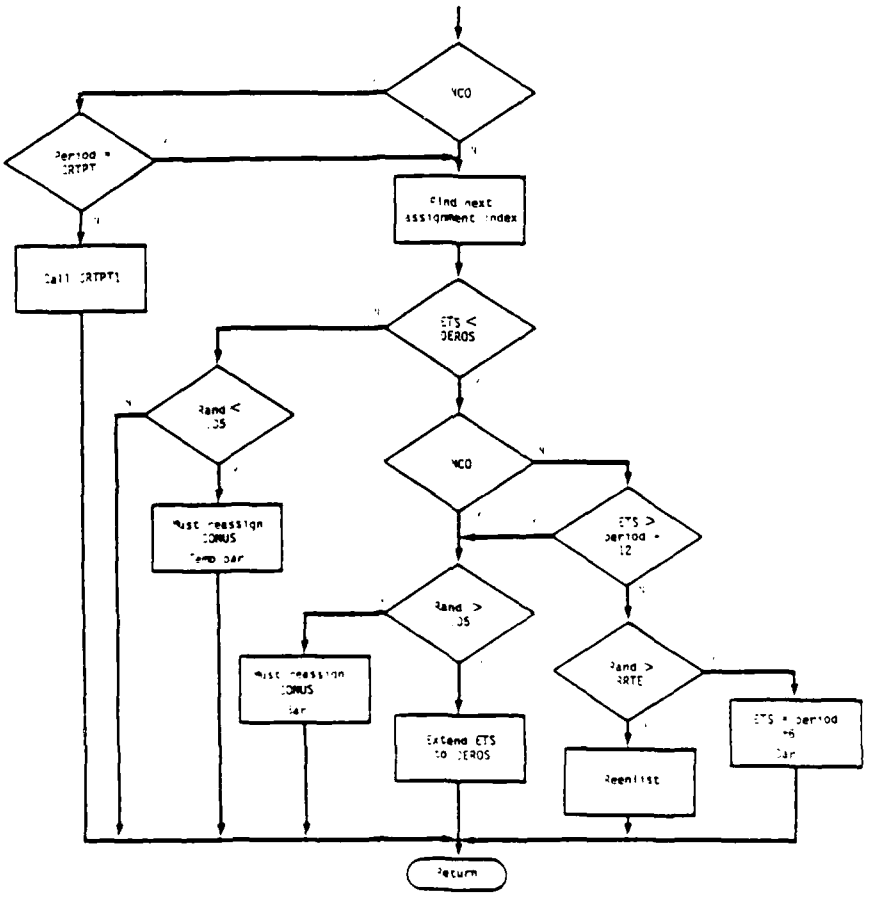

Figure F-III-3. CRTPT2 Logic Flow Chart

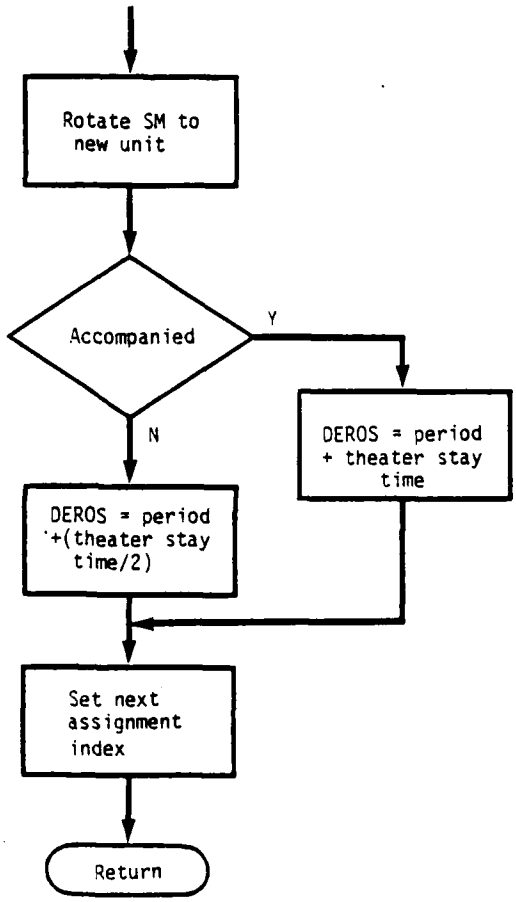

Figure F-III-4. CRTPT3 Logic Flow Chart

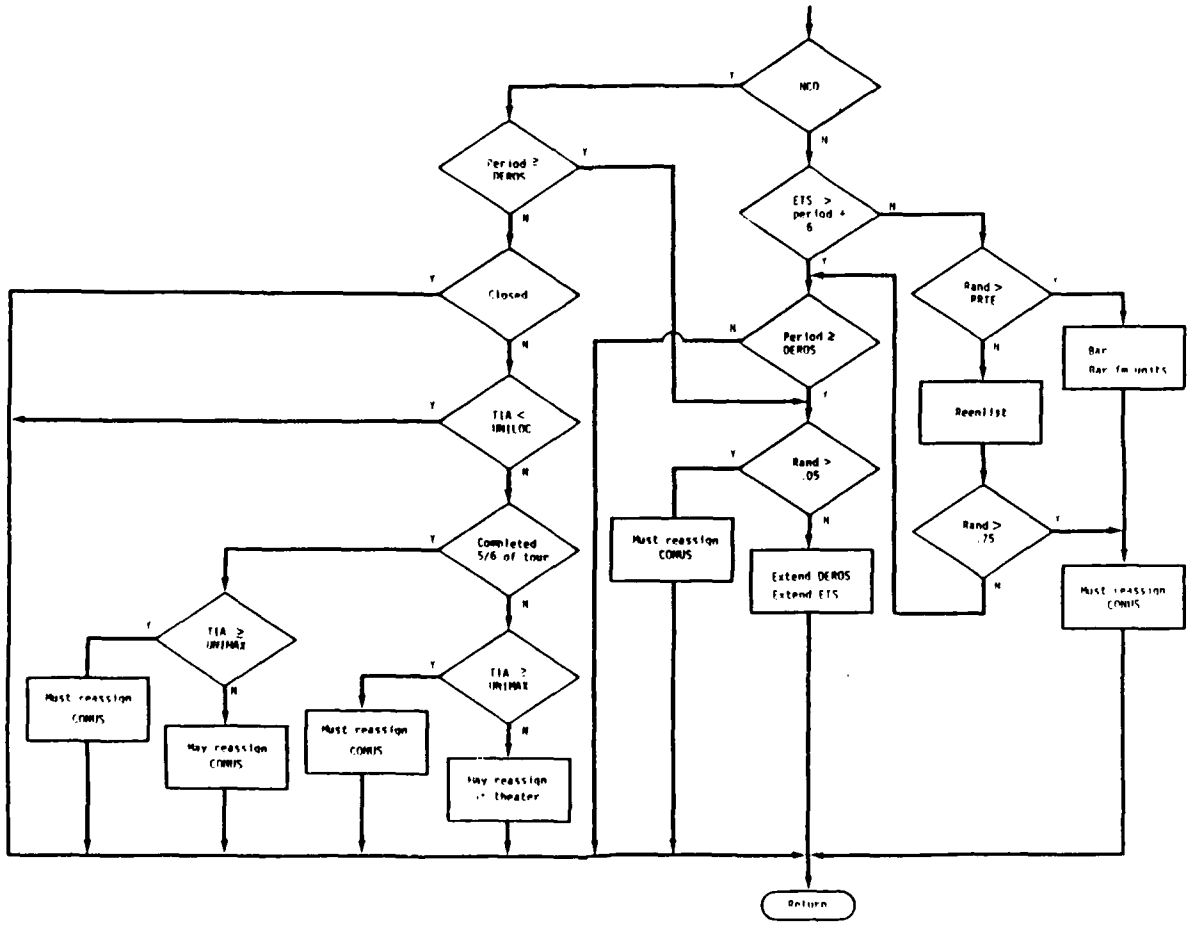

Figure F-III-5. CRTPT4 Logic Flow Chart

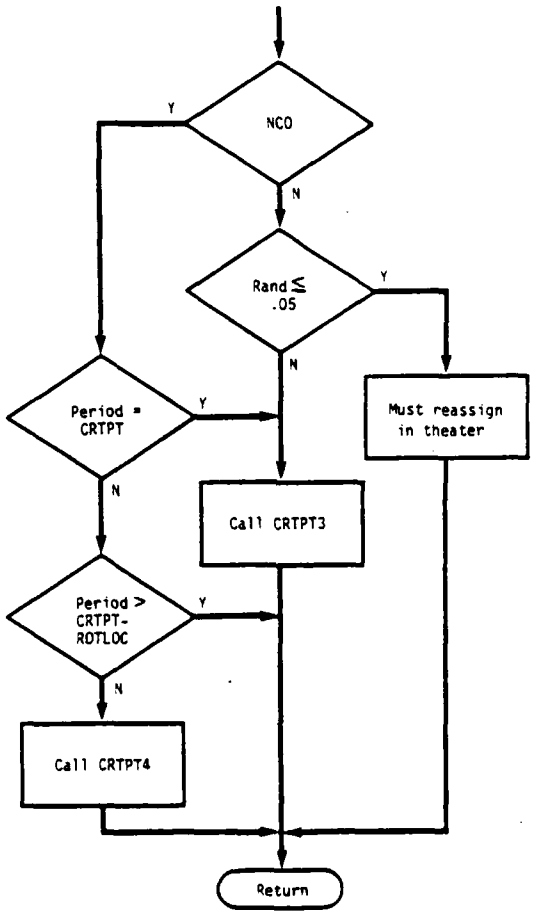

Figure F-III-6. CRTPT5 Logic Flow Chart

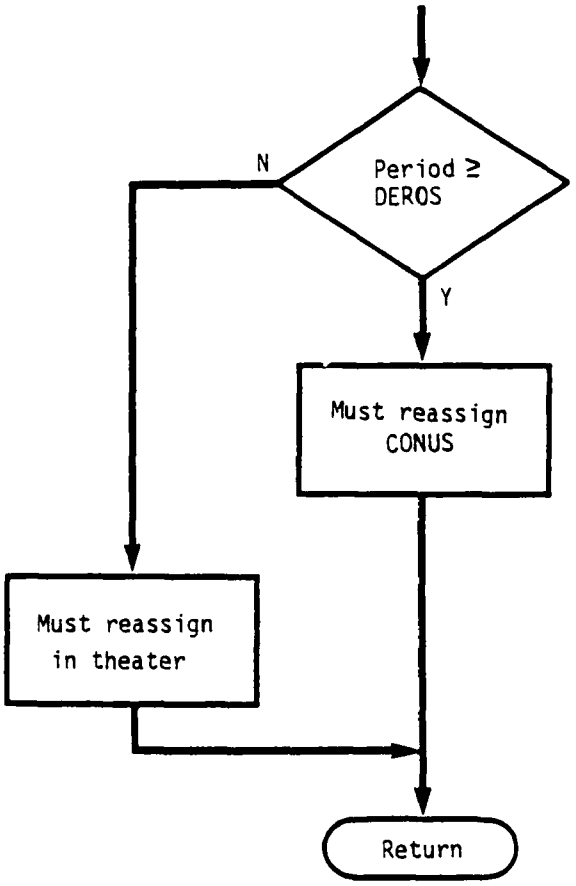

Figure F-III-7. CRTPT6 Logic Flow Chart

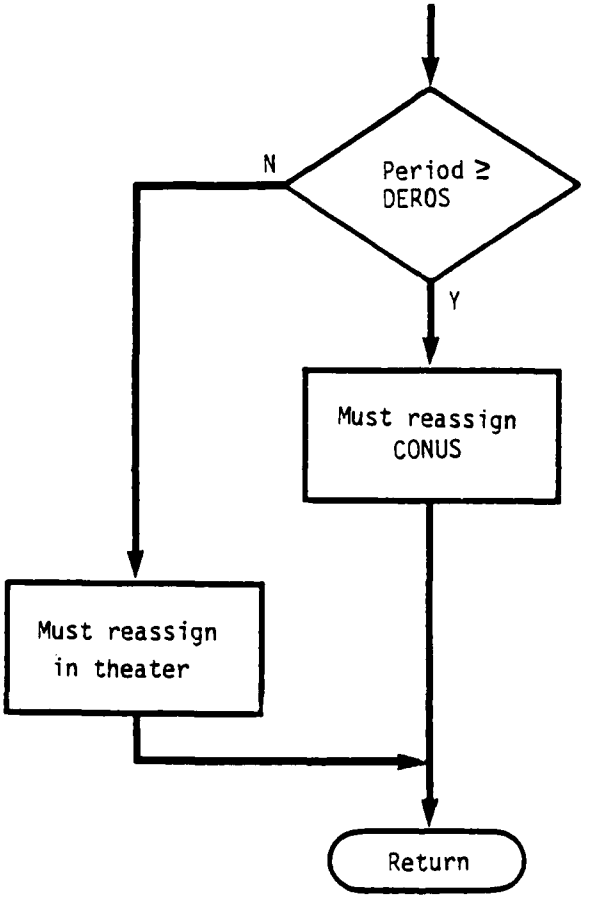

Figure F-III-8. CRTPT7 Logic Flow Chart

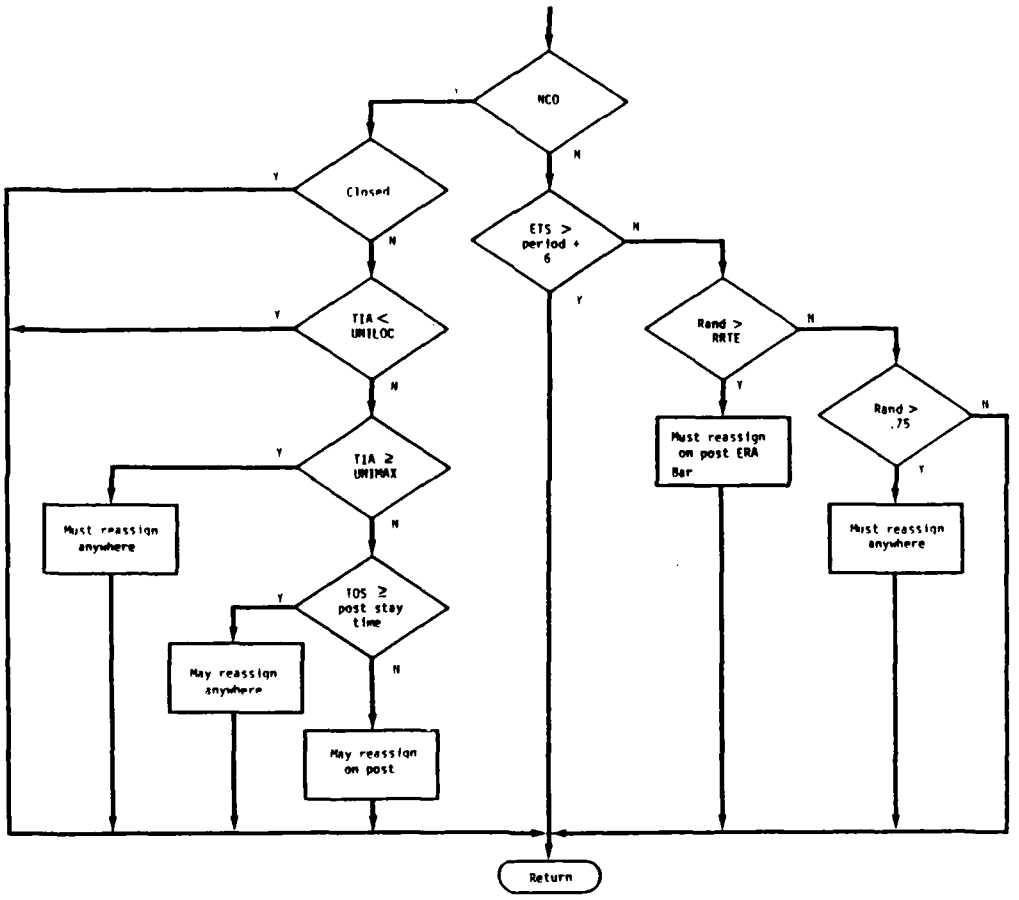

Figure F-III-9. CRTPT8 Logic Flow Chart

APPENDIX G

PSAM DETAILED ALLOCATION SUMMARY REPORTS

This appendix contains extracts of the PSAM reports depicting the allocation of extraregimental assignments to a sample of the infantry, field artillery, and armor regiments. For infantry, these allocations are of MOS 11C, 11H, and pseudo-MOS 11Q. 11Q consists of a consolidation of 11B and 11M spaces. For field artillery, these allocations are of pseudo-MOSs 13Q and 15Q. 13Q consists of a consolidation of cannon 13B, 13C, 13E, and 13F spaces, while 15Q consists of a consolidation of missile 13M, 15D, 15E, and 15J spaces. 13Y is included in 13Q or 15Q for the appropriate E8 spaces. For armor and cavalry, these allocations are of MOS 19D and pseudo-MOS 19Q. MOS 19Q consists of a consolidation of 19E, 19K, and 19Z spaces. Tables G-1 through G-5 show the ERA allocations by grade and location to infantry regiments, Tables G-6 through G-10 to field artillery regiments, and Tables G-11 through G-15 to armor/cavalry regiments.

Table G-1. ERA Allocations to the 7th Infantry Regiment[a]

Location	11C			11H			11Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Benning	0	0	0	0	5	0	0	0	0	5
Ft Irwin	4	0	0	0	0	0	94	0	0	98
Ft Lewis	0	0	0	35	0	0	0	0	0	35
Other CONUS	19	17	5	0	18	5	67	188	144	463
Germany	32	11	1	0	1	0	223	96	56	420
Korea	4	0	1	5	6	1	59	10	2	88
Total	59	28	7	40	30	6	443	294	202	1,109

[a]Homebase is Ft Stewart

Table G-2. ERA Allocations to the 12th Infantry Regiment[a]

Location	11C			11H			11Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Benning	0	3	2	0	10	0	0	0	24	39
Ft Carson	71	47	6	0	0	1	100	29	68	322
Ft Irwin	0	0	0	0	0	0	111	46	0	157
Ft Knox	0	0	0	0	0	0	0	55	0	55
Ft Lewis	64	0	0	0	3	0	0	0	0	67
Other CONUS	0	0	0	50	20	12	49	42	38	211
Alaska	0	0	0	0	0	1	0	0	0	1
Germany	0	16	5	0	1	0	0	97	49	168
Panama	0	0	0	0	0	1	0	0	0	1
Korea	7	5	0	8	8	1	54	4	0	87
Total	142	71	13	58	42	16	314	273	179	1,108

[a]Homebase is Ft Carson

Table G-3. ERA Allocations to the 21st Infantry Regiment[a]

Location	11C			11H			11Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Benning	0	0	6	0	0	0	0	0	0	6
Ft Irwin	18	0	0	0	0	0	0	0	0	18
Ft Knox	0	0	0	0	0	0	0	0	96	96
Ft Lewis	0	20	0	0	4	0	0	0	0	24
Ft Ord	0	0	0	0	1	0	8	34	54	97
Other CONUS	0	10	0	2	2	0	81	139	0	234
Germany	21	0	0	0	0	0	0	0	0	21
Hawaii	0	0	1	0	0	0	3	5	7	16
Panama	0	0	0	0	0	0	0	0	4	4
Korea	5	5	2	1	1	0	30	45	5	94
Total	44	35	9	3	8	0	122	223	166	610

[a]Homebase is Ft Ord

Table G-4. ERA Allocations to the 502d Infantry Regiment[a]

Location	11C			11H			11Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Campbell	90	40	4	215	61	16	871	319	77	1,693
Ft Irwin	26	0	0	0	10	6	0	15	13	70
Ft Knox	7	3	0	0	0	0	0	6	12	28
Ft Lewis	44	0	0	0	78	15	215	51	139	542
Other CONUS	0	84	12	178	6	1	0	427	154	862
Germany	21	11	0	0	0	0	0	0	0	32
Panama	0	1	0	0	0	0	0	17	0	18
Other OCONUS	0	0	0	0	2	0	0	0	0	2
Korea	78	23	2	15	9	2	70	46	51	296
Total	266	162	18	408	166	40	1,156	881	446	3,543

[a]Homebase is Ft Campbell

Table G-5. ERA Allocations to the 325th Infantry Regiment[a]

Location	11C			11H			11Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Irwin	0	0	6	0	0	7	7	0	0	20
Ft Knox	0	0	0	0	0	0	0	0	17	17
Ft Lewis	15	4	0	244	11	0	426	0	0	700
Other CONUS	0	20	0	71	167	31	196	415	200	1,100
Panama	0	0	0	0	0	0	0	0	59	59
Korea	29	12	2	78	7	2	71	151	11	363
Total	44	36	8	393	185	40	700	566	287	2,259

[a]Homebase is Ft Bragg

Table G-6. ERA Allocations to the 82d Field Artillery Regiment[a]

Location	13Q			15Q			Total
	E3-E4	E5-E6	E7-E8	E3-E4	E5-E6	E7-E8	
Ft Campbell	0	23	16	0	0	0	39
Ft Hood	178	42	17	0	0	0	237
Other CONUS	0	15	8	0	0	0	23
Alaska	48	0	0	0	0	0	48
Berlin	41	0	0	0	0	0	41
Germany	0	82	38	0	0	0	120
Korea	0	18	2	0	0	0	20
Total	267	180	81	0	0	0	528

[a]Homebase is Ft Hood

Table G-7. ERA Allocations to the 319th Field Artillery Regiment[a]

Location	13Q			15Q			Total
	E3-E4	E5-E6	E7-E8	E3-E4	E5-E6	E7-E8	
Ft Campbell	25	0	16	0	0	0	41
Ft Irwin	0	0	4	0	0	0	4
Other CONUS	289	212	42	0	0	0	543
Alaska	93	0	12	0	0	0	105
Berlin	6	0	7	0	0	0	13
Greece	0	0	3	0	0	0	3
Italy	47	9	4	0	0	0	60
Netherlands	0	0	1	0	0	0	1
Panama	0	0	8	0	0	0	8
Turkey	0	18	0	0	0	0	18
Korea	23	6	6	0	0	0	35
Total	483	245	103	0	0	0	831

[a]Homebase is Ft Bragg

Table G-8. ERA Allocations to the 32d Field Artillery Regiment[a]

Location	13Q			15Q			Total
	E3-E4	E5-E6	E7-E8	E3-E4	E5-E6	E7-E8	
Ft Carson	0	0	0	55	29	1	85
Ft Hood	0	0	0	110	58	2	170
Ft Sill	0	0	0	252	273	157	682
Ft Polk	0	0	0	55	16	1	72
Other CONUS	0	0	0	178	170	4	352
Germany	0	0	0	981	541	101	1,623
Hawaii	0	0	0	0	1	0	1
Italy	0	0	0	25	21	1	47
Netherlands		0	0	0	30	12	1
Turkey	0	0	0	0	0	1	1
Korea	0	0	0	103	51	17	171
Total	0	0	0	1,789	1,172	286	3,247

[a]Homebase is Ft Sill

Table G-9. ERA Allocations to the 14th Field Artillery Regiment[a]

Location	13Q			15Q			Total
	E3-E4	E5-E6	E7-E8	E3-E4	E5-E6	E7-E8	
Ft Campbell	0	62	0	0	0	0	62
Ft Sill	0	0	40	0	0	0	40
Other CONUS	174	75	12	0	0	0	261
Alaska	152	53	0	0	0	0	205
Germany	0	41	33	0	0	0	74
Korea	23	16	0	0	0	0	39
Total	349	247	85	0	0	0	681

[a]Homebase is Ft Stewart

Table G-10. ERA Allocations to the 29th Field Artillery Regiment[a]

Location	13Q			15Q			Total
	E3-E4	E5-E6	E7-E8	E3-E4	E5-E6	E7-E8	
Ft Campbell	99	10	0	0	0	0	109
Ft Carson	17	8	14	0	0	0	39
Other CONUS	0	114	55	0	0	0	169
Germany	353	160	73	0	0	0	586
Korea	23	0	0	0	0	0	23
Total	492	292	142	0	0	0	926

[a]Homebase is Ft Carson

Table G-11. ERA Allocations to the 32d Armor Regiment[a]

Location	19D			19Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Hood	0	0	0	5	3	9	17
Ft Irwin	0	0	0	4	0	0	4
Ft Knox	0	0	0	0	68	47	115
Other CONUS	0	0	0	0	10	0	10
Berlin	0	0	0	4	0	0	4
Germany	0	0	0	0	9	7	16
Korea	0	0	0	20	4	3	27
Total	0	0	0	33	94	66	193

[a]Homebase is Ft Hood

Table G-12. ERA Alllocations to the 34th Armor Regiment[a]

Location	19D			19Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Irwin	0	0	0	8	0	0	8
Ft Knox	0	0	0	0	54	31	85
Other CONUS	0	0	0	0	28	18	46
Germany	0	0	0	4	9	7	20
Korea	0	0	0	20	4	3	27
Total	0	0	0	32	95	59	186

[a]Homebase is Ft Riley

Table G-13. ERA Allocations to the 77th Armor Regiment[a]

Location	19D			19Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Carson	0	0	0	0	3	1	4
Ft Irwin	0	0	0	12	10	39	61
Ft Lewis	0	0	0	0	2	0	2
Ft Ord	0	0	0	0	8	0	8
Other CONUS	0	0	0	0	59	8	67
Germany	0	0	0	0	9	7	16
Korea	0	0	0	20	4	3	27
Total	0	0	0	32	95	58	185

[a]Homebase is Ft Carson

Table G-14. ERA Allocations to the 1st Cavalry Regiment[a]

Location	19D			19Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Hood	2	5	3	0	0	0	10
Ft Irwin	0	13	6	0	0	22	41
Ft Knox	0	32	0	0	0	0	32
Ft Lewis	23	0	21	0	0	0	44
Ft Ord	0	11	0	0	0	0	11
Ft Polk	0	1	0	0	0	0	1
Other CONUS	0	5	0	0	0	0	5
Alaska	0	8	0	0	0	0	8
Germany	0	0	2	0	0	0	2
Hawaii	0	4	3	0	0	3	10
Panama	0	0	0	0	0	1	1
Korea	16	10	2	0	0	2	30
Total	41	89	37	0	0	28	195

[a]Homebase is Ft Hood

Table G-15. ERA Allocations to the 4th Cavalry Regiment[a]

Location	19D			19Q			Total
	E3-E4	E5-E6	E7	E3-E4	E5-E6	E7-E8	
Ft Benning	0	0	2	0	0	0	2
Ft Irwin	0	0	0	1	0	0	1
Ft Knox	0	0	0	0	1	0	1
Ft Lewis	34	0	0	0	0	0	34
Ft Ord	10	0	0	0	0	0	10
Ft Riley	0	1	1	0	0	0	2
Other CONUS	0	86	51	0	0	54	191
Germany	45	29	12	0	0	0	86
Hawaii	20	0	0	0	0	0	20
Korea	28	6	1	1	0	1	37
Total	137	122	67	2	1	55	384

[a]Homebase is Ft Riley

APPENDIX H

PFAM SIMULATION SUMMARY REPORTS

H-1. INTRODUCTION. This appendix contains the study results obtained from PFAM reports for a sample of infantry, field artillery, and armor regiments. The sample of regiments is the same one as used in Appendix G. The PFAM results for the regiments are described in separate annexes. There are 15 annexes--five each for infantry, field artillery, and armor. Each annex includes:

a. A description of the regiment in terms of MOS data, grade distribution data, and location distribution data.

b. ERA simulation summary reports.

c. Unit strength profiles.

d. NCO strength profiles.

e. Turnover profiles.

H-2. UNIT ASSIGNMENT CODES. The unit is delineated by its assignment code. The first digit of the assignment code describes the unit's type and the second digit indicates the unit's location. The third digit is simply a sequential numbering of like units at a location. A zero in the third digit implies that this assignment is not a TOE unit but is instead an extraregimental assignment. (Table H-1 depicts the meaning of the values for each digit.) Assignment Code 111, for example, indicates that this is rotating unit number 1 located at the regimental homebase, while 141 is this same unit located in the regiment's OCONUS theater.

Table H-1. Unit Assignment Code

Value	Digit		
	1	2	3
1	Rotating	Homebase	1st
2	Replacing	Alt homebase	2d
3	Nondeploying	Other CONUS	3d
4	Stabilized	OCONUS Theater 1	4th
5	Nonstabilized	OCONUS Theater 2	5th
6	N/A	Other long tour	6th
7	N/A	Other short tour	7th

H-3. PROFILES. Personnel readiness indicator profiles of a regimental battalion are presented as graphs depicting the mean values observed at each time period in the life cycle of like units of the regiment. Each graph also presents a 90 percent confidence interval about that mean. The methods of mean value and confidence interval calculation are described in Chapter 5, paragraph 5-6c. The mean values are connected by the solid curve, and the extremes of the 90 percent confidence intervals are connected by the dashed curves on both sides of the solid curve. The solid horizontal line labeled AUTH appearing on the strength profiles depicts the authorized strength (total or noncommissioned officer, as appropriate) and the chain dot line labeled FLOOR on the total strength profile depicts 90 percent of total authorized. The vertical scale of the turnover profile is a decimal rate, e.g., a rate of .10 equals 10 percent.

H-4. KEY TO ANNEXES

a. Annex H-I: 7th Infantry Regiment

b. Annex H-II: 12th Infantry Regiment

c. Annex H-III: 21st Infantry Regiment

d. Annex H-IV: 502d Infantry Regiment

e. Annex H-V: 325th Infantry Regiment

f. Annex H-VI: 82d Field Artillery Regiment

g. Annex H-VII: 319th Field Artillery Regiment

h. Annex H-VIII: 32d Field Artillery Regiment

i. Annex H-IX: 14th Field Artillery Regiment

j. Annex H-X: 29th Field Artillery Regiment

k. Annex H-XI: 32d Armor Regiment

l. Annex H-XII: 34th Armor Regiment

m. Annex H-XIII: 77th Armor Regiment

n. Annex H-XIV: 1st Cavalry Regiment

o. Annex H-XV: 4th Cavalry Regiment

ANNEX I TO APPENDIX H

7TH INFANTRY REGIMENT, FT STEWART, GEORGIA

H-I-1. AUTHORIZATION DATA BY MOS:

	11C	11H	11Q*	Total
Assigned TOE spaces	136	220	1,688	2,044
Allocated ERA spaces	94	76	939	1,109
Total authorizations	230	296	2,627	3,153

H-I-2. GRADE DISTRIBUTION DATA:

	11C	11H	11Q	Total
E3	70	88	605	763
E4	73	112	917	1,102
E5	52	41	434	527
E6	24	37	369	430
E7	11	18	202	231
E8	--	--	100	100
Total authorizations	230	296	2,627	3,153

H-I-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	11C	11H	11Q	Total
111/141	2-21 Inf	FT Stewart	34	55	426	515
112/142	1-7 Inf	Germany	34	55	426	515
113/143	2-34 Inf	FT Stewart	34	55	418	507
114/144	1-4 Inf	Germany	34	55	418	507
440/540	ERA	Germany	44	1	375	420
460	ERA	Other long tour	0	0	0	0
470	ERA	Short tour	5	12	71	88
410/510	ERA	FT Stewart	0	0	0	0
430/530	ERA	Other CONUS	45	63	493	601
	Regimental totals		230	296	2,627	3,153

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*11Q = 11B + 11M

H-I-4. MOVEMENT SCHEME

a. 2-21 Infantry rotates with 1-7 Infantry.

b. 2-34 Infantry rotates with 1-4 Infantry.

c. The rotation points of the 2-34/1-4 pair are offset from the rotation points of the 2-21/1-7 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-I-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 7th Infantry Regiment (both BMS and IRS).

(NOT USED)

UNIT STRENGTH AVERAGES

UNIT	PHASE	POS		E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER I/O	%UNDER % OF TIME	FLOW AVG NUM	%OVER % OF TIME	AUTH AVG NUM
480	OCONUS																
		1	AUTH / AVERAGE	32 / 31.5	17 / 17.5	8 / 7.4	11 / 11.8	8 / 8.2	3 / 3.4	82 / 81.9	99.9	33 / 32.9	1.2				
		2	AUTH / AVERAGE	4 / 4.3	3 / 2.6	1 / 1.5	2 / 1.3	0 / .2	0 / .0	10 / 9.9	99.5	3 / 3.1	.4				
		3	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	.0	0 / .0	.0				
			TOT AUTH / TOT AVERAGE	33 / 35.8	20 / 20.1	9 / 9.0	16 / 15.1	8 / 8.5	3 / 3.4	92 / 91.9	99.9	36 / 36.0	1.2	.0	.0	.2	1.7
540	OCONUS																
		1	AUTH / AVERAGE	100 / 104.5	74 / 61.9	25 / 23.3	49 / 48.9	32 / 32.1	12 / 12.1	292 / 282.9	96.9	118 / 116.5	24.3				
		2	AUTH / AVERAGE	15 / 16.4	11 / 7.5	4 / 4.5	4 / 3.6	1 / 1.0	0 / .0	35 / 33.0	94.4	9 / 9.2	2.6				
		3	AUTH / AVERAGE	0 / .0	0 / .2	0 / .2	1 / .5	0 / .0	0 / .0	1 / .9	94.4	1 / .8	.1				
			TOT AUTH / TOT AVERAGE	115 / 120.9	85 / 69.5	29 / 28.1	54 / 53.1	33 / 33.2	12 / 12.1	328 / 316.9	96.6	128 / 126.4	8.9	.0	.0	.0	.0
470	OCONUS																
		1	AUTH / AVERAGE	21 / 41.5	38 / 7.2	0 / .1	10 / 9.8	0 / .5	2 / 2.0	71 / 66.9	94.2	12 / 12.4	5.9				
		2	AUTH / AVERAGE	4 / 2.0	0 / .0	0 / .4	0 / .3	1 / .6	0 / .0	5 / 4.3	85.0	1 / 1.4	.4				
		3	AUTH / AVERAGE	5 / 3.3	0 / 1.8	3 / 3.1	2 / 2.1	1 / .8	0 / .0	12 / 11.1	92.8	7 / 6.1	.9				
			TOT AUTH / TOT AVERAGE	30 / 53.5	38 / 9.0	3 / 3.7	13 / 12.3	2 / 1.9	2 / 2.0	88 / 82.3	93.5	20 / 19.9	2.4	.0	.0	.0	.0
510	CONUS																
		1	AUTH / AVERAGE	0 / 1.9	0 / 84.3	0 / 2.5	0 / 1.6	0 / .5	0 / .9	0 / 91.7	*****	0 / 5.5	5.3				
		2	AUTH / AVERAGE	0 / 1.7	0 / 9.2	0 / .8	0 / .7	0 / .5	0 / .0	0 / 13.3	*****	0 / 7.0	.9				
		3	AUTH / AVERAGE	0 / 1.6	0 / 1.7	0 / .6	0 / .8	0 / .4	0 / .0	0 / 4.5	446.2	0 / 1.4	.5				
			TOT AUTH / TOT AVERAGE	0 / 4.5	0 / 95.2	0 / 3.9	0 / 3.1	0 / 1.4	0 / .9	0 / 109.1	*****	0 / 9.3	2.2	.0	.0	****	****
430	CONUS																
		1	AUTH / AVERAGE	17 / 9.5	20 / 21.9	12 / 17.9	31 / 31.9	22 / 21.2	10 / 9.9	112 / 111.4	99.5	75 / 80.0	3.8				
		2	AUTH / AVERAGE	4 / [illegible]	1 / 2.4	2 / 2.9	2 / 1.7	1 / 1.0	0 / .0	10 / 9.9	99.9	5 / 5.6	.4				
		3	AUTH / AVERAGE	8 / 7.6	[illegible] / 4.2	3 / 2.4	2 / 2.0	1 / 1.2	0 / .0	14 / 13.4	98.1	6 / 6.0	.5				
			TOT AUTH / TOT AVERAGE	29 / 23.7	21 / 29.9	17 / 23.6	35 / 34.7	24 / 23.4	10 / 9.9	136 / 135.1	99.3	86 / 91.4	1.5	.0	.0	.0	.0
[illegible]	CONUS																
		1	AUTH / AVERAGE	50 / [illegible]	74 / 60.9	45 / 66.9	160 / 57.7	76 / 67.3	37 / 35.2	382 / 377.4	98.8	258 / 268.5	15.1				
		2	AUTH / AVERAGE	15 / 6.1	2 / 9.5	5 / 8.4	4 / 5.7	4 / 3.2	0 / .0	38 / 33.0	97.0	17 / 17.4	1.3				
		3	AUTH / AVERAGE	27 / 7.3	0 / 16.9	11 / 9.3	7 / 7.4	4 / 3.8	0 / .0	48 / 45.0	91.4	22 / 20.4	2.3				
			TOT AUTH / TOT AVERAGE	92 / [illegible]	76 / 107.3	61 / 84.6	115 / 110.1	84 / 76.1	37 / 35.2	465 / 455.4	97.9	297 / 306.3	6.2	.0	.0	.0	.0

Figure H-I-1. ERA Simulation Summary Report (IRS)
7th Infantry Regiment

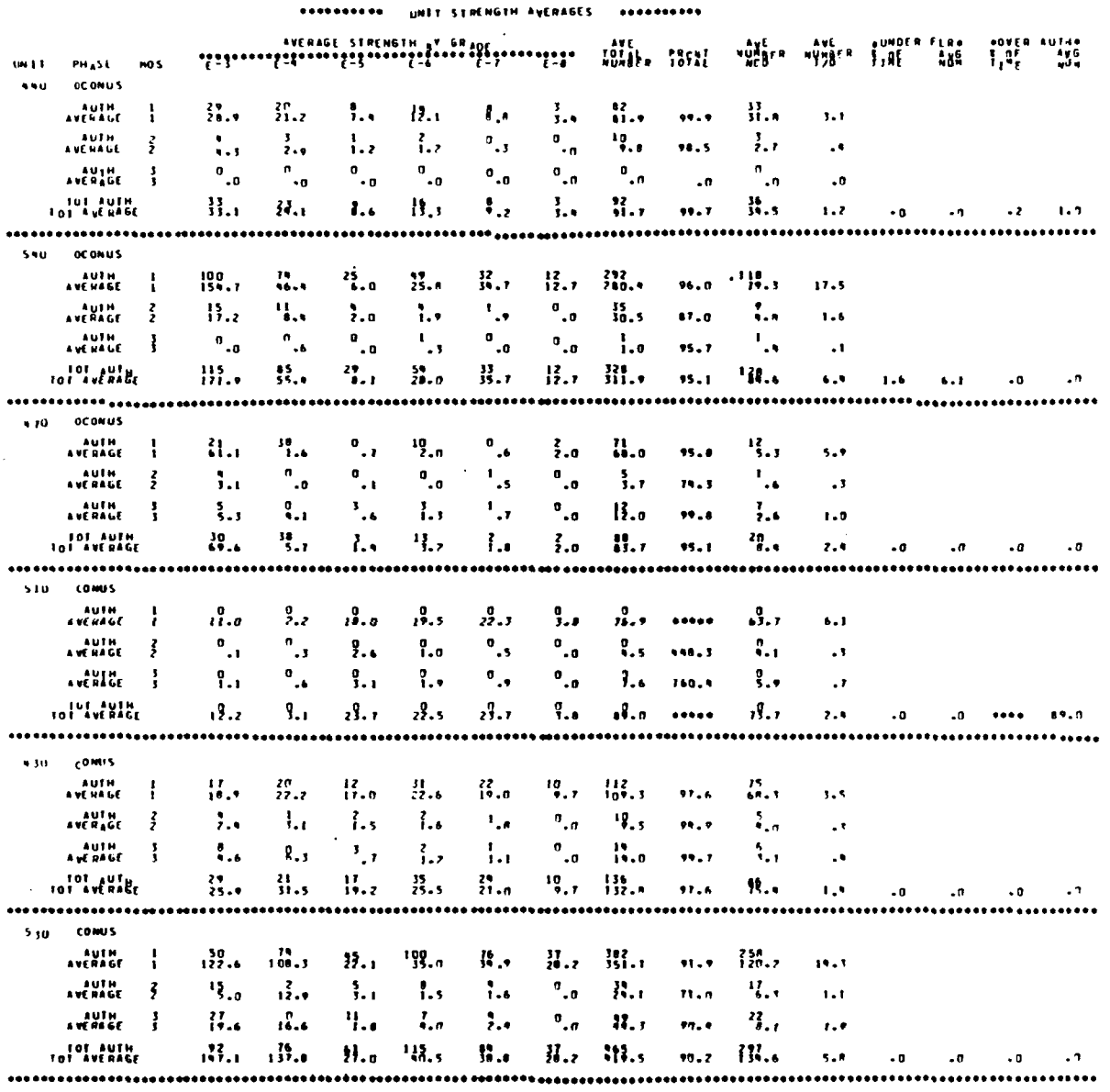


Figure H-I-2. ERA Simulation Summary Report (BMS)
7th Infantry Regiment

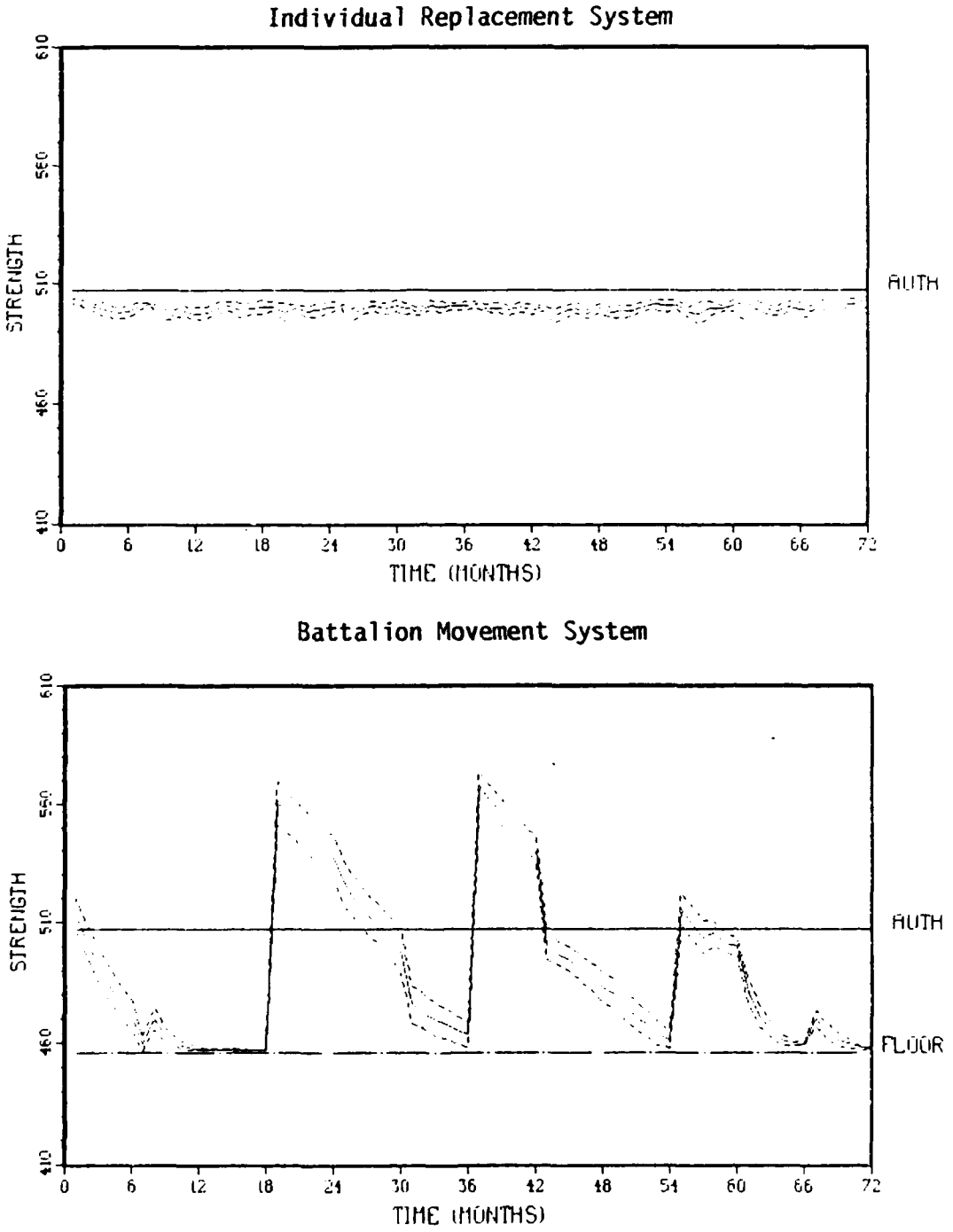
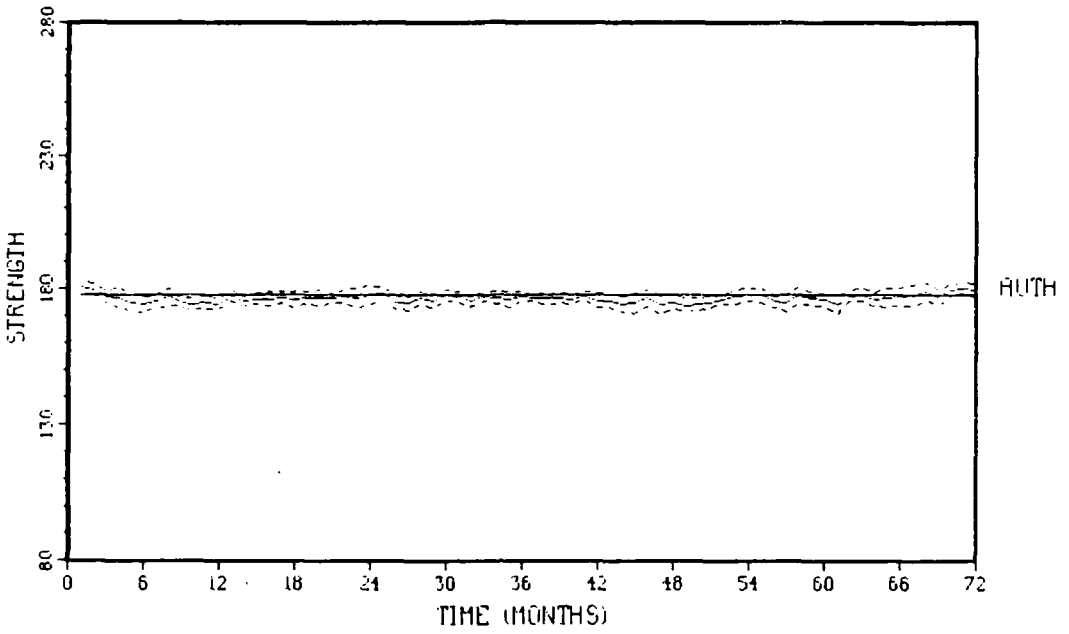


Figure H-I-3. Battalion Unit Strength Profiles
7th Infantry Regiment

Individual Replacement System



Battalion Movement System

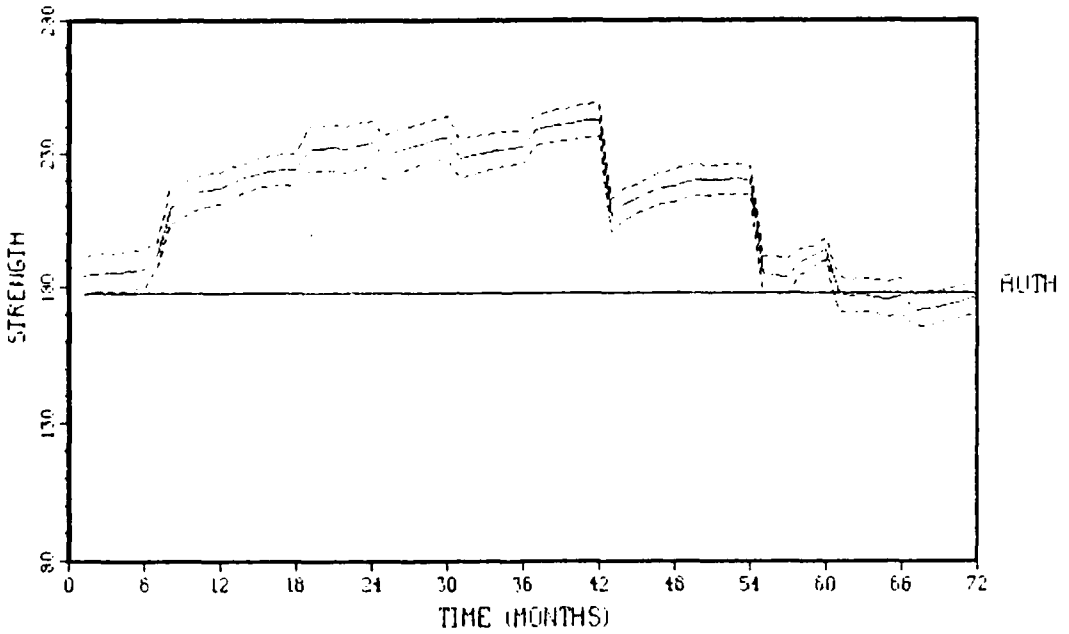


Figure H-I-4. Battalion NCO Strength Profiles 7th Infantry Regiment

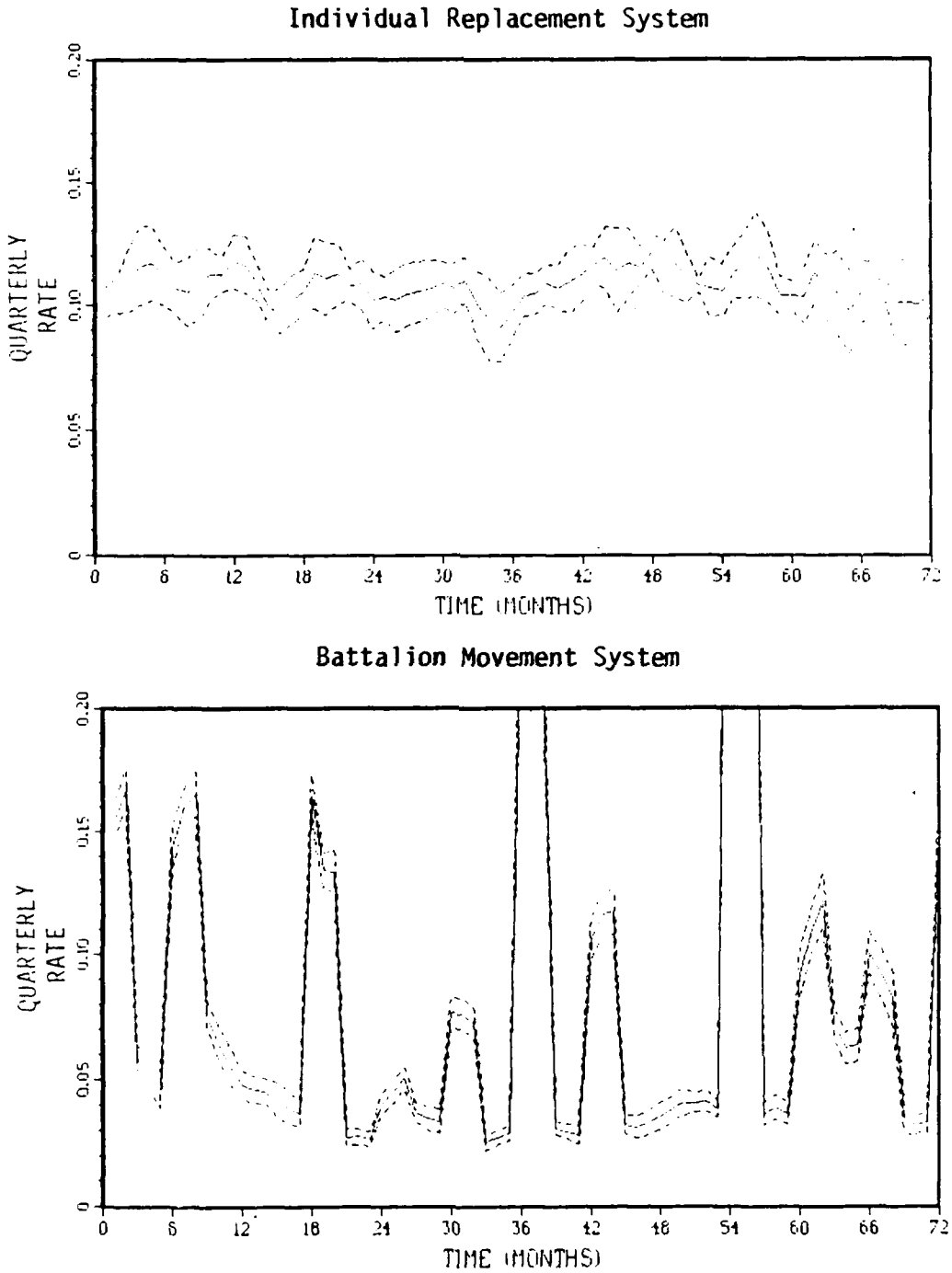


Figure H-I-5. Battalion Turnover Profiles
7th Infantry Regiment

ANNEX II TO APPENDIX H

12TH INFANTRY REGIMENT, FT CARSON, COLORADO

H-II-1. AUTHORIZATION DATA BY MOS:

	11C	11H	11Q*	Total
Assigned TOE spaces	136	348	1,616	2,100
Allocated ERA spaces	226	116	766	1,108
Total authorizations	362	464	2,382	3,208

H-II-2. GRADE DISTRIBUTION DATA:

	11C	11H	11Q	Total
E3	110	138	548	796
E4	115	176	831	1,122
E5	82	65	394	541
E6	38	58	335	431
E7	17	27	184	228
E8	--	--	90	90
Total authorizations	362	464	2,382	3,208

H-II-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	11C	11H	11Q	Total
111/141	1-12 Inf	FT Carson	34	87	404	525
112/142	1-13 Inf	Germany	34	87	404	525
113/143	1-10 Inf	FT Carson	34	87	404	525
114/144	1-39 Inf	Germany	34	87	404	525
440/540	ERA	Germany	21	1	146	168
460	ERA	Other long tour	0	2	0	2
470	ERA	Short tour	12	17	58	87
410/510	ERA	FT Carson	124	1	197	322
430/530	ERA	Other CONUS	69	95	365	529
	Regimental totals		362	464	2,382	3,208

*11Q = 11B + 11M

H-II-4. MOVEMENT SCHEME

a. 1-12 Infantry rotates with 1-13 Infantry.

b. 1-10 Infantry rotates with 1-39 Infantry.

c. The rotation points of the 1-10/1-39 pair are offset from the rotation points of the 1-12/1-13 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-II-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 12th Infantry Regiment (both BMS and IRS).

(NOT USED)

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-1	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCD	AVE NUMBER T/O	NUMBER % OF TIME	FLDG AVG NUM	OVER % OF TIME	AUTHO AVG NUM
			UNIT STRENGTH AVERAGES													
5ND	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .5	7 5.9	15 14.7	8 8.2	3 3.7	33 33.0	100.0	33 32.5	1.2				
	AUTH AVERAGE	2	0 .0	0 .0	1 1.1	3 1.7	1 1.2	0 .0	15 4.0	28.6	5 4.0	.2				
	AUTH AVERAGE	3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		0 .0	0 .5	8 7.0	17 16.3	9 9.4	3 3.7	37 37.0	78.7	37 36.5	.5	.0	.0	.0	.0
5NO	OCONUS															
	AUTH AVERAGE	1	0 .0	0 5.1	31 31.4	56 46.4	26 26.9	11 11.2	112 112.9	99.9	107 107.9	9.2				
	AUTH AVERAGE	2	0 .0	0 .0	5 5.6	9 7.6	3 3.8	0 .0	17 17.0	100.0	17 17.0	1.1				
	AUTH AVERAGE	3	0 .0	0 .1	0 .4	1 .5	0 .0	0 .0	1 1.0	98.4	1 .9	.1				
	TOT AUTH TOT AVERAGE		0 .0	0 5.2	37 37.1	66 54.4	29 30.7	11 11.2	130 130.9	99.9	125 125.7	1.5	.0	.0	.0	.0
5NO	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	0 .0	0 .0	0 .0	0 .3	0 .3	30.4	0 .3	.0				
	AUTH AVERAGE	2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	AUTH AVERAGE	3	0 .0	0 .0	0 .2	0 .2	2 1.7	0 .0	2 2.0	101.6	2 2.0	.1				
	TOT AUTH TOT AVERAGE		0 .0	0 .0	0 .2	0 .2	2 1.7	0 .3	2 2.4	118.8	2 2.4	.0	.0	.0	28.6	1.3
530	OCONUS															
	AUTH AVERAGE	1	19 30.4	15 23.4	0 .3	3 3.6	0 .3	2 2.0	39 39.9	99.8	6 6.1	5.2				
	AUTH AVERAGE	2	7 7.0	0 .0	5 4.8	0 .2	0 .0	0 .0	12 12.0	99.9	2 2.0	1.0				
	AUTH AVERAGE	3	8 8.9	0 1.4	5 4.8	3 2.7	1 1.0	0 .0	18 18.7	93.0	10 8.5	1.4				
	TOT AUTH TOT AVERAGE		34 42.2	15 26.8	10 9.9	6 6.5	1 1.3	2 2.0	90 88.6	98.4	21 16.6	2.5	.0	.0	.2	1.0
510	CONUS															
	AUTH AVERAGE	1	8 8.6	15 16.6	3 3.5	6 6.6	2 2.0	5 5.4	43 43.8	99.6	30 21.6	1.5				
	AUTH AVERAGE	2	3 3.1	11 11.3	7 7.1	1 1.7	1 1.8	0 .0	23 27.0	99.9	13 13.6	.9				
	AUTH AVERAGE	3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		19 19.8	29 29.9	8 8.6	7 8.3	3 3.8	5 5.4	70 69.8	99.8	32 32.2	.8	.0	.0	.7	1.0
510	CONUS															
	AUTH AVERAGE	1	27 27.9	59 59.2	8 8.0	13 13.5	32 29.5	23 16.4	157 157.3	112.0	78 66.3	7.7				
	AUTH AVERAGE	2	9 20.6	47 47.6	29 29.0	13 9.5	5 3.8	0 .0	105 105.5	100.7	31 31.3	5.2				
	AUTH AVERAGE	3	0 .4	0 .0	0 .6	0 .8	1 .9	0 .0	1 1.8	477.8	1 .3	.6				
	TOT AUTH TOT AVERAGE		36 28.8	97 146.9	37 37.6	27 23.8	37 30.2	23 16.4	261 261.6	112.2	108 98.9	5.8	.0	.0	97.4	11.4
530	CONUS															
	AUTH AVERAGE	1	23 8.3	11 20.4	18 18.1	37 31.2	9 9.2	3 3.0	77 88.3	86.4	33 18.6	2.4				
	AUTH AVERAGE	2	19 6.0	9 9.3	0 .6	1 1.1	1 1.8	0 .0	19 19.9	99.2	2 2.5	.5				
	AUTH AVERAGE	3	19 9.1	9 8.6	8 8.5	3 3.8	3 2.7	0 .0	39 39.7	98.3	19 19.0	.7				
	TOT AUTH TOT AVERAGE		99 17.4	11 11.3	18 18.2	39 28.1	9 8.7	3 3.0	135 103.8	90.3	53 33.1	1.2	.0	.0	.0	.0
530	CONUS															
	AUTH AVERAGE	1	99 99.1	38 88.3	39 37.0	78 68.0	35 35.7	13 13.4	298 298.5	97.7	191 191.1	10.6				
	AUTH AVERAGE	2	50 20.2	0 28.7	9 9.6	7 7.8	1 .9	0 .0	65 52.1	98.3	7 5.2	1.6				
	AUTH AVERAGE	3	27 27.6	9 29.6	18 18.9	19 19.0	8 8.0	0 .0	79 68.1	92.0	33 33.9	1.0				
	TOT AUTH TOT AVERAGE		175 48.9	38 138.6	50 74.5	98 80.8	46 42.5	13 13.4	412 398.7	96.8	199 211.2	5.1	.0	.0	.0	.0

Figure H-II-1. ERA Simulation Summary Report (IRS)
12th Infantry Regiment

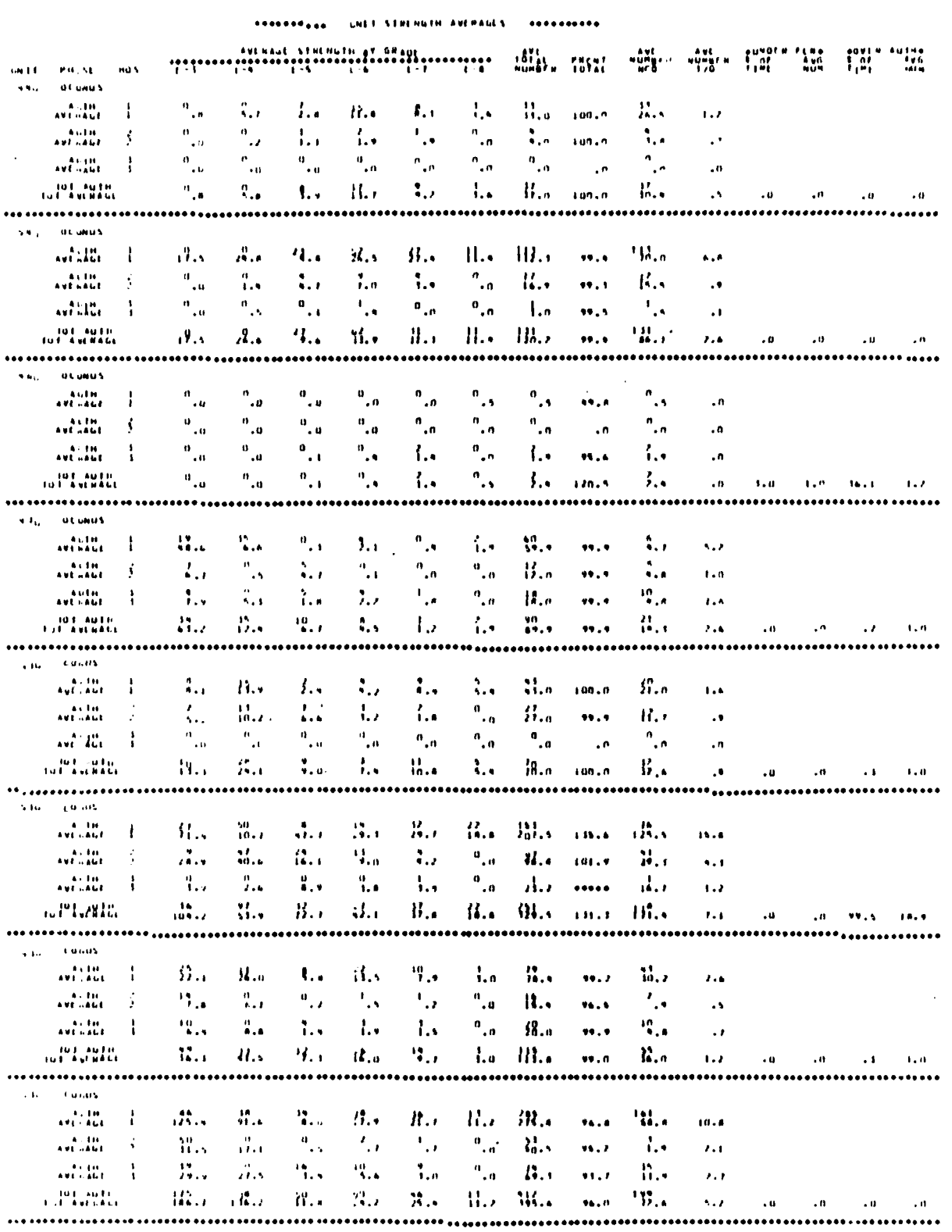


Figure H-II-2. ERA Simulation Summary Report (BMS)
12th Infantry Regiment

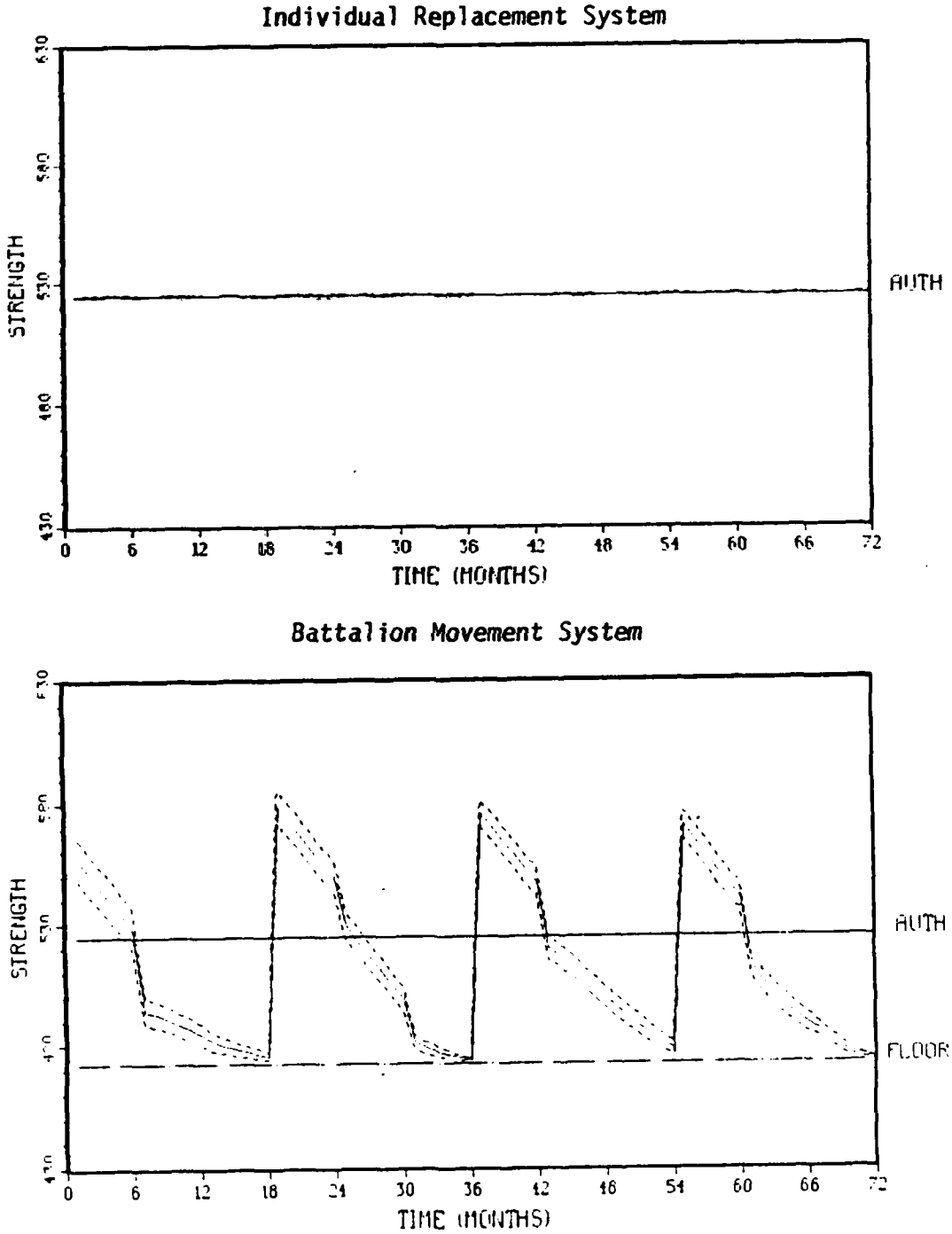
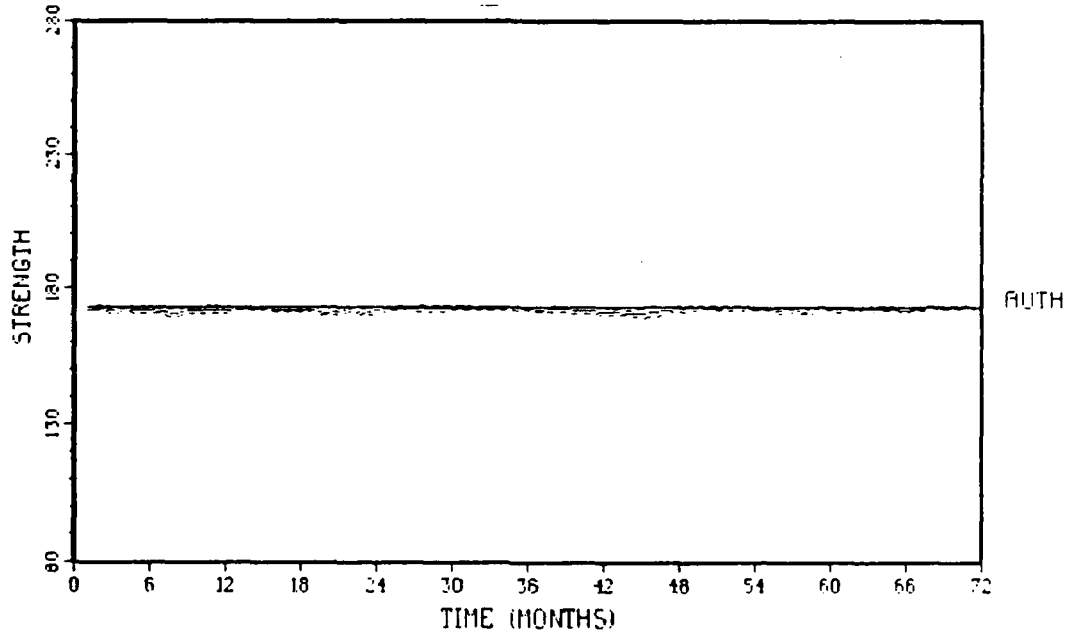


Figure H-II-3. Battalion Unit Strength Profiles 12th Infantry Regiment

Individual Replacement System



Battalion Movement System

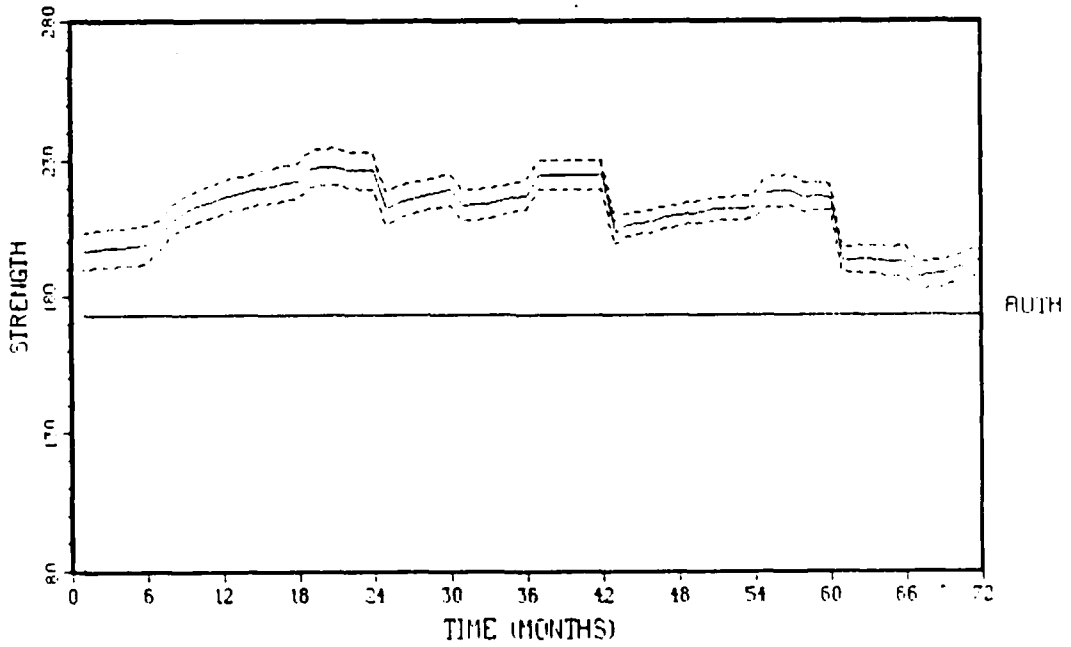


Figure H-II-4. Battalion NCO Strength Profiles 12th Infantry Regiment

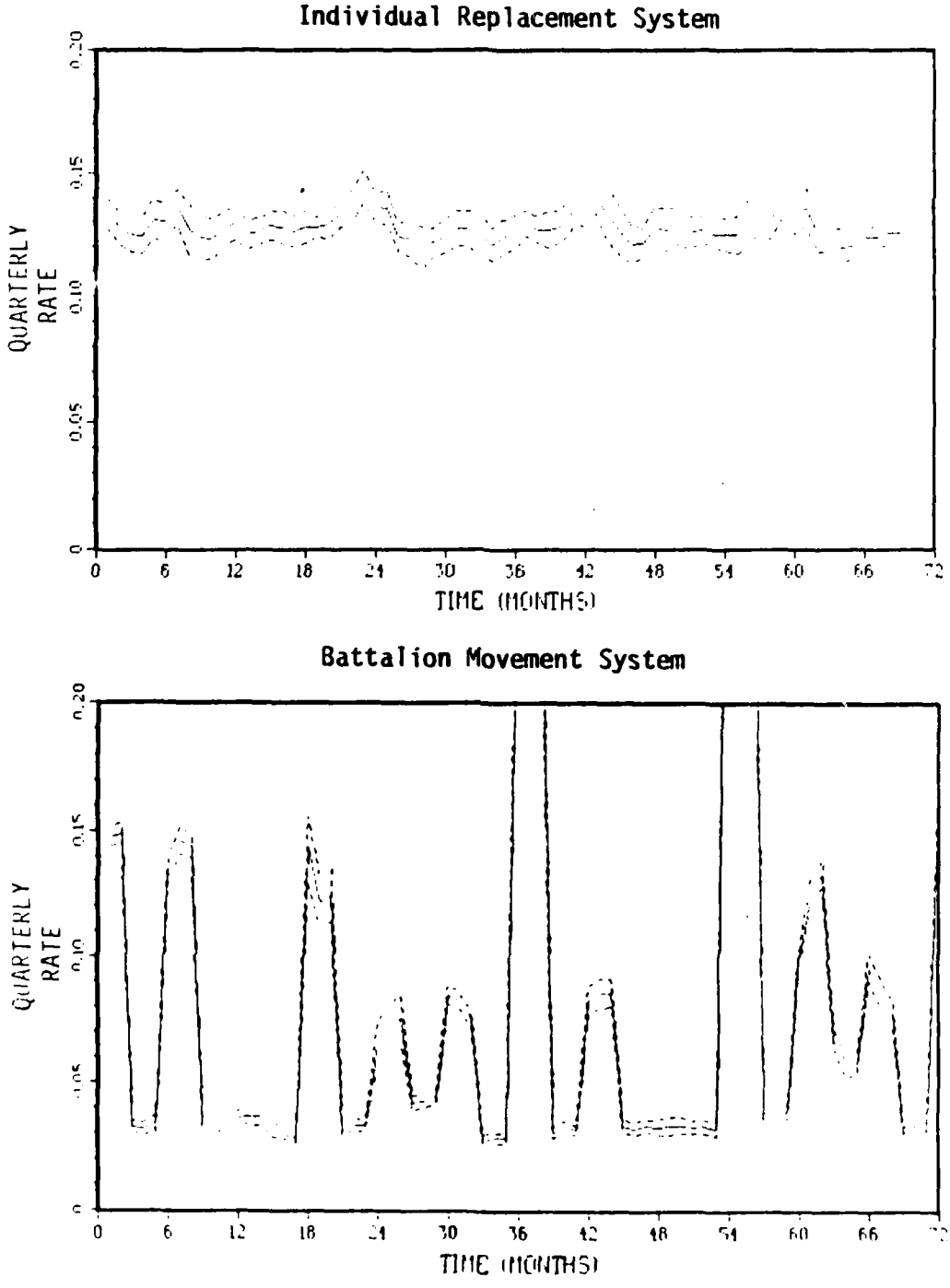


Figure H-II-5. Battalion Turnover Profiles 12th Infantry Regiment

ANNEX III TO APPENDIX H

21ST INFANTRY REGIMENT, FT ORD, CALIFORNIA

H-III-1. AUTHORIZATION DATA BY MOS:

	11C	11H	11Q*	Total
Assigned TOE spaces	176	76	1,552	1,804
Allocated ERA spaces	88	11	511	610
Total authorizations	264	87	2,063	2,414

H-III-2. GRADE DISTRIBUTION DATA:

	11C	11H	11Q	Total
E3	80	26	475	581
E4	84	33	720	837
E5	60	12	341	413
E6	28	11	290	329
E7	12	5	159	176
E8	--	--	78	78
Total authorizations	264	87	2,063	2,414

H-III-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	11C	11H	11Q	Total
111/141	3-32 Inf	FT Ord	44	19	388	451
112/142	1-21 Inf	Hawaii	44	19	388	451
113/143	5-21 Inf	FT Ord	44	19	388	451
114/144	3-21 Inf	Hawaii	44	19	388	451
440/540	ERA	Germany	21	0	0	21
460	ERA	Other long tour	1	0	19	20
470	ERA	Short tour	12	2	80	94
410/510	ERA	FT Ord	0	1	96	97
430/530	ERA	Other CONUS	54	8	316	378
	Regimental totals		264	87	2,063	2,414

*11Q = 11B + 11M

H-III-4. MOVEMENT SCHEME

a. 3-32 Infantry rotates with 1-21 Infantry.

b. 5-21 Infantry rotates with 3-21 Infantry.

c. The rotation points of the 5-21/3-21 pair are offset from the rotation points of the 3-32/1-21 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-III-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 21st Infantry Regiment (both BMS and IRS).

(NOT USED)

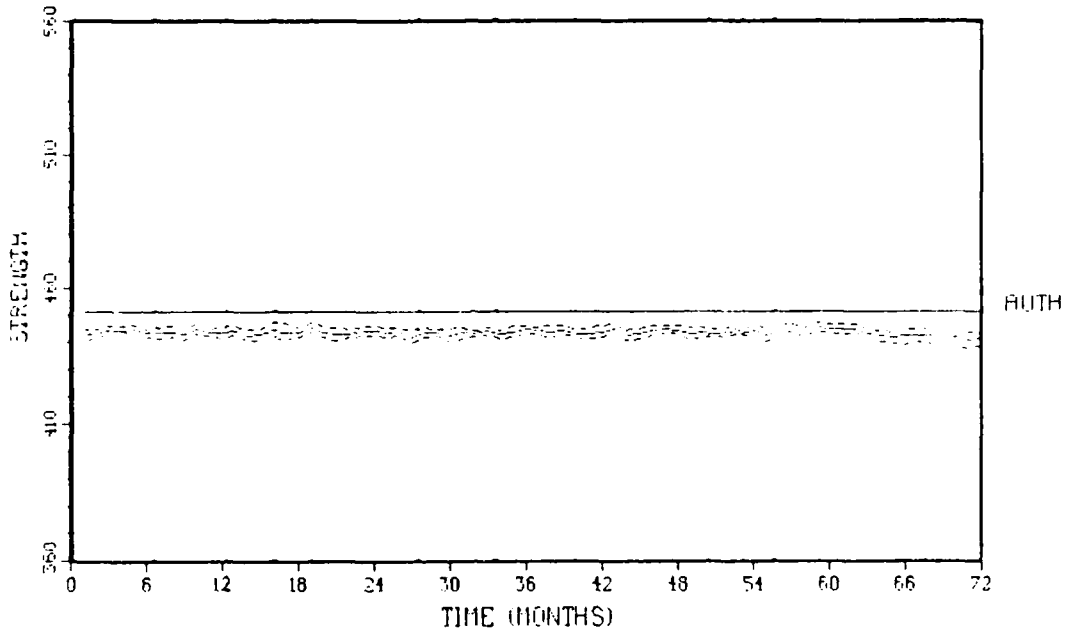
UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	*UNDER $ OF TIME	FLAG AVG NUM	*OVER $ OF TIME	AUTHO AVG NUM
440	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	AUTH AVERAGE	2 2	0 1.9	5 2.9	0 .1	0 .0	0 .0	0 .0	5 4.9	97.2	0 .1	.2				
	AUTH AVERAGE	3 3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		0 1.9	5 2.9	0 .1	0 .0	0 .0	0 .0	5 4.9	97.2	0 .1	.1	.0	.0	.0	.0
540	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	AUTH AVERAGE	2 2	0 .3	16 5.4	0 .0	0 .0	0 .0	0 .0	16 5.7	60.8	0 .0	.8				
	AUTH AVERAGE	3 3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		0 .3	16 5.4	0 .0	0 .0	0 .0	0 .0	16 5.7	60.8	0 .0	.3	.0	.0	.0	.0
460	OCONUS															
	AUTH AVERAGE	1	1 .2	0 .1	1 .8	9 3.9	3 .2	1 .1	19 5.3	96.4	18 5.0	.8				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .5	1 .5	0 .3	0 .0	1 1.0	99.1	1 .0	.0				
	AUTH AVERAGE	3 3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		1 .2	0 .1	1 .3	5 4.4	3 .3	1 .1	19 5.3	96.5	18 5.0	.3	.0	.0	.0	.0
470	OCONUS															
	AUTH AVERAGE	1	9 2.4	38 20.6	13 4.0	33 30.9	1 .7	3 2.1	80 68.7	85.9	39 45.7	5.8				
	AUTH AVERAGE	2 2	0 .3	5 .3	4 .1	2 2.1	1 .9	0 .0	12 7.8	65.2	7 7.2	.6				
	AUTH AVERAGE	3 3	0 .4	1 .9	1 .6	0 .0	0 .0	0 .0	2 2.0	99.5	1 .6	.2				
	TOT AUTH TOT AVERAGE		9 3.1	34 21.8	17 13.8	35 33.1	1 .6	3 2.1	94 78.5	83.5	39 53.6	2.2	.0	.0	.0	.0
410	CONUS															
	AUTH AVERAGE	1	2 .1	0 .4	1 .7	3 .9	2 .3	10 8.5	21 1.0	100.0	18 20.4	.7				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	AUTH AVERAGE	3 3	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	0 .0	.0	0 .0	.0				
	TOT AUTH TOT AVERAGE		2 .1	0 .4	1 .7	3 .9	2 .3	10 8.5	21 1.0	100.0	18 20.4	.2	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE	1	4 .1	9 3.3	8 2.7	17 16.1	24 24.0	14 29.3	77 79.4	103.2	62 76.0	4.1				
	AUTH AVERAGE	2 2	0 .3	9 1.5	0 .6	0 .4	0 .4	0 .0	9 3.2	316.8	9 1.4	.3				
	AUTH AVERAGE	3 3	8 .7	18 4.0	8 2.0	1 .2	0 .5	0 .0	24 8.4	*****	3 1.7	1.2				
	TOT AUTH TOT AVERAGE		9 .1	18 8.8	8 5.5	18 16.7	24 24.9	14 29.3	107 107.0	140.8	78 78.1	1.8	.0	.0	****	31.0
430	CONUS															
	AUTH AVERAGE	1	0 .0	18 8.7	19 9.7	28 28.3	18 18.2	9 2.9	89 89.7	99.6	59 59.1	2.8				
	AUTH AVERAGE	2 2	0 .1	3 3.2	5 5.7	2 2.3	1 1.5	0 .0	12 12.8	98.4	9 9.5	.5				
	AUTH AVERAGE	3 3	1 .5	0 .1	1 .4	1 .7	0 .3	0 .0	3 1.0	99.2	1 .4	.1				
	TOT AUTH TOT AVERAGE		1 .6	22 18.9	19 15.8	31 31.3	19 19.9	9 2.9	83 83.5	99.4	64 64.0	1.1	.0	.0	.0	.0
530	CONUS															
	AUTH AVERAGE	1	0 .3	68 68.3	31 31.3	12 12.4	25 25.6	0 .1	232 232.0	93.2	183 183.4	10.1				
	AUTH AVERAGE	2 2	0 .5	11 11.7	15 15.4	9 9.5	3 3.3	0 .0	37 37.3	91.1	27 25.2	1.8				
	AUTH AVERAGE	1 1	1 .5	0 1.9	2 1.1	1 1.0	1 .5	0 .0	5 5.0	99.4	3 2.6	.2				
	TOT AUTH TOT AVERAGE		1 .3	79 81.8	48 47.8	22 22.8	29 29.4	0 .1	274 274.3	93.0	213 213.1	9.0	.0	.0	.0	.0

Figure H-III-1. ERA Simulation Summary Report (IRS)
21st Infantry Regiment

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MOS	AVE NUMBER T/O	NUMBER % OF TIME	FLR AVG NUM	OVER % OF TIME	AUTHO AVG NUM
440	OCONUS															
	AUTH	1	0	0	0	0	0	0	0		0					
	AVERAGE	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	AUTH	2	0	5	0	0	0	0	5		0					
	AVERAGE	2	3.2	1.8	.0	.0	.0	.0	5.0	99.7	.0	.2				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		0	5	0	0	0	0	5		0					
	TOT AVERAGE		3.2	1.8	.0	.0	.0	.0	5.0	99.7	.0	.1	.0	.0	.0	.0
540	OCONUS															
	AUTH	1	0	0	0	0	0	0	0		0					
	AVERAGE	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	AUTH	2	0	16	0	0	0	0	16		0					
	AVERAGE	2	12.4	2.8	.2	.0	.0	.0	15.4	96.4	.2	1.0				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		0	16	0	0	0	0	16		0					
	TOT AVERAGE		12.4	2.8	.2	.0	.0	.0	15.4	96.4	.2	.3	.3	1.0	.0	.0
460	OCONUS															
	AUTH	1	2	0	1	6	3	7	18		15					
	AVERAGE	1	2.3	1.6	.6	3.0	3.3	7.1	18.0	99.9	14.1	.7				
	AUTH	2	0	0	0	1	0	0	1		1					
	AVERAGE	2	.0	.1	.3	.6	.1	.0	1.0	99.3	.9	.0				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		3	0	1	6	3	7	19		16					
	TOT AVERAGE		2.3	1.7	.9	3.6	3.3	7.1	19.0	99.8	15.0	.2	.0	.0	.0	.0
470	OCONUS															
	AUTH	1	0	30	12	33	3	2	80		50					
	AVERAGE	1	28.2	21.3	8.0	20.2	4.1	2.1	79.9	99.8	30.4	6.9				
	AUTH	2	0	5	4	2	0	0	12		6					
	AVERAGE	2	3.6	1.0	3.7	1.6	.1	.0	10.1	84.1	5.4	.8				
	AUTH	3	0	1	1	0	0	0	2		1					
	AVERAGE	3	.5	.3	.2	.0	.0	.0	2.0	99.9	.2	.2				
	TOT AUTH		0	36	17	35	3	2	94		57					
	TOT AVERAGE		32.3	23.6	8.0	23.9	4.1	2.1	92.0	97.8	36.0	2.6	.0	.0	.0	.0
410	CONUS															
	AUTH	1	2	0	2	5	2	10	21		19					
	AVERAGE	1	.5	2.6	1.6	4.0	3.5	8.9	21.0	100.0	18.0	.4				
	AUTH	2	0	0	0	0	0	0	0		0					
	AVERAGE	2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		2	0	2	5	2	10	21		19					
	TOT AVERAGE		.5	2.6	1.6	4.0	3.5	8.9	21.0	100.0	18.0	.3	.0	.0	.0	.0
51C	CONUS															
	AUTH	1	6	0	8	19	6	36	75		69					
	AVERAGE	1	77.4	3.7	32.3	22.6	28.8	11.1	175.9	234.6	98.8	12.9				
	AUTH	2	0	0	0	0	0	0	0		0					
	AVERAGE	2	.1	.4	3.6	2.1	.9	.0	7.1	714.4	6.6	.5				
	AUTH	3	0	0	0	1	0	0	1		1					
	AVERAGE	3	11.8	6.4	1.8	1.1	.8	.0	22.5	*****	3.7	1.0				
	TOT AUTH		6	0	8	23	6	36	76		70					
	TOT AVERAGE		89.3	11.1	37.7	25.7	30.6	11.1	205.5	270.4	105.2	9.7	.0	.0	****	****
43C	CONUS															
	AUTH	1	0	18	10	20	20	0	68		50					
	AVERAGE	1	12.4	16.5	5.7	18.2	15.0	2.1	67.9	99.9	39.0	2.1				
	AUTH	2	0	4	5	2	2	0	13		9					
	AVERAGE	2	2.6	2.7	4.4	1.9	.9	.0	12.5	96.3	7.2	.4				
	AUTH	3	1	0	1	1	0	0	3		2					
	AVERAGE	3	1.2	1.3	.2	.3	.0	.0	3.0	99.5	.5	.1				
	TOT AUTH		1	22	16	23	22	0	84		61					
	TOT AVERAGE		16.3	20.5	10.3	18.4	15.9	2.1	83.4	99.3	46.7	.9	.0	.0	.0	.0
53C	CONUS															
	AUTH	1	0	64	36	73	76	0	249		185					
	AVERAGE	1	87.8	55.7	8.0	35.1	42.1	19.4	248.1	99.6	109.6	8.7				
	AUTH	2	0	14	15	8	4	0	41		27					
	AVERAGE	2	8.1	7.4	9.7	4.1	1.7	.0	30.9	75.4	15.4	1.2				
	AUTH	3	1	0	2	1	1	0	5		4					
	AVERAGE	3	2.1	1.8	.4	.4	.1	.0	4.9	98.8	1.0	.2				
	TOT AUTH		1	78	53	82	81	0	295		216					
	TOT AVERAGE		98.0	65.0	18.1	39.6	43.8	19.4	283.9	96.2	121.0	3.4	.0	.0	.0	.0

Figure H-III-2. ERA Simulation Summary Report (BMS)
21st Infantry Regiment

Individual Replacement System



Battalion Movement System

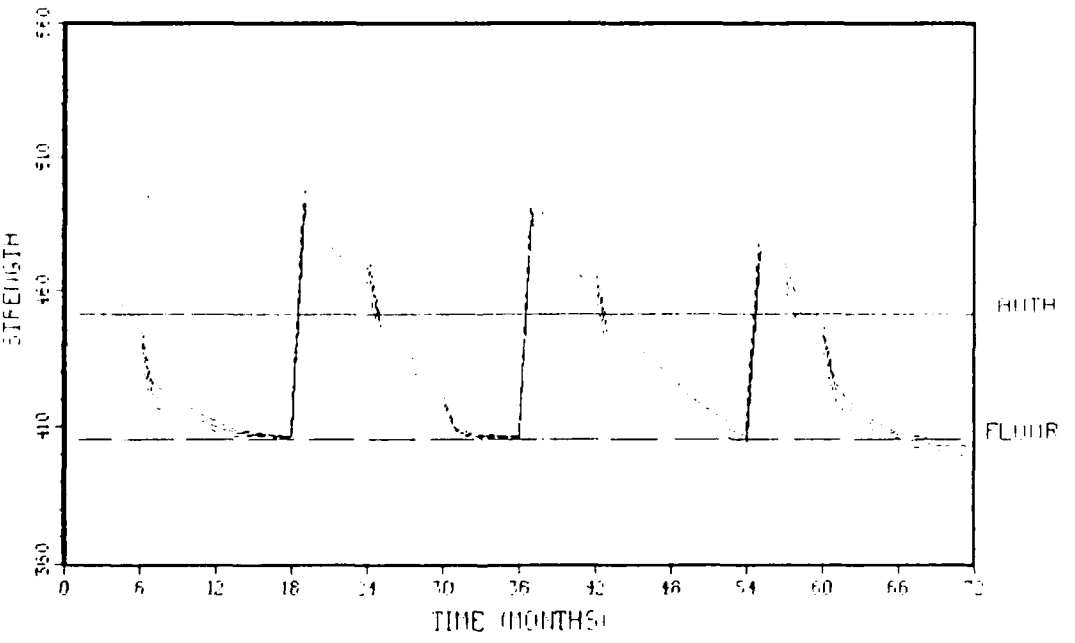
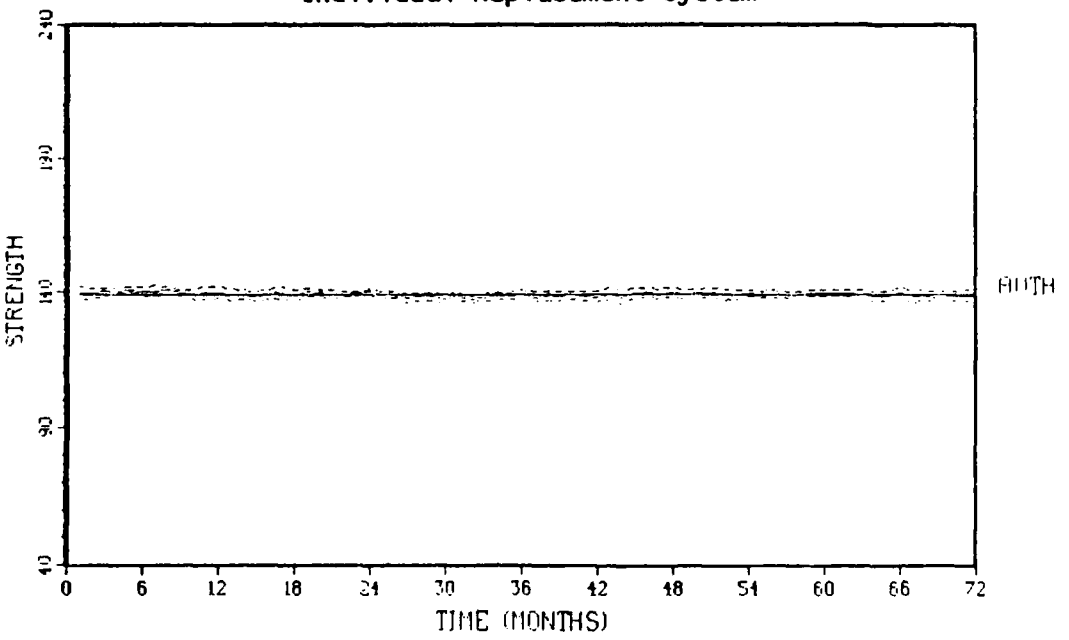


Figure H-III-3. Battalion Unit Strength Profiles
21st Infantry Regiment

Individual Replacement System



Battalion Movement System

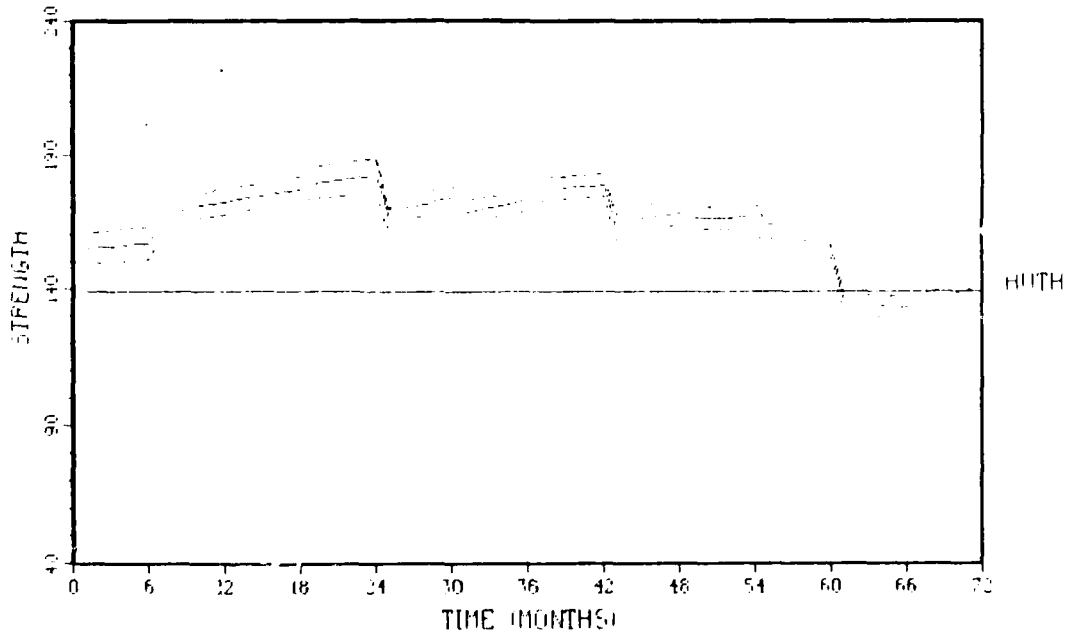


Figure H-III-4. Battalion NCO Strength Profiles 21st Infantry Regiment

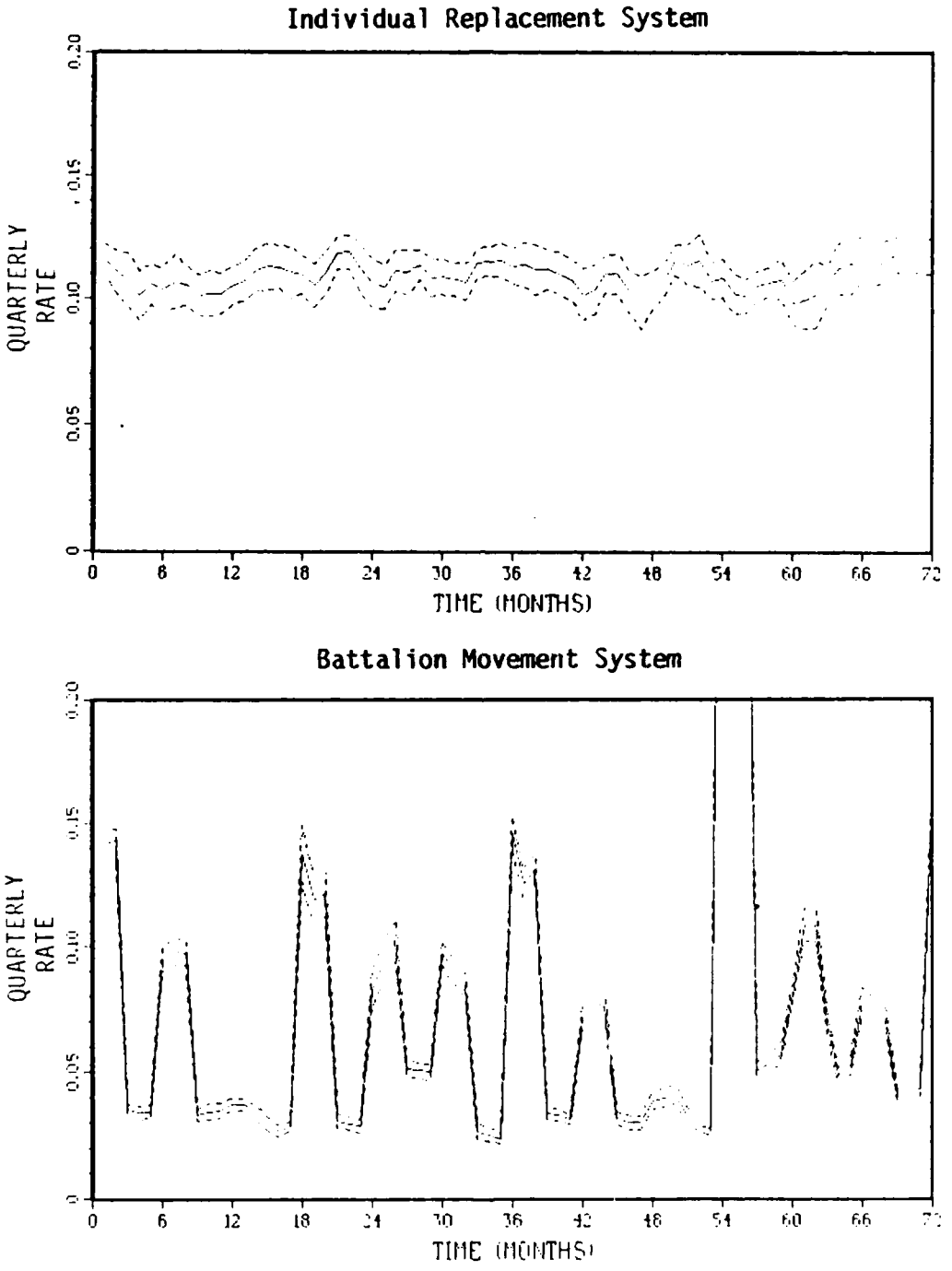


Figure H-III-5. Battalion Turnover Profiles
21st Infantry Regiment

ANNEX IV TO APPENDIX H

502D INFANTRY REGIMENT, FT CAMPBELL, KENTUCKY

H-IV-1. AUTHORIZATION DATA BY MOS:

	11C	11H	11Q*	Total
Assigned TOE spaces	444	150	2,340	2,934
Allocated ERA spaces	446	614	2,483	3,543
Total authorizations	890	764	4,823	6,477

H-IV-2. GRADE DISTRIBUTION DATA:

	11C	11H	11Q	Total
E3	270	227	1,111	1,608
E4	284	289	1,683	2,256
E5	201	107	797	1,105
E6	93	95	678	866
E7	42	46	371	459
E8	--	--	183	183
Total authorizations	890	764	4,823	6,477

H-IV-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	11C	11H	11Q	Total
111/141	1-502 Inf	FT Campbell	74	25	390	489
112/142	5-502 Inf	Berlin	74	25	390	489
113/143	2-502 Inf	FT Campbell	74	25	390	489
114/144	4-502 Inf	Berlin	74	25	390	489
115/145	3-502 Inf	FT Campbell	74	25	390	489
116/146	6-502 Inf	Berlin	74	25	390	489
440/540	ERA	Germany	32	0	0	32
460	ERA	Other long tour	1	2	17	20
470	ERA	Short tour	103	26	167	296
410/510	ERA	FT Campbell	134	292	1,267	1,693
430/530	ERA	Other CONUS	176	294	1,032	1,502
	Regimental totals		890	764	4,823	6,477

*11Q = 11B + 11M

H-IV-4. MOVEMENT SCHEME

a. 1-502 Infantry rotates with 5-502 Infantry.

b. 2-502 Infantry rotates with 4-502 Infantry.

c. 3-502 Infantry rotates with 6-502 Infantry.

d. The rotation points of each pair are offset from the rotation points of the other pairs by 12 months. This regiment therefore experiences a battalion rotation every 12 months.

H-IV-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 502d Infantry Regiment (both BMS and IRS).

(NOT USED)

Figure H-IV-1. ERA Simulation Summary Report (IRS) 502d Infantry Regiment

********** UNIT STRENGTH AVERAGES **********

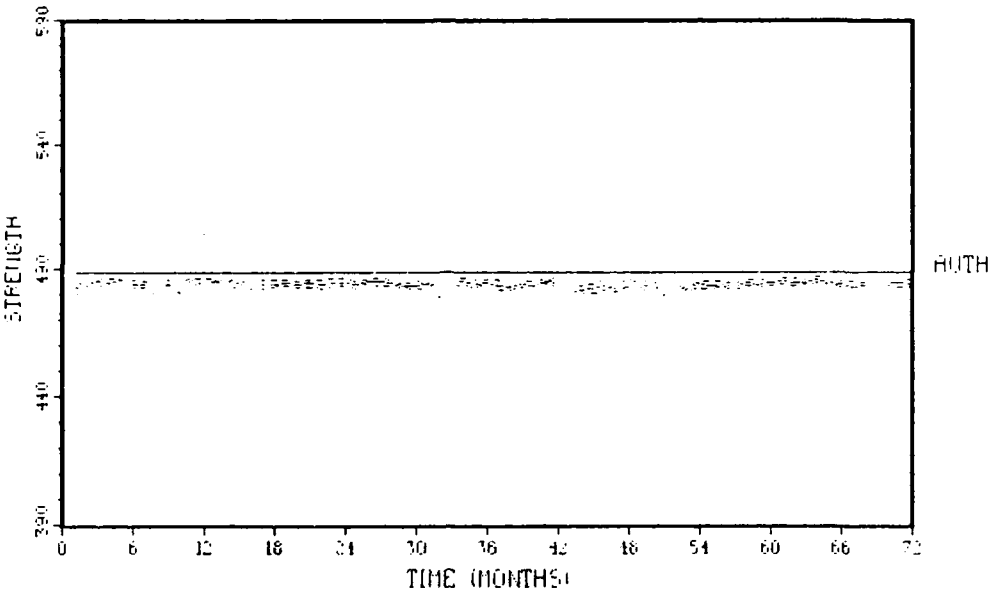
UNIT	PHASE	MOS	E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	%UNDER OF TIME	FLRG AVG NUM	%OVER OF TIME	AUTHD AVG NUM
440	OCONUS															
	AUTH	1	0	0	0	0	0	0	0		0					
	AVERAGE	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	AUTH	2	0	5	0	3	0	0	8		3					
	AVERAGE	2	3.2	1.8	.0	2.7	.3	.0	8.0	100.0	3.0	.1				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		0	5	0	3	0	0	8		3					
	TOT AVERAGE		3.2	1.8	.0	2.7	.3	.0	8.0	100.0	3.0	.1	.0	.0	.0	.0
503	OCONUS															
	AUTH	1	0	0	0	0	0	0	0		0					
	AVERAGE	1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	AUTH	2	0	16	0	3	0	0	24		9					
	AVERAGE	2	1.9	13.8	.1	7.8	.8	.0	24.0	100.0	8.3	2.0				
	AUTH	3	0	0	0	0	0	0	0		0					
	AVERAGE	3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0				
	TOT AUTH		0	16	0	8	0	0	24		8					
	TOT AVERAGE		1.9	13.8	.1	7.8	.8	.0	24.0	100.0	8.3	.7	.0	.0	.0	.0
463	OCONUS															
	AUTH	1	0	0	0	17	0	0	17		17					
	AVERAGE	1	.0	.0	.0	15.5	1.5	.0	17.0	100.0	17.0	.6				
	AUTH	2	0	0	0	1	0	0	1		1					
	AVERAGE	2	.0	.0	.2	.6	.2	.0	1.0	100.0	1.0	.0				
	AUTH	3	0	0	2	0	0	0	2		2					
	AVERAGE	3	.0	.0	1.6	.8	.0	.0	2.0	100.0	2.0	.1				
	TOT AUTH		0	0	2	18	0	0	20		20					
	TOT AVERAGE		.0	.0	1.8	15.8	1.7	.0	20.0	100.0	20.0	.2	.0	.0	.0	.0
470	OCONUS															
	AUTH	1	0	70	29	19	47	8	168		98					
	AVERAGE	1	69.7	.8	29.1	19.1	47.0	8.8	168.0	100.0	98.0	14.3				
	AUTH	2	0	78	17	11	7	0	134		26					
	AVERAGE	2	62.2	16.0	12.8	13.7	7.3	.0	134.0	100.0	25.8	9.0				
	AUTH	3	0	15	5	5	1	0	26		11					
	AVERAGE	3	15.0	.0	8.6	5.0	1.2	.0	26.0	100.0	11.0	2.2				
	TOT AUTH		0	167	47	33	57	8	258		135					
	TOT AVERAGE		146.9	16.3	45.7	27.8	57.3	8.8	258.0	100.0	134.7	8.5	.0	.0	.0	.0
510	CONUS															
	AUTH	1	[illegible]	135	43	33	17	7	267		67					
	AVERAGE	1	76.3	135.9	43.0	33.6	11.7	7.4	265.8	99.6	69.6	9.9				
	AUTH	2	12	7	6	7	1	0	29		12					
	AVERAGE	2	6.6	11.7	5.0	3.2	1.7	.0	28.8	99.5	13.5	1.0				
	AUTH	3	35	15	7	7	8	0	68		18					
	AVERAGE	3	37.6	31.6	7.0	7.5	8.1	.0	68.0	100.0	18.6	1.8				
	TOT AUTH		147	152	57	47	15	7	364		115					
	TOT AVERAGE		110.7	157.3	57.0	41.0	17.0	7.4	362.7	99.5	113.7	5.9	.0	.0	.0	.0
513	CONUS															
	AUTH	1	303	368	147	127	37	27	960		309					
	AVERAGE	1	162.6	493.5	141.6	127.8	37.4	21.8	966.5	100.7	317.5	29.5				
	AUTH	2	46	27	21	10	7	0	135		34					
	AVERAGE	2	52.2	56.8	23.0	5.0	2.7	.0	123.7	117.8	31.8	5.3				
	AUTH	3	[illegible]	45	27	14	12	0	224		58					
	AVERAGE	3	[illegible]	131.3	25.6	17.0	9.7	.0	265.5	118.5	57.0	5.5				
	TOT AUTH		471	436	184	147	57	27	***		407					
	TOT AVERAGE		256.9	564.5	197.7	132.0	87.3	21.8	*****	105.1	754.7	13.5	.0	.0	99.8	67.2
533	CONUS															
	AUTH	1	0	50	55	63	45	25	235		185					
	AVERAGE	1	.8	50.2	55.9	53.7	46.5	21.7	233.5	99.4	182.7	9.8				
	AUTH	2	0	18	9	12	7	0	41		27					
	AVERAGE	2	.4	16.9	9.1	11.8	7.0	.0	40.8	99.5	23.5	1.5				
	AUTH	3	0	40	12	13	5	0	67		27					
	AVERAGE	3	6.4	38.7	9.6	13.5	4.9	.0	67.0	99.9	24.8	1.9				
	TOT AUTH		0	108	75	82	57	25	343		235					
	TOT AVERAGE		7.2	102.9	78.5	83.6	54.4	21.7	341.3	99.5	231.2	9.0	.0	.0	.0	.0
530	CONUS															
	AUTH	1	0	185	185	158	186	82	796		631					
	AVERAGE	1	5.6	137.2	192.6	157.8	155.6	83.9	767.7	96.4	631.5	17.8				
	AUTH	2	0	58	67	43	3	0	134		76					
	AVERAGE	2	4.8	51.0	37.3	23.3	3.2	.0	131.7	98.3	75.7	4.7				
	AUTH	3	0	135	47	31	17	0	227		88					
	AVERAGE	3	51.2	87.1	41.7	35.7	18.5	.0	226.7	100.0	95.7	7.8				
	TOT AUTH		0	362	252	267	152	82	***		795					
	TOT AVERAGE		61.0	261.3	271.2	264.5	167.4	33.9	*****	97.3	803.1	8.5	.0	.0	.0	.0

Figure H-IV-2. ERA Simulation Summary Report (BMS) 502d Infantry Regiment

*********** UNIT STRENGTH AVERAGES **********

UNIT	PHASE		MOS	AVERAGE STRENGTH BY GRADE E-1-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	UNDER % OF TIME	FLR AVG NUM	OVER % OF TIME	AUTH AVG NUM
440	OCONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0				
		AUTH / AVERAGE	2	[illegible]	3 / 1.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.3				
		AUTH / AVERAGE	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0				
		TOT AUTH / TOT AVERAGE		[illegible]	5 / 1.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.1	.0	.0	5.8	1.0
540	OCONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0				
		AUTH / AVERAGE	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28 / 24.0	[illegible]	8 / 7.9	2.0				
		AUTH / AVERAGE	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible]	2.2	[illegible]	[illegible]	[illegible]	28 / 24.0	[illegible]	8 / 7.9	.7	.0	.0	2.2	1.0
460	OCONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17 / 17.0	[illegible]	17 / 17.0	.6				
		AUTH / AVERAGE	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 / 1.7	[illegible]	1 / .9	.0				
		AUTH / AVERAGE	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.1				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.2	.0	[illegible]	.0	.0
470	OCONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.3				
		AUTH / AVERAGE	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.9				
		AUTH / AVERAGE	3	[illegible]	[illegible]	[illegible]	[illegible]	1 / 1.1	[illegible]	[illegible]	[illegible]	11 / 11.0	2.2				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible]	47 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.0	.0	.6	1.0
410	CONUS																
		AUTH / AVERAGE	1	[illegible]	107 / 94.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	87 / 91.1	9.7				
		AUTH / AVERAGE	2	[illegible]	7 / 12.1	6 / 6.1	[illegible]	1 / 1.3	[illegible]	[illegible]	[illegible]	[illegible]	1.0				
		AUTH / AVERAGE	3	[illegible]	15 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.2				
		TOT AUTH / TOT AVERAGE		147 / [illegible]	127 / 137.6	53 / [illegible]	[illegible]	[illegible]	7 / 7.1	[illegible]	[illegible]	115 / [illegible]	[illegible]	.0	.0	.0	.0
510	CONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	27 / [illegible]	[illegible]	[illegible]	101.0	[illegible]	45.6				
		AUTH / AVERAGE	2	[illegible] / 33.3	23 / [illegible]	41 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	104.2	38 / 36.3	[illegible]				
		AUTH / AVERAGE	3	[illegible]	45 / 127.1	[illegible]	[illegible]	12 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible]	[illegible] / 247.2	[illegible]	[illegible]	[illegible]	*** / *****	[illegible]	[illegible]	19.7	.0	.0	[illegible]	[illegible]
430	CONUS																
		AUTH / AVERAGE	1	[illegible]	53 / 51.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
		AUTH / AVERAGE	2	[illegible]	19 / 15.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
		AUTH / AVERAGE	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27 / 21.4	2.0				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible] / 91.3	[illegible]	[illegible] / 57.7	[illegible]	[illegible]	[illegible]	[illegible]	235 / 160.3	3.6	.0	.0	.0	.0
530	CONUS																
		AUTH / AVERAGE	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97.7	[illegible]	16.8				
		AUTH / AVERAGE	2	[illegible]	59 / 47.6	27 / [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.0				
		AUTH / AVERAGE	3	[illegible]	139 / 76.7	[illegible]	[illegible]	[illegible]	[illegible]	227 / [illegible]	99.6	[illegible]	3.8				
		TOT AUTH / TOT AVERAGE		[illegible]	[illegible]	[illegible]	[illegible]	197 / [illegible]	[illegible]	*** / *****	[illegible]	[illegible]	[illegible]	.0	.0	.0	.0

Individual Replacement System



Battalion Movement System

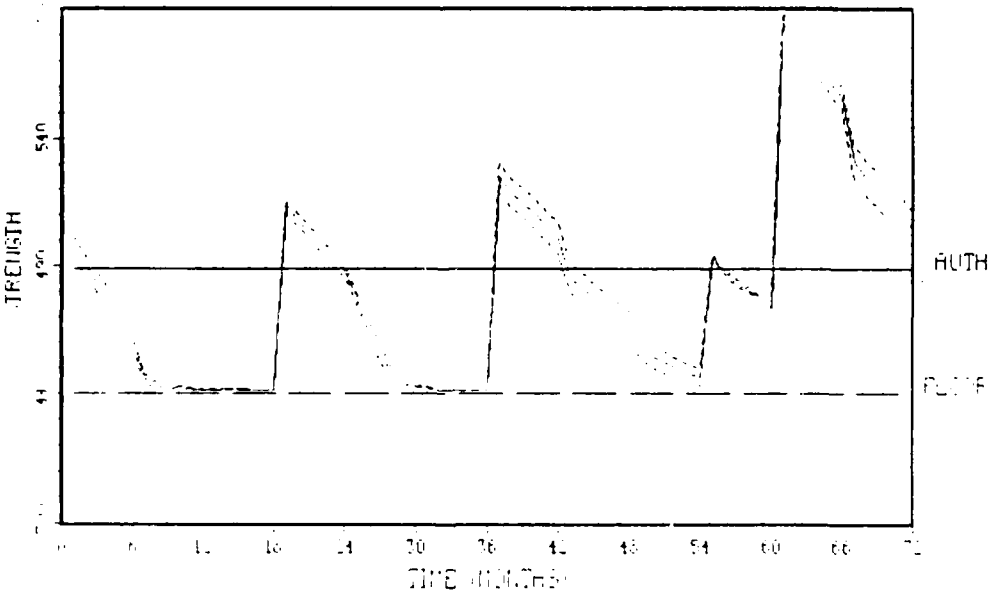
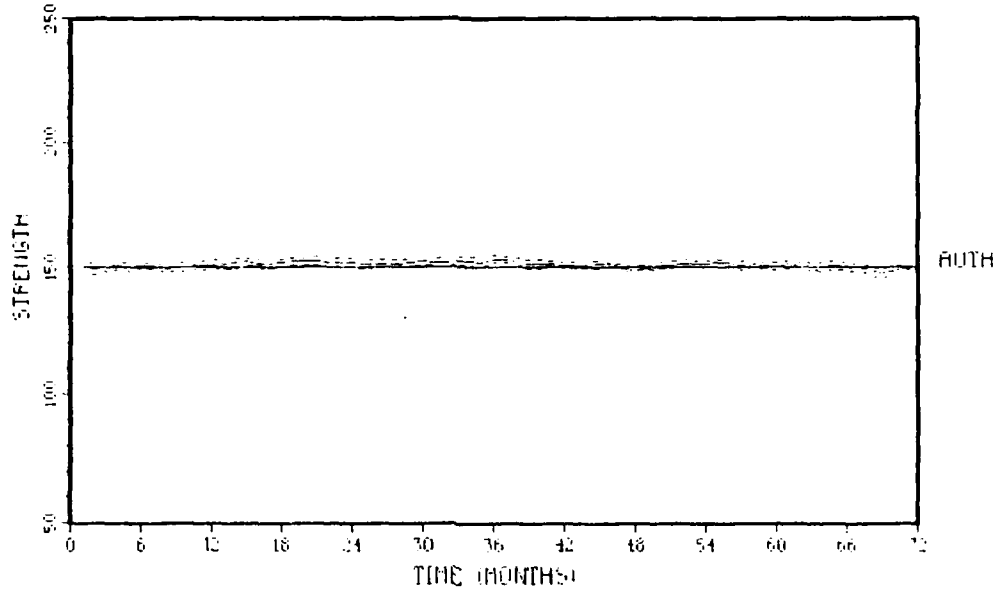


Figure H-IV-3. Battalion Unit Strength Profiles 502d Infantry Regiment

Individual Replacement System



Battalion Movement System

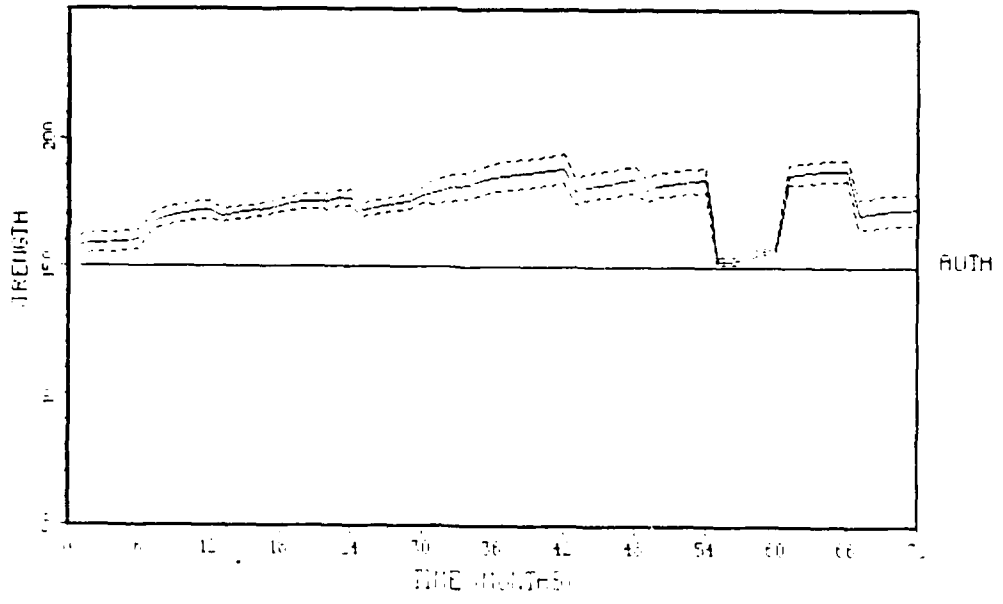
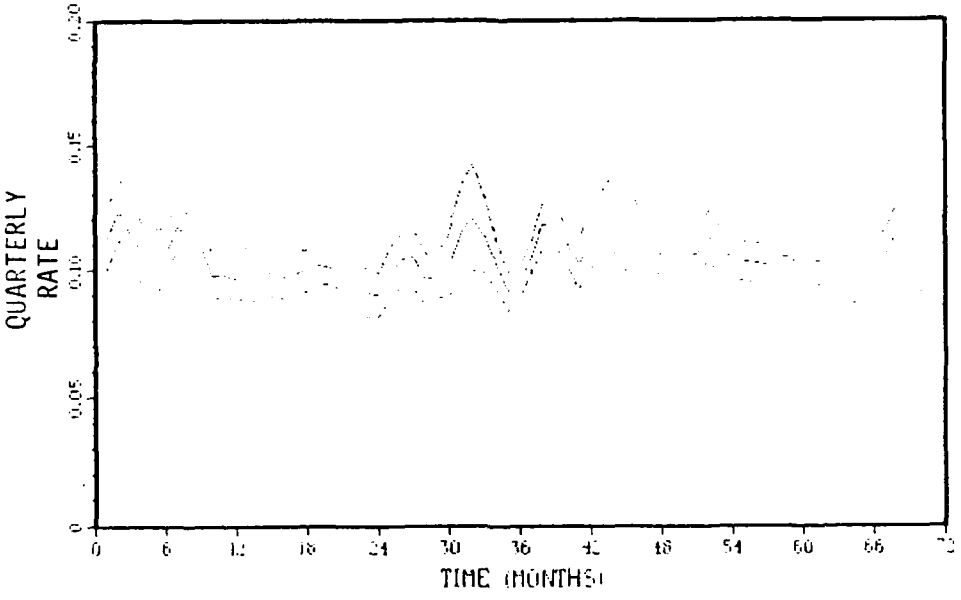


Figure H-IV-4. Battalion NCO Strength Profiles
502d Infantry Regiment

Individual Replacement System



Battalion Movement System

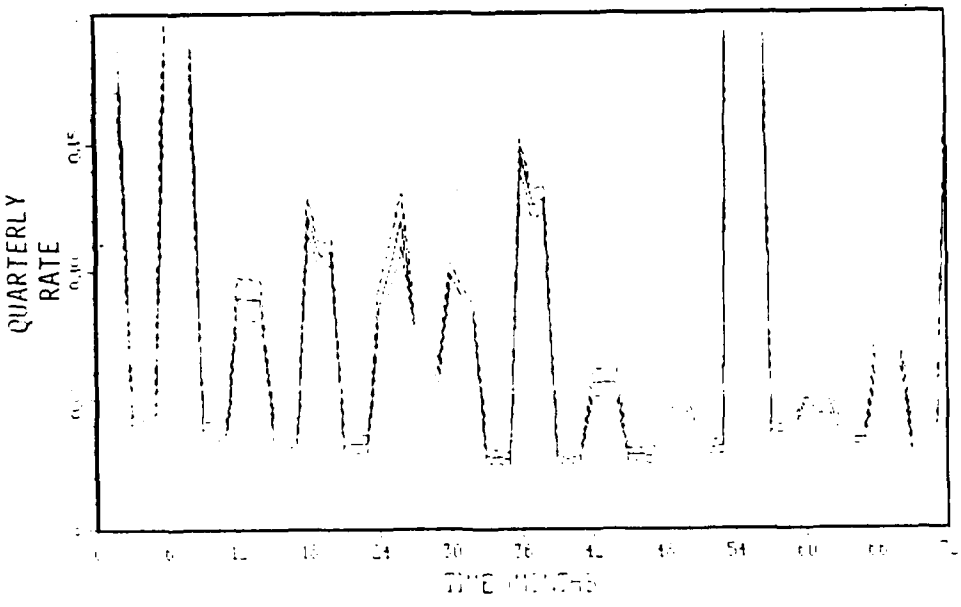


Figure H-IV-5. Battalion Turnover Profiles
502d Infantry Regiment

ANNEX V TO APPENDIX H

325TH INFANTRY REGIMENT, FT BRAGG, NORTH CAROLINA

H-V-1. AUTHORIZATION DATA BY MOS:

	11C	11H	11Q*	Total
Assigned TOE spaces	176	384	1,604	2,164
Allocated ERA spaces	88	618	1,553	2,259
Total authorizations	264	1,002	3,157	4,423

H-V-2. GRADE DISTRIBUTION DATA:

	11C	11H	11Q	Total
E3	80	297	727	1,104
E4	84	380	1,101	1,565
E5	59	140	522	721
E6	28	125	444	597
E7	13	60	243	316
E8	--	--	120	120
Total authorizations	264	1,002	3,157	4,423

H-V-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	11C	11H	11Q	Total
111/141	3-325 Inf	FT Bragg	44	96	401	541
112/142	4-325 Inf	Italy	44	96	401	541
313	1-325 Inf	FT Bragg	44	96	401	541
314	2-325 Inf	FT Bragg	44	96	401	541
440/540	ERA	Germany	0	0	0	0
460	ERA	Other long tour	0	0	59	59
470	ERA	Short tour	43	87	233	363
410/510	ERA	FT Bragg	0	0	0	0
430/530	ERA	Other CONUS	45	531	1,261	1,837
	Regimental totals		264	1,002	3,157	4,423

*11Q = 11B + 11M

H-V-4. MOVEMENT SCHEME

a. 3-325 Infantry rotates with 4-325 Infantry (every 36 months).

b. 1-325 Infantry and 2-325 Infantry remain at FT Bragg.

H-V-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 325th Infantry Regiment (both BMS and IRS).

(NOT USED)

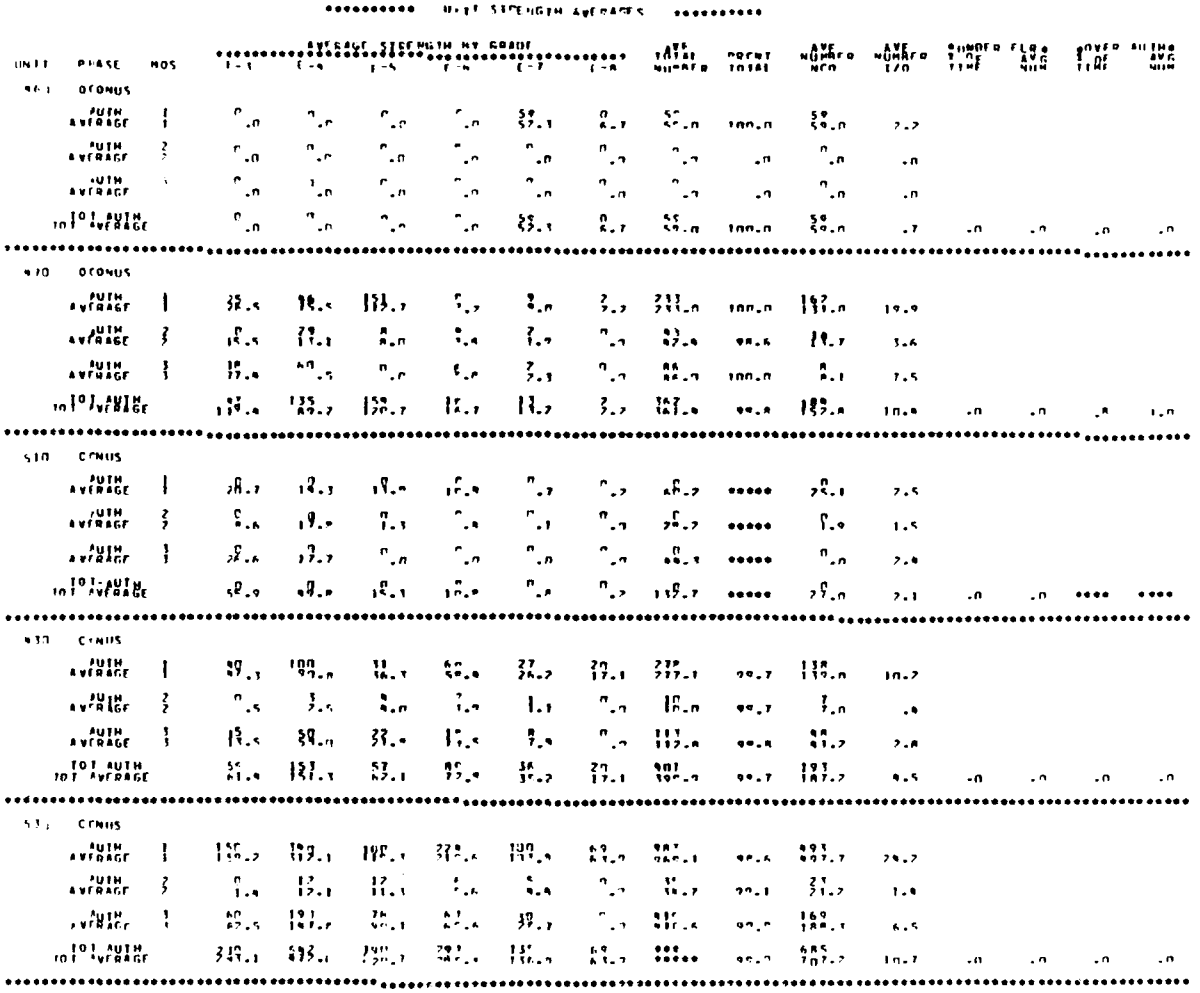
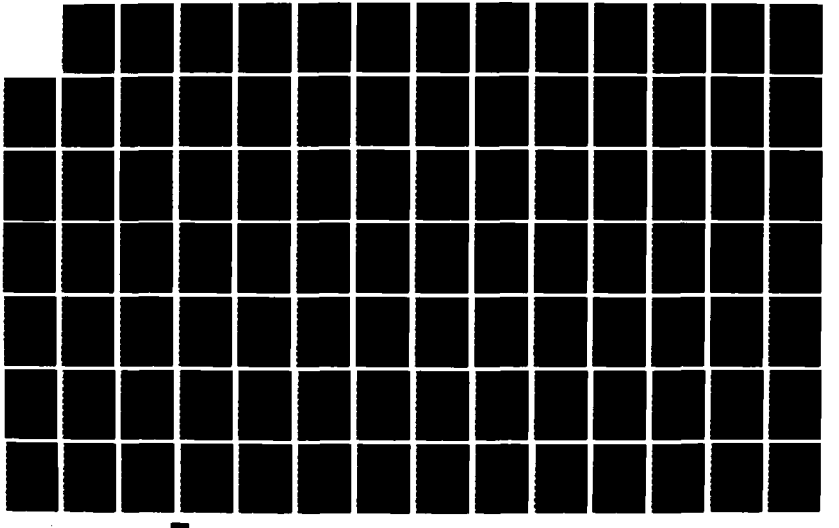
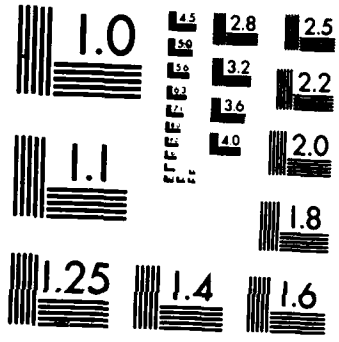


Figure H-V-1. ERA Simulation Summary Report (IRS)
325th Infantry Regiment

AD-A174 489 UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA IN/FA/AR)(U) ARMY CONCEPTS ANALYSIS AGENCY BETHESDA MD C L FRAME ET AL JUL 86 3/3

UNCLASSIFIED CAA-SR-86-14 F/G 5/9 NL





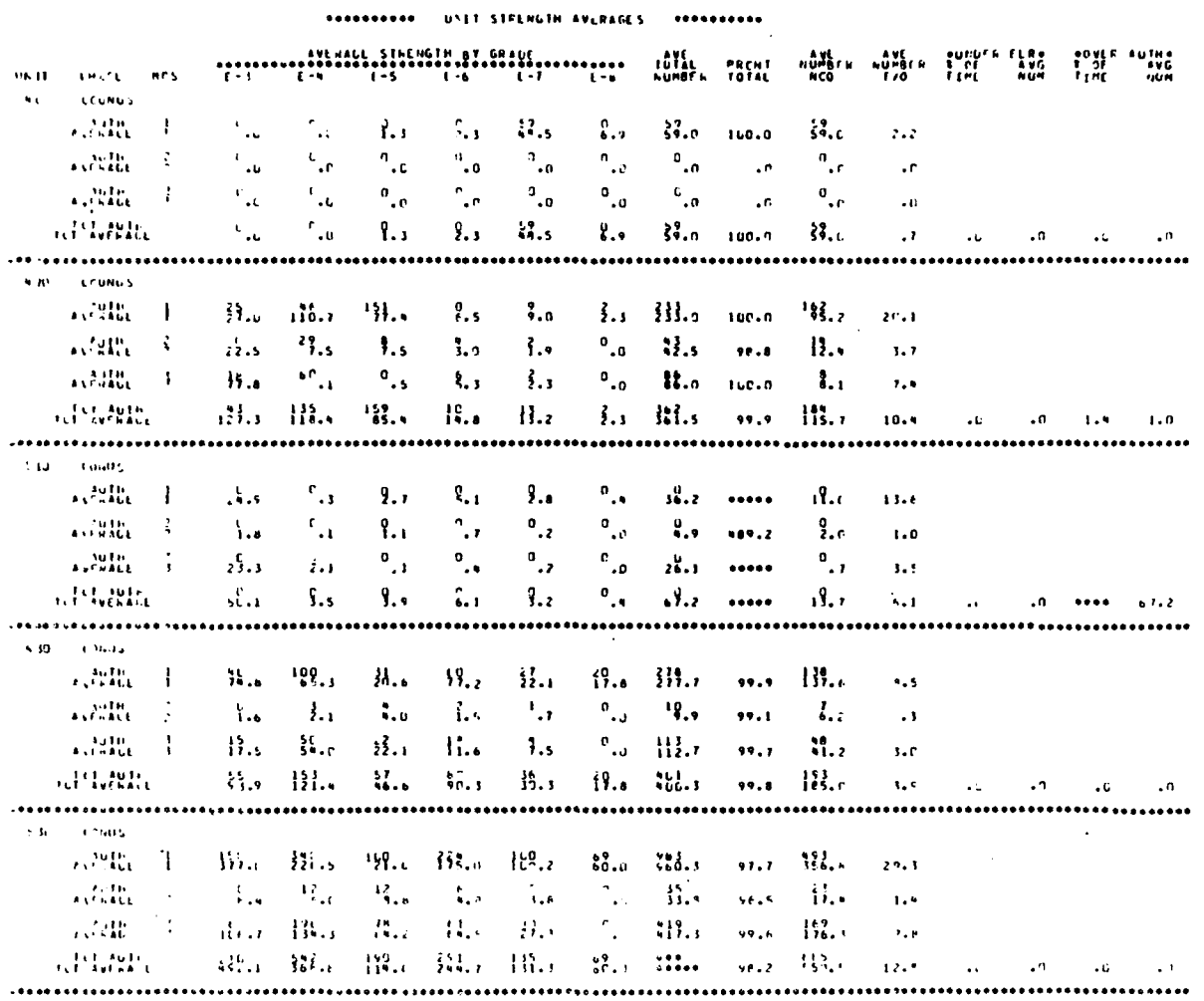
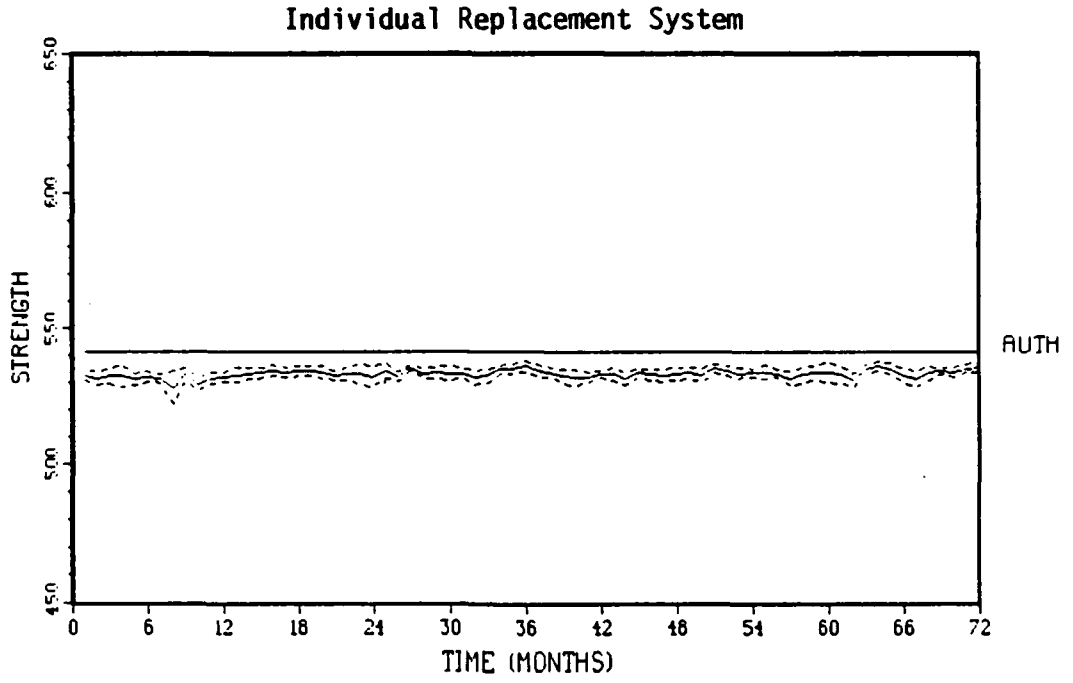


Figure H-V-2. ERA Simulation Summary Report (BMS)
325th Infantry Regiment



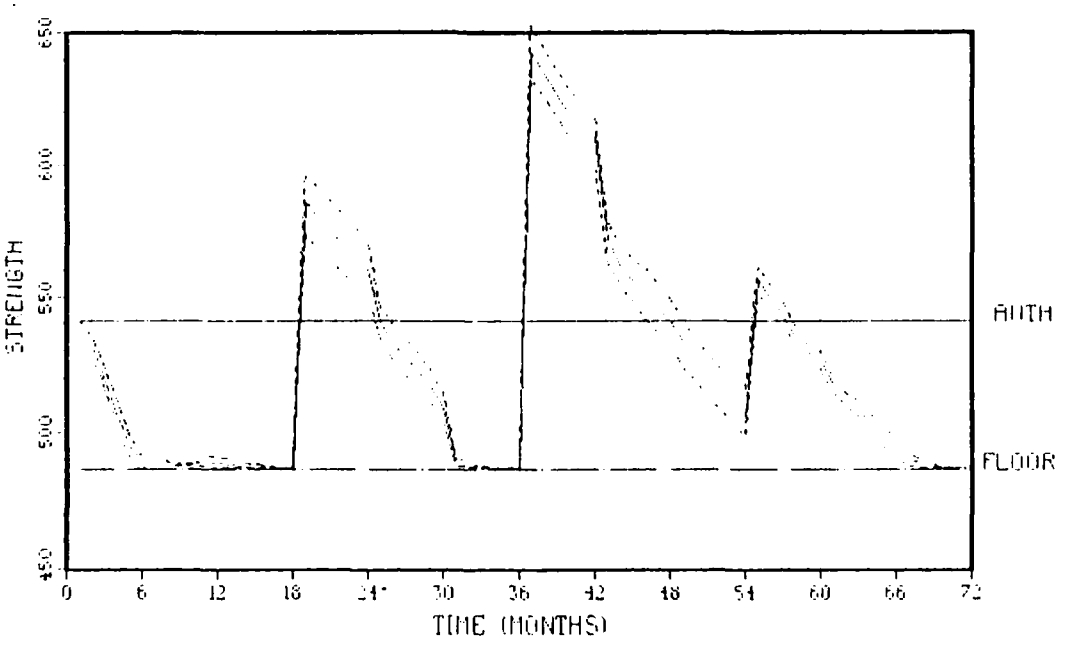
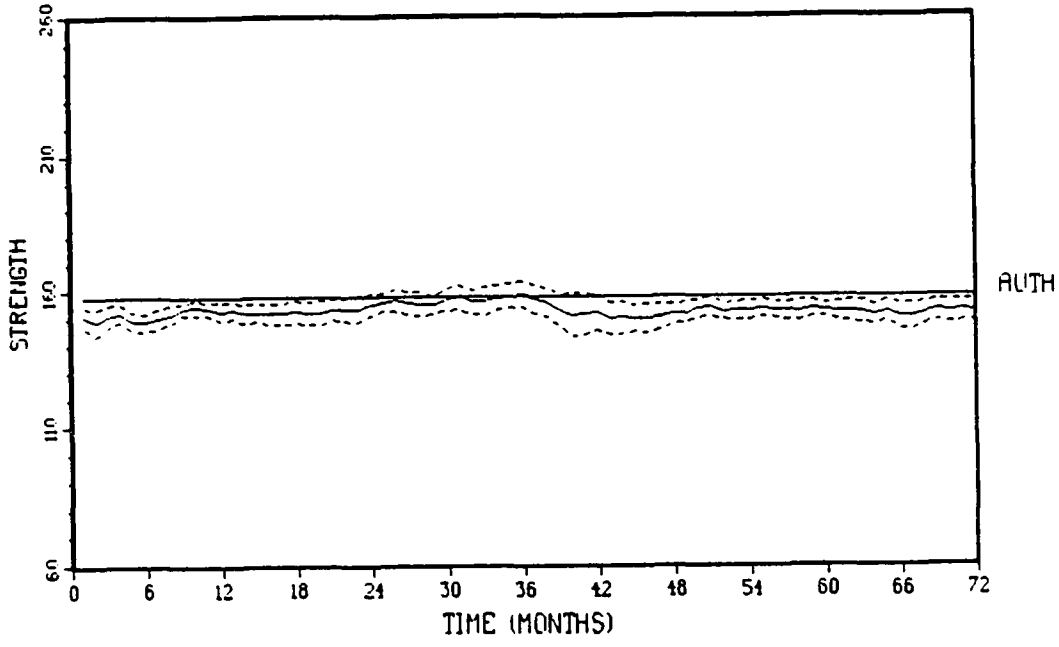


Figure H-V-3. Battalion Unit Strength Profiles 325th Infantry Regiment

Individual Replacement System



Battalion Movement System

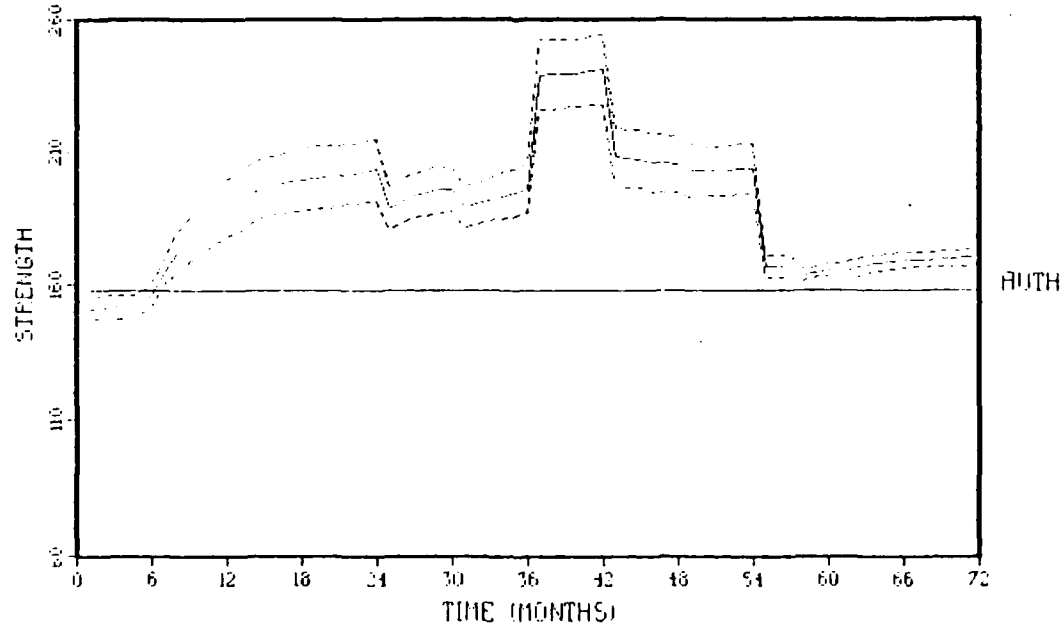


Figure H-V-4. Battalion NCO Strength Profiles 325th Infantry Regiment

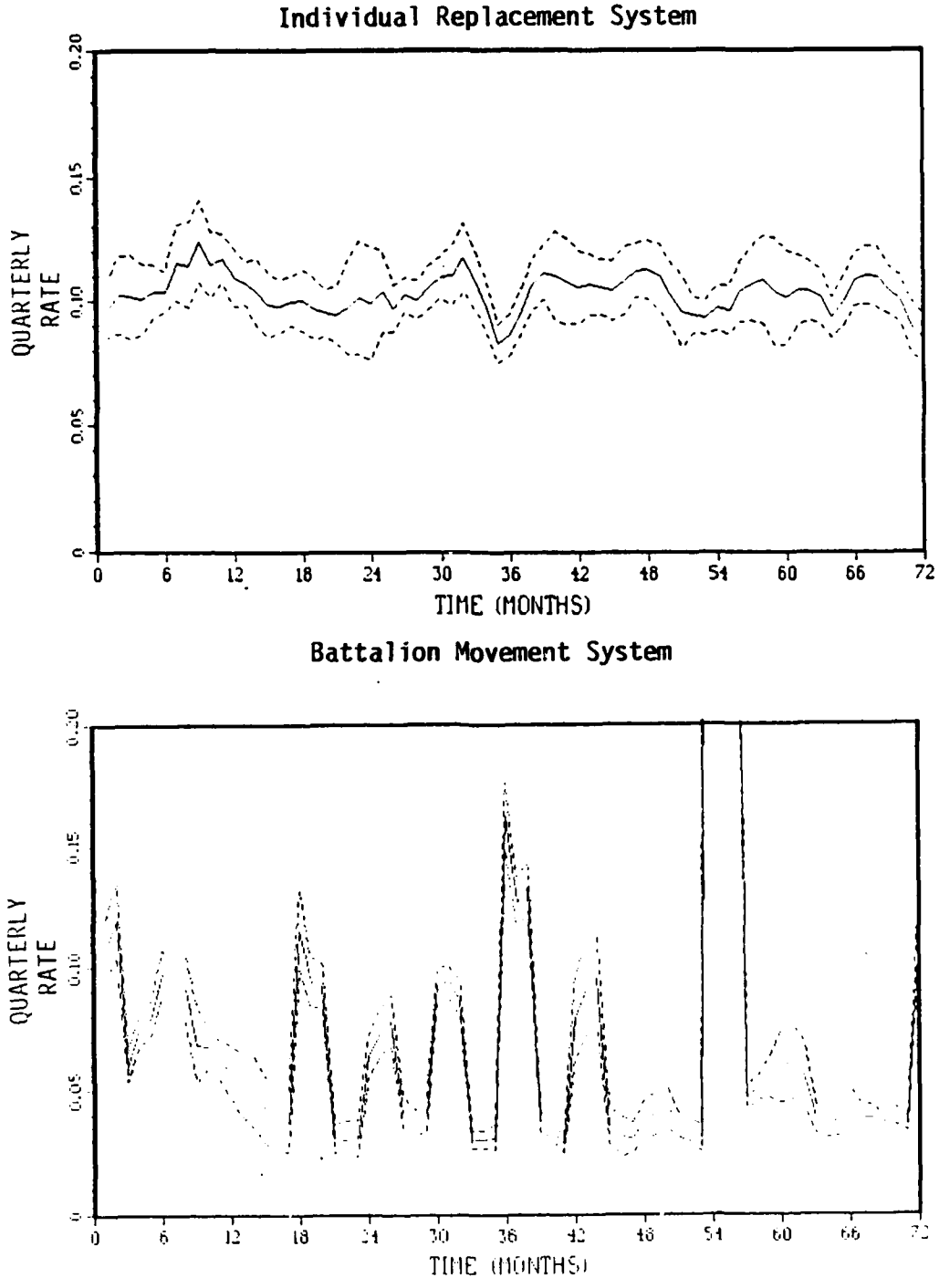


Figure H-V-5. Battalion Turnover Profiles
325th Infantry Regiment

ANNEX VI TO APPENDIX H

82D FIELD ARTILLERY REGIMENT, FT HOOD, TEXAS

H-VI-1. AUTHORIZATION DATA BY MOS:

	13Q*	15Q**	Total
Assigned TOE spaces	1,538	--	1,538
Allocated ERA spaces	528	--	528
Total authorizations	2,066	--	2,066

H-VI-2. GRADE DISTRIBUTION DATA:

	13Q	15Q	Total
E3	564	--	564
E4	662	--	662
E5	365	--	365
E6	295	--	295
E7	134	--	134
E8	46	--	46
Total authorizations	2,066	--	2,066

H-VI-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	13Q	15Q	Total
111/141	1-82 FA	FT Hood	388	--	388
112/142	2-27 FA	Germany	388	--	388
113/143	1-77 FA	FT Hood	381	--	381
114/144	2-6 FA	Germany	381	--	381
440/540	ERA	Germany	120	--	120
460	ERA	Other long tour	89	--	89
470	ERA	Short tour	20	--	20
410/510	ERA	FT Hood	237	--	237
430/530	ERA	Other CONUS	62	--	62
		Regimental totals	2,066	--	2,066

---

*13Q = 13B + 13C + 13E + 13F + 13Y
**15Q = 13M + 15D + 15E + 15J + 13Y

H-VI-4. MOVEMENT SCHEME

a. 1-82 Artillery rotates with 2-27 Artillery.

b. 1-77 Artillery rotates with 2-6 Artillery.

c. The rotation points of the 1-77/2-6 pair are offset from the rotation points of the 1-82/2-27 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

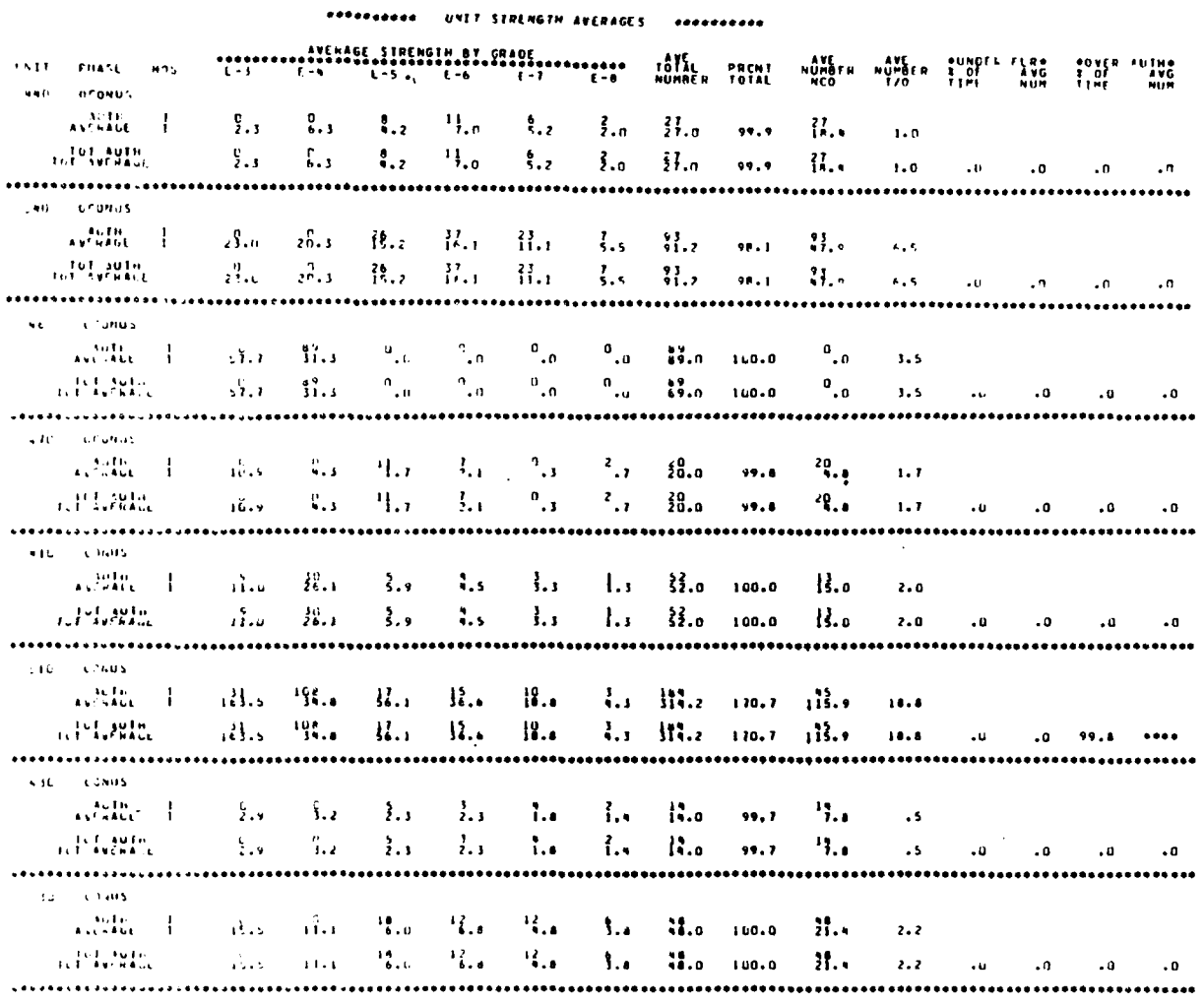
H-VI-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 82d Field Artillery Regiment (both BMS and IRS).

(NOT USED)

UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	%UNDER % OF TIME	%UNDER AVG NUM	%OVER % OF TIME	%OVER AVG NUM
440	GCONUS															
	AUTH AVERAGE	1 1	0 .1	0 6.5	8 3.4	11 8.7	6 5.9	2 2.0	27 26.7	98.7	27 20.1	1.1				
	TOT AUTH TOT AVERAGE		0 .1	0 6.5	8 3.4	11 8.7	6 5.9	2 2.0	27 26.7	98.7	27 20.1	1.1	.0	.0	.0	.0
540	GCONUS															
	AUTH AVERAGE	1 1	0 1.6	0 33.2	28 10.7	37 14.3	17 15.1	7 5.4	91 80.3	86.4	91 45.5	7.0				
	TOT AUTH TOT AVERAGE		0 1.6	0 33.2	28 10.7	37 14.3	23 15.1	7 5.4	91 80.3	86.4	91 45.5	7.0	.0	.0	.0	.0
611	GCONUS															
	AUTH AVERAGE	1 1	6 40.6	83 38.8	0 2.4	0 .0	0 .0	0 .0	89 81.8	91.9	0 2.4	3.4				
	TOT AUTH TOT AVERAGE		6 40.6	83 38.8	0 2.4	0 .0	0 .0	0 .0	89 81.8	91.9	0 2.4	3.4	.0	.0	.0	.0
670	GCONUS															
	AUTH AVERAGE	1 1	0 .2	0 2.9	11 2.0	7 1.5	0 .4	2 .9	20 7.9	39.9	20 9.8	.7				
	TOT AUTH TOT AVERAGE		0 .2	0 2.9	11 2.0	7 1.5	0 .4	2 .9	20 7.9	39.9	20 9.8	.7	.0	.0	.0	.0
710	CONUS															
	AUTH AVERAGE	1 1	5 4.6	19 32.2	5 5.4	4 4.8	3 3.4	1 1.3	52 51.6	99.2	13 14.8	2.2				
	TOT AUTH TOT AVERAGE		5 4.6	19 32.2	5 5.4	4 4.8	3 3.4	1 1.3	52 51.6	99.2	13 14.8	2.2	.0	.0	.0	.0
810	CONUS															
	AUTH AVERAGE	1	31 .2	105 142.9	17 53.8	15 46.0	10 14.9	3 5.3	181 263.2	143.1	55 120.1	13.5				
	TOT AUTH TOT AVERAGE		31 .2	105 142.9	17 53.8	15 46.0	10 14.9	3 5.3	181 263.2	143.1	55 120.1	13.5	.0	.0	****	29.2
830	CONUS															
	AUTH AVERAGE	1	0 .0	0 .1	5 4.5	1 1.9	5 3.7	2 1.8	13 14.0	100.0	13 13.9	.5				
	TOT AUTH TOT AVERAGE		0 .0	0 .1	5 4.5	1 1.9	5 3.7	2 1.8	13 14.0	100.0	13 13.9	.5	.0	.0	.0	.0
930	CONUS															
	AUTH AVERAGE	1	0 .0	0 .3	19 17.7	13 13.5	12 11.3	6 5.2	50 47.9	99.8	50 47.7	2.3				
	TOT AUTH TOT AVERAGE		0 .0	0 .3	19 17.7	13 13.5	12 11.3	6 5.2	50 47.9	99.8	50 47.7	2.3	.0	.0	.0	.0

Figure H-VI-1. ERA Simulation Summary Report (IRS)
82d Field Artillery Regiment



UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVG TOTAL NUMBER	PRCNT TOTAL	AVG NUMBER NCO	AVG NUMBER T/O	NUMBER # OF TIMES FILLED	AVG NUM	NUMBER # OF TIMES OVER	AVG NUM
HHD	GCNUS															
	AUTH AVERAGE	1 1	0 2.3	0 6.3	8 8.2	11 7.0	6 5.2	2 2.0	27 27.0	99.9	27 18.6	1.0				
	TOT AUTH TOT AVERAGE		0 2.3	0 6.3	8 8.2	11 7.0	6 5.2	2 2.0	27 27.0	99.9	27 18.6	1.0	.0	.0	.0	.0
HHD	GCNUS															
	AUTH AVERAGE	1 1	0 23.0	0 20.3	26 15.2	37 14.1	23 11.1	7 5.5	93 91.2	98.1	93 47.0	4.5				
	TOT AUTH TOT AVERAGE		0 23.0	0 20.3	26 15.2	37 14.1	23 11.1	7 5.5	93 91.2	98.1	93 47.0	4.5	.0	.0	.0	.0
HHC	GCNUS															
	AUTH AVERAGE	1 1	57.7	69 31.3	0 .0	0 .0	0 .0	0 .0	69 69.0	100.0	0 .0	3.5				
	TOT AUTH TOT AVERAGE		0 57.7	69 31.3	0 .0	0 .0	0 .0	0 .0	69 69.0	100.0	0 .0	3.5	.0	.0	.0	.0
[illegible]	GCNUS															
	AUTH AVERAGE	1 1	5 10.5	0 4.3	11 11.7	3 3.1	0 .3	2 2.7	20 20.0	99.8	20 6.8	1.7				
	TOT AUTH TOT AVERAGE		5 10.9	0 4.3	11 11.7	3 3.1	0 .3	2 2.7	20 20.0	99.8	20 6.8	1.7	.0	.0	.0	.0
[illegible]	GCNUS															
	AUTH AVERAGE	1 1	5 11.0	10 26.1	5 5.9	4 4.5	3 3.3	1 1.3	32 32.0	100.0	13 15.0	2.0				
	TOT AUTH TOT AVERAGE		5 11.0	10 26.1	5 5.9	4 4.5	3 3.3	1 1.3	32 32.0	100.0	13 15.0	2.0	.0	.0	.0	.0
[illegible]	GCNUS															
	AUTH AVERAGE	1 1	21 163.5	108 94.8	17 56.1	15 38.6	10 18.8	3 4.3	169 374.2	170.7	75 115.9	18.8				
	TOT AUTH TOT AVERAGE		21 163.5	108 94.8	17 56.1	15 38.6	10 18.8	3 4.3	169 374.2	170.7	75 115.9	18.8	.0	.0	99.8	****
[illegible]	GCNUS															
	AUTH AVERAGE	1 1	0 2.9	0 5.2	5 2.3	3 2.3	9 1.8	2 1.4	19 14.0	99.7	19 7.8	.5				
	TOT AUTH TOT AVERAGE		0 2.9	0 5.2	5 2.3	3 2.3	9 1.8	2 1.4	19 14.0	99.7	19 7.8	.5	.0	.0	.0	.0
[illegible]	GCNUS															
	AUTH AVERAGE	1 1	13.5	11.1	10 6.0	12 6.8	12 4.8	1.8	48.0	100.0	38 21.4	2.2				
	TOT AUTH TOT AVERAGE		13.5	11.1	10 6.0	12 6.8	12 4.8	1.8	48.0	100.0	38 21.4	2.2	.0	.0	.0	.0

Figure H-VI-2. ERA Simulation Summary Report (BMS)
82d Field Artillery Regiment

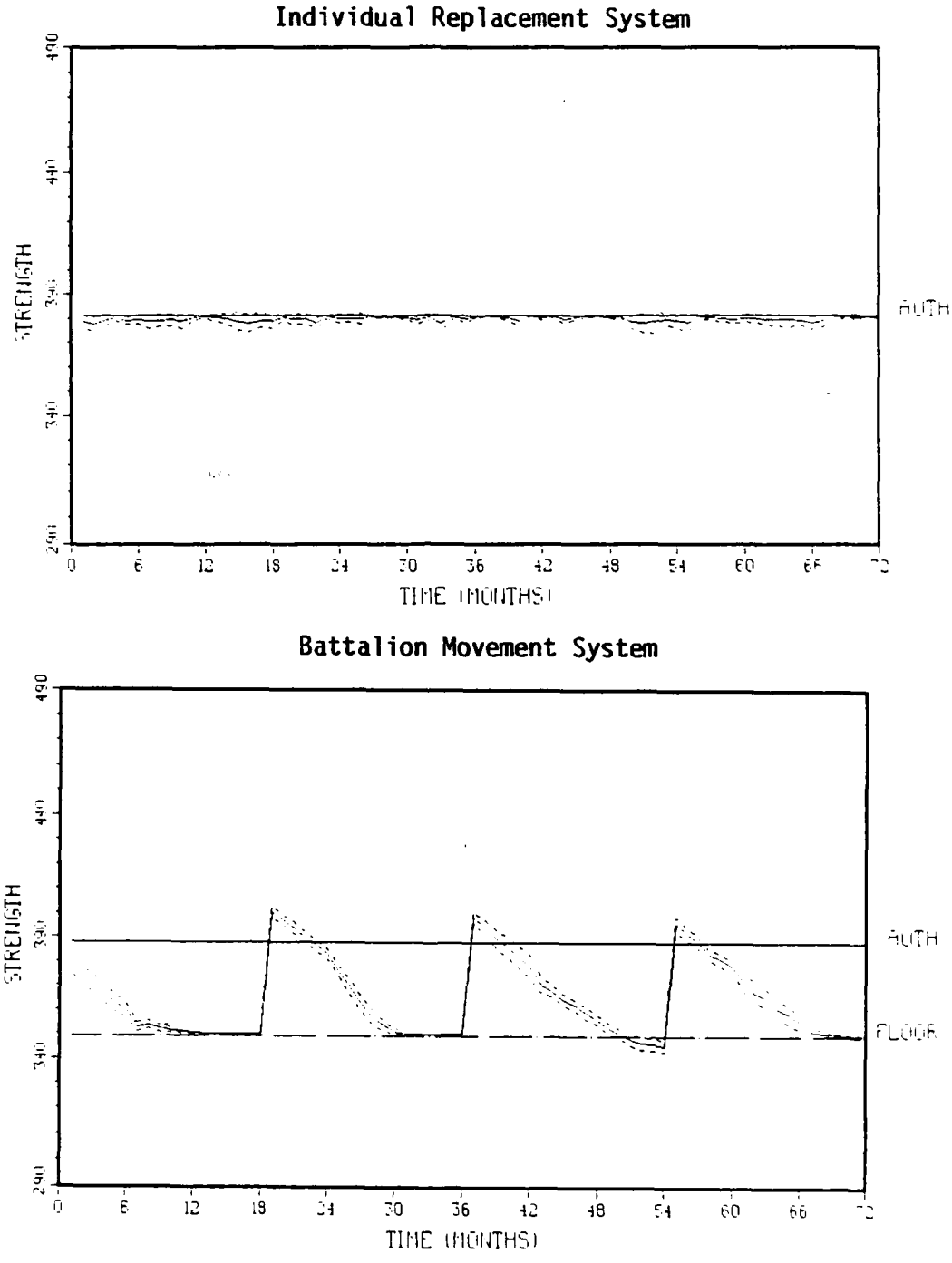


Figure H-VI-3. Battalion Unit Strength Profiles
82d Field Artillery Regiment

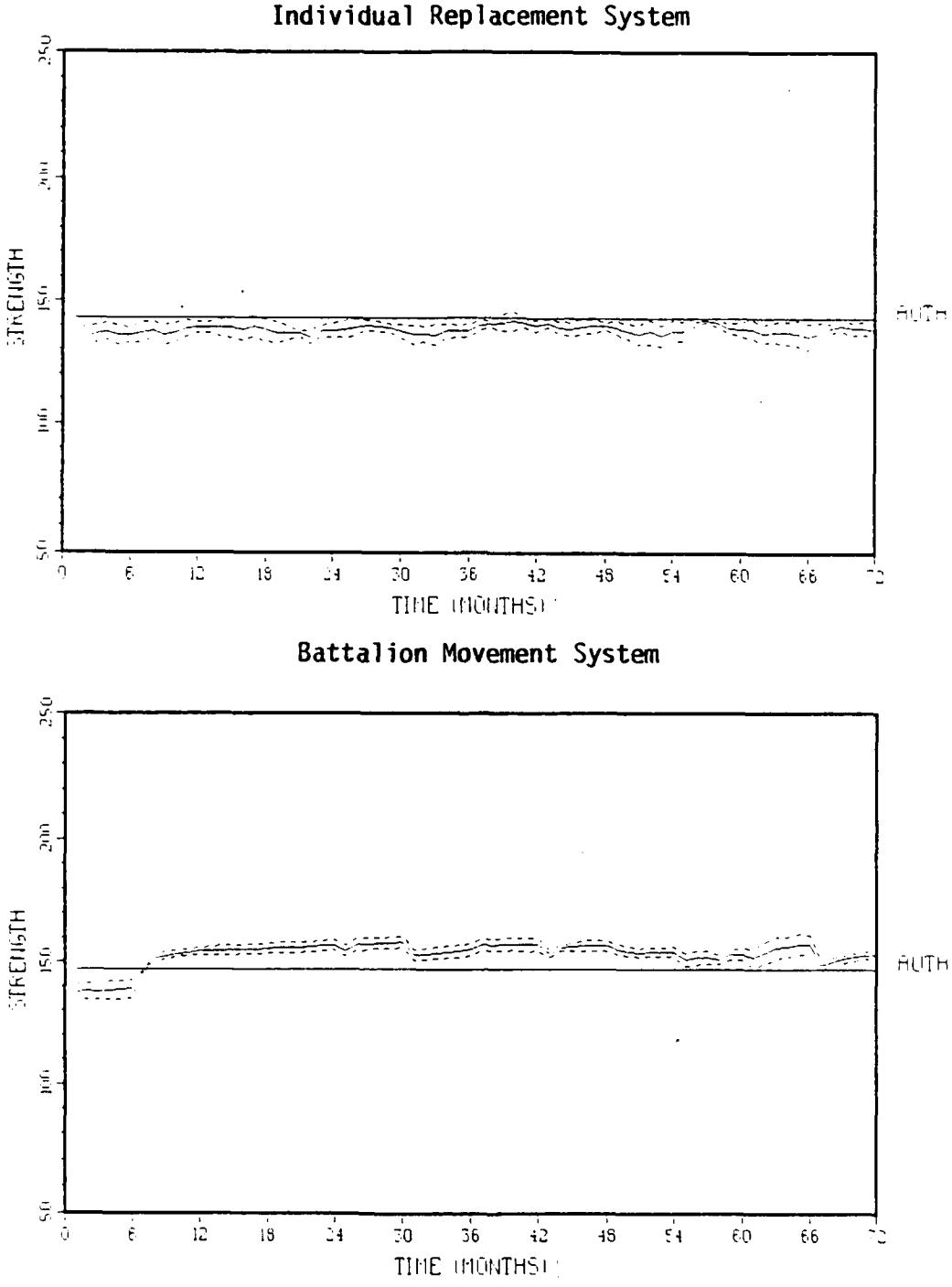


Figure H-VI-4. Battalion NCO Strength Profiles 82d Field Artillery Regiment

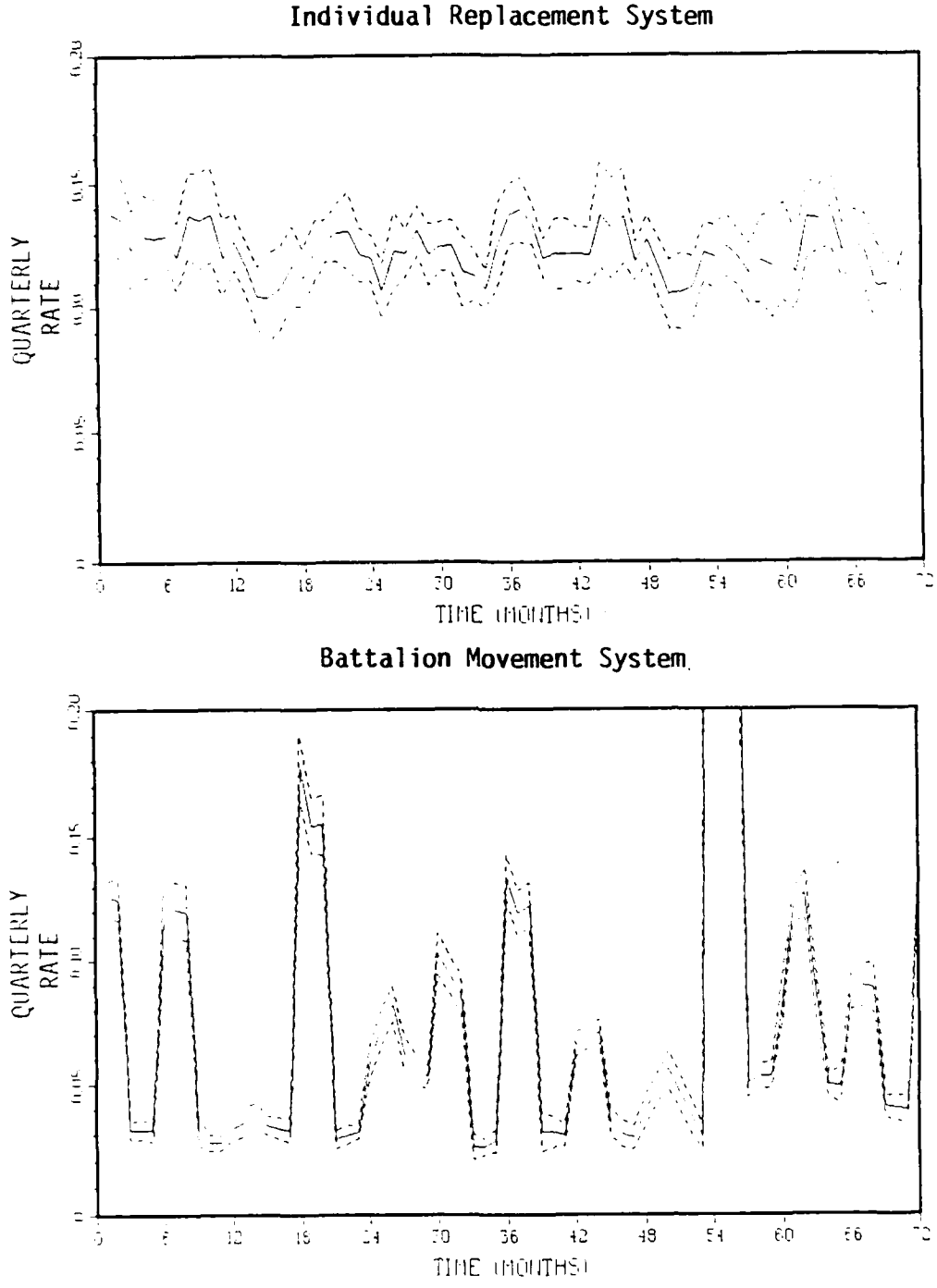


Figure H-VI-5. Battalion Turnover Profiles
82d Field Artillery Regiment

ANNEX VII TO APPENDIX H

319TH FIELD ARTILLERY REGIMENT, FT BRAGG, NORTH CAROLINA

H-VII-1. AUTHORIZATION DATA BY MOS:

	13Q*	15Q**	Total
Assigned TOE spaces	768	--	768
Allocated ERA spaces	831	--	831
Total authorizations	1,599	--	1,599

H-VII-2. GRADE DISTRIBUTION DATA:

	13Q	15Q	Total
E3	436	--	436
E4	513	--	513
E5	283	--	283
E6	228	--	228
E7	103	--	103
E8	36	--	36
Total authorizations	1,599	--	1,599

H-VII-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	13Q	15Q	Total
111/141	2-321 FA (1 btry)	FT Bragg	106	--	106
112/142	D, 4-325 FA	Italy	106	--	106
313	1-320 FA	FT Bragg	278	--	278
314	1-321 FA	FT Bragg	278	--	278
440/540	ERA	Germany	0	--	0
460	ERA	Other long tour	208	--	208
470	ERA	Short tour	35	--	35
410/510	ERA	FT Bragg	0	--	0
430/530	ERA	Other CONUS	588	--	588
		Regimental totals	1,599	--	1,599

---

*13Q = 13B + 13C + 13E + 13F + 13Y
**15Q = 13M + 15D + 15E + 15J + 13Y

H-VII-4. MOVEMENT SCHEME

a. One battery of the 2-321 Artillery rotates with D Battery of the 4-325 Artillery (every 36 months).

b. 1-320 Artillery and 1-321 Artillery are nondeploying units and remain at FT Bragg.

H-VII-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 319th Field Artillery Regiment (both BMS and IRS).

(NOT USED)

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	%UNDER % OF TIME	%UNDER AVG NUM	%OVER % OF TIME	%OVER AVG NUM
460	OCONUS															
	AUTH	1	109	37	5	22	28	7	208		62					
	AVERAGE	1	96.3	49.6	4.8	21.7	28.0	7.5	207.9	99.9	62.0	8.2				
	TOT AUTH		109	37	5	22	28	7	208		62					
	TOT AVERAGE		96.3	49.6	4.8	21.7	28.0	7.5	207.9	99.9	62.0	8.2	.0	.0	.3	1.0
470	OCONUS															
	AUTH	1	23	0	0	6	5	1	35		11					
	AVERAGE	1	22.8	.0	.0	5.9	4.1	1.1	33.9	99.7	11.0	2.9				
	TOT AUTH		23	0	0	6	5	1	35		11					
	TOT AVERAGE		22.8	.0	.0	5.9	4.1	1.1	33.9	99.7	11.0	2.9	.0	.0	.0	.0
510	CONUS															
	AUTH	1	0	0	0	0	0	0	0		0					
	AVERAGE	1	25.3	6.3	.0	.0	.1	.2	31.9	*****	.3	3.1				
	TOT AUTH		0	0	0	0	0	0	0		0					
	TOT AVERAGE		25.3	6.3	.0	.0	.1	.2	31.9	*****	.3	3.1	.0	.0	****	31.9
430	CONUS															
	AUTH	1	3	20	20	33	19	9	132		59					
	AVERAGE	1	17.6	55.9	20.4	25.1	9.4	3.6	132.0	100.0	58.5	3.6				
	TOT AUTH		3	20	20	33	19	9	132		59					
	TOT AVERAGE		17.6	55.9	20.4	25.1	9.4	3.6	132.0	100.0	58.5	3.6	.0	.0	.0	.0
530	CONUS															
	AUTH	1	8	233	76	91	35	19	457		216					
	AVERAGE	1	73.8	153.6	93.3	93.3	29.8	12.9	456.6	99.9	229.4	8.3				
	TOT AUTH		8	233	76	91	35	19	457		216					
	TOT AVERAGE		73.8	153.6	93.3	93.3	29.8	12.9	456.6	99.9	229.4	8.3	.0	.0	.0	.0

Figure H-VII-1. ERA Simulation Summary Report (IRS)
319th Field Artillery Regiment

*********** UNIT STRENGTH AVERAGES ***********

UNIT	PHASE	MOS	E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	*UNDER % OF TIME	FLRO AVG NUM	*OVER % OF TIME	AUTHO AVG NUM
			AVERAGE STRENGTH BY GRADE													
460	OCONUS															
	AUTH / AVERAGE	1	109 / 95.4	37 / 50.7	5 / 5.3	22 / 21.3	28 / 27.8	7 / 7.5	208 / 208.0	100.0	62 / 61.9	8.2				
	TOT AUTH / TOT AVERAGE		109 / 95.4	37 / 50.7	5 / 5.3	22 / 21.3	28 / 27.8	7 / 7.5	208 / 208.0	100.0	62 / 61.9	8.2	.0	.0	.2	1.3
470	OCONUS															
	AUTH / AVERAGE	1	23 / 23.0	0 / .0	0 / .1	6 / 5.8	4 / 4.1	1 / .1	34 / 34.0	100.0	11 / 11.0	2.9				
	TOT AUTH / TOT AVERAGE		23 / 23.0	0 / .0	0 / .1	6 / 5.8	4 / 4.1	1 / .1	34 / 34.0	100.0	11 / 11.0	2.9	.0	.0	.0	.3
510	CONUS															
	AUTH / AVERAGE	1	0 / 12.2	0 / .0	0 / .2	0 / .1	0 / .2	0 / .2	0 / 13.0	*****	0 / .7	9.1				
	TOT AUTH / TOT AVERAGE		0 / 12.2	0 / .0	0 / .2	0 / .1	0 / .2	0 / .2	0 / 13.0	*****	0 / .7	9.1	.0	.0	****	13.0
430	CONUS															
	AUTH / AVERAGE	1	3 / 28.2	70 / 45.3	20 / 22.3	25 / 22.2	18 / 18.0	9 / 3.7	132 / 131.7	99.8	58 / 58.2	4.4				
	TOT AUTH / TOT AVERAGE		3 / 28.2	70 / 45.3	20 / 22.3	25 / 22.2	18 / 18.0	9 / 3.7	132 / 131.7	99.8	58 / 58.2	4.4	.0	.0	.0	.3
530	CONUS															
	AUTH / AVERAGE	1	8 / 117.9	233 / 130.6	76 / 84.6	91 / 86.4	35 / 23.1	19 / 11.6	457 / 454.1	99.4	216 / 205.6	13.4				
	TOT AUTH / TOT AVERAGE		8 / 117.9	233 / 130.6	76 / 84.6	91 / 86.4	35 / 23.1	19 / 11.6	457 / 454.1	99.4	216 / 205.6	13.4	.0	.0	.0	.0

Figure H-VII-2. ERA Simulation Summary Report (BMS)
319th Field Artillery Regiment

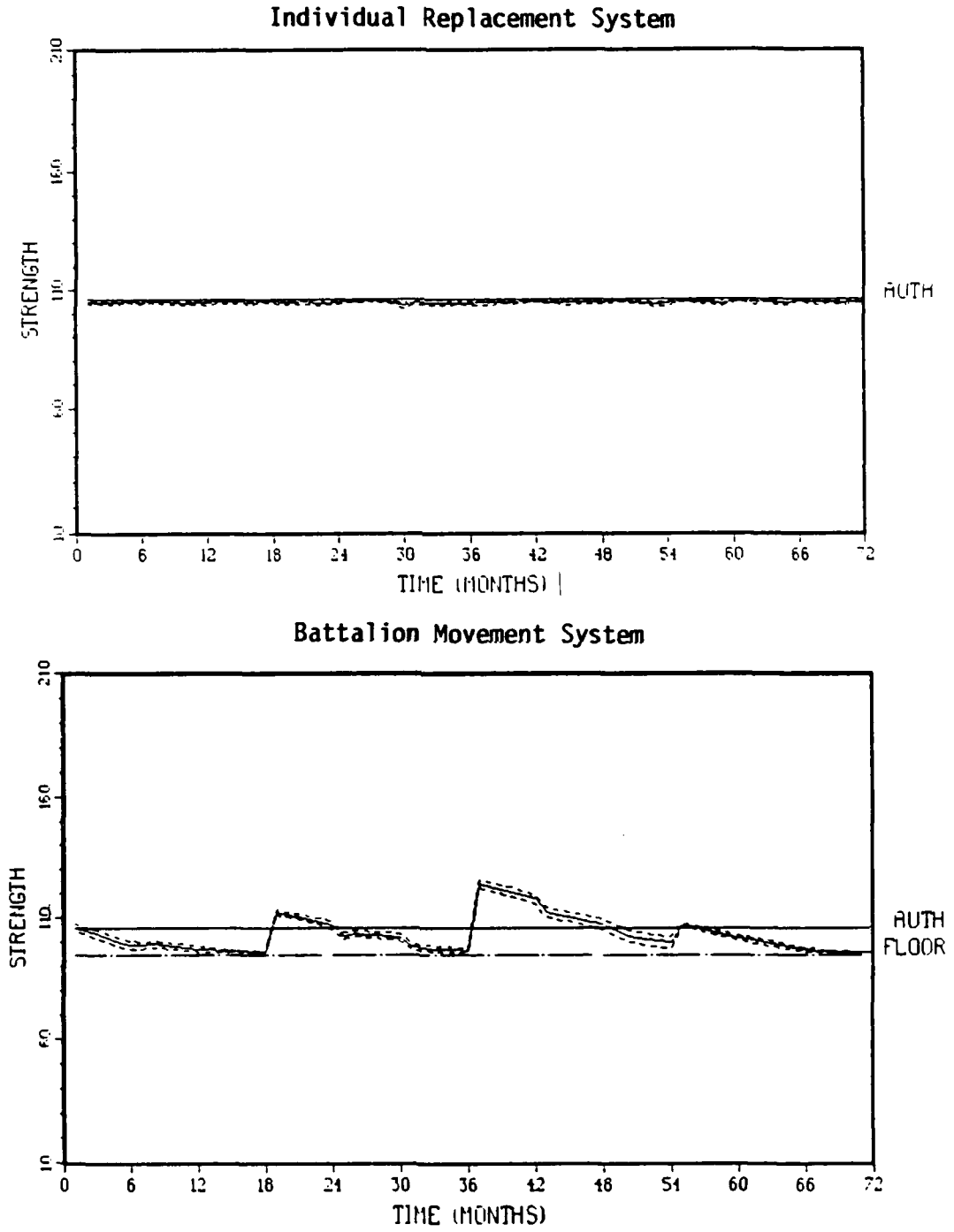
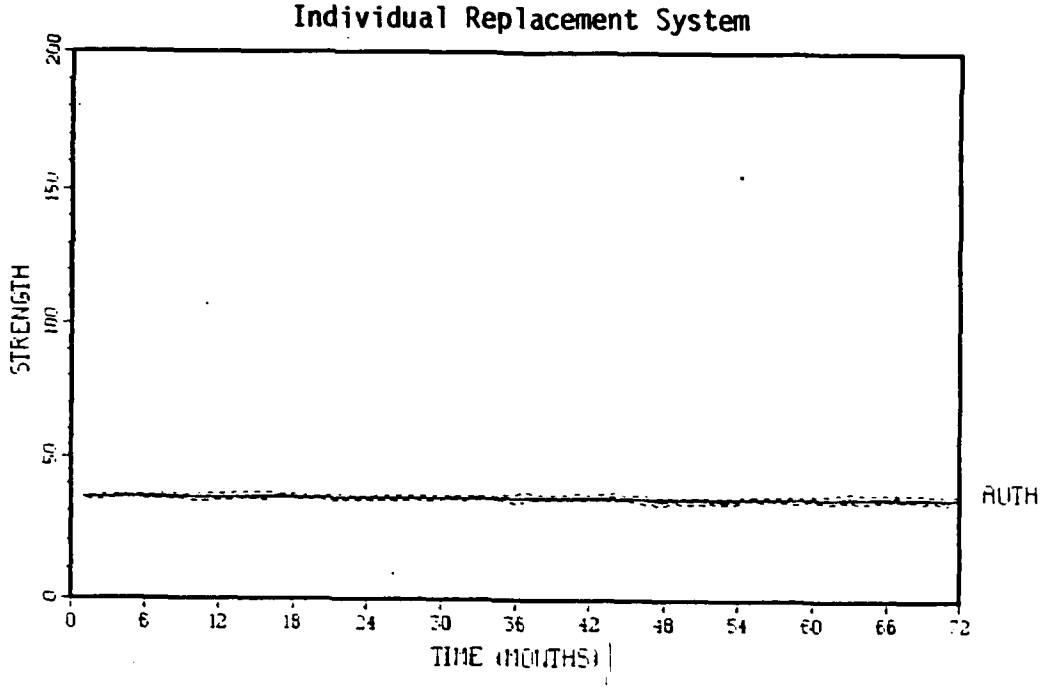


Figure H-VII-3. Battalion Unit Strength Profiles
319th Field Artillery Regiment



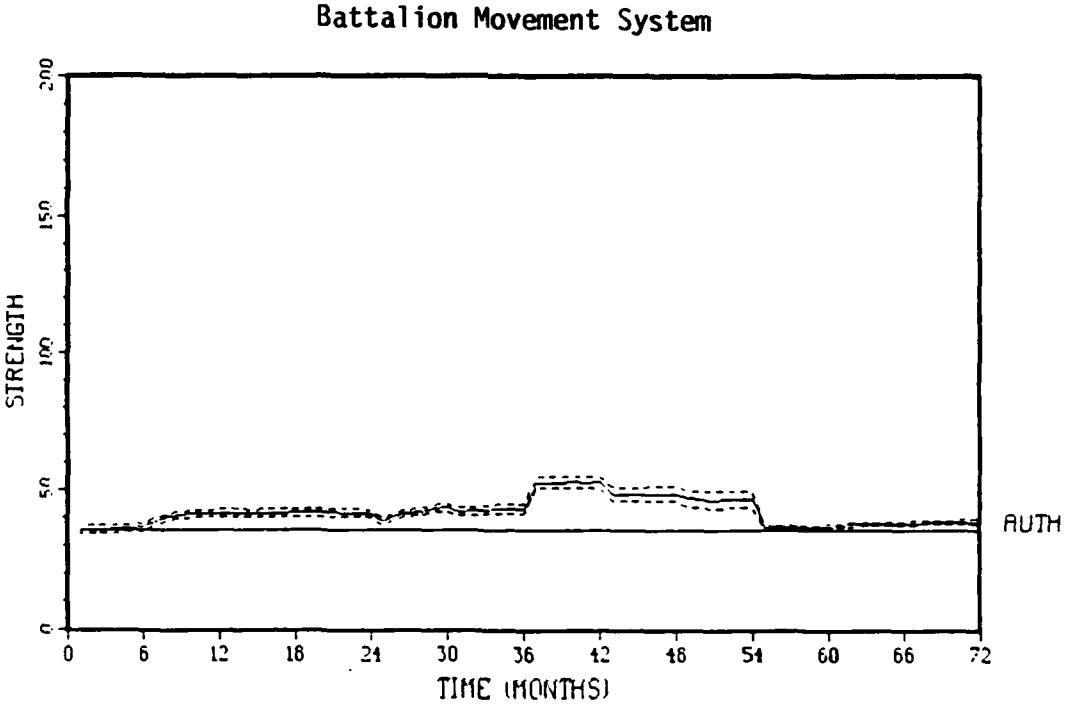


Figure H-VII-4. Battalion NCO Strength Profiles
319th Field Artillery Regiment

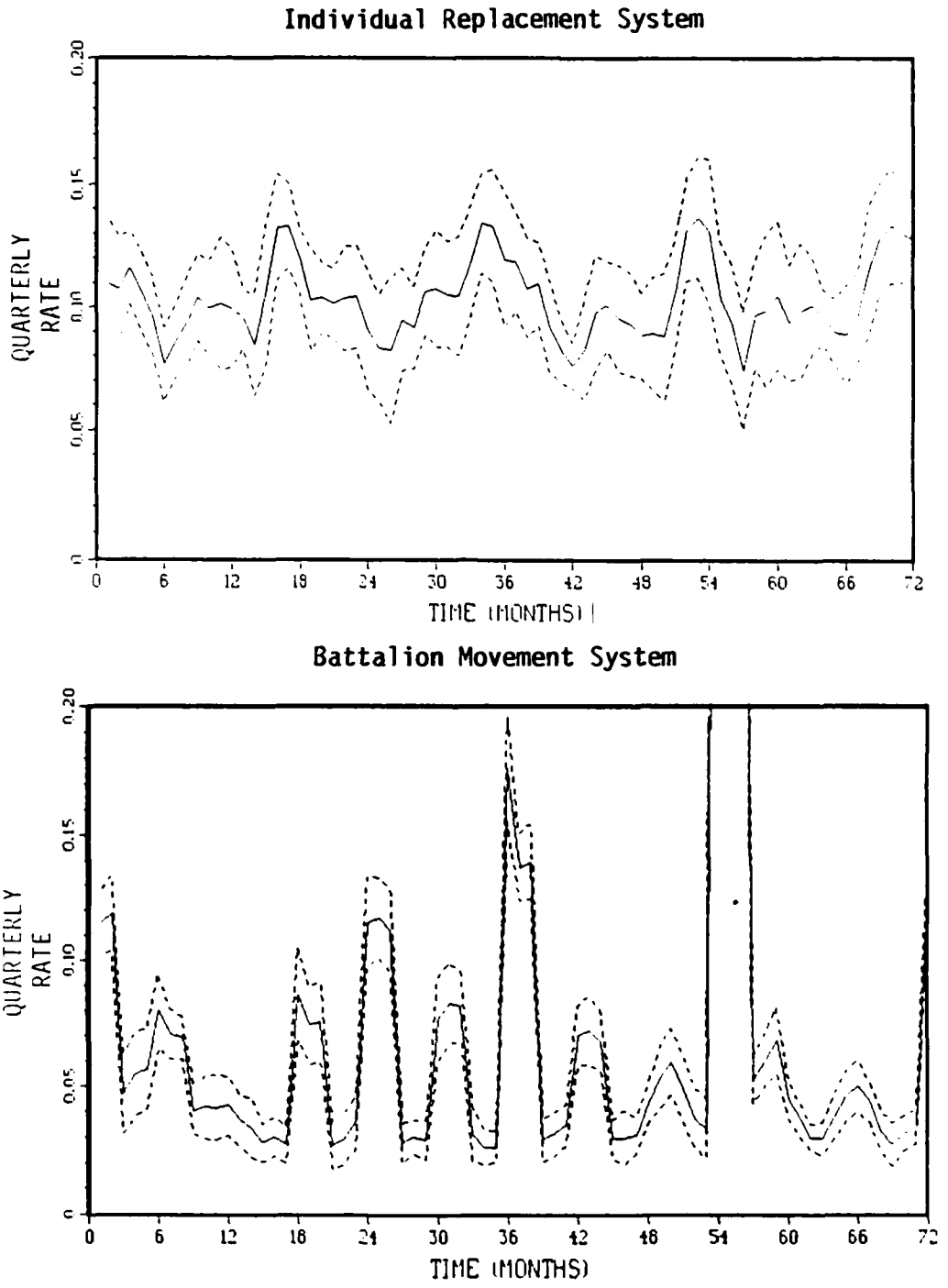


Figure H-VII-5. Battalion Turnover Profiles 319th Field Artillery Regiment

ANNEX VIII TO APPENDIX H

32D FIELD ARTILLERY REGIMENT, FT SILL, OKLAHOMA

H-VIII-1. AUTHORIZATION DATA BY MOS:

	13Q*	15Q**	Total
Assigned TOE spaces	--	688	688
Allocated ERA spaces	--	3,247	3,247
Total authorizations	--	3,935	3,935

H-VIII-2. GRADE DISTRIBUTION DATA:

	13Q	15Q	Total
E3	--	1,060	1,060
E4	--	1,118	1,118
E5	--	727	727
E6	--	664	664
E7	--	294	294
E8	--	72	72
Total authorizations	--	3,935	3,935

H-VIII-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	13Q	15Q	Total
111/141	6-33 FA	FT Sill	--	172	172
112/142	1-32 FA	Germany	--	172	172
343	1-333 FA	Germany	--	172	172
344	3-79 FA	Germany	--	172	172
440/540	ERA	Germany	--	1,623	1,623
460	ERA	Other long tour	--	92	92
470	ERA	Short tour	--	171	171
410/510	ERA	FT Sill	--	682	682
430/530	ERA	Other CONUS	--	679	679
		Regimental totals	--	3,935	3,935

*13Q = 13B + 13C + 13E + 13F + 13Y
**15Q = 13M + 15D + 15E + 15J + 13Y

H-VIII-4. MOVEMENT SCHEME

a. 6-33 Artillery rotates with 1-32 Artillery (every 36 months).

b. 1-333 Artillery and 3-79 Artillery units do not rotate, but remain in Germany.

H-VIII-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and the turnover profiles for the 32d Field Artillery Regiment (both BMS and IRS).

(NOT USED)

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	%UNDER # OF TIME	FLR AVG NUM	%OVER # OF TIME	AUTH AVG NUM
44D	OCONUS															
	AUTH AVERAGE	1	140 148.6	125 77.4	80 78.1	45 45.3	18 18.2	6 6.3	374 374.0	100.0	149 148.0	14.6				
	TOT AUTH TOT AVERAGE		140 148.6	125 77.4	80 78.1	45 45.3	18 18.2	6 6.3	374 374.0	100.0	149 148.0	14.6	.0	.0	4.2	1.0
54C	OCONUS															
	AUTH AVERAGE	1	351 403.4	305 381.1	255 198.6	141 165.6	55 52.6	21 15.9	***** *****	96.6	443 442.6	55.9				
	TOT AUTH TOT AVERAGE		351 403.4	305 381.1	255 198.6	141 165.6	55 52.6	21 15.9	***** *****	96.6	443 442.6	55.9	.0	.0	.0	.0
96B	OCONUS															
	AUTH AVERAGE	1	25 34.9	10 14.4	25 25.0	9 10.0	3 3.1	0 .2	72 87.6	23.5	37 35.3	2.7				
	TOT AUTH TOT AVERAGE		25 34.9	10 14.4	25 25.0	9 10.0	3 3.1	0 .2	72 87.6	23.5	37 35.3	2.7	.0	.0	.0	.0
97D	OCONUS															
	AUTH AVERAGE	1	54 74.5	52 52.1	27 27.0	23 23.5	15 15.0	3 .2	171 124.3	32.7	68 68.7	10.7				
	TOT AUTH TOT AVERAGE		54 74.5	52 52.1	27 27.0	23 23.5	15 15.0	3 .2	171 124.3	32.7	68 68.7	10.7	.0	.0	.0	.0
31D	CONUS															
	AUTH AVERAGE	1	29 17.8	29 34.8	15 18.1	25 25.3	15 15.6	2 2.7	135 153.3	99.6	97 100.8	5.2				
	TOT AUTH TOT AVERAGE		29 17.8	29 34.8	15 18.1	25 25.3	15 15.6	2 2.7	135 153.3	99.6	97 100.8	5.2	.0	.0	.0	.0
51D	CONUS															
	AUTH AVERAGE	1	95 .2	100 229.7	50 166.5	103 147.1	112 68.4	8 18.7	528 629.7	119.3	333 400.7	30.6				
	TOT AUTH TOT AVERAGE		95 .2	100 229.7	50 166.5	103 147.1	112 68.4	8 18.7	528 629.7	119.3	333 400.7	30.6	.0	.0	****	****
91D	CONUS															
	AUTH AVERAGE	1	57 28.7	56 56.8	30 30.2	31 30.2	9 9.6	2 1.7	158 155.4	98.3	63 69.8	5.5				
	TOT AUTH TOT AVERAGE		57 28.7	56 56.8	30 30.2	31 30.2	9 9.6	2 1.7	158 155.4	98.3	63 69.8	5.5	.0	.0	.0	.0
91D	CONUS															
	AUTH AVERAGE	1	150 36.1	153 236.9	105 106.7	167 164.0	0 25.0	6 6.6	521 513.4	98.5	218 240.4	25.6				
	TOT AUTH TOT AVERAGE		150 36.1	153 236.9	105 106.7	167 164.0	0 25.0	6 6.6	521 513.4	98.5	218 240.4	25.6	.0	.0	.0	.0

Figure H-VIII-1. ERA Simulation Summary Report (IRS)
32d Field Artillery Regiment

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVG TOTAL NUMBER	PRCNT TOTAL	AVG NUMBER NCO	AVG NUMBER T/O	NUMBER & OF TIME	FLRG AVG NUM	OVER & OF TIME	AUTHO AVG NUM
440	OCONUS															
	AUTH AVERAGE	1	109.2	139.1	99.8	43.9	18.3	9.6	419.9	100.0	147.6	14.9				
	TOT AUTH TOT AVERAGE		109.2	139.1	99.8	43.9	18.3	9.6	419.9	100.0	147.6	14.9	.0	.0	3.0	1.1
540	OCONUS															
	AUTH AVERAGE	1	251.0	205.0	255.9	191.2	59.6	11.5	*****	97.0	993 446.1	98.8				
	TOT AUTH TOT AVERAGE		251.0	205.0	255.9	191.2	59.6	11.5	*****	97.0	993 446.1	98.8	.0	.0	.5	1.3
460	OCONUS															
	AUTH AVERAGE	1	35.2	30.2	25 1.2	7 11.4	3 3.0	0 .2	97 77.1	77.3	37 15.8	2.8				
	TOT AUTH TOT AVERAGE		35.2	30.2	25 1.2	7 11.4	3 3.0	0 .2	97 77.1	77.3	37 15.8	2.8	.0	.0	.0	.0
470	OCONUS															
	AUTH AVERAGE	1	51 101.7	52 .1	27 .3	29 34.4	19 5.8	3 .3	171 142.5	83.3	68 40.7	12.2				
	TOT AUTH TOT AVERAGE		51 101.7	52 .1	27 .3	29 34.4	19 5.8	3 .3	171 142.5	83.3	68 40.7	12.2	.0	.0	.0	.0
410	CONUS															
	AUTH AVERAGE	1	28.3	39.8	15.0	43.1	35.9	2 4.7	159 133.9	99.9	97 99.7	5.2				
	TOT AUTH TOT AVERAGE		28 16.3	29 37.8	15 15.0	43.1	35.9	2 4.7	159 133.9	99.9	97 99.7	5.2	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE	1	95.8	189.9	129.6	193.3	118.5	18.6	520 461.7	132.9	333 344.0	35.0				
	TOT AUTH TOT AVERAGE		95 5.8	189.9	59 129.6	193.3	118.5	8 18.6	520 461.7	132.9	333 344.0	35.0	.0	.0	****	****
410	CONUS															
	AUTH AVERAGE	1	37 30.7	38.1	38.0	38.5	8.5	3.9	159.7	99.8	63 63.8	5.4				
	TOT AUTH TOT AVERAGE		37 30.7	38 59.1	38.0	38.5	8.5	3.9	159.7	99.8	63 63.8	5.4	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE	1	150 119.7	153 166.6	105 108.7	107 105.2	19 17.3	5 5.5	539 518.0	99.4	318 318.7	23.4				
	TOT AUTH TOT AVERAGE		150 119.7	153 166.6	105 108.7	107 105.2	19 17.3	5 5.5	539 518.0	99.4	318 318.7	23.4	.0	.0	.0	.0

Figure H-VIII-2. ERA Simulation Summary Report (BMS)
32d Field Artillery Regiment

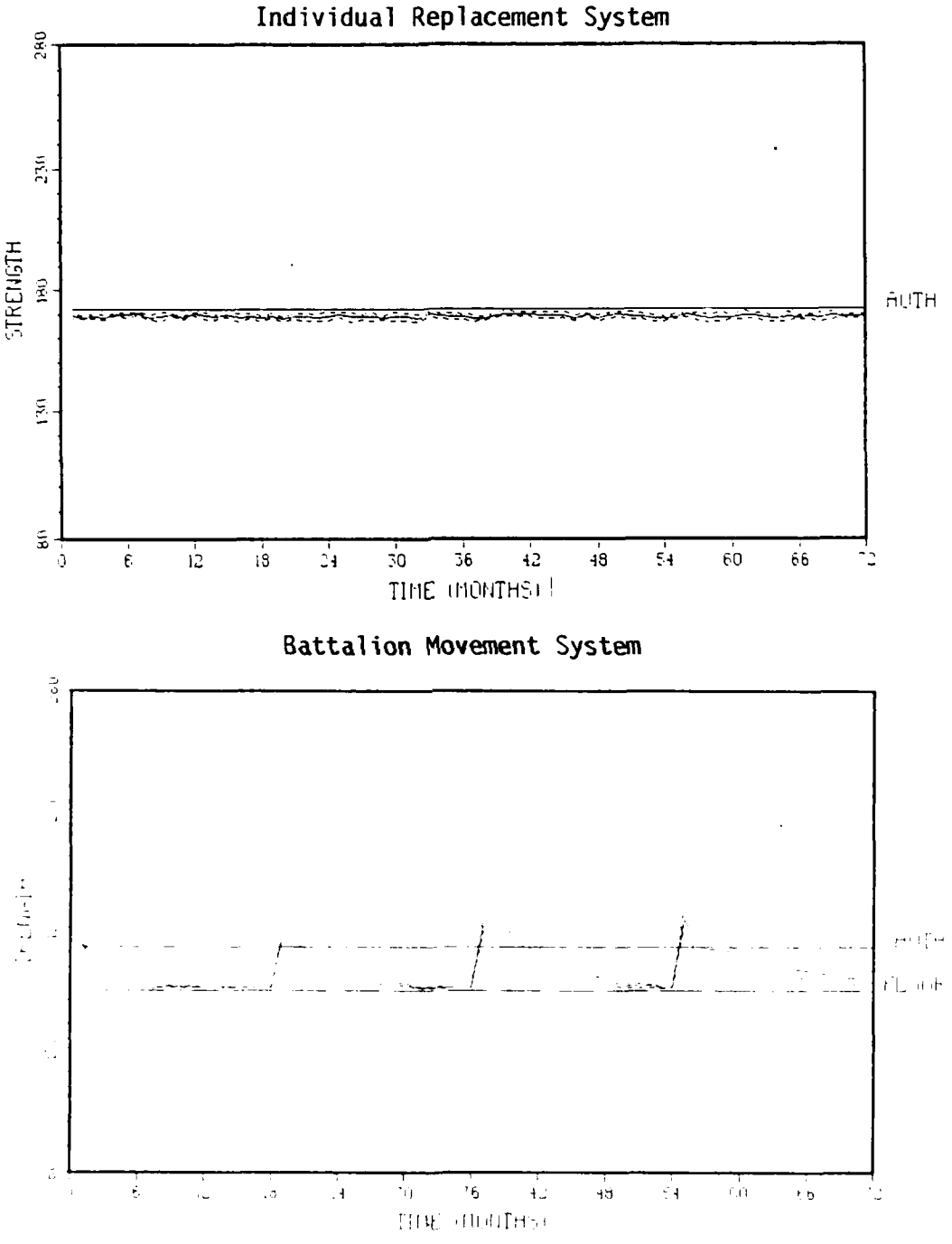


Figure H-VIII-3. Battalion Unit Strength Profiles
32d Field Artillery Regiment

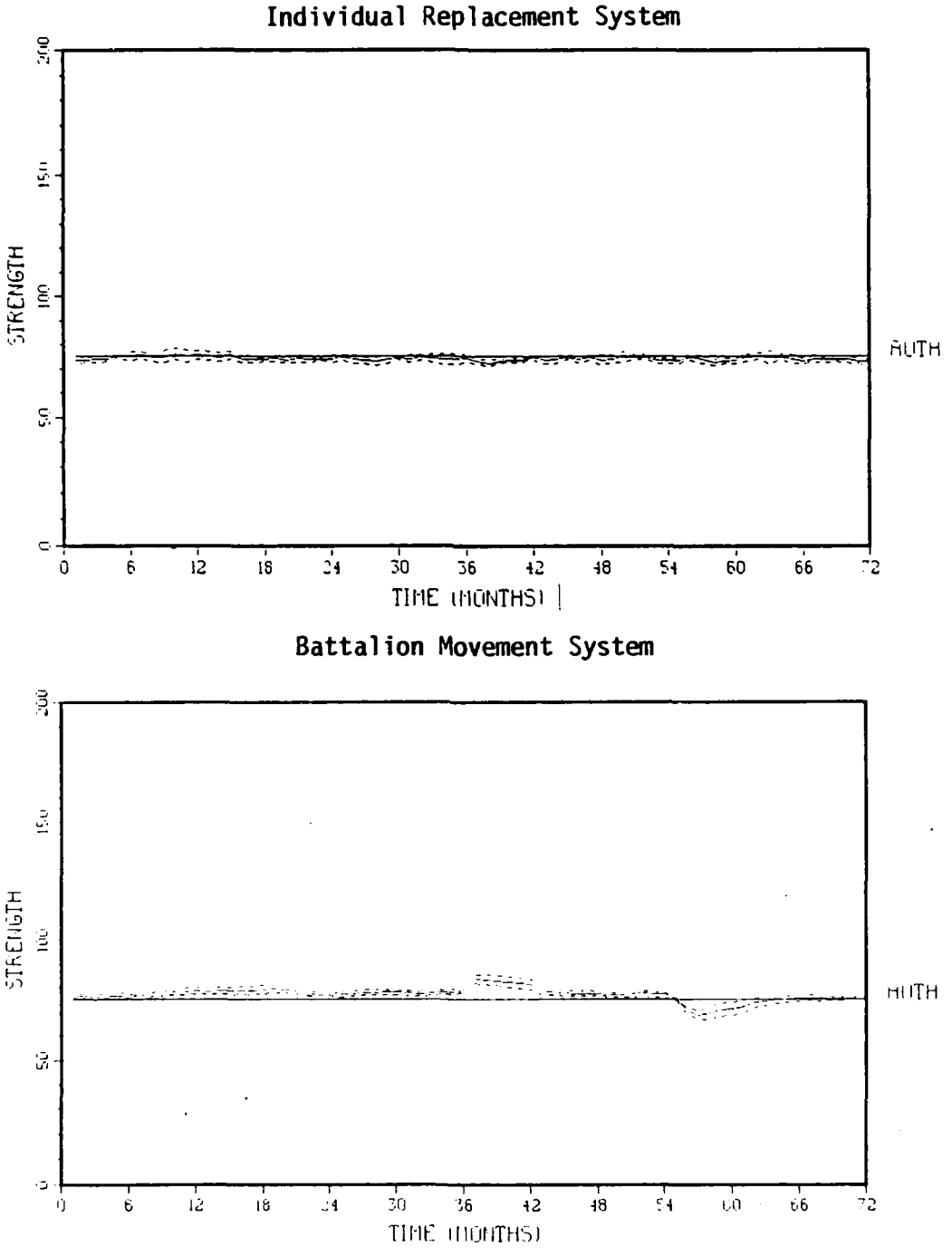


Figure H-VIII-4. Battalion NCO Strength Profiles 32d Field Artillery Regiment

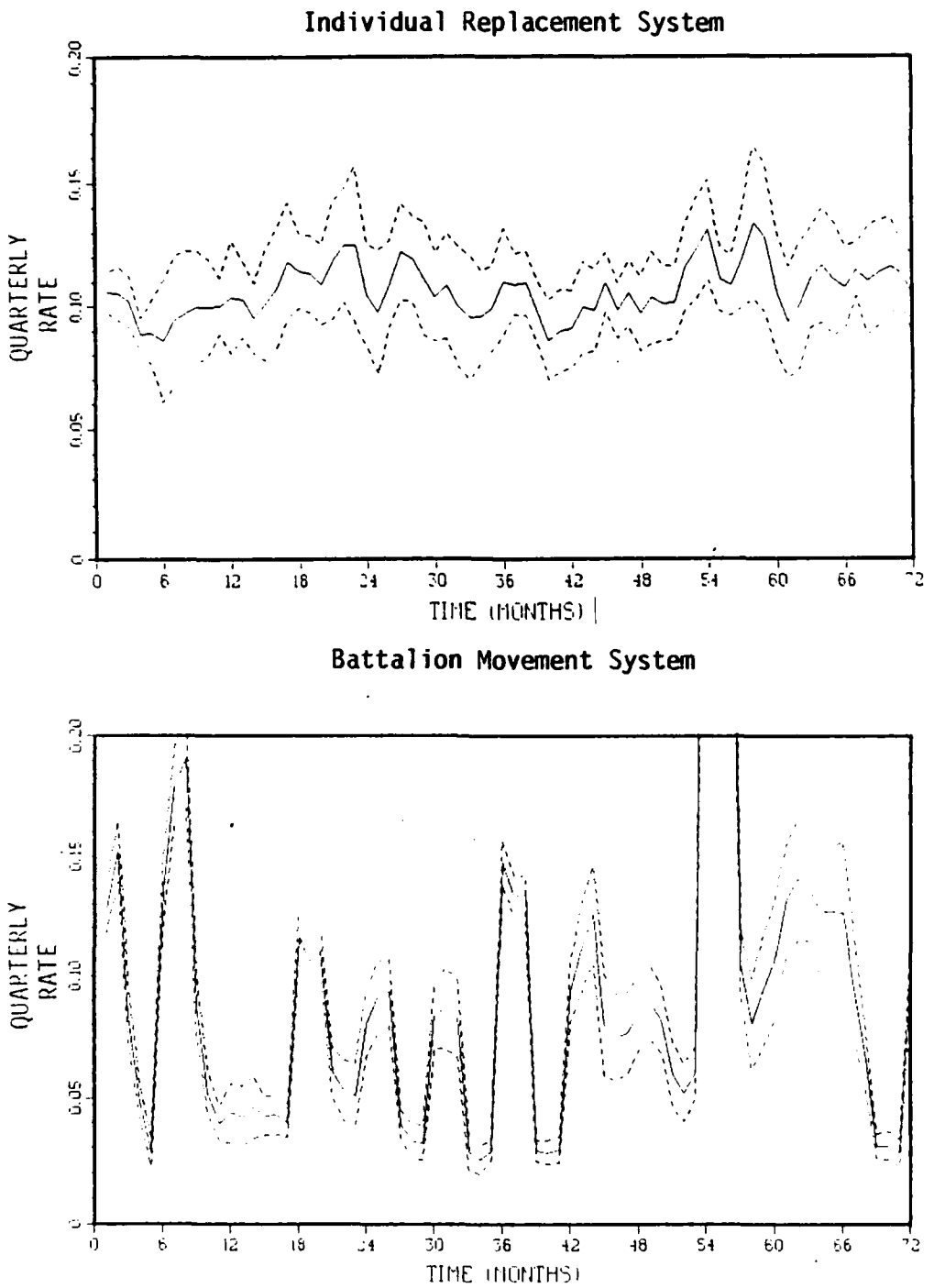


Figure H-VIII-5. Battalion Turnover Profiles 32d Field Artillery Regiment

ANNEX IX TO APPENDIX H

14TH FIELD ARTILLERY REGIMENT, FT STEWART, GEORGIA

H-IX-1. AUTHORIZATION DATA BY MOS:

	13Q*	15Q**	Total
Assigned TOE spaces	954	--	954
Allocated ERA spaces	681	--	681
Total authorizations	1,635	--	1,635

H-IX-2. GRADE DISTRIBUTION DATA:

	13Q	15Q	Total
E3	446	--	446
E4	524	--	524
E5	289	--	289
E6	233	--	233
E7	106	--	106
E8	37	--	37
Total authorizations	1,635	--	1,635

H-IX-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	13Q	15Q	Total
111/141	1-14 FA	FT Stewart	318	--	318
112/142	1-75 FA	Germany	318	--	318
343	6-10 FA	Germany	318	--	318
440/540	ERA	Germany	74	--	74
460	ERA	Other long tour	205	--	205
470	ERA	Short tour	39	--	39
410/510	ERA	FT Stewart	0	--	0
430/530	ERA	Other CONUS	363	--	363
		Regimental totals	1,635	--	1,635

---

*13Q = 13B + 13C + 13E + 13F + 13Y
**15Q = 13M + 15D + 15E + 15J + 13Y

H-IX-4. MOVEMENT SCHEME

a. 1-14 Artillery rotates with the 1-75 Artillery (every 36 months)

b. 6-10 Artillery does not rotate, but remains in Germany.

H-I-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 14th Field Artillery Regiment (both BMS and IRS).

(NOT USED)

********** UNIT STRENGTH AVERAGES **********

UNIT	PHASE	MOS	E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	%UNDER % OF TIME	FLR AVG NUM	%OVER % OF TIME	AUTH AVG NUM
			AVERAGE STRENGTH BY GRADE													
443	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .5	0 1.9	9 6.7	6 5.5	1 1.2	16 15.9	99.1	16 15.3	.6				
	TOT AUTH TOT AVERAGE		0 .0	0 .5	0 1.9	9 6.7	6 5.5	1 1.2	16 15.9	99.1	16 15.3	.6	.0	.0	.0	.0
543	OCONUS															
	AUTH AVERAGE	1	0 .0	0 9.2	0 8.2	32 18.9	21 14.4	5 3.6	58 54.3	93.6	58 45.1	9.3				
	TOT AUTH TOT AVERAGE		0 .0	0 9.2	0 8.2	32 18.9	21 14.4	5 3.6	58 54.3	93.6	58 45.1	9.3	.0	.0	.0	.0
463	OCONUS															
	AUTH AVERAGE	1	152 62.1	0 57.5	53 16.0	0 4.0	0 1.2	1 .6	206 141.4	68.6	54 21.8	5.7				
	TOT AUTH TOT AVERAGE		152 62.1	0 57.5	53 16.0	0 4.0	0 1.2	1 .6	206 141.4	68.6	54 21.8	5.7	.0	.0	.0	.0
473	OCONUS															
	AUTH AVERAGE	1	23 .9	0 .0	6 .0	10 4.3	0 .3	0 .0	39 5.5	14.1	16 4.6	.4				
	TOT AUTH TOT AVERAGE		23 .9	0 .0	6 .0	10 4.3	0 .3	0 .0	39 5.5	14.1	16 4.6	.4	.0	.0	.0	.0
513	CONUS															
	AUTH AVERAGE	1	0 .0	0 58.2	0 32.3	0 12.7	0 3.4	0 2.8	0 109.4	*****	0 51.2	6.2				
	TOT AUTH TOT AVERAGE		0 .0	0 58.2	0 32.3	0 12.7	0 3.4	0 2.8	0 109.4	*****	0 51.2	6.2	.0	.0	****	****
430	CONUS															
	AUTH AVERAGE	1	32 6.1	6 29.3	13 13.8	18 18.4	9 9.4	3 3.2	81 80.2	99.0	43 44.8	3.0				
	TOT AUTH TOT AVERAGE		32 6.1	6 29.3	13 13.8	18 18.4	9 9.4	3 3.2	81 80.2	99.0	43 44.8	3.0	.0	.0	.0	.0
533	CONUS															
	AUTH AVERAGE	1	116 3.2	20 114.9	49 59.2	57 60.3	31 28.6	9 8.4	282 274.6	97.4	146 156.5	13.8				
	TOT AUTH TOT AVERAGE		116 3.2	20 114.9	49 59.2	57 60.3	31 28.6	9 8.4	282 274.6	97.4	146 156.5	13.8	.0	.0	.0	.0

Figure H-IX-1. ERA Simulation Summary Report (IRS)
14th Field Artillery Regiment

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	%UNDER # OF TIME	FLAG AVG NUM	%OVER # OF TIME	AUTHO AVG NUM
440	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	9 7.5	8 8.4	5 5.7	1 1.1	16 16.7	91.9	18 18.7	.5				
	TOT AUTH AVERAGE		0 .0	0 .0	9 7.5	8 8.4	5 5.7	1 1.1	16 16.7	91.9	18 18.7	.5	5.7	1.0	.0	.0
540	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	0 .2	32 18.5	21 12.0	5 2.5	58 41.9	72.3	58 41.9	2.5				
	TOT AUTH AVERAGE		0 .0	0 .0	0 .2	32 18.5	21 12.0	5 2.5	58 41.9	72.3	58 41.9	2.5	96.2	9.6	.0	.0
460	OCONUS															
	AUTH AVERAGE	1	152 134.2	8 7.9	53 53.1	0 .0	0 .1	1 1.5	206 205.8	99.9	59 59.7	8.3				
	TOT AUTH AVERAGE		152 134.2	8 7.9	53 53.1	0 .0	0 .1	1 1.5	206 205.8	99.9	59 59.7	8.3	.0	.0	.0	.3
470	OCONUS															
	AUTH AVERAGE	1	33 33.3	0 .0	6 6.0	10 9.9	0 .3	0 .0	38 38.5	98.7	15 15.2	3.4				
	TOT AUTH AVERAGE		33 33.3	0 .0	6 6.0	10 9.9	0 .3	0 .0	38 38.5	98.7	15 15.2	3.4	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE	1	49 49.3	28 28.7	30 30.9	29 29.1	9 9.7	2 2.1	149 149.8	*****	69 67.7	8.3				
	TOT AUTH AVERAGE		49 49.3	28 28.7	30 30.9	29 29.1	9 9.7	2 2.1	149 149.8	*****	69 67.7	8.3	.0	.0	****	****
430	CONUS															
	AUTH AVERAGE	1	13 13.2	24 24.5	13 13.4	19 19.8	9 9.1	3 3.0	81 81.0	100.0	43 43.3	2.7				
	TOT AUTH AVERAGE		13 13.2	24 24.5	13 13.4	19 19.8	9 9.1	3 3.0	81 81.0	100.0	43 43.3	2.7	.0	.0	.0	.0
530	CONUS															
	AUTH AVERAGE	1	118 68.2	39 39.4	57 57.3	37 36.7	31 31.3	9 9.4	292 280.3	99.4	116 116.6	12.9				
	TOT AUTH AVERAGE		118 68.2	39 39.4	57 57.3	37 36.7	31 31.3	9 9.4	292 280.3	99.4	116 116.6	12.9	.0	.0	.0	.3

Figure H-IX-2. ERA Simulation Summary Report (BMS)
14th Field Artillery Regiment

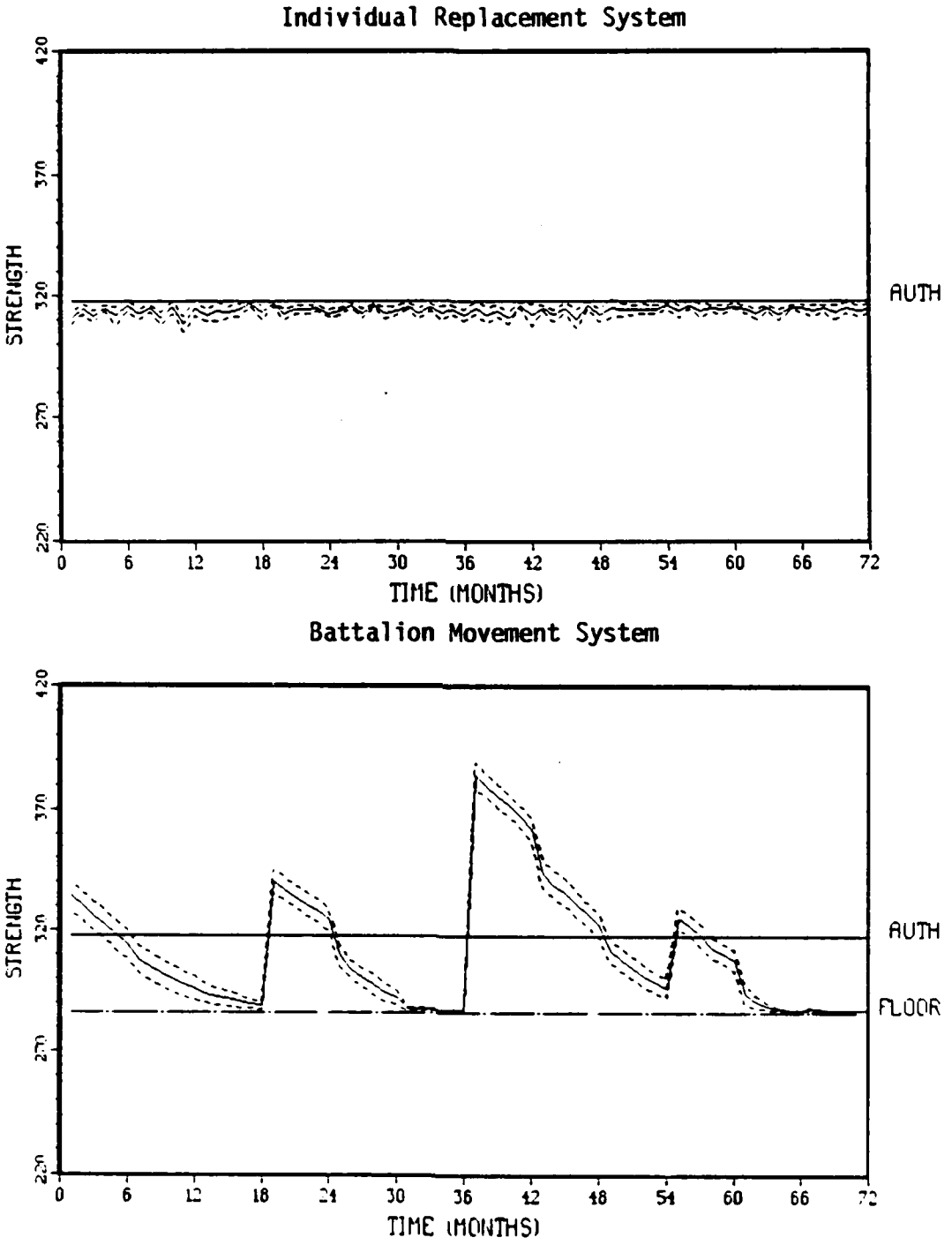


Figure H-IX-3. Battalion Unit Strength Profiles
14th Field Artillery Regiment

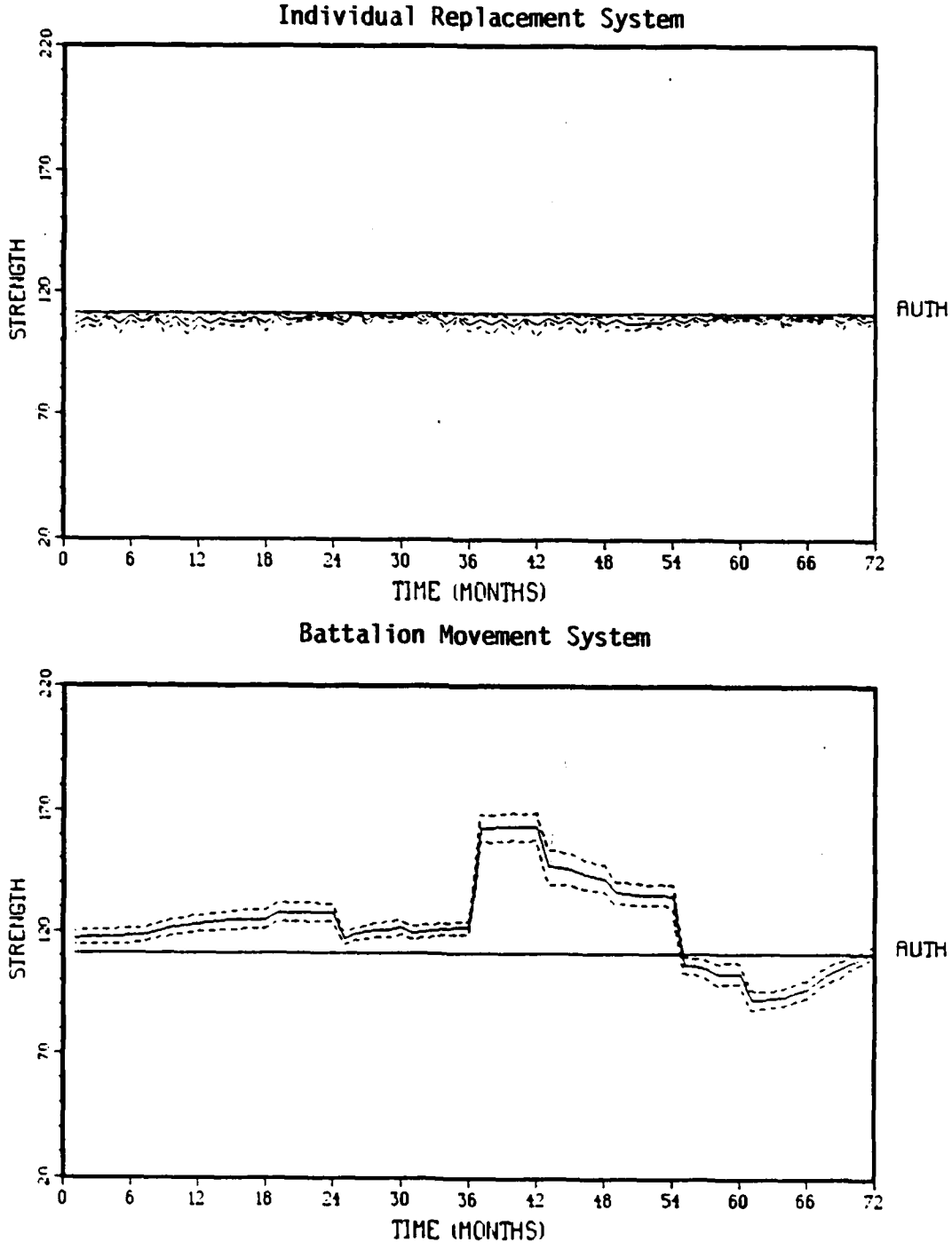


Figure H-IX-4. Battalion NCO Strength Profiles
14th Field Artillery Regiment

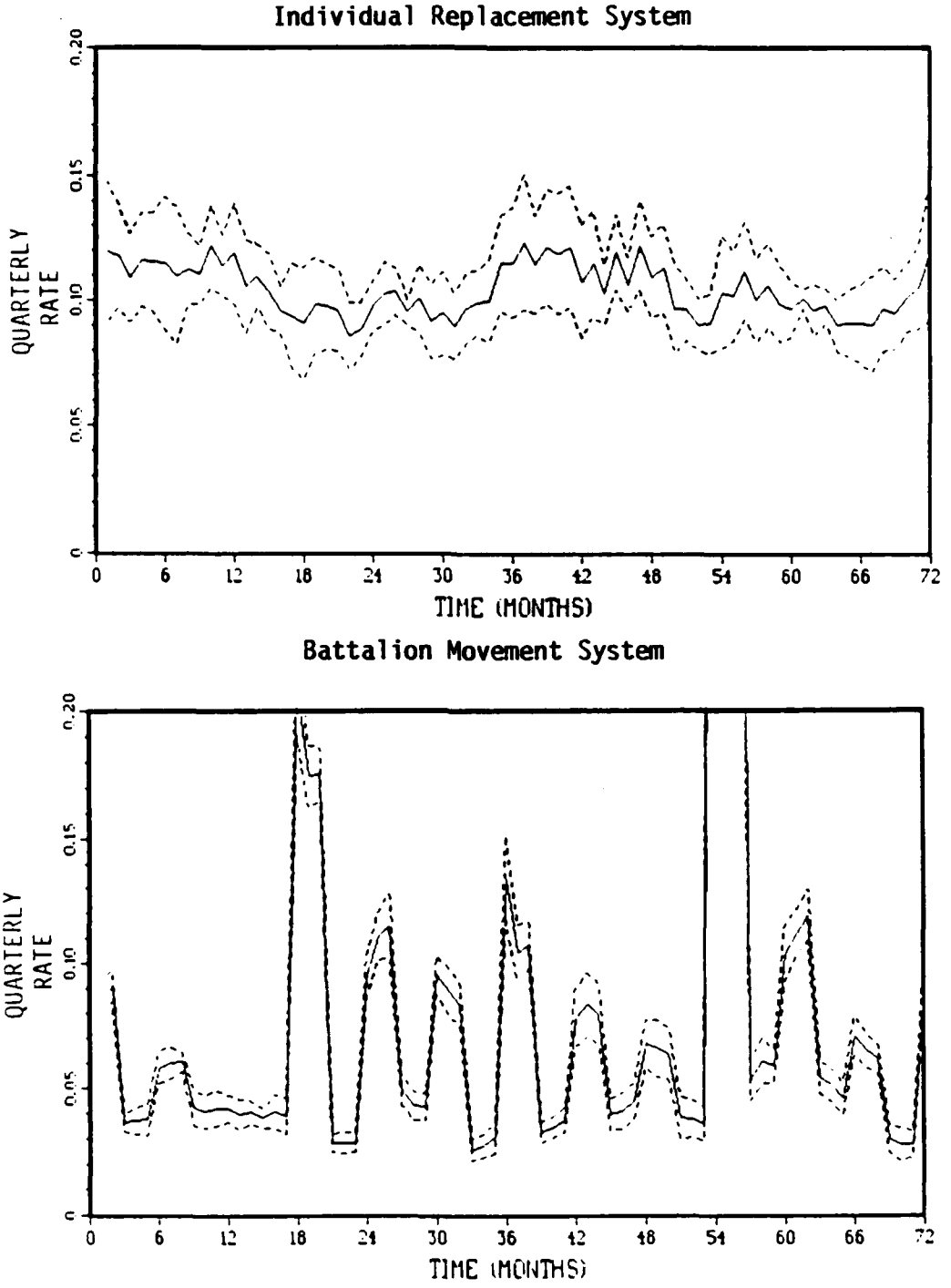


Figure H-IX-5. Battalion Turnover Profiles
14th Field Artillery Regiment

ANNEX X TO APPENDIX H

29TH FIELD ARTILLERY REGIMENT, FT CARSON, COLORADO

H-X-1. AUTHORIZATION DATA BY MOS:

	13Q*	15Q**	Total
Assigned TOE spaces	2,452	--	2,452
Allocated ERA spaces	926	--	926
Total authorizations	3,378	--	3,378

H-X-2. GRADE DISTRIBUTION DATA:

	13Q	15Q	Total
E3	921	--	921
E4	1,082	--	1,082
E5	597	--	597
E6	483	--	483
E7	219	--	219
E8	76	--	76
Total authorizations	3,378	--	3,378

H-X-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	13Q	15Q	Total
111/141	1-29 FA	FT Carson	388	--	388
112/142	2-29 FA	Germany	388	--	388
113/143	3-29 FA	FT Carson	411	--	411
114/144	4-29 FA	Germany	411	--	411
115/145	5-29 FA	FT Carson	427	--	427
116/146	6-29 FA	Germany	427	--	427
440/540	ERA	Germany	586	--	586
460	ERA	Other long tour	0	--	0
470	ERA	Short tour	23	--	23
410/510	ERA	FT Carson	39	--	39
430/530	ERA	Other CONUS	278	--	278
		Regimental totals	3,378	--	3,378

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*13Q = 13B + 13C + 13E + 13F + 13Y
**15Q = 13M + 15D + 15E + 15J + 13Y

H-X-4. MOVEMENT SCHEME

a. 1-29 Artillery rotates with the 2-29 Artillery.

b. 3-29 Artillery rotates with 4-29 Artillery.

c. 5-29 Artillery rotates with 6-29 Artillery.

d. The rotation points of each pair are offset from the rotation points of the other pairs by 12 months. This regiment therefore experiences a battalion rotation every 12 months.

H-X-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 29th Field Artillery Regiment (both BMS and IRS).

(NOT USED)

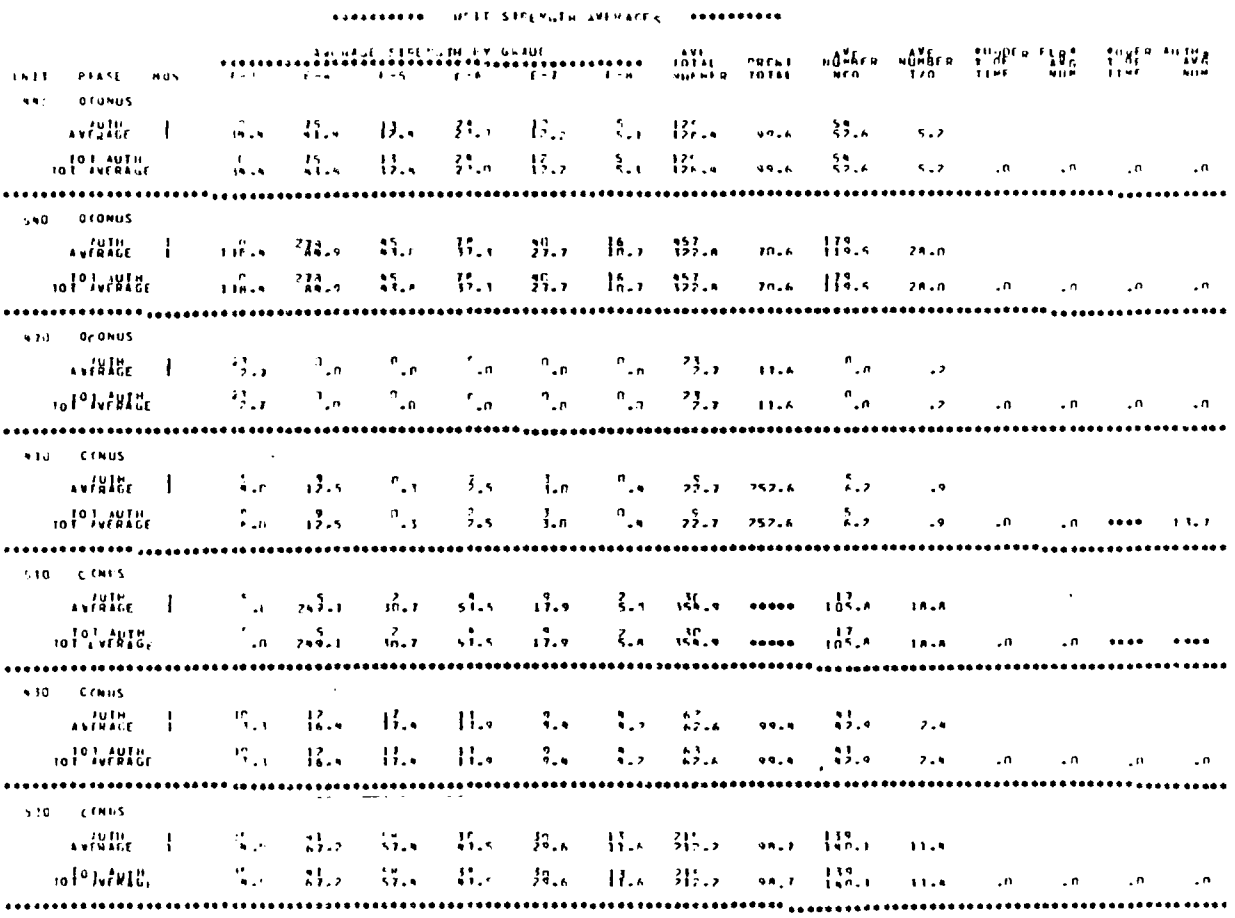
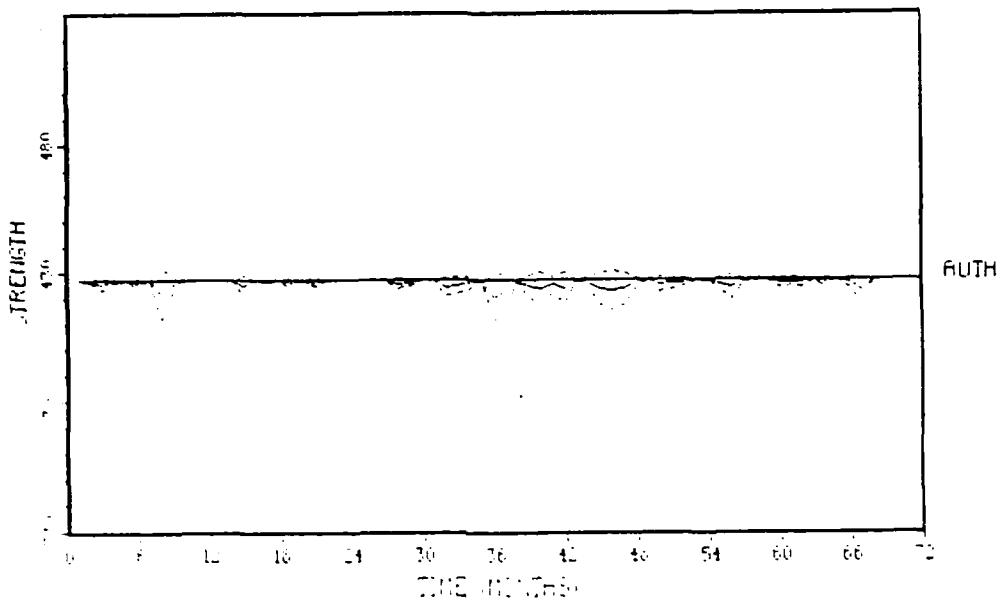


Figure H-X-1. ERA Simulation Summary Report (IRS)
29th Field Artillery Regiment

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER E/3	UNDER FLR % OF TIME	FLR AVG NUM	OVER % OF TIME	AUTH AVG NUM
443	CONUS															
	AUTH	1	0	75	13	24	12	5	129		54					
	AVERAGE	1	34.7	43.4	18.3	17.4	10.9	4.2	128.9	100.0	50.0	5.0				
	TOT AUTH		0	75	13	24	12	5	129		54					
	TOT AVERAGE		34.7	43.4	18.3	17.4	10.9	4.2	128.9	100.0	50.0	5.0	.0	.0	.3	1.0
580	CONUS															
	AUTH	1	0	278	45	38	40	16	457		179					
	AVERAGE	1	290.3	50.7	26.8	34.8	24.3	9.3	436.2	95.5	95.2	29.2				
	TOT AUTH		0	278	45	38	40	16	457		179					
	TOT AVERAGE		290.3	50.7	26.8	34.8	24.3	9.3	436.2	95.5	95.2	29.2	.0	.0	.0	.0
473	CONUS															
	AUTH	1	23	0	0	0	0	0	23		0					
	AVERAGE	1	22.9	.0	.0	.0	.0	.0	22.9	99.7	.0	2.0				
	TOT AUTH		23	0	0	0	0	0	23		0					
	TOT AVERAGE		22.9	.0	.0	.0	.0	.0	22.9	99.7	.0	2.0	.0	.0	.0	.0
410	CONUS															
	AUTH	1	2	2	0	2	3	0	9		5					
	AVERAGE	1	1.6	1.7	.9	1.8	2.5	.4	9.0	100.0	5.7	.3				
	TOT AUTH		2	2	0	2	3	0	9		5					
	TOT AVERAGE		1.6	1.7	.9	1.8	2.5	.4	9.0	100.0	5.7	.3	.0	.0	.0	.0
510	CONUS															
	AUTH	1	5	8	2	4	9	2	30		17					
	AVERAGE	1	29.5	17.7	76.9	52.0	18.8	4.3	199.3	664.2	152.0	14.1				
	TOT AUTH		5	8	2	4	9	2	30		17					
	TOT AVERAGE		29.5	17.7	76.9	52.0	18.8	4.3	199.3	664.2	152.0	14.1	.0	.0	98.9	****
430	CONUS															
	AUTH	1	10	12	17	11	9	4	63		41					
	AVERAGE	1	23.0	20.3	4.4	5.2	6.2	3.2	62.3	98.9	19.0	2.1				
	TOT AUTH		10	12	17	11	9	4	63		41					
	TOT AVERAGE		23.0	20.3	4.4	5.2	6.2	3.2	62.3	98.9	19.0	2.1	.3	1.0	.0	.0
533	CONUS															
	AUTH	1	35	41	58	34	30	13	215		179					
	AVERAGE	1	92.5	47.4	15.0	19.5	23.2	10.2	207.9	96.7	67.9	9.3				
	TOT AUTH		35	41	58	38	30	13	215		179					
	TOT AVERAGE		92.5	47.4	15.0	19.5	23.2	10.2	207.9	96.7	67.9	9.3	.0	6.0	.0	.0

Figure H-X-2. ERA Simulation Summary Report (BMS)
29th Field Artillery Regiment

Individual Replacement System



Battalion Movement System

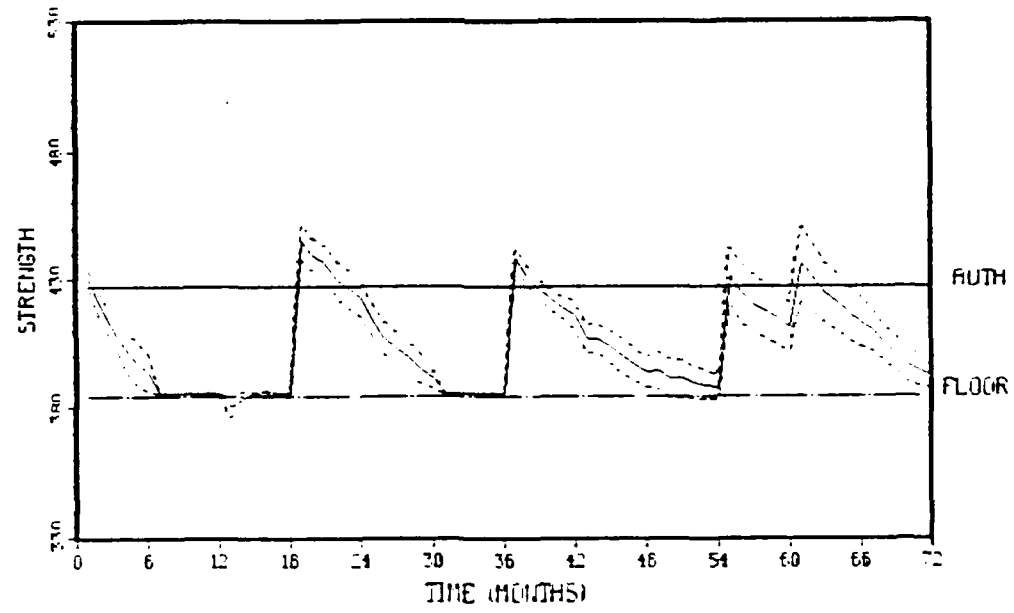
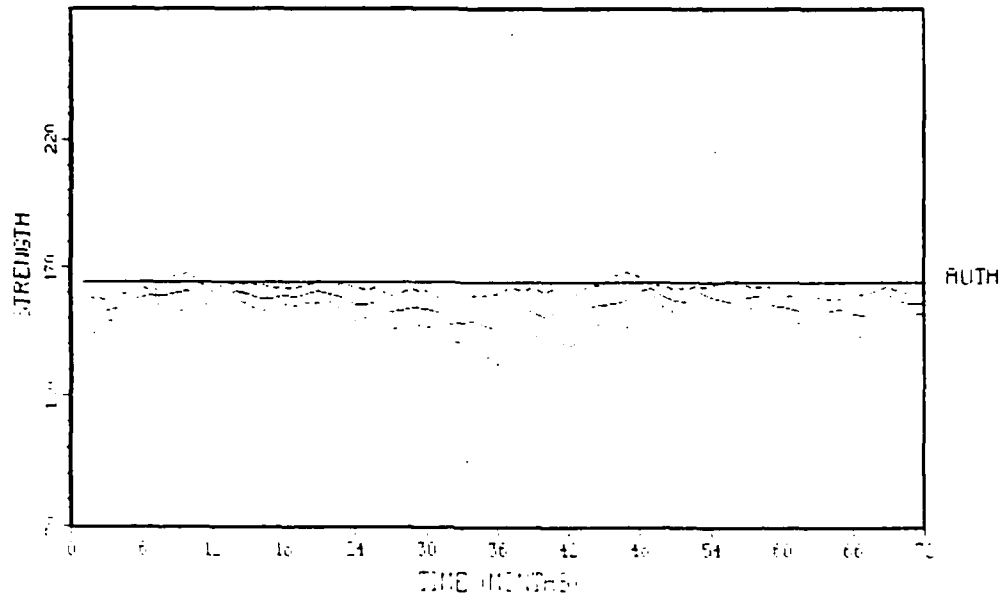


Figure H-X-3. Battalion Unit Strength Profiles
29th Field Artillery Regiment

Individual Replacement System



Battalion Movement System

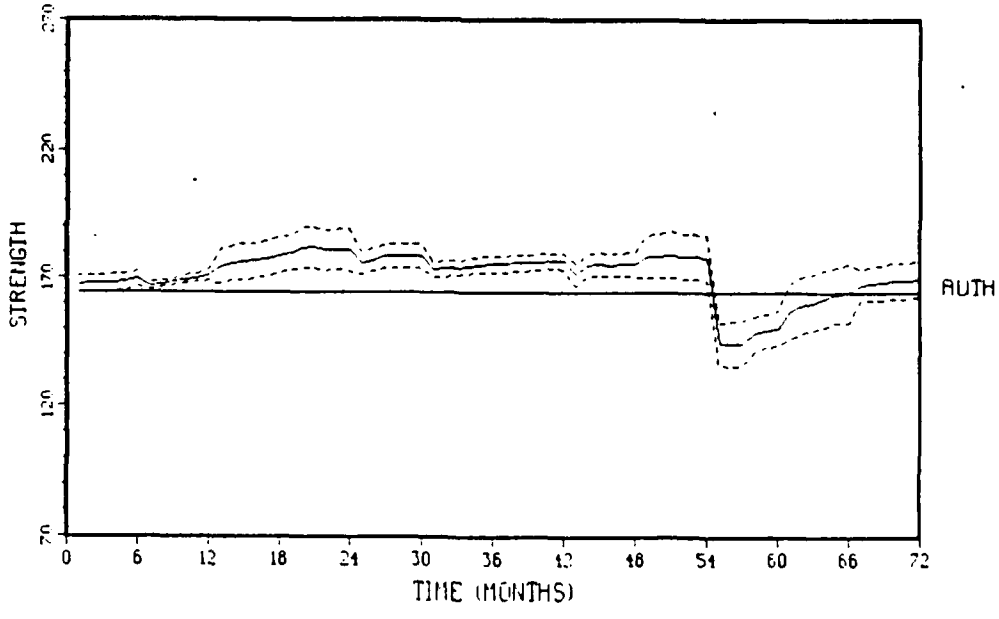
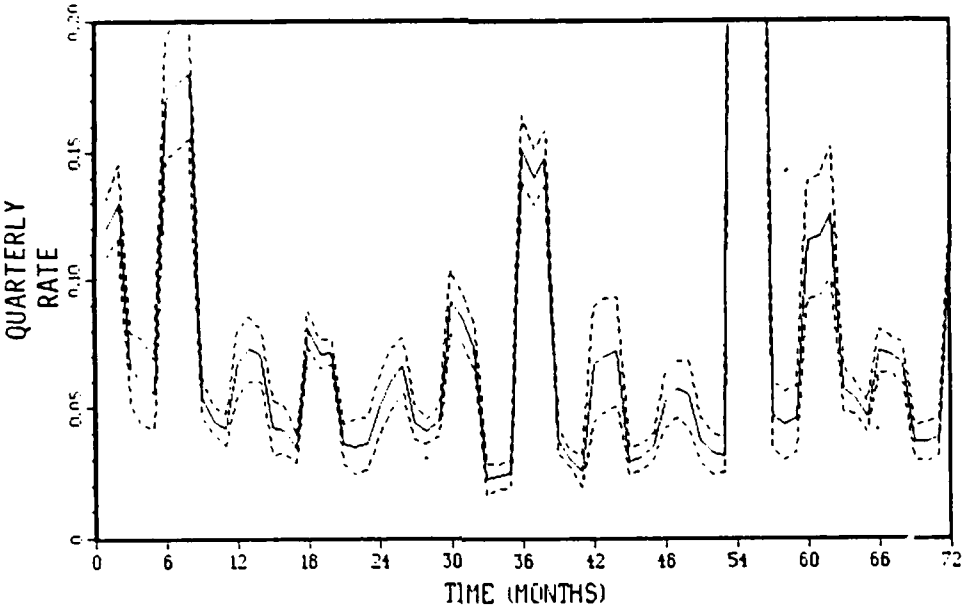


Figure H-X-4. Battalion NCO Strength Profiles 29th Field Artillery Regiment

Individual Replacement System



Battalion Movement System

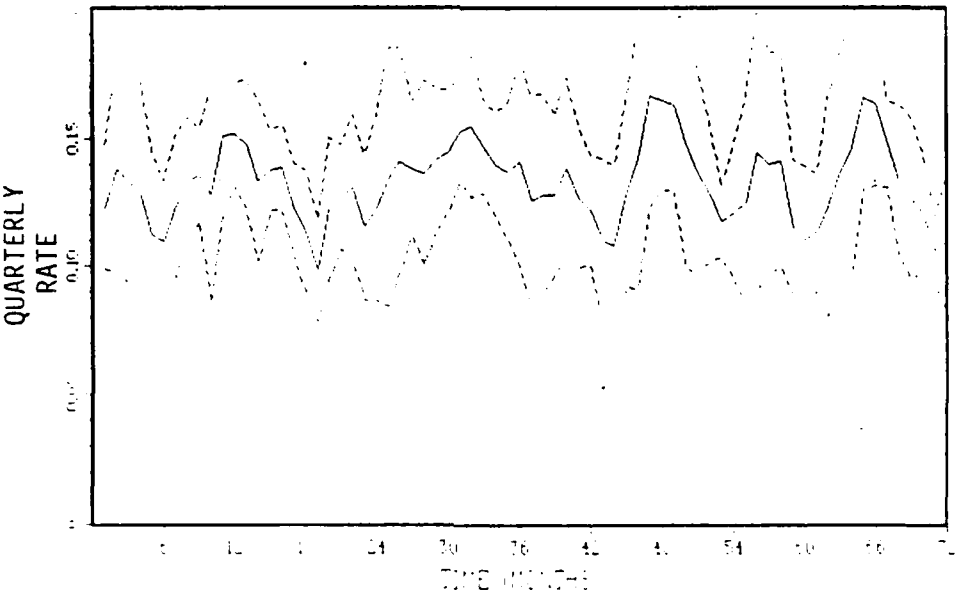


Figure H-X-5. Battalion Turnover Profiles
29th Field Artillery Regiment

ANNEX XI TO APPENDIX H

32D ARMOR REGIMENT, FT HOOD, TEXAS

H-XI-1. AUTHORIZATION DATA BY MOS:

	19D	19Q*	Total
Assigned TOE spaces	--	992	992
Allocated ERA spaces	--	193	193
Total authorizations	--	1,185	1,185

H-XI-2. GRADE DISTRIBUTION DATA:

	19D	19Q	Total
E3	--	262	262
E4	--	298	298
E5	--	281	281
E6	--	178	178
E7	--	120	120
E8	--	46	46
Total authorizations	--	1,185	1,185

H-XI-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	19D	19Q	Total
111/141	2-5 Armor	FT Hood	--	248	248
112/142	2-33 Armor	Germany	--	248	248
113/143	1-7 Armor	FT Hood	--	248	248
114/144	2-32 Armor	Germany	--	248	248
440/540	ERA	Germany	--	16	16
460	ERA	Other long tour	--	4	4
470	ERA	Short tour	--	27	27
410/510	ERA	FT Hood	--	17	17
430/530	ERA	Other CONUS	--	129	129
		Regimental totals	--	1,185	1,185

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*19Q = 19E + 19K + 19Z

H-XI-4. MOVEMENT SCHEME

a. 2-5 Armor rotates with 2-33 Armor.

b. 1-7 Armor rotates with 2-32 Armor.

c. The rotation points of the 1-7/2-32 pair are offset from the rotation points of the 2-5/2-33 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-XI-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 32d Armor Regiment (both BMS and IRS).

(NOT USED)

UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	%UNDER $ OF TIME	FLR AVG NUM	%OVER $ OF TIME	AUTH AVG NUM
440	OCONUS															
	AUTH	1	0	0	1	1	1	1	4	99.5	4	.2				
	AVERAGE	1	.0	.7	.8	.8	.9	.8	4.0		3.3					
	TOT AUTH		0	0	1	1	1	1	4	99.5	4	.2	.0	.0	.0	.0
	TOT AVERAGE		.0	.7	.8	.8	.9	.8	4.0		3.3					
540	OCONUS															
	AUTH	1	0	0	0	7	4	1	12	100.0	12	1.1				
	AVERAGE	1	.0	1.2	1.9	3.9	3.8	1.1	12.0		10.8					
	TOT AUTH		0	0	0	7	4	1	12	100.0	12	1.1	.0	.0	.0	.0
	TOT AVERAGE		.0	1.2	1.9	3.9	3.8	1.1	12.0		10.8					
460	OCONUS															
	AUTH	1	4	0	0	0	0	0	4	83.5	0	.1				
	AVERAGE	1	2.3	1.1	.0	.0	.0	.0	3.3		.0					
	TOT AUTH		4	0	0	0	0	0	4	83.5	0	.1	.0	.0	.0	.0
	TOT AVERAGE		2.3	1.1	.0	.0	.0	.0	3.3		.0					
470	OCONUS															
	AUTH	1	10	10	0	4	3	0	27	51.7	7	1.2				
	AVERAGE	1	6.6	.1	.0	4.0	3.2	.1	14.0		7.3					
	TOT AUTH		10	10	0	4	3	0	27	51.7	7	1.2	.0	.0	.0	.0
	TOT AVERAGE		6.6	.1	.0	4.0	3.2	.1	14.0		7.3					
410	CONUS															
	AUTH	1	0	1	1	0	0	2	4	100.0	3	.2				
	AVERAGE	1	.0	.6	1.1	.4	.4	1.5	4.0		3.4					
	TOT AUTH		0	1	1	0	0	2	4	100.0	3	.2	.0	.0	.0	.0
	TOT AVERAGE		.0	.6	1.1	.4	.4	1.5	4.0		3.4					
510	CONUS															
	AUTH	1	0	9	0	2	2	5	13	379.9	9	5.7				
	AVERAGE	1	.0	25.6	8.9	9.4	1.7	3.7	49.4		23.8					
	TOT AUTH		0	9	0	2	2	5	13	379.9	9	5.7	.0	.0	****	36.4
	TOT AVERAGE		.0	25.6	8.9	9.4	1.7	3.7	49.4		23.8					
430	CONUS															
	AUTH	1	0	1	2	19	7	2	26	100.0	25	.8				
	AVERAGE	1	.0	.7	3.6	12.9	7.2	2.1	26.0		25.3					
	TOT AUTH		0	1	2	19	7	2	26	100.0	25	.8	.0	.0	.0	.0
	TOT AVERAGE		.0	.7	3.6	12.9	7.2	2.1	26.0		25.3					
530	CONUS															
	AUTH	1	0	2	8	55	31	7	103	100.0	101	3.0				
	AVERAGE	1	.0	1.5	10.4	49.2	29.9	7.8	103.0		101.5					
	TOT AUTH		0	2	8	55	31	7	103	100.0	101	3.0	.0	.0	.0	.0
	TOT AVERAGE		.0	1.5	10.4	49.2	29.9	7.8	103.0		101.5					

Figure H-XI-1. ERA Simulation Summary Report (IRS)
32d Armor Regiment

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	NUMBER S OF TIME	FLAG AVG NUM	OVER S OF TIME	AUTH AVG NUM
440	OCONUS															
	AUTH AVERAGE		6 1.1	0 .8	1 1.3	1 1.3	1 1.9	1 1.6	5 4.0	99.1	5 2.1	.2				
	TOT AUTH AVERAGE		0 1.1	0 .8	1 1.3	1 1.3	1 1.9	1 1.6	5 4.0	99.1	5 2.1	.2	.0	.0	.0	.0
540	OCONUS															
	AUTH AVERAGE		0 .0	0 .0	0 .5	1 4.3	0 4.7	1 1.3	12 11.2	93.3	12 10.8	1.0				
	TOT AUTH AVERAGE		0 .0	0 .0	0 .5	1 4.3	0 4.7	1 1.3	12 11.2	93.3	12 10.8	1.0	1.7	1.8	.0	.0
470	OCONUS															
	AUTH AVERAGE		10 22.7	10 13.3	0 .4	0 .6	1 1.7	0 .2	27 26.9	99.8	7 2.9	2.3				
	TOT AUTH AVERAGE		10 22.7	10 13.3	0 .4	0 .6	1 1.7	0 .2	27 26.9	99.8	7 2.9	2.3	.0	.0	.0	.0
410	CONUS															
	AUTH AVERAGE		0 .7	1 1.0	1 1.7	0 .1	0 .1	2 1.5	5 4.0	99.9	3 2.3	.1				
	TOT AUTH AVERAGE		0 .7	1 1.0	1 1.7	0 .1	0 .1	2 1.5	5 4.0	99.9	3 2.3	.1	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE		6 60.2	3 11.4	2 4.5	1 2.8	1 2.8	5 .7	13 103.3	809.7	3 33.7	7.4				
	TOT AUTH AVERAGE		0 60.2	3 11.4	0 4.5	1 2.8	1 2.8	5 .7	13 103.3	809.7	3 33.7	7.4	.0	.0	****	92.3
430	CONUS															
	AUTH AVERAGE		0 2.9	1 4.6	2 6.0	19 13.7	1 4.0	2 2.2	24 21.4	82.4	25 13.9	.7				
	TOT AUTH AVERAGE		0 2.9	1 4.6	2 6.0	19 13.7	1 4.0	2 2.2	24 21.4	82.4	25 13.9	.7	18.2	1.5	.0	.0
530	CONUS															
	AUTH AVERAGE		6 6.0	2 2.6	18 13.3	55 25.3	14 14.2	7 10.5	102 88.8	66.8	101 58.3	2.6				
	TOT AUTH AVERAGE		0 6.0	2 2.6	18 13.3	55 25.3	14 14.2	7 10.5	102 88.8	66.8	101 58.3	2.6	85.6	6.6	.0	.0

Figure H-XI-2. ERA Simulation Summary Report (BMS)
32d Armor Regiment

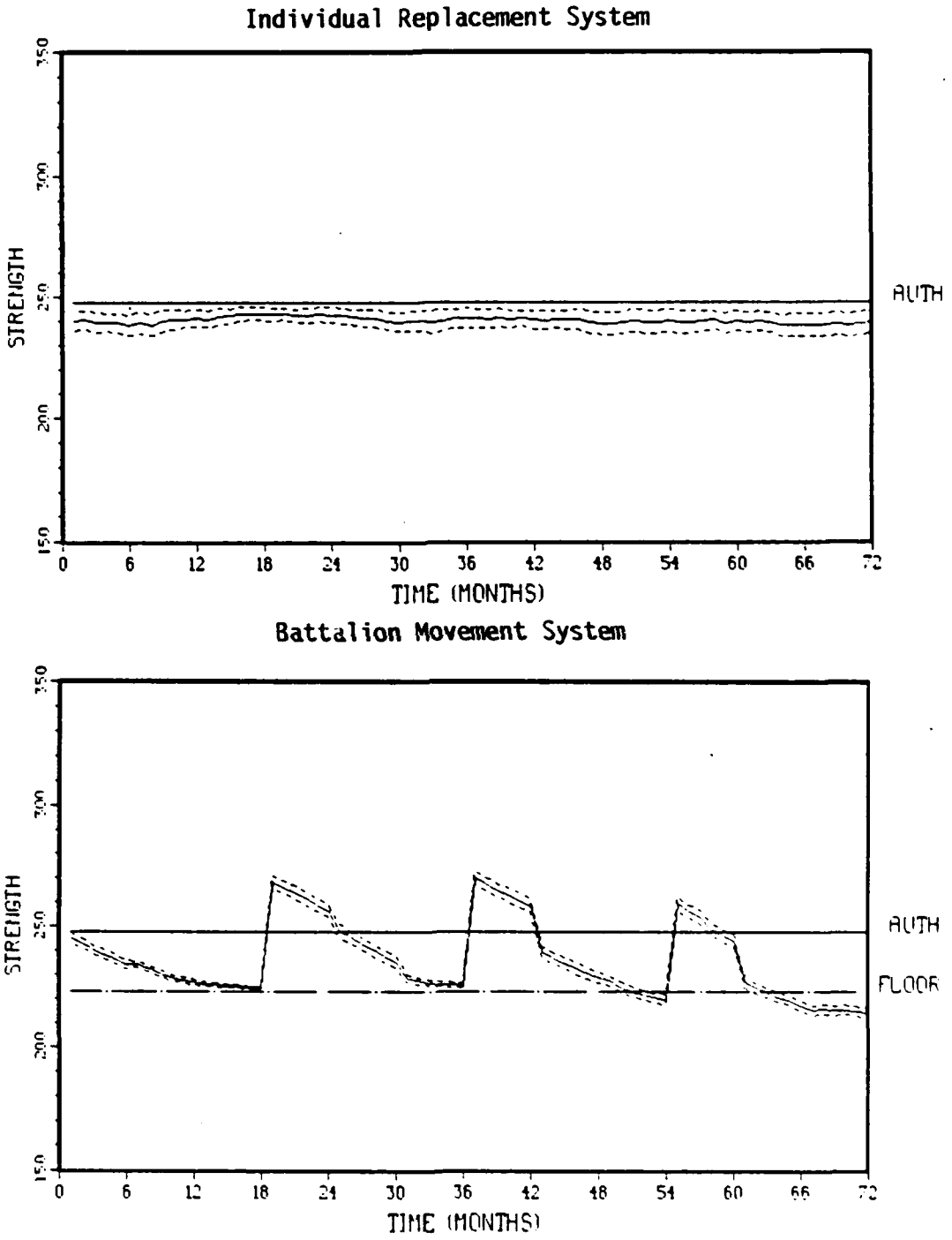


Figure H-XI-3. Battalion Unit Strength Profiles 32d Armor Regiment

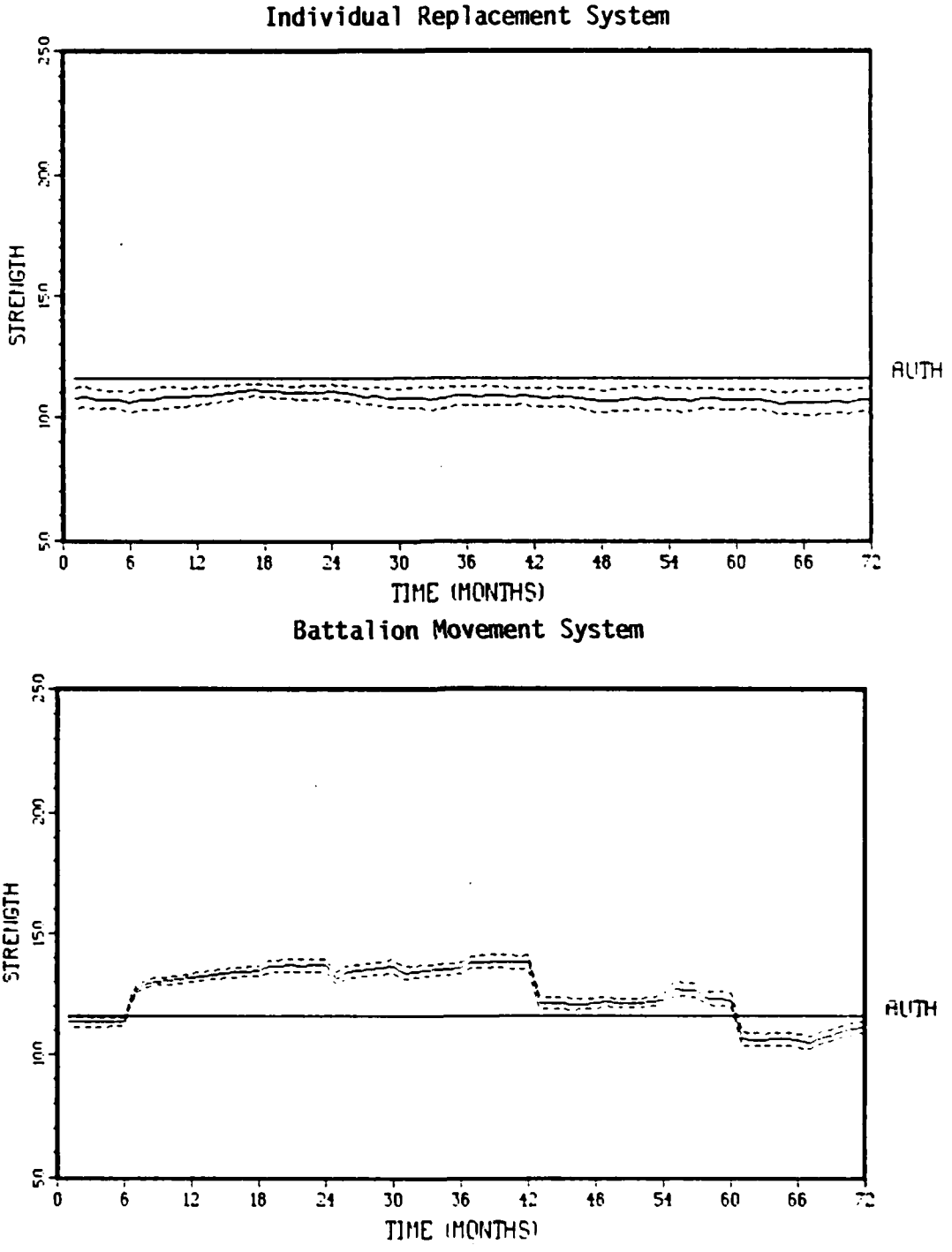


Figure H-XI-4. Battalion NCO Strength Profiles
32d Armor Regiment

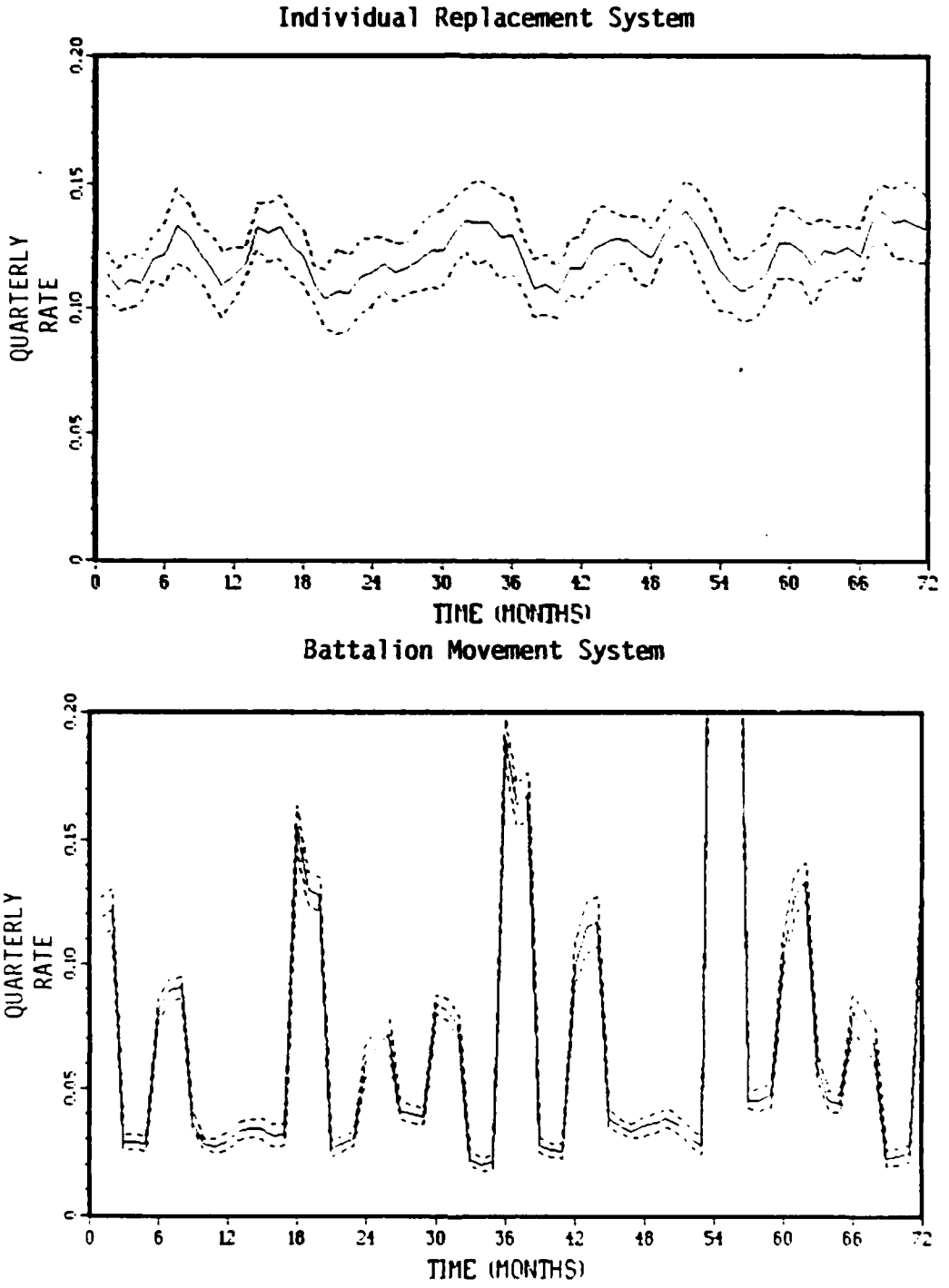


Figure H-XI-5. Battalion Turnover Profiles
32d Armor Regiment

ANNEX XII TO APPENDIX H

34TH ARMOR REGIMENT, FT RILEY, KANSAS

H-XII-1. AUTHORIZATION DATA BY MOS:

	19D	19Q*	Total
Assigned TOE spaces	--	992	992
Allocated ERA spaces	--	186	186
Total authorizations	--	1,178	1,178

H-XII-2. GRADE DISTRIBUTION DATA:

	19D	19Q	Total
E3	--	261	261
E4	--	298	298
E5	--	281	281
E6	--	178	178
E7	--	121	121
E8	--	39	39
Total authorizations	--	1,178	1,178

H-XII-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	19D	19Q	Total
111/141	1-34 Armor	FT Riley	--	248	248
112/142	3-34 Armor	Germany	--	248	248
113/143	1-63 Armor	FT Riley	--	248	248
114/144	4-69 Armor	Germany	--	248	248
440/540	ERA	Germany	--	20	20
460	ERA	Other long tour	--	0	0
470	ERA	Short tour	--	27	27
410/510	ERA	FT Riley	--	0	0
430/530	ERA	Other CONUS	--	139	139
		Regimental totals	--	1,178	1,178

*19Q = 19E + 19K + 19Z

H-XII-4. MOVEMENT SCHEME

a. 1-34 Armor rotates with 3-34 Armor.

b. 1-63 Armor rotates with 4-69 Armor.

c. The rotation points of the 1-63/4-69 pair are offset from the rotation points of the 1-34/3-34 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-XII-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 34th Armor Regiment (both BMS and IRS).

(NOT USED)

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	NUMBER % OF TIME	FLOP AVG NUM	OVER % OF TIME	AUTHO AVG NUM
44U	OCONUS															
	AUTH AVERAGE	1 1	1 .1	0 1.1	1 .8	1 1.1	1 1.2	1 .6	5 5.0	99.2	4 3.7	.3				
	TOT AUTH TOT AVERAGE		1 .1	0 1.1	1 .8	1 1.1	1 1.2	1 .6	5 5.0	99.2	4 3.7	.3	.0	.0	.0	.0
54U	OCONUS															
	AUTH AVERAGE	1 1	2 .4	0 1.6	0 2.1	7 5.7	5 4.6	2 1.5	16 15.9	99.7	15 13.9	1.4				
	TOT AUTH TOT AVERAGE		2 .4	0 1.6	0 2.1	7 5.7	5 4.6	2 1.5	16 15.9	99.7	15 13.9	1.4	.0	.0	.0	.0
47U	OCONUS															
	AUTH AVERAGE	1 1	10 8.6	10 .7	0 .0	6 4.7	3 2.9	0 .2	27 17.1	63.4	7 7.8	1.5				
	TOT AUTH TOT AVERAGE		10 8.6	10 .7	0 .0	6 4.7	3 2.9	0 .2	27 17.1	63.4	7 7.8	1.5	.0	.0	.0	.0
51D	CONUS															
	AUTH AVERAGE	1 1	0 .1	0 19.0	0 .8	0 5.0	0 .8	0 1.0	0 29.8	*****	0 18.7	9.1				
	TOT AUTH TOT AVERAGE		0 .1	0 19.0	0 .8	0 5.0	0 .8	0 1.0	0 29.8	*****	0 18.7	9.1	.0	.0	****	29.8
63U	CONUS															
	AUTH AVERAGE	1	0 .0	2 1.7	3 4.1	17 15.2	6 5.1	2 1.8	28 28.0	100.0	26 26.3	.9				
	TOT AUTH TOT AVERAGE		0 .0	2 1.7	3 4.1	17 15.2	6 5.1	2 1.8	28 28.0	100.0	26 26.3	.9	.0	.0	.0	.0
53U	CONUS															
	AUTH AVERAGE	1	0 .0	8 7.8	9 21.6	53 44.8	36 29.7	6 6.1	110 109.9	99.9	109 102.2	9.6				
	TOT AUTH TOT AVERAGE		0 .0	8 7.8	9 21.6	53 44.8	36 29.7	6 6.1	110 109.9	99.9	109 102.2	9.6	.0	.0	.0	.0

Figure H-XII-1. ERA Simulation Summary Report (IRS)
34th Armor Regiment

UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	UNDER % OF TIME	UNDER AVG NUM	OVER % OF TIME	OVER AVG NUM	AUTHO AVG NUM
440	OCONUS																
	AUTH AVERAGE		1.5	0.0	1.5	1.5	1.0	1.7	5.0	99.1	2.5	.2					
	TOT AUTH AVERAGE		1.5	0.0	1.5	1.5	1.0	1.7	5.0	99.1	2.5	.2	.7	1.5	.0	.0	
540	OCONUS																
	AUTH AVERAGE		7.8	0.5	0.5	7.9	5.4	2.0	15.2	95.2	12.9	1.3					
	TOT AUTH AVERAGE		7.8	0.5	0.5	7.9	5.4	2.0	15.2	95.2	12.9	1.3	.9	2.0	.0	.0	
970	OCONUS																
	AUTH AVERAGE		10 21.5	10 1.1	0 0.0	1 1.1	1 2.1	0 .2	27 27.0	99.9	7 4.4	2.3					
	TOT AUTH AVERAGE		10 21.5	10 1.1	0 0.0	1 1.1	1 2.1	0 .2	27 27.0	99.9	7 4.4	2.3	.0	.0	.0	.0	
510	CONUS																
	AUTH AVERAGE		0 47.3	0 5.0	0 29.1	0 9.8	0 5.4	0 .3	0 85.0	*****	0 32.6	6.4					
	TOT AUTH AVERAGE		0 47.3	0 5.0	0 29.1	0 9.8	0 5.4	0 .3	0 85.0	*****	0 32.6	6.4	.0	.0	****	85.0	
430	CONUS																
	AUTH AVERAGE		0 5.2	2 7.8	3 3.7	17 4.1	5 3.7	2 1.8	28 26.4	99.1	24 13.3	.9					
	TOT AUTH AVERAGE		0 5.2	2 7.8	3 3.7	17 4.1	5 3.7	2 1.8	28 26.4	99.1	24 13.3	.9	4.3	1.5	.0	.0	
530	CONUS																
	AUTH AVERAGE		0 16.3	6 16.5	9 10.8	53 13.2	36 20.9	6 2.1	110 89.7	76.1	100 50.9	3.4					
	TOT AUTH AVERAGE		0 16.3	6 16.5	9 10.8	53 13.2	36 20.9	6 2.1	110 89.7	76.1	100 50.9	3.4	93.8	6.7	.0	.0	

Figure H-XII-2. ERA Simulation Summary Report (BMS)
34th Armor Regiment

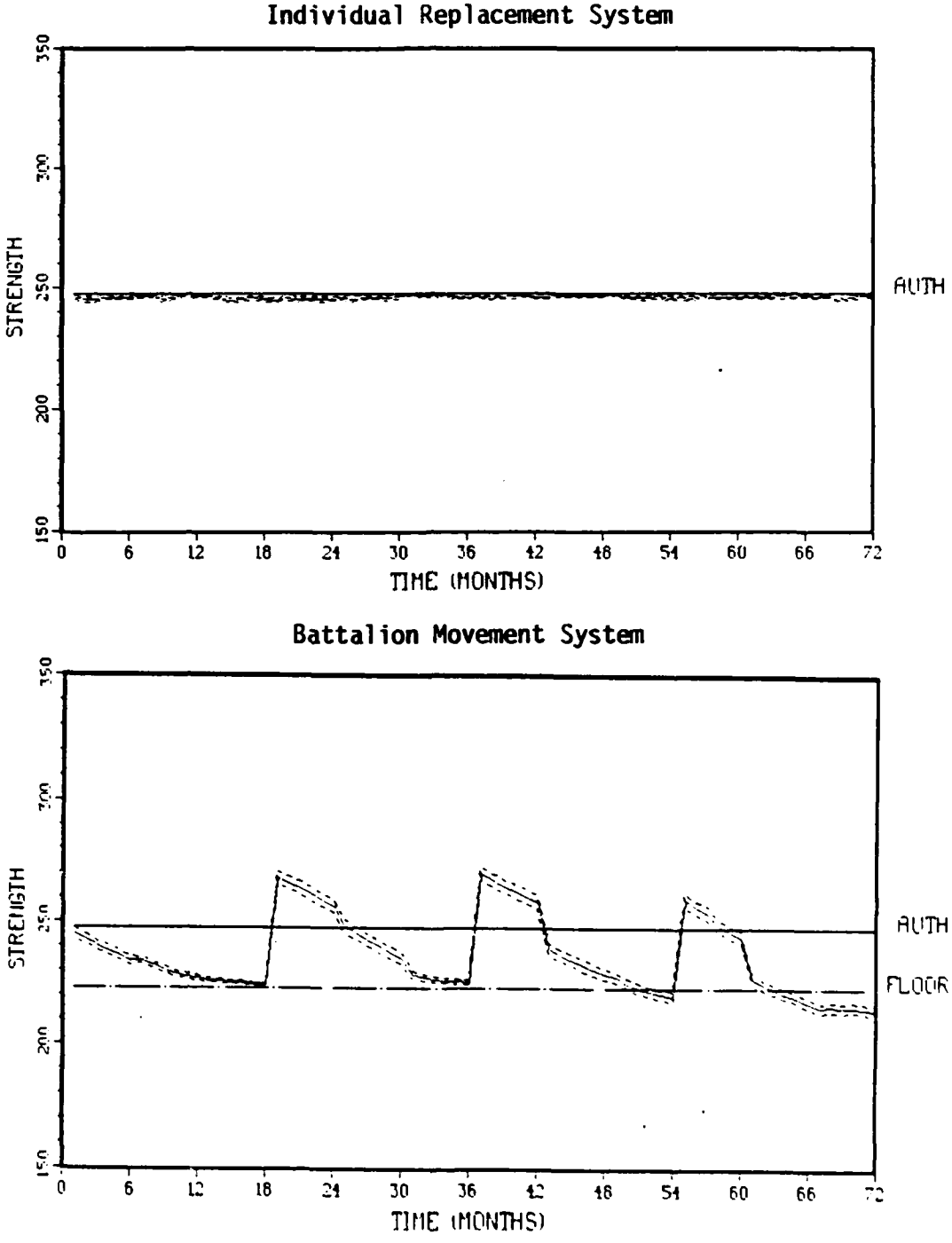


Figure H-XII-3. Battalion Unit Strength Profiles 34th Armor Regiment

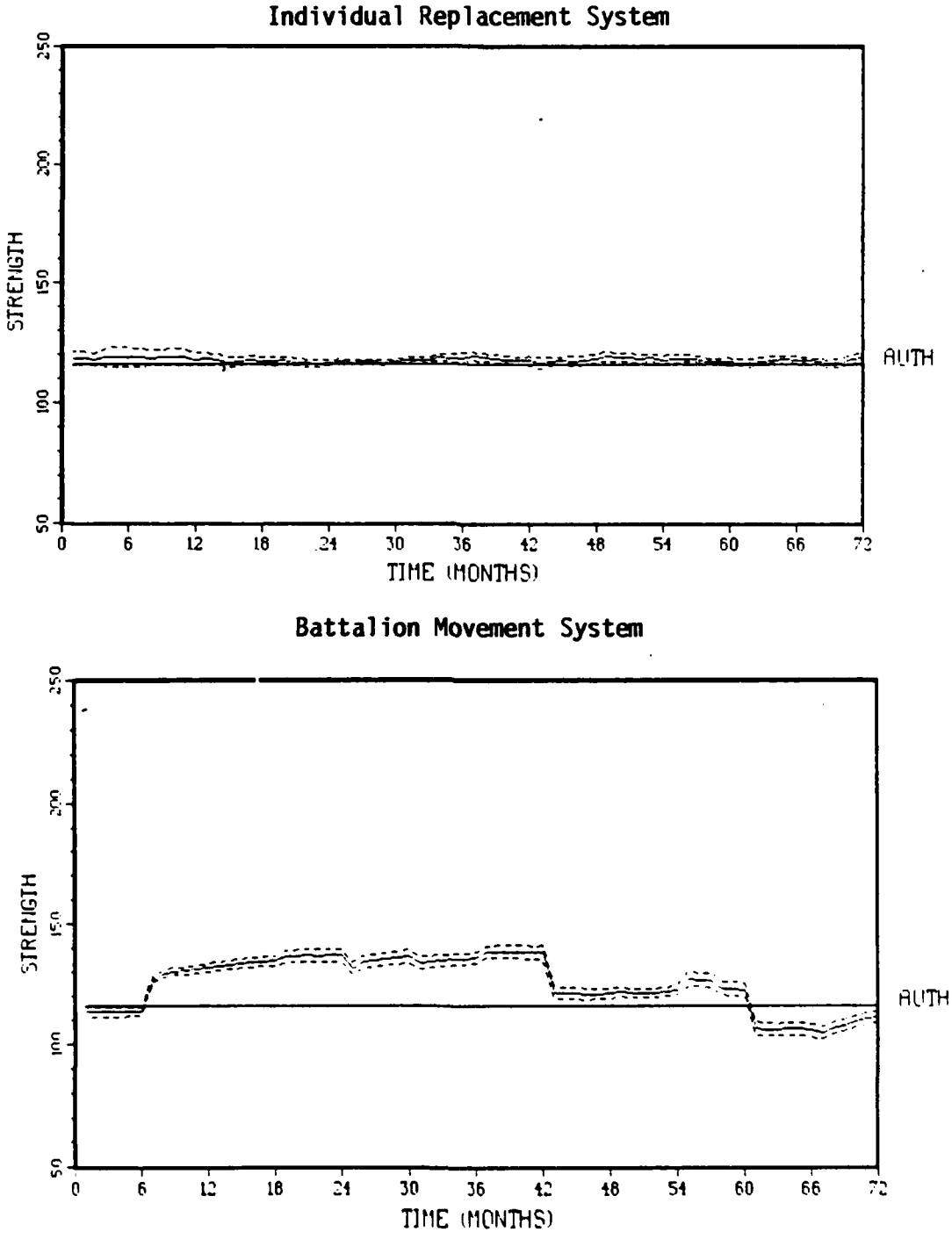
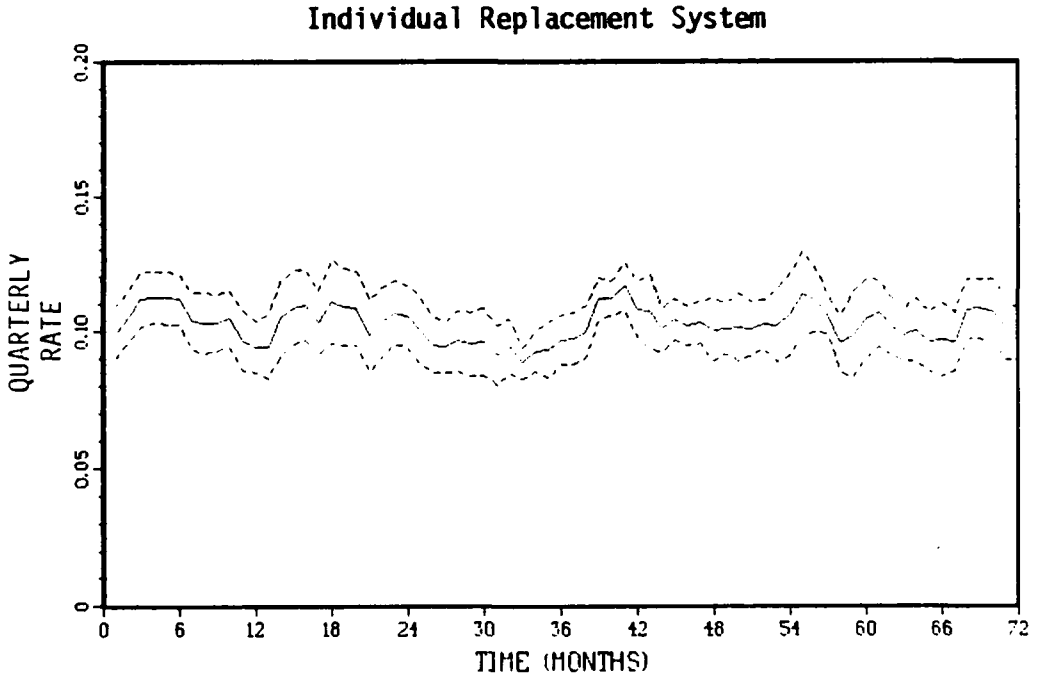


Figure H-XII-4. Battalion NCO Strength Profiles 34th Armor Regiment



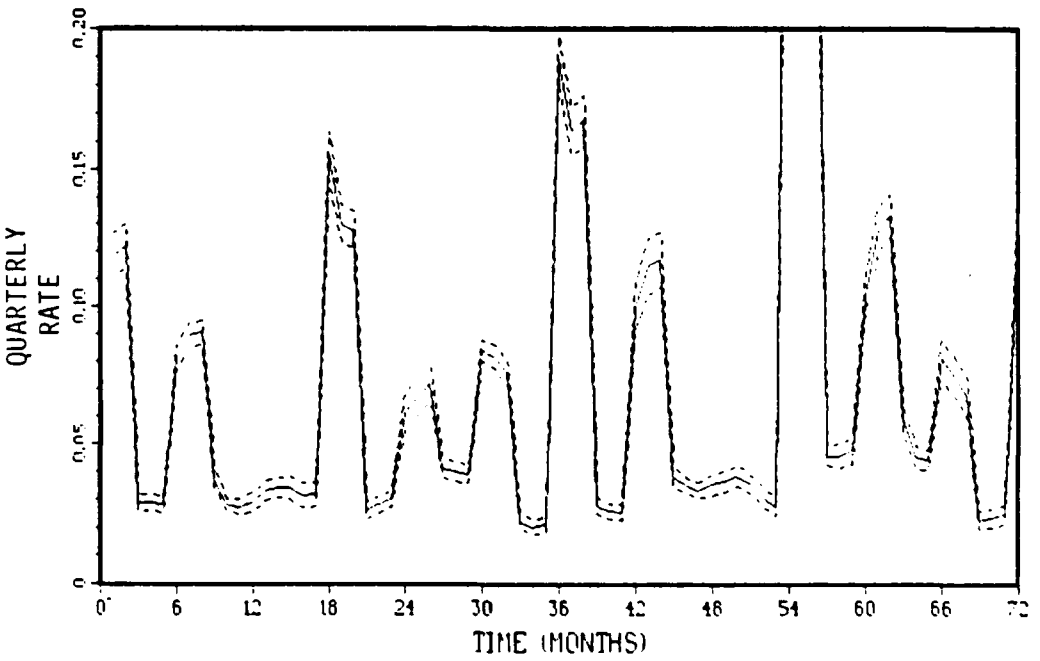


Figure H-XII-5. Battalion Turnover Profiles 34th Armor Regiment

ANNEX XIII TO APPENDIX H

77TH ARMOR REGIMENT, FORT CARSON, COLORADO

H-XIII-1. AUTHORIZATION DATA BY MOS:

	19D	19Q*	Total
Assigned TOE spaces	--	992	992
Allocated ERA spaces	--	185	185
Total authorizations	--	1,177	1,177

H-XIII-2. GRADE DISTRIBUTION DATA:

	19D	19Q	Total
E3	--	262	262
E4	--	298	298
E5	--	281	281
E6	--	178	178
E7	--	120	120
E8	--	38	38
Total authorizations	--	1,177	1,177

H-XIII-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	19D	19Q	Total
111/141	2-34 Armor	FT Carson	--	248	248
112/142	5-77 Armor	Germany	--	248	248
113/143	1-77 Armor	FT Carson	--	248	248
114/144	5-68 Armor	Germany	--	248	248
440/540	ERA	Germany	--	16	16
460	ERA	Other long tour	--	0	0
470	ERA	Short tour	--	27	27
410/510	ERA	FT Carson	--	4	4
430/530	ERA	Other CONUS	--	138	138
		Regimental totals	--	1,177	1,177

*19Q = 19E + 19K + 19Z

H-XIII-4. MOVEMENT SCHEME

a. 2-34 Armor rotates with 5-77 Armor.

b. 1-77 Armor rotates with 5-68 Armor.

c. The rotation points of the 1-77/5-68 pair are offset from the rotation points of the 2-34/5-77 pair by 18 months. This regiment therefore experiences a battalion rotation every 18 months.

H-XIII-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 77th Armor Regiment (both BMS and IRS).

(NOT USED)

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	UNDER 1 OF TIME	UNDER AVG NUM	OVER 1 OF TIME	OVER AVG NUM	AUTH AVG NUM
440	OCONUS																
	AUTH	1	0	0	0	2	1	1	5		5						
	AVERAGE	1	.0	.6	.7	1.3	1.0	.5	4.0	99.9	3.4	.2					
	TOT AUTH		0	0	0	2	1	1	5		5						
	TOT AVERAGE		.0	.6	.7	1.3	1.0	.5	4.0	99.9	3.4	.2	.0	.0	.0	.0	
540	OCONUS																
	AUTH	1	0	0	1	6	5	1	13		13						
	AVERAGE	1	.0	1.3	1.7	4.6	3.6	.9	12.0	99.7	10.7	1.0					
	TOT AUTH		0	0	1	6	5	1	13		13						
	TOT AVERAGE		.0	1.3	1.7	4.6	3.6	.9	12.0	99.7	10.7	1.0	.0	.0	.0	.0	
670	OCONUS																
	AUTH	1	10	10	0	5	3	1	29		8						
	AVERAGE	1	11.6	.7	.0	5.5	3.7	.8	22.2	79.2	9.9	1.9					
	TOT AUTH		10	10	0	5	3	1	29		8						
	TOT AVERAGE		11.6	.7	.0	5.5	3.7	.8	22.2	79.2	9.9	1.9	.0	.0	.0	.0	
910	CONUS																
	AUTH	1	0	0	0	1	0	0	1		1						
	AVERAGE	1	.0	.0	.0	1.0	.2	.0	1.0	100.0	1.0	.0					
	TOT AUTH		0	0	0	1	0	0	1		1						
	TOT AVERAGE		.0	.0	.0	1.0	.2	.0	1.0	100.0	1.0	.0	.0	.0	.0	.0	
510	CONUS																
	AUTH	1	0	0	1	1	0	0	2		2						
	AVERAGE	1	.2	23.8	1.5	5.5	1.0	1.3	35.4	*****	11.3	4.2					
	TOT AUTH		0	0	1	1	0	0	2		2						
	TOT AVERAGE		.2	23.8	1.5	5.5	1.0	1.3	35.4	*****	11.3	4.2	.0	.0	99.7	33.5	
930	CONUS																
	AUTH	1	1	2	3	13	9	1	30		27						
	AVERAGE	1	.2	1.8	5.1	13.0	8.5	1.4	30.0	100.0	28.1	1.0					
	TOT AUTH		1	2	3	13	9	1	30		27						
	TOT AVERAGE		.2	1.8	5.1	13.0	8.5	1.4	30.0	100.0	28.1	1.0	.0	.0	.0	.0	
530	CONUS																
	AUTH	1	3	6	7	55	31	6	108		99						
	AVERAGE	1	.5	7.7	20.8	46.8	26.5	5.6	107.9	99.9	99.7	4.4					
	TOT AUTH		3	6	7	55	31	6	108		99						
	TOT AVERAGE		.5	7.7	20.8	46.8	26.5	5.6	107.9	99.9	99.7	4.4	.0	.0	.0	.0	

Figure H-XIII-1. ERA Simulation Summary Report (IRS)
77th Armor Regiment

UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER RCD	AVE NUMBER T/O	NUMBER % OF TIME	FLR AVG NUM	OVER % OF TIME	AUTH AVG NUM
440	CONUS															
	AUTH AVERAGE		0 .0	0 .6	0 .4	7 1.0	1 .1	1 .8	9 3.9	96.6	9 3.3	.2				
	TOT AUTH AVERAGE		0 .0	0 .6	0 .4	7 1.0	1 .1	1 .8	9 3.9	96.6	9 3.3	.2	2.3	1.0	.0	.0
560	CONUS															
	AUTH AVERAGE		0 1.6	0 .2	1 .6	6 4.2	4 4.1	1 1.0	12 11.6	96.9	12 9.8	1.0				
	TOT AUTH AVERAGE		0 1.6	0 .2	1 .6	6 4.2	4 4.1	1 1.0	12 11.6	96.9	12 9.8	1.0	1.7	1.6	.0	.0
470	CONUS															
	AUTH AVERAGE		10 22.5	10 1.5	0 .4	4 1.0	3 2.1	1 .6	28 28.0	99.9	8 8.0	2.4				
	TOT AUTH AVERAGE		10 22.5	10 1.5	0 .4	4 1.0	3 2.1	1 .6	28 28.0	99.9	8 8.0	2.4	.0	.0	.0	.0
410	CONUS															
	AUTH AVERAGE		0 .0	0 .0	0 .2	1 .4	0 .4	0 .0	1 1.0	100.0	1 1.0	.0				
	TOT AUTH AVERAGE		0 .0	0 .0	0 .2	1 .4	0 .4	0 .0	1 1.0	100.0	1 1.0	.0	.0	.0	.0	.0
510	CONUS															
	AUTH AVERAGE	1 1	0 50.4	0 7.0	2 1.3	1 4.5	0 4.6	0 .8	7 68.5	*****	7 31.2	6.7				
	TOT AUTH AVERAGE		0 50.4	0 7.0	2 1.3	1 4.5	0 4.6	0 .8	7 68.5	*****	7 31.2	6.7	.0	.0	****	66.5
430	CONUS															
	AUTH AVERAGE		1 2.6	2 4.0	3 6.0	19 4.9	2 6.1	1 .6	30 25.2	84.1	27 16.6	.8				
	TOT AUTH AVERAGE		1 2.6	2 4.0	3 6.0	19 4.9	2 6.1	1 .6	30 25.2	84.1	27 16.6	.8	17.4	1.6	.0	.0
530	CONUS															
	AUTH AVERAGE		7 16.9	17.4	7 10.5	55 13.5	31 15.5	6 4.6	108 78.3	72.5	99 44.1	3.2				
	TOT AUTH AVERAGE		3 16.9	6 17.4	7 10.5	55 13.5	31 15.5	6 4.6	108 78.3	72.5	99 44.1	3.2	50.3	9.6	.0	.0

Figure H-XIII-2. ERA Simulation Summary Report (BMS)
77th Armor Regiment

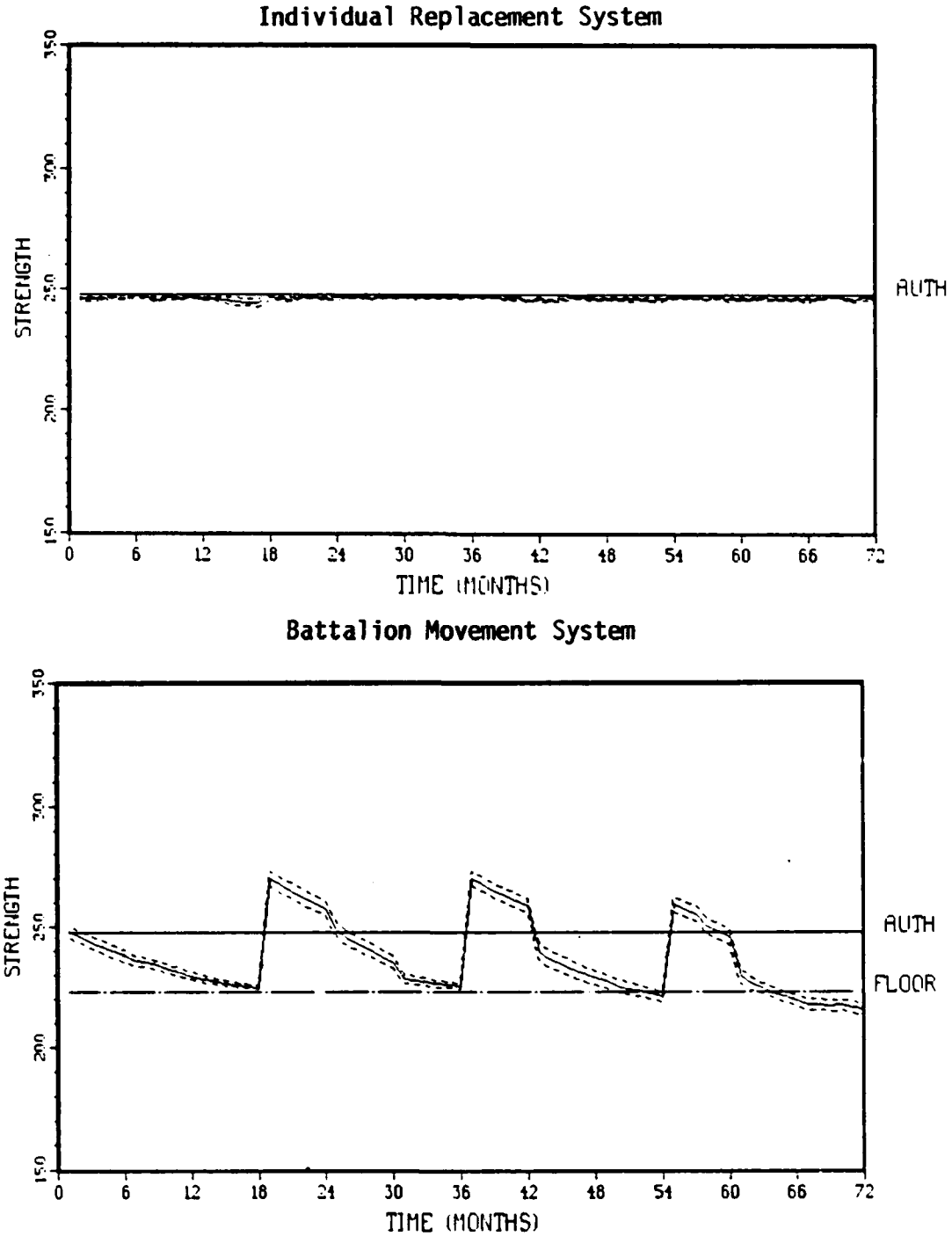
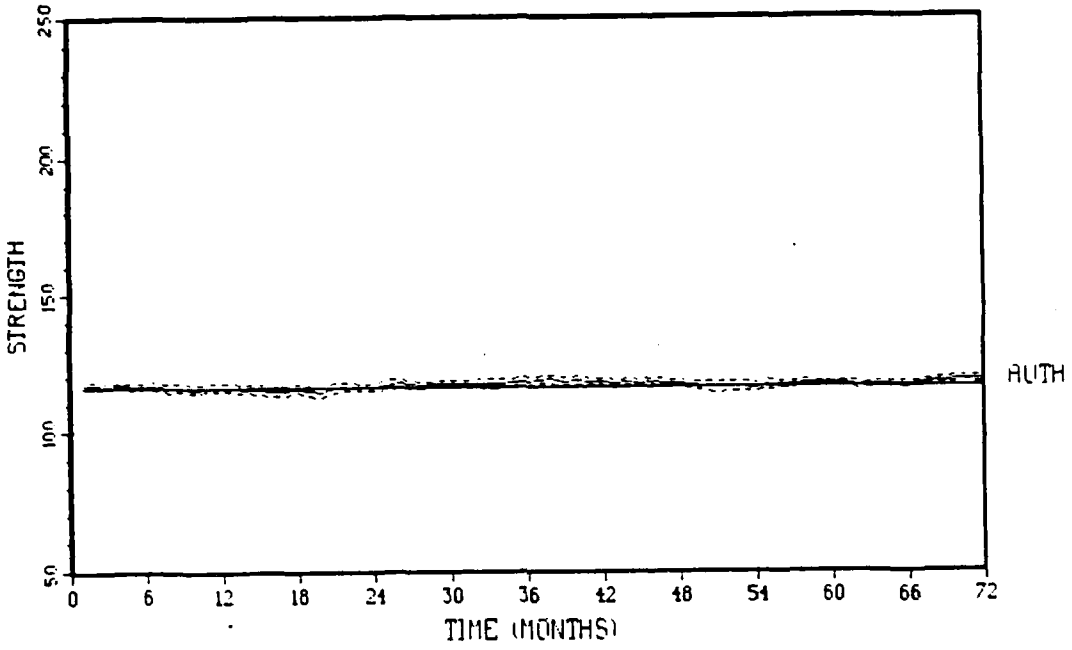


Figure H-XIII-3. Battalion Unit Strength Profiles
77th Armor Regiment

Individual Replacement System



Battalion Movement System

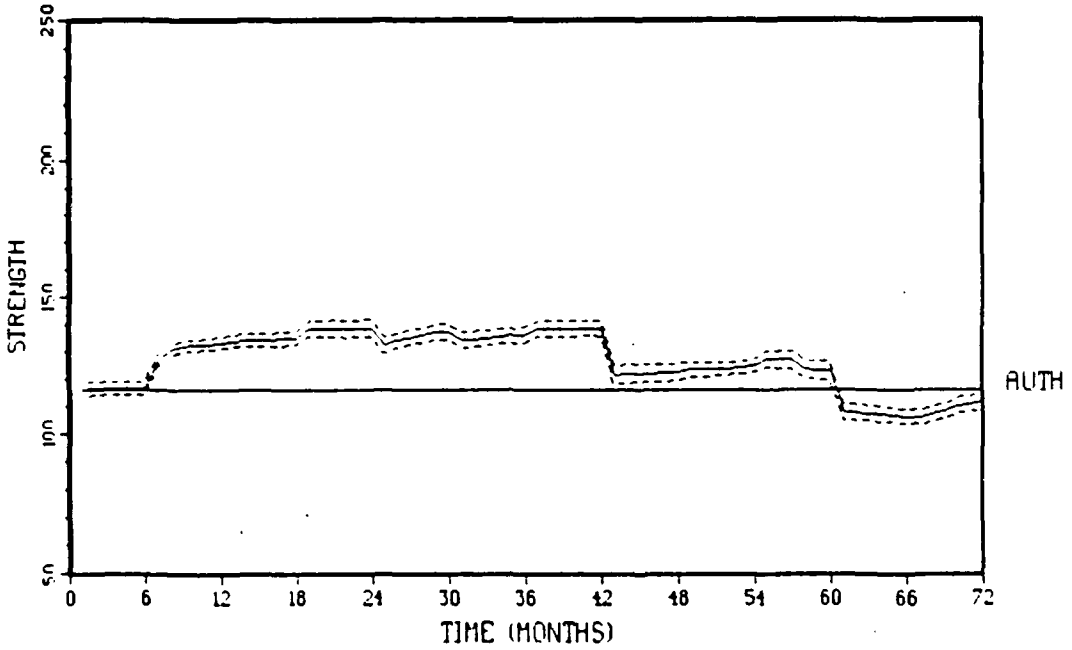


Figure H-XIII-4. Battalion NCO Strength Profiles
77th Armor Regiment

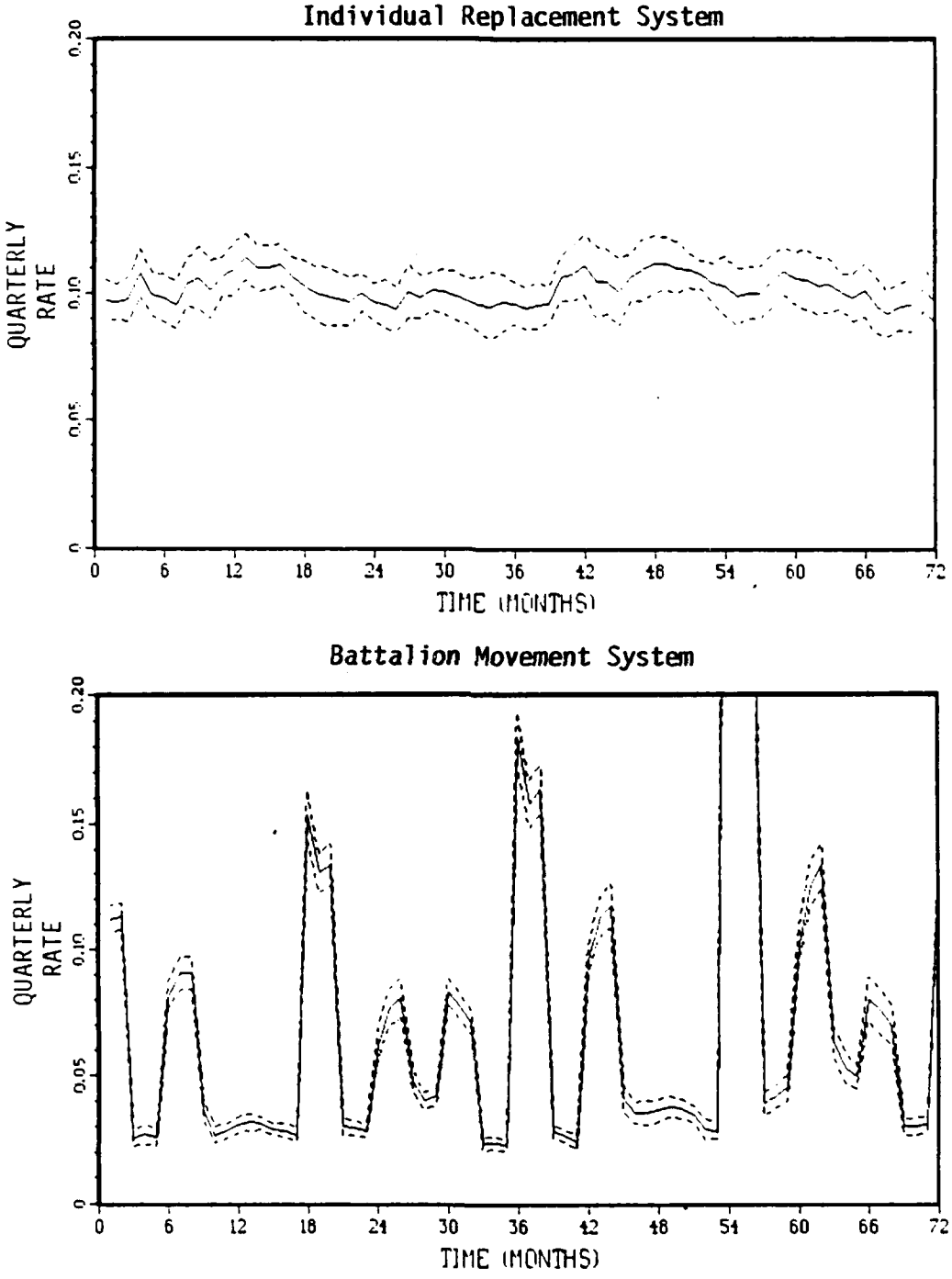


Figure H-XIII-5. Battalion Turnover Profiles 77th Armor Regiment

ANNEX XIV TO APPENDIX H

1ST CAVALRY REGIMENT, FT HOOD, TEXAS

H-XIV-1. AUTHORIZATION DATA BY MOS:

	19D	19Q*	Total
Assigned TOE spaces	1,017	14	1,031
Allocated ERA spaces	167	28	195
Total authorizations	1,184	42	1,226

H-XIV-2. GRADE DISTRIBUTION DATA:

	19D	19Q	Total
E3	230	--	230
E4	443	--	443
E5	237	--	237
E6	202	--	202
E7	72	--	72
E8	--	42	42
Total authorizations	1,184	42	1,226

H-XIV-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	19D	19Q	Total
111/141	4-12 Cav	FT Polk	138	4	142
112/142	1-1 Cav	Germany	138	4	142
343	1-1 Cav (-)	Germany	61	1	62
314	2-1 Cav	FT Hood	205	4	209
345	D/2-1 Cav (-)	Germany	7	1	8
316	Scout Plt	FT Hood	120	--	120
317	Scout Plt	FT Polk	86	--	86
348	Scout Plt	Germany	262	--	262
440/540	ERA	Germany	2	--	2
460	ERA	Other long tour	15	4	19
470	ERA	Short tour	28	2	30
410/510	ERA	FT Hood	10	--	10
430/530	ERA	Other CONUS	112	22	134
		Regimental totals	1,184	42	1,226

*19Q = 19E + 19K + 19Z

H-XIV-4. MOVEMENT SCHEME

a. 4-12 Cavalry and a portion of the 1-1 Cavalry rotate with one another.

b. The rotation of the individual scout platoons would be in accordance with the rotation schedule of their respective parent infantry battalions.

c. The remaining cavalry units do not rotate.

H-XIV-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 1st Cavalry Regiment (both BMS and IRS).

(NOT USED)

•••••••••• UNIT STRENGTH AVERAGES ••••••••••

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-3	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER MCO	AVE NUMBER T/O	NUMBER # OF TIME	FLRS AVG NUM	OVER # OF TIME	AUTHS AVG NUM
440	OCONUS															
	AUTH AVERAGE	1	0 .0	0 .0	0 .0	0 .0	1 1.0	0 .0	1 1.1	105.9	1 1.1	.0				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .1	0 .1	9.7	0 .1	.0				
	TOT AUTH TOT AVERAGE		0 .0	0 .0	0 .0	0 .0	1 1.0	0 .1	1 1.2	115.6	1 1.2	.0	.0	.0	15.6	1.0
540	OCONUS															
	AUTH AVERAGE	1 1	0 .0	0 .0	0 .0	0 .0	1 1.0	0 .0	1 1.0	99.3	1 1.0	.1				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .1	0 .1	7.6	0 .1	.0				
	TOT AUTH TOT AVERAGE		0 .0	0 .0	0 .0	0 .0	1 1.0	0 .1	1 1.1	106.9	1 1.1	.0	.0	.0	7.3	1.0
960	OCONUS															
	AUTH AVERAGE	1 1	0 .0	0 .3	0 .9	12 10.1	3 3.2	0 .0	15 14.5	96.7	15 14.2	.5				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	3 3.9	3 3.9	97.4	3 3.9	.2				
	TOT AUTH TOT AVERAGE		0 .0	0 .3	0 .9	12 10.1	3 3.2	3 3.9	19 18.4	96.8	19 18.1	.8	.0	.0	5.0	1.0
970	OCONUS															
	AUTH AVERAGE	1 1	5 7.4	11 11.5	0 1.7	10 8.9	2 2.1	0 .0	28 29.5	69.7	12 10.6	1.6				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	2 1.7	2 1.7	85.4	2 1.7	.2				
	TOT AUTH TOT AVERAGE		5 7.4	11 11.5	0 1.7	10 8.9	2 2.1	2 1.7	30 31.2	70.7	14 12.4	.9	.0	.0	.5	1.0
410	CONUS															
	AUTH AVERAGE	1 1	0 .1	1 1.7	0 .4	1 1.0	1 1.9	0 .0	3 5.0	100.0	2 2.2	.1				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	3 3.9	3 3.9	97.3	3 3.9	.1				
	TOT AUTH TOT AVERAGE		0 .1	1 1.7	0 .4	1 1.0	1 1.9	3 3.9	7 8.9	98.4	5 6.1	.1	.0	.0	5.0	1.0
510	CONUS															
	AUTH AVERAGE	1 1	0 1.3	1 20.8	1 6.5	3 7.2	2 .9	0 .0	7 36.7	529.5	6 18.6	2.8				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	18 17.2	18 17.2	67.5	18 17.2	.8				
	TOT AUTH TOT AVERAGE		0 1.3	1 20.8	1 6.5	3 7.2	2 .9	18 17.2	25 53.9	195.5	24 35.8	3.7	.0	.0	58.8	24.2
430	CONUS															
	AUTH AVERAGE	1 1	9 1.3	0 2.1	5 5.6	7 7.4	6 5.4	0 .0	27 21.9	99.4	18 18.5	.7				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	9 7.1	9 7.1	105.6	9 7.1	.1				
	TOT AUTH TOT AVERAGE		9 1.3	0 2.1	5 5.6	7 7.4	6 5.4	9 7.1	33 22.9	104.2	18 19.6	.8	.0	.0	53.8	1.8
530	CONUS															
	AUTH AVERAGE	1	12 4.0	0 .9	29 22.9	18 18.7	14 14.0	0 .0	73 60.5	98.3	71 72.6	4.1				
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	1 1.7	1 1.7	172.0	1 1.7	.2				
	TOT AUTH TOT AVERAGE		12 4.0	0 .9	29 22.9	18 18.7	14 14.0	1 1.7	73 60.2	100.2	71 74.4	2.1	.0	.0	49.5	2.1

Figure H-XIV-1. ERA Simulation Summary Report (IRS)
1st Cavalry Regiment

********** UNIT STRENGTH AVERAGES **********

UNIT	PLACE	MOS		E-1	E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	UNDER % OF TIME	FLRO AVG NUM	OVER % OF TIME	AUTHO AVG NUM
				AVERAGE STRENGTH BY GRADE													
[illegible]	OCONUS																
		1	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .1	1 / .9	0 / .0	1 / 1.0	96.9	1 / 1.0	.0				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / .2	0 / .2	18.0	0 / .2	.0				
			TOT AUTH / TOT AVERAGE	0 / .0	0 / .0	0 / .0	0 / .1	1 / .9	0 / .2	1 / 1.2	115.3	1 / 1.2	.0	1.6	1.0	16.8	1.0
[illegible]	OCONUS																
		1	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .1	1 / .8	0 / .0	1 / .9	93.2	1 / .9	.1				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / .1	0 / .1	8.7	0 / .1	.0				
			TOT AUTH / TOT AVERAGE	0 / .0	0 / .0	0 / .0	0 / .1	1 / .8	0 / .1	1 / 1.0	101.9	1 / 1.0	.0	5.2	1.0	7.1	1.0
[illegible]	OCONUS																
		1	AUTH / AVERAGE	0 / .0	0 / .0	0 / .9	12 / 9.3	3 / 3.4	0 / .0	15 / 13.6	90.7	15 / 13.6	.5				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	4 / 3.8	4 / 3.8	91.9	4 / 3.8	.2				
			TOT AUTH / TOT AVERAGE	0 / .0	0 / .0	0 / .9	12 / 9.3	3 / 3.4	4 / 3.8	19 / 17.4	91.4	19 / 17.4	.3	3.6	1.9	3.3	1.0
[illegible]	OCONUS																
		1	AUTH / AVERAGE	5 / 21.5	11 / .0	0 / .2	10 / 8.4	2 / 1.9	0 / .0	28 / 28.0	100.0	12 / 8.4	2.4				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	2 / 1.6	2 / 1.6	81.9	2 / 1.6	.2				
			TOT AUTH / TOT AVERAGE	5 / 21.5	11 / .0	0 / .2	10 / 8.4	2 / 1.9	2 / 1.6	30 / 29.6	98.8	14 / 8.1	1.3	.0	.0	3.6	1.0
[illegible]	CONUS																
		1	AUTH / AVERAGE	0 / .5	1 / .4	0 / .2	1 / .9	1 / 1.0	0 / .0	3 / 3.0	99.8	2 / 2.1	.1				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	4 / 3.4	4 / 3.8	98.6	4 / 3.8	.1				
			TOT AUTH / TOT AVERAGE	0 / .5	1 / .4	0 / .2	1 / .9	1 / 1.0	4 / 3.8	7 / 6.8	96.8	6 / 5.9	.1	1.6	1.0	7.3	1.0
[illegible]	CONUS																
		1	AUTH / AVERAGE	0 / 159.4	1 / 6.1	1 / 1.2	3 / 6.9	2 / 2.1	0 / .0	7 / 173.7	*****	6 / 10.2	11.8				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	18 / 11.5	18 / 11.5	64.0	18 / 11.5	.6				
			TOT AUTH / TOT AVERAGE	0 / 159.4	1 / 6.1	1 / 1.2	3 / 6.9	2 / 2.1	18 / 11.5	25 / 188.2	790.8	24 / 21.7	6.2	.0	.0	****	****
[illegible]	CONUS																
		1	AUTH / AVERAGE	9 / 5.1	0 / 4.3	5 / 1.6	7 / 6.1	6 / 5.0	0 / .0	22 / 22.0	99.9	18 / 12.7	.7				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / 1.1	0 / 1.3	131.6	0 / 1.3	.1				
			TOT AUTH / TOT AVERAGE	9 / 5.1	0 / 4.3	5 / 1.6	7 / 6.1	6 / 5.0	0 / 1.1	22 / 23.1	105.9	18 / 14.0	.4	.0	.0	75.9	1.7
[illegible]	CONUS																
		1	AUTH / AVERAGE	19 / 44.6	0 / 14.2	20 / 4.2	10 / 12.6	21 / 12.3	0 / .0	90 / 90.0	100.0	71 / 29.2	4.1				
		2	AUTH / AVERAGE	0 / .0	0 / .0	0 / .0	0 / .0	0 / .0	0 / 1.7	0 / 1.7	175.9	0 / 1.7	.2				
			TOT AUTH / TOT AVERAGE	19 / 44.6	0 / 14.2	0 / 4.2	10 / 12.6	21 / 12.3	0 / 1.7	95 / 91.7	101.9	71 / 30.9	2.1	.0	.0	71.5	2.4

Figure H-XIV-2. ERA Simulation Summary Report (BMS)
1st Cavalry Regiment

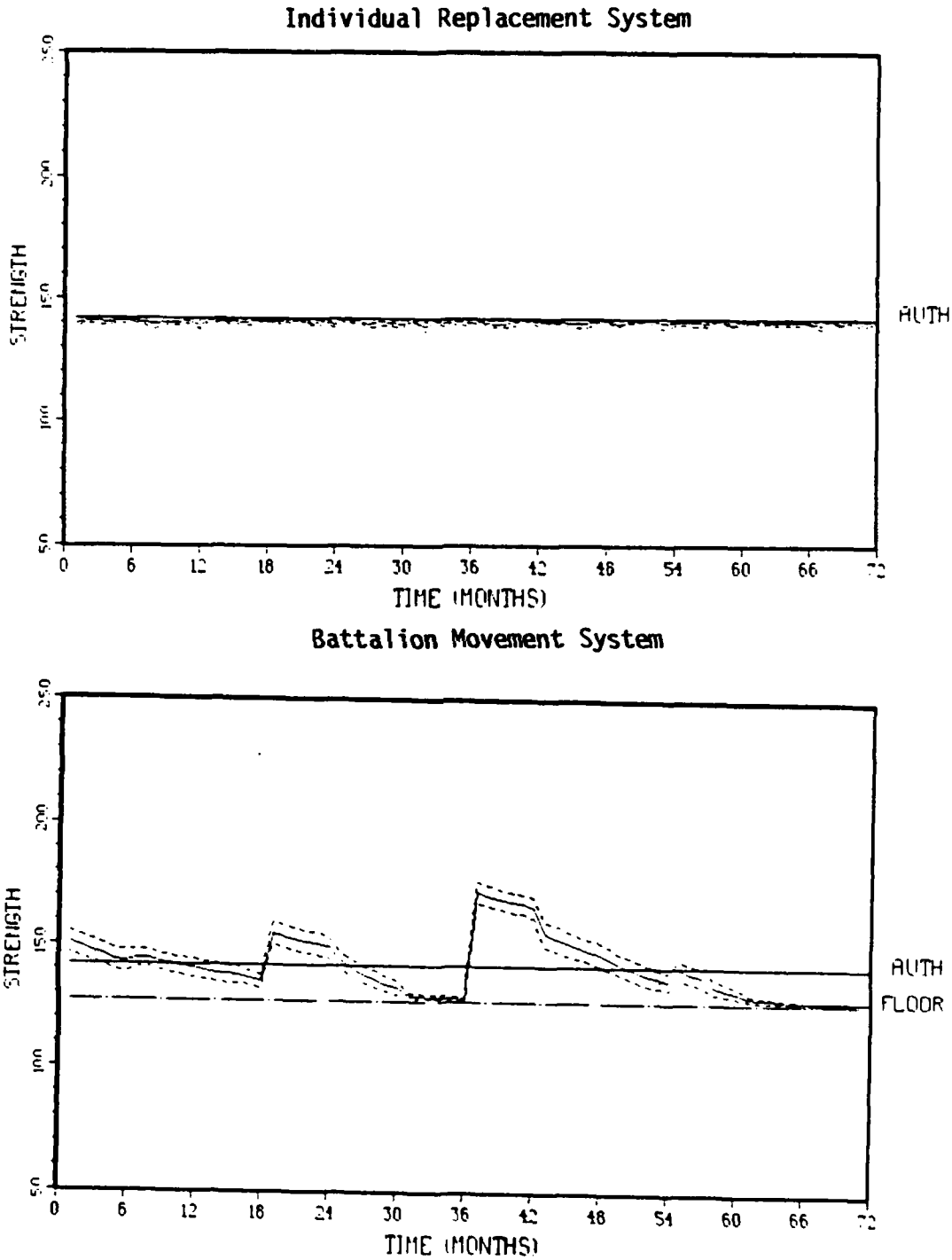


Figure H-XIV-3. Battalion Unit Strength Profiles
1st Cavalry Regiment

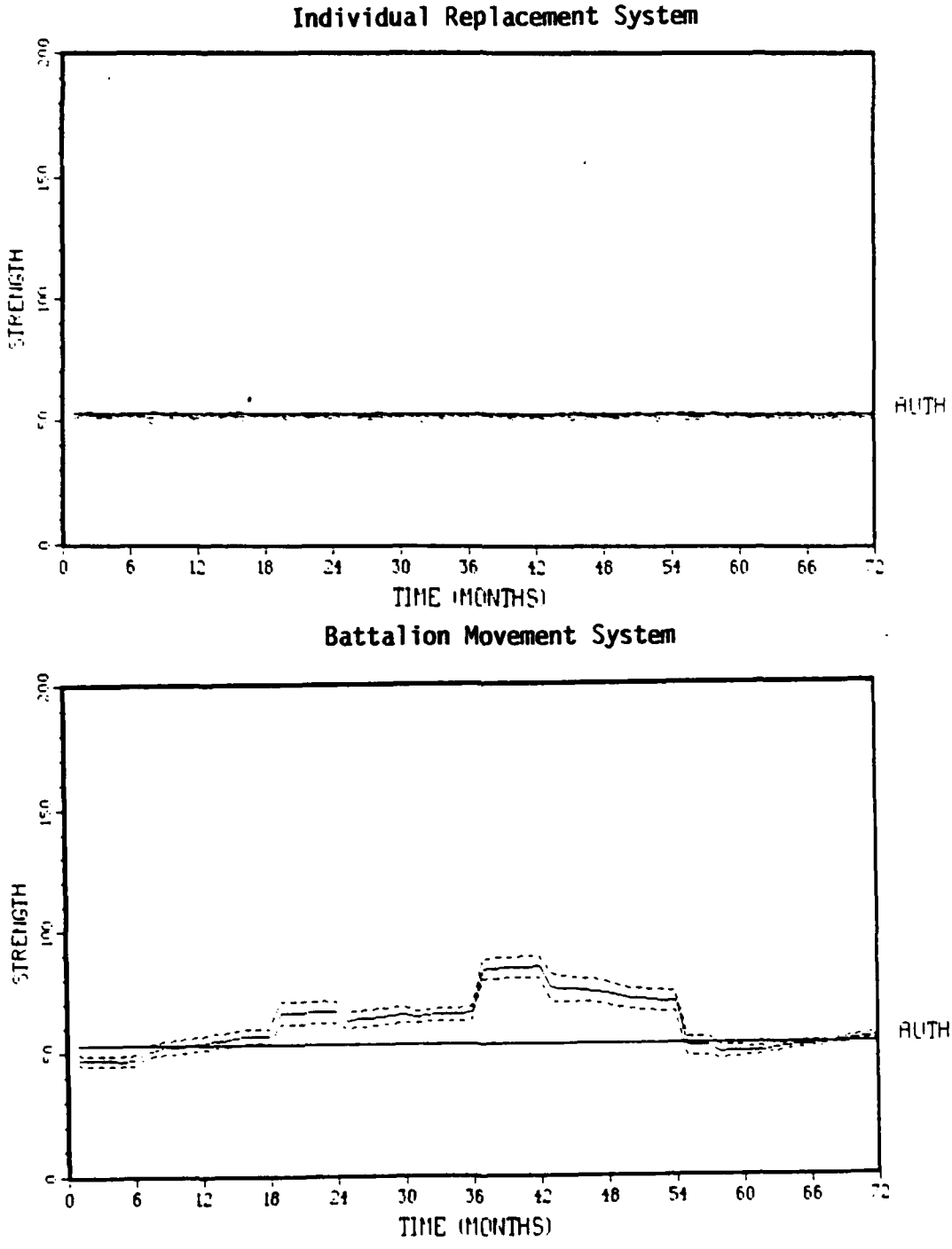


Figure H-XIV-4. Battalion NCO Strength Profiles 1st Cavalry Regiment

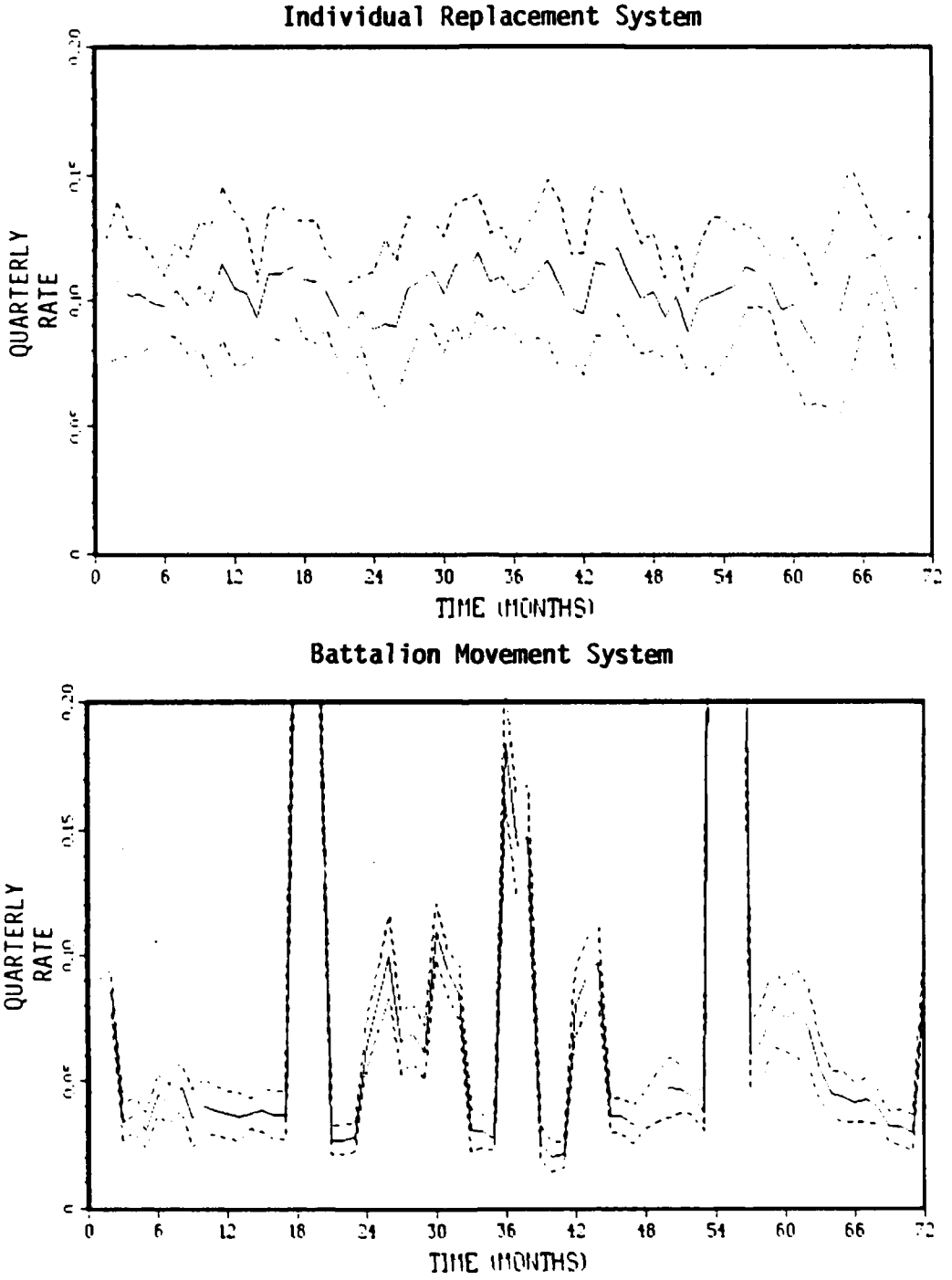


Figure H-XIV-5. Battalion Turnover Profiles
1st Cavalry Regiment

ANNEX XV TO APPENDIX H

4TH CAVALRY REGIMENT, FT RILEY, KANSAS

H-XV-1. AUTHORIZATION DATA BY MOS:

	19D	19Q*	Total
Assigned TOE spaces	1,508	15	1,523
Allocated ERA spaces	333	57	390
Total authorizations	1,841	72	1,913

H-XV-2. GRADE DISTRIBUTION DATA:

	19D	19Q	Total
E3	357	--	357
E4	709	--	709
E5	330	1	331
E6	323	1	324
E7	122	1	123
E8	--	69	69
Total authorizations	1,841	72	1,913

H-XV-3. LOCATION DISTRIBUTION DATA:

Assignment code	Unit/pool	Location	19D	19Q	Total
111/141	1-4 Cav	FT Riley	205	4	209
112/142	3-7 Cav	Germany	205	4	209
323	A/15 Cav	FT Benning	91	2	93
324	2-9 Cav	FT Stewart	138	4	142
345	3-7 Cav (-)	Germany	35	1	36
317	Scout Plt	FT Riley	320	--	320
328	Scout Plt	FT Stewart	203	--	203
349	Scout Plt	Germany	311	--	311
440/540	ERA	Germany	87	--	87
460	ERA	Other long tour	20	1	21
470	ERA	Short tour	37	1	38
410/510	ERA	FT Riley	2	--	2
430/530	ERA	Other CONUS	187	55	242
		Regimental totals	1,841	72	1,913

*19Q = 19E + 19K + 19Z

H-XV-4. MOVEMENT SCHEME

a. 1-4 Cavalry and a portion of the 3-7 Cavalry rotate with one another.

b. The rotation of the individual scout platoons would be in accordance with the rotation schedule of their respective parent infantry battalions.

c. The remaining cavalry units do not rotate.

H-XV-5. SIMULATION RESULTS. The following figures provide the ERA simulation summary reports, the unit strength profiles, NCO strength profiles, and turnover profiles for the 4th Cavalry Regiment (both BMS and IRS).

(NOT USED)

UNIT STRENGTH AVERAGES

AVERAGE STRENGTH BY GRADE

UNIT	PHASE	MOS	E-3	E-4	E-5	E-6	E-7	E-8	AVG TOTAL NUMBER	PRCNT TOTAL	AVG NUMBER MCO	AVG NUMBER T/O	UNDER % OF TIME	UNDER AVG NUM	OVER % OF TIME	OVER AVG NUM	AUTHO AVG NUM
44U	OCONUS																
	AUTH AVERAGE	1	0 5.6	10 8.3	0 .1	6 5.8	3 3.2	0 .0	19 18.9	99.7	9 9.1	.7					
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .6	0 .6	64.8	0 .6	.1					
	TOT AUTH AVERAGE		0 5.6	10 8.3	0 .1	6 5.9	3 3.2	0 .6	19 19.6	103.1	9 9.7	.9	.0	.0	53.6		1.2
54J	OCONUS																
	AUTH AVERAGE	1	0 12.9	35 20.8	0 .0	23 23.0	9 9.2	0 .0	67 65.9	98.3	32 32.1	5.6					
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .0	0 .0	0 .7	0 .7	79.3	0 .7	.1					
	TOT AUTH AVERAGE		0 12.9	35 20.8	0 .0	23 23.0	9 9.2	0 .7	67 66.6	99.5	32 32.9	2.9	.0	.0	37.8		1.3
96C	OCONUS																
	AUTH AVERAGE	1	0 11.1	20 8.5	0 .0	0 .0	0 .0	0 .0	20 19.6	98.2	0 .0	.8					
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .4	0 .5	1 .0	0 .0	1 .9	88.2	1 .9	.0					
	TOT AUTH AVERAGE		0 11.1	20 8.5	0 .4	0 .5	1 .0	0 .0	21 20.5	97.7	1 .9	.9	.0	.0	.5		1.0
93[illegible]	OCONUS																
	AUTH AVERAGE	1	8 21.3	20 9.0	0 .0	7 6.9	3 2.2	0 .0	37 34.4	93.0	9 9.1	2.9					
	AUTH AVERAGE	2 3	0 .0	0 .0	0 .0	0 .0	0 .0	1 1.1	1 1.1	112.3	1 1.1	.1					
	TOT AUTH AVERAGE		8 21.3	20 9.0	0 .0	7 6.9	3 2.2	1 1.1	38 35.5	93.5	10 10.2	1.5	.0	.0	6.1		1.1
11[illegible]	CONUS																
	AUTH AVERAGE	1	0 8.4	2 7.1	0 .1	1 1.8	1 1.6	0 .0	2 18.0	901.6	2 2.5	1.2					
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .3	0 .0	0 .0	0 .0	0 .3	33.5	0 .3	.0					
	TOT AUTH AVERAGE		0 8.4	0 7.1	0 .4	1 1.8	1 1.6	0 .0	2 18.4	918.0	2 2.9	.6	.0	.0	91.1		18.0
63C	CONUS																
	AUTH AVERAGE	1	8 8.9	3 3.6	3 3.6	15 13.7	11 10.2	0 .0	39 38.9	99.6	29 30.4	1.3					
	AUTH AVERAGE	2 2	0 .0	0 .0	0 .0	0 .1	0 .0	11 10.2	11 10.3	93.7	16 16.3	.4					
	TOT AUTH AVERAGE		8 8.9	3 3.6	3 3.6	15 13.7	11 10.2	11 10.2	50 49.2	98.3	48 46.8	.8	.0	.0	6.3		1.0
63J	CONUS																
	AUTH AVERAGE	1	10 10.5	6 16.3	11 11.2	23 23.3	33 37.1	0 .0	129 148.3	99.5	113 121.6	5.9					
	AUTH AVERAGE	2 3	0 .0	0 .0	0 .6	1 .3	0 .0	43 36.7	44 37.6	85.4	44 37.6	.9					
	TOT AUTH AVERAGE		10 10.5	6 16.3	11 11.8	24 23.6	33 37.1	43 36.7	173 185.8	96.3	157 159.1	3.9	.0	.0	.0		.0

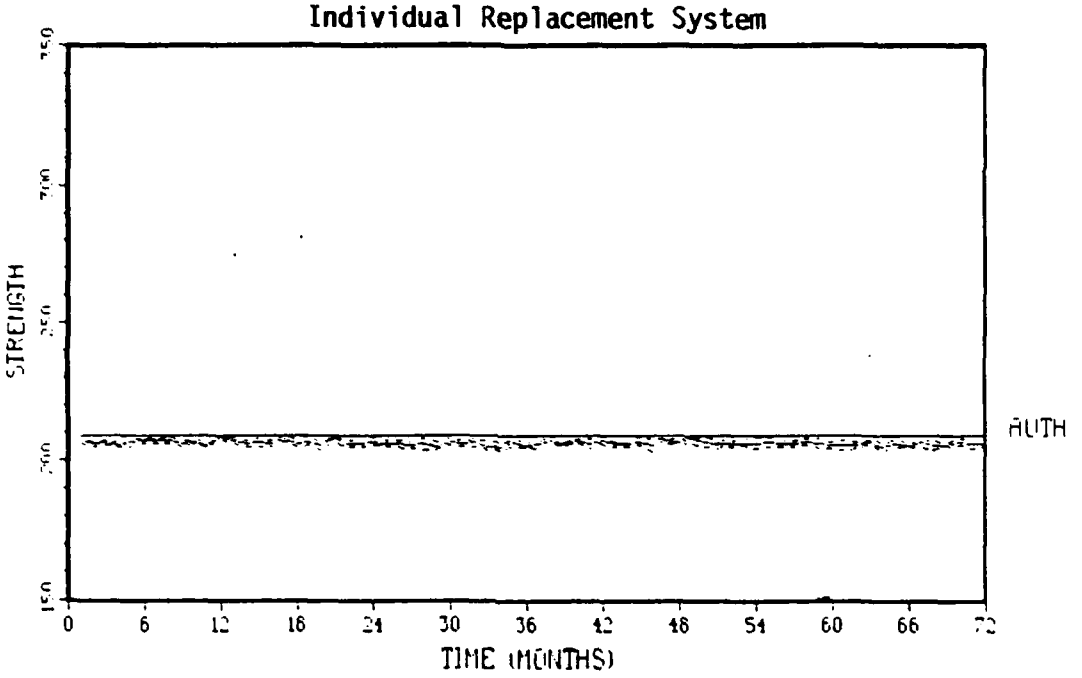
Figure H-XV-1. ERA Simulation Summary Report (IRS)
4th Cavalry Regiment

UNIT STRENGTH AVERAGES

UNIT	PHASE	MOS	AVERAGE STRENGTH BY GRADE E-4	E-5	E-6	E-7	E-8	AVE TOTAL NUMBER	PRCNT TOTAL	AVE NUMBER NCO	AVE NUMBER T/O	NUMBER % OF TIME	AVG NUM	OVER % OF TIME	AVG NUM
99	OPONUS														
	AUTH	1	0	10	0	6	3	19		9					
	AVERAGE	1	7.0	3.3	.0	5.2	3.1	19.0	100.0	8.7	.7				
	AUTH	2	0	0	0	0	0	0		0					
	AVERAGE	2	.0	.0	.0	.0	.5	.5	96.9	.5	.0				
10	TOT AUTH		0	10	0	6	3	19		9					
10	TOT AVERAGE		7.0	3.3	.0	5.2	3.1	19.5	102.5	9.2	.9	.0	.0	37.3	1.3
98	OPONUS														
	AUTH	1	0	35	0	23	9	67		32					
	AVERAGE	1	38.7	.0	1.3	19.6	8.9	67.0	100.0	28.3	5.7				
	AUTH	2	0	0	0	0	0	0		0					
	AVERAGE	2	.0	.0	.0	.0	1.0	1.0	98.6	1.0	.1				
10	TOT AUTH		0	35	0	23	9	67		32					
10	TOT AVERAGE		38.7	.0	1.3	19.6	8.9	69.0	131.5	29.3	2.9	.0	.0	62.2	1.6
96	OPONUS														
	AUTH	1	0	20	0	0	0	20		0					
	AVERAGE	1	13.1	6.9	.0	.0	.0	20.0	100.0	.0	.8				
	AUTH	2	0	0	0	0	1	1		1					
	AVERAGE	2	.0	.0	.2	.2	.9	.9	88.9	.9	.0				
10	TOT AUTH		0	20	0	0	1	21		1					
10	TOT AVERAGE		13.1	6.9	.2	.2	.9	20.9	99.5	.9	.9	.0	.0	9.5	1.0
97	OCONUS														
	AUTH	1	8	20	0	7	2	37		9					
	AVERAGE	1	29.8	.0	.2	5.1	1.9	37.0	100.0	7.2	3.2				
	AUTH	2	0	0	0	0	1	1		1					
	AVERAGE	2	.0	.0	.0	.0	1.1	1.1	105.9	1.1	.1				
10	TOT AUTH		8	20	0	7	2	38		10					
10	TOT AVERAGE		29.8	.0	.2	5.1	1.9	38.1	100.2	8.2	1.7	.0	.0	5.9	1.0
1	CONUS														
	AUTH	1	0	0	0	1	1	2		2					
	AVERAGE	1	117.9	.0	.3	1.9	4.9	124.1	*****	6.6	13.0				
	AUTH	2	0	0	0	0	0	0		0					
	AVERAGE	2	.0	.0	.0	.0	3.8	3.9	385.2	3.9	.1				
10	TOT AUTH		0	0	0	1	1	2		2					
10	TOT AVERAGE		117.9	.0	.3	1.9	4.9	127.9	*****	10.5	6.6	.0	.0	****	****
1	CENUS														
	AUTH	1	8	7	3	15	11	39		29					
	AVERAGE	1	8.1	8.0	2.8	8.9	10.5	38.2	98.0	22.2	1.3				
	AUTH	2	0	0	0	0	0	11		11					
	AVERAGE	2	.0	.0	.0	.2	.1	10.2	95.9	10.5	.9				
10	TOT AUTH		8	7	3	15	11	50		40					
10	TOT AVERAGE		8.1	8.0	2.8	9.1	10.6	10.2	48.7	97.9	32.7	.8	.0	.0	6.9	1.0
1	CENUS														
	AUTH	1	30	6	11	59	93	0	199	113					
	AVERAGE	1	69.6	20.5	5.8	27.6	21.0	.0	134.6	90.5	49.9	6.1			
	AUTH	2	0	0	0	1	0	93	99	39					
	AVERAGE	2	.0	.0	.0	.3	.3	28.6	29.6	57.2	29.6	.8			
10	TOT AUTH		30	6	11	60	93	93	193	157					
10	TOT AVERAGE		69.6	20.5	6.2	27.9	21.3	28.6	164.2	85.1	79.0	3.9	4.0	2.9	.0	.0

Figure H-XV-2. ERA Simulation Summary Report (BMS)
4th Cavalry Regiment

Individual Replacement System



Battalion Movement System

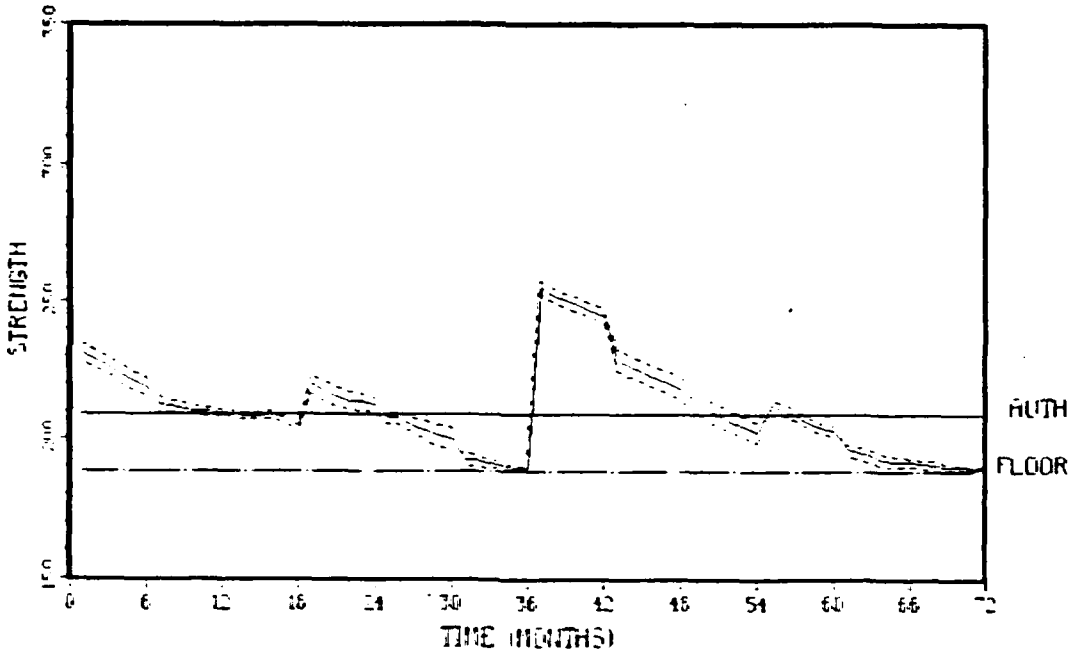


Figure H-XV-3. Battalion Unit Strength Profiles
4th Cavalry Regiment

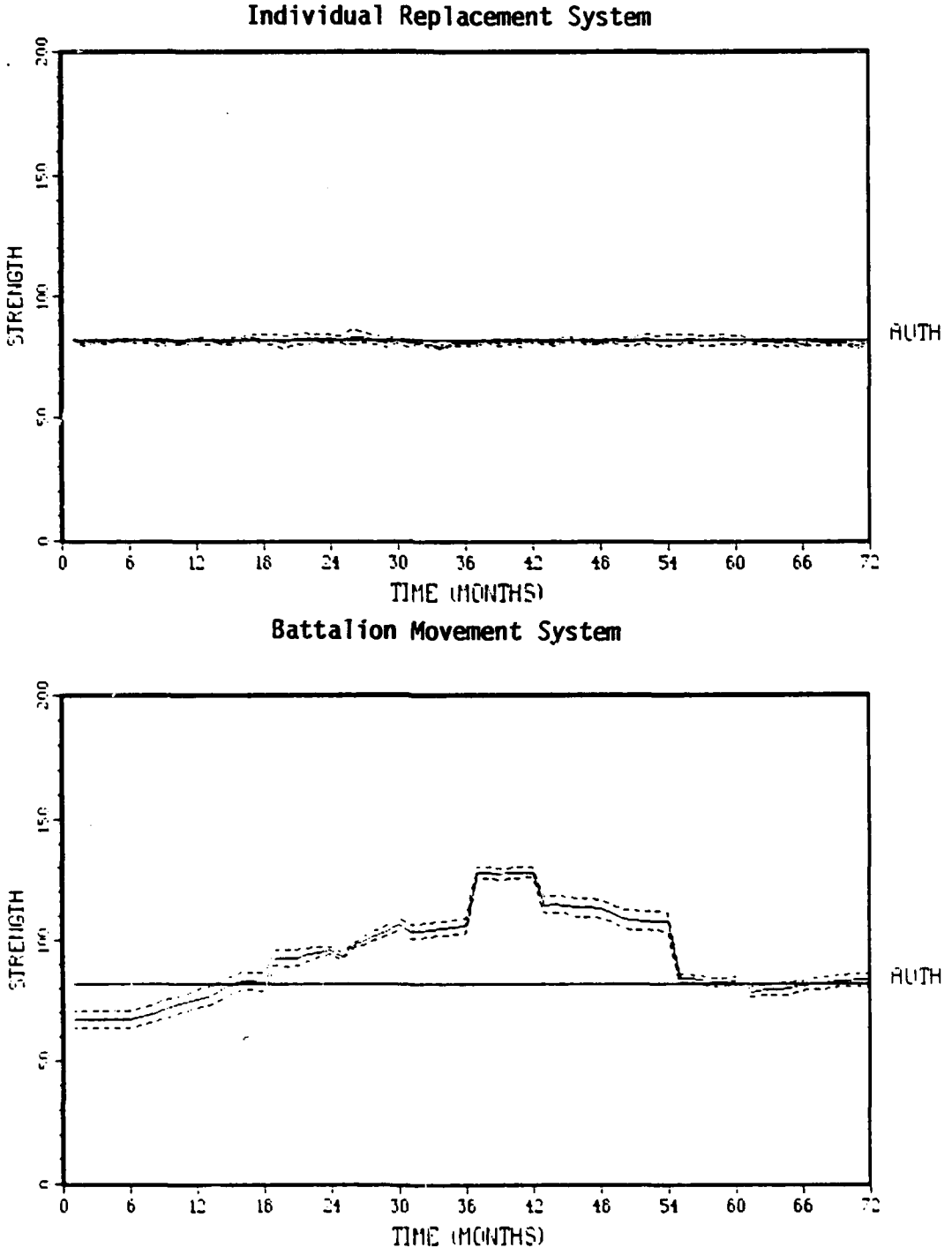


Figure H-XV-4. Battalion NCO Strength Profiles 4th Cavalry Regiment

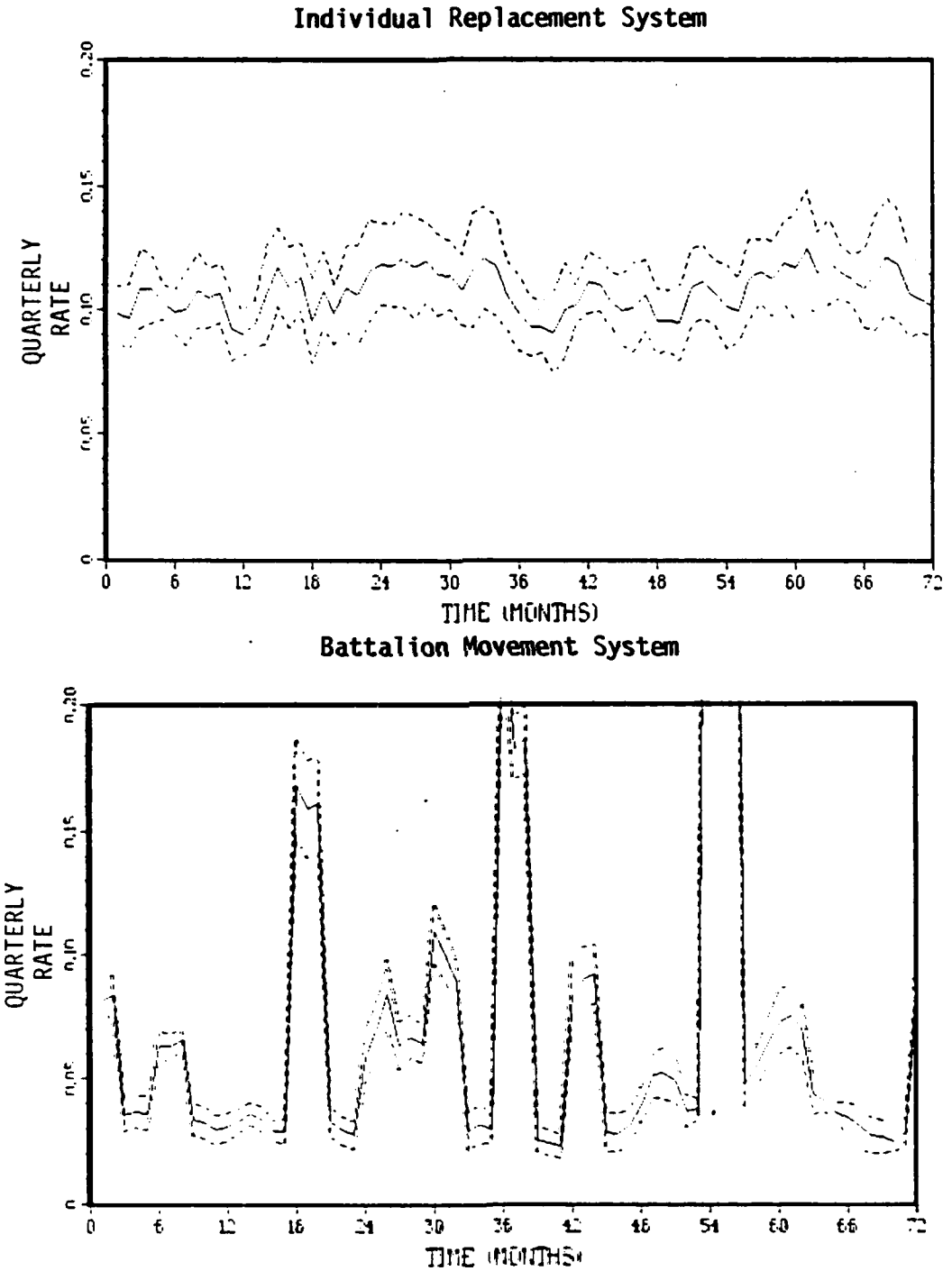


Figure H-XV-5. Battalion Turnover Profiles 4th Cavalry Regiment

APPENDIX I

SPONSOR'S COMMENTS

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR PERSONNEL
WASHINGTON, DC 20310-0300

REPLY TO
ATTENTION OF

DAPE-MPU

30 SEP 1986

SUBJECT: Unit Replacement System Analysis Infantry/Field Artillery/Armor (URSA IN/FA/AR) Study

Director
US Army Concepts Analysis Agency
ATTN: CSCA-FSP
8120 Woodmont Avenue
Bethesda, Maryland 20814

1. Reference, Letter, CSCA-FSP, 27 Aug 86, subject as above.

2. The purpose of this correspondence is to provide you our comments on the URSA IN/FA/AR study report (Encl 1), the completed critique sheet (Encl 2) and recommended changes to the proposed distribution list (Encl 3).

3. URSA IN/FA/AR was conducted in a highly professional manner and the results have provided us insights and direction concerning the Army's Regimental System and Battalion Rotation. Thanks for a job well done.

MARK R. HAMILTON
Lieutenant Colonel, GS
Chief, Unit Manning System
Division

(NOT USED)

Comments on URSA IN/FA/AR July 86 Study Report

1. Page 2-1, Para 2-2.a should read: "...to keep soldiers and their leaders together longer in units."

2. Page 2-1, Para 2-2.c., line 3 the word "assured" is too strong. Recommend something like "soldiers are more likely to experience recurring assignments..."

3. Page 2-4, Para 2-5.b., line 3 talks of five ERA groupings. The accompanying table lists only four ERA groupings. Also, Table 2-2 must be missing some data; the numbers do not equal the totals given.

4. Page 2-12, Para 2-10.b. (1) (b) line 7 talks to the stabilization of top off fillers for 36 months, and their remaining in the unit until the next rotation point. The fills at the 18 and 54 month points are to be entire fills of first termer positions. The top off fillers at the rotation points should be first termers from IRS who have at least 18 months remaining on their enlistment. They do not need to be 36 month VEL soldiers, in fact, if the top off packages are restricted to only 36 month VEL soldiers who are stabilized in the unit for 36 months, in a few iterations the model would regress to a situation where half the first termers would be replaced at the 18/54 month point, and the other half at rotation. This is not desirable, and was not the intent of the study sponsor.

5. Page 2-13, Para 2-11.b. (1) line 1. The discussion talks about Nondeploying COHORT unit life cycles. The first phrase "Under the movement plan," is not appropriate. Perhaps "Under the nondeploying model" or "Under a fill and keep plan" would be more appropriate. The same comments about the stabilization of the top off package at the 18 month apply. These fillers should come from the IRS with at least 18 months remaining on their enlistment. They do not need to be, nor should they be, 36 month VEL soldiers. The unit flushes its first termers at the 36 month point and refills all SL1 positions with a new COHORT package.

6. Page 4-3, Figure 4-1 and all similar charts. Recommend on the right vertical axis that percentages of unit strength be listed, e.g. 90, 100, 110 etc.

7. Page 4-19, Para 4-9.d. line 9 talks about a dip in strength figures below the authorized due to 5/6ths tour completion. The accompanying chart, Table 4-9, does not reflect this dip.

ENCL 1

Comments on URSA IN/FA/AR July 86 Study Report (Continued)

8. Page 4-25, Table 4-15 shows promotion data expressed in terms of percent change from baseline units. Suggest that the table would be more meaningful if the data were expressed in terms of months different from baseline units. The cumbersome explanation of Para 4-12.c. would then be unnecessary. Further suggest that the 325th Regiment, or any airborne unit, is not an appropriate choice for a baseline of comparison, except, perhaps for comparison of it to other airborne units.

9. Page 1-7, Para 1-8.b. "Obervations'" should be "Observations".

10. Page 1-7, Para 1-8.b. (5) "...attend schools or..." should be "...attend schools on..."

11. Some readers react negatively to combining actual MOSs into composite MOSs 11Q, 13Q and 19Q. The discussion in Chapter 2 should be expanded to explain why they were combined and how such a combination will not invalidate the results. For example, since each run of the PFAM deals with a single regiment, all 11Q authorizations within the run will be for 11B or 11M soldiers not both.

12. The price for stabilizating soldiers in COHORT units is increased turnover in the ERA. That insight is not adequately addressed in the discussion of IN, AR, and FA results.

13. Much of the value of this study comes from the lessons learned about a closed regimental system. The discussion of IN, AR and FA promotion results in Chapter 4 and observations in Chapter 5 compare the promotion profiles of soldiers under the Battalion Movement System (BMS) across regiments and against the current DA average but fails to show that the increase of time in grade is due to a closed regimental system, and not the BMS.

ENCL 1 P2

STUDY CRITIQUE

(This document may be modified to add more space for responses to questions.)

1. Are there any editorial comments? YES If so, please list on a separate page and attach to the critique sheet.

2. Identify any key issues planned for analysis that are not adequately addressed in the report. Indicate the scope of the additional analysis needed. This study adequately answers the questions about personnel readiness of a closed regimental system in conjunction with the battalion movement system.

3. How can the methodology used to conduct the study be improved?

4. What additional information should be included in the study report to more clearly demonstrate the bases for the study findings? see attached comments

5. How can the study findings be better presented to support the needs of both action officers and decisionmakers? see attached comments

6. How can the written material in the report be improved in terms of clarity of presentation, completeness, and style? see attached comments

ENCL 2 P1

STUDY CRITIQUE (continued)

7. How can figures and tables in the report be made more clear and helpful? see attached comments

8. In what way does the report satisfy the expectations that were present when the work was directed? fully satisfied

In what ways does the report fail to satisfy the expectations?

9. How will the findings in this report be helpful to the organization which directed that the work be done? Insights into individual career patterns within a closed regimental system will be very useful during the design of future unit replacement systems.

If they will not be helpful, please explain why not.

10. Judged overall, how do you rate the study? (circle one)

Poor Fair Average Good (Excellent)

ENCL 2 P2

APPENDIX J

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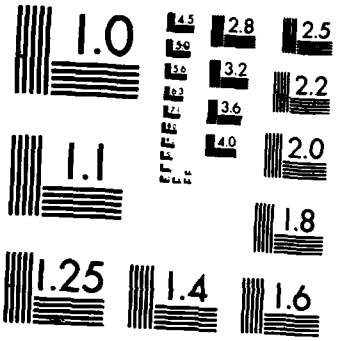
UNCLASSIFIED CAA-SR-86-14 F/G 5/9 NL



GLOSSARY

1. ABBREVIATIONS, ACRONYMS, AND SHORT TERMS

ANOVA	analysis of variance
AR	armor; Army Regulation
ARB	Analysis Review Board
BMP	Battalion Movement Plan
BMS	Battalion Movement System
CAA	US Army Concepts Analysis Agency
CAV	cavalry
CMF	career management field
COHORT	cohesion, operational readiness, and training
CONUS	Continental United States
CSA	Chief of Staff, Army
DA	Department of the Army
DCSOPS	Deputy Chief of Staff for Operations and Plans
DCSPER	Deputy Chief of Staff for Personnel
DEROS	date estimated return from overseas
EEA	essential element(s) of analysis
ERA	extraregimental assignment
ETS	expiration term of service
FA	field artillery
FORTRAN	formula translator
FT	first term or first termer; fort
HQDA	Headquarters, Department of the Army

IET	initial entry training
IN, INF	infantry
IRS	Individual Replacement System
JST	job stay time
MILPERCEN	Military Personnel Center
MOE	measure of effectiveness
MOS	military occupational specialty
NCO	noncommissioned officer
NDC	nondeploying COHORT
NMS	New Manning System
OCONUS	outside Continental United States
ODCSPER	Office of the Deputy Chief of Staff for Personnel
PCS	permanent change of station
PERSACS	Personnel Structure and Composition System
PFAM	Personnel Flow Assessment Model
PQR	Personnel Qualification Record
PRI	personnel readiness indicator(s)
PSAM	Personnel Space Allocation Model
Q-GERT	Queueing Systems-Graphical Evaluation and Review Technique
REPAST	Regimental Personnel Allocation Study
SM	service member
TDA	table(s) of distribution and allowances
TIA	time in assignment
TIG	time in grade
TIS	time in service
TOE	table(s) of organization and equipment

TOS	time on station
URSA	Unit Replacement System Analysis
URSA IN/FA/AR	Unit Replacement System Analysis - Infantry/Artillery/Armor
VCSA	Vice Chief of Staff, Army

2. DEFINITIONS

affiliation	The close and continuous association or identification of a soldier with a single regiment throughout his career. When a combat arms soldier is assigned at battalion level, he will serve with one of the battalions within his regiment.
all-others tour	For purposes of this study, an OCONUS long-tour assignment served by SM with dependents who chose not to be accompanied by their dependents. The all-others tour length is 18 months.
assignment code	A three-digit number used to identify uniquely assignment pools in the PFAM. Identifies assignments by type and location.
assignment window	That period of time during which soldiers are allowed to enter or leave a unit via reassignment.
balanced regiment	A regiment with equal numbers of like units in both CONUS and its OCONUS theater.
careerist	An enlisted soldier who has continuous service beyond his initial enlistment period resulting from one or more reenlistments. In PFAM, a noncommissioned officer serving in grades E-5 through E-9.
COHORT	An acronym for cohesion, operational readiness, and training. Describes a management concept in which soldiers and leaders are assigned to, and stabilized within, battalion or company-sized combat arms units for fixed periods of time.
COHORT package	A group of first termers trained together in IET and assigned to a COHORT unit.
COHORT unit	A combat arms unit (company or battalion) composed of COHORT packages and careerists who will be stabilized for a fixed life cycle of the unit. The unit trains together and usually will deploy overseas at a fixed time in the unit life cycle.

COHORT unit life cycle	The duration of time a COHORT unit exists for stabilization and retention of its personnel; usually consists of a CONUS and an OCONUS phase.
critical point	A specific point in the life cycle of a COHORT unit at which certain events or activities occur, e.g., receipt of a COHORT package, predeployment checks, rotation, etc.
extraregimental assignment (ERA)	For affiliated soldiers only, assignment outside the TOE battalions of a soldier's affiliated regiment.
extraregimental assignment (ERA) spaces	Authorized spaces in organizations which are not assigned to regiments. ERA spaces include TDA and TOE spaces above battalion level.
first termer	Those soldiers who have not yet completed their first enlistment period. In PFAM, an enlisted soldier serving in grade E-3 or E-4.
grade substitution	The policy of allowing an individual in one grade to serve in an authorized position requiring a different grade. In PFAM, the grade substitution policy was two up/one down.
Individual Replacement System (IRS)	The personnel management system currently used to fill Army-wide requirements, defined at the grade and MOS level of detail, by individually selecting soldiers from the Army at large to fill personnel vacancies on a singular basis, i.e., one soldier leaves an assignment and is replaced by another soldier.
job stay time (JST)	The duration of time that an individual is required to remain in a duty position before he is eligible for reassignment to another duty position.
long tour	For purposes of this study, an assignment to an OCONUS theater for which the standard tour length is 36 months for SM accompanied by their dependents and for single SM. The tour length is 18 months for all others.
mid-termer	A soldier who has served in the Army from 3 to 10 years. Generally, a subset of careerists.
nonregimental battalion	A TOE battalion which is not assigned to a regiment.
nonstabilized ERA	An extraregimental assignment for which the job stay time is less than the station stay time.

regiment	A grouping of like-type CONUS and OCONUS battalions with the same regimental designation formed for the purpose of allowing recurring assignments over the length of a soldier's career.
regimental system	An Army-wide system under which the battalions of each combat arms branch are organized into regiments.
short tour	For purposes of this study, an assignment to an OCONUS theater for which the standard tour length is 12 months for all SM.
stabilized ERA	An extraregimental assignment for which the job stay time is equal to the station stay time.
station stay time	The duration of time that an individual is required to remain at a specific station (CONUS post or OCONUS theater) before he is eligible for reassignment to another station.
steady state	For a unit movement system, the eventual condition which occurs, and can be sustained, after the start-up or transition phase is complete. The steady state is exemplified by a smooth rotation of units between CONUS and OCONUS stations supported by a personnel system which provides a sufficient supply of trained individuals.
turnaround time	The time an individual spends in one or more CONUS assignments between OCONUS tours.
turnover rate	As defined in AR 220-1, the sum of a unit's last 3 months' losses divided by its current operating strength.

CAA	**UNIT REPLACEMENT SYSTEM ANALYSIS INFANTRY/FIELD ARTILLERY/ARMOR (URSA-IN/FA/AR)**	**STUDY SUMMARY CAA-SR-86-14**

THE REASON FOR PERFORMING THIS STUDY was to assess the sustainability of the New Manning System's (NMS) Cohesion, Operational Readiness and Training (COHORT) Battalion Movement Plan for infantry, field artillery, and armor units operating within the US Army Regimental System. This study will assist the Office of the Deputy Chief for Personnel (ODCSPER) in its analysis of a unit movement plan for the NMS.

THE PRINCIPAL FINDINGS of the work reported in this study are:

(1) The policies of the COHORT Battalion Movement Plan do permit the maintenance of unit strength profiles in rotating battalions at or above the specified minimum readiness criteria while in the CONUS (Continental US) cycle; however, there are short periods during the OCONUS (outside US) phase where some strength profiles are below the 90 percent floor.

(2) Extraregimental assignment (ERA) pools are almost always maintained at or above the desired 70 percent strength level.

(3) Turnover patterns in rotating battalions demonstrate the concentration of turnover at predictable points in a unit's life cycle and a significant reduction in turnover between those points.

(4) The number of permanent change of station (PCS) moves are somewhat increased under the COHORT Battalion Movement System when compared to the Individual Replacement System (IRS).

(5) Average career patterns for armor and infantry soldiers in the regiments show very few differences regarding promotion opportunity, assignment type, assignment location, reassignment pattern, and turnaround time. However, there are some differences in the average career patterns for cavalry and artillery soldiers due to variations in authorization structures.

THE MAIN ASSUMPTIONS upon which this study is based are:

(1) The enlisted operating strength of each branch is the sum of the authorized enlisted positions of that branch. It is less than the programed branch enlisted end strength by the number of authorized enlisted positions in the Individuals Account.

(2) The available and operating strength of each unit is equal to its authorized strength for the purposes of allocation.

(3) The number of assigned soldiers by grade and military occupational specialty (MOS) is equal to the number of authorized positions by grade and MOS.

THE PRINCIPAL LIMITATIONS of the work are:

(1) Analysis is limited to enlisted personnel authorizations in career management fields (CMF) 11, 13, and 19.

(2) Only peacetime, steady-state personnel operations are considered for the Active Component force.

(3) Attrition and promotion rates for careerists are developed for each regiment to ensure compliance with the study assumption that each regiment will be manned by grade and MOS to its authorized level. Grade imbalances within individual regiments resulting from Army-wide attrition and promotion rates are not considered.

THE SCOPE OF THE STUDY is a steady-state analysis of the sustainability of the COHORT Battalion Movement Plan operating within the infantry, field artillery and armor regimental structures.

THE STUDY OBJECTIVES are to:

(1) Describe and compare the personnel readiness indicators of regimental units and ERA pools operating under the COHORT Battalion Movement Plan and the Individual Replacement System.

(2) Determine the differences in PCS moves between the COHORT Battalion Movement Plan and the Individual Replacement System.

(3) Describe the average career pattern for soldiers serving in CMFs 11, 13, and 19 under the COHORT Battalion Movement Plan.

THE BASIC APPROACH followed in the study is to define the ERA structures of the regiments by distributing ERA spaces among regiments using a sequential linear goal programing model. The personnel flow patterns within these regiments are then analyzed using a computer simulation model to assess the capability of regimental units and ERA pools to maintain prescribed personnel readiness levels while operating under specific personnel and unit movement policies.

THE STUDY SPONSOR is the Office of the Deputy Chief of Staff for Personnel.

THE STUDY EFFORT was directed, in turn, by LTC Charles L. Frame, LTC Richard V. Oehrlein, and MAJ(P) George Captain, all of Force Systems Directorate.

COMMENTS AND QUESTIONS may be sent to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-FS, 8120 Woodmont Avenue, Bethesda, MD 20814-2797.

END

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DTIC