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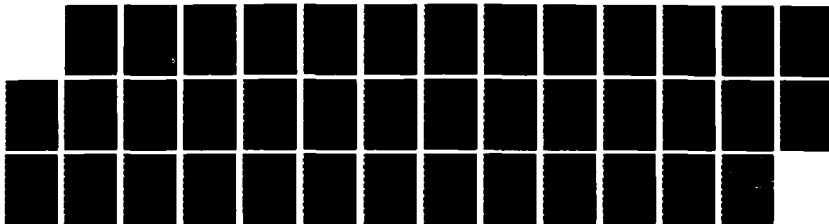
AN ASSESSMENT OF MARINE CORPS ENLISTED PERSONNEL DATA
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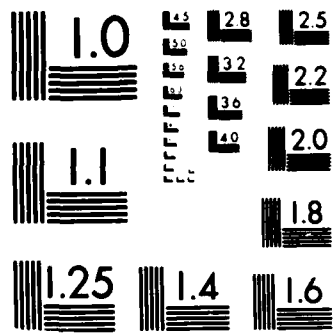
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An Assessment of Marine Corps Enlisted Personnel Data

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**An Assessment of Marine Corps
Enlisted Personnel Data**

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FOREWORD

This report describes how Marine Corps enlisted personnel data are created, maintained, and used in personnel planning. Problems with these data are highlighted. The data described in this report are being used to construct an enlisted personnel data base that will provide personnel flow rates (e.g., loss rates) and inventories to forecasting models and personnel analysts within Headquarters, United States Marine Corps. This effort was conducted under program element 62131M (Manpower Technology), work unit number CF31-P14-02 (Personnel Cohort Rates), sponsored by the Deputy Chief of Staff for Manpower (MPI-20). Appreciation is expressed to CAPT J. Curry (MPI-20), LT P. Zappala (formerly of MPI-30), Ms. C. Gilmore (formerly of MPP-40), LTC S. Hurst (MPI-50), and Mrs. Doris Piriak (MPI-40) for their assistance and comments on earlier versions of this paper.

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SUMMARY

This report describes an assessment of Marine Corps enlisted personnel data. Two data files were examined, the Headquarters Master File (HMF), an extract of the Central Master Record (CMR), and the Statistics File (STATs). The STATs contain transactions (e.g., paygrade changes, reenlistments) that change the CMR/HMF. These data are used by personnel planners and their supporting models to analyze policy alternatives, generate plans, and respond to questions. The assessment covered data from FY77 through FY85.

The assessment began with an investigation of how these data are created. The report discusses the process that creates a CMR for a new Marine. It also describes the unit diary entry process that results in the generation of a STAT record accounting for a change in a Marine's status. Next, the quality of both the HMF and STAT data was examined. Individual data elements (e.g., present paygrade, military occupational specialty) were examined to ensure that only legitimate values were recorded. Counts of personnel flows (obtained from the STATs) and inventory counts (obtained from the HMF) were then produced and compared with official USMC counts. A final test applied the computed gains and losses to a begin fiscal year inventory to determine whether the end fiscal year inventory could be recreated. The closer the generated inventory is to the actual inventory, the more accurate the gain and loss counts.

The results from the quality assessment suggest that the HMF data are accurate. Few instances of data elements containing invalid data were uncovered. In the more recent years of data, inventory counts differ from the official counts by less than 1 percent. The STAT data were found to be less accurate. Cases were observed where multiple STATs recorded the same change. In other cases, no STAT record was found to document a change in a Marine's status observed on his HMF record. Also, certain types of changes, most notably paygrade changes, were not consistently recorded on the STATs. Finally, the difference between gain and loss counts and the official counts was inconsistent: it varied by as little as one-tenth of 1 percent (FY81 gains) to nearly 5.7 percent (FY82 losses).

Three conclusions can be drawn from this investigation. First, use of the STAT data for planning purposes should be minimized because they do not accurately account for all personnel flows. Second, the HMF provides a consistent and accurate source of enlisted personnel data and can be used reliably by personnel planners and their supporting models. Finally, rather than relying on STAT data, historical personnel flows should be inferred by comparing data elements in adjacent HMFs. A personnel planning data base should be constructed using the inference method.

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INTRODUCTION

Problem

Marine Corps personnel managers and their supporting models use individual and aggregated personnel data to generate plans, assess policy alternatives, and respond to numerous routine and ad hoc queries. To permit consistent, timely, and defensible analyses and responses, the personnel data must be accurate, uniform across all organizations, and easily accessible. Marine Corps enlisted personnel data suffers from three problems. First, the quality of the data is uncertain. Do individual data elements contain legitimate values, and does a Marine's computerized record contain accurate and consistent information? Second, Marine Corps personnel planning models and Marine Corps analysts are using multiple and oftentimes inconsistent data bases. These data bases often contain data from different time periods and have contradictory definitions of personnel strengths and flows (e.g., losses, gains). Finally, historical personnel data cannot be retrieved and displayed easily. Many times historical personnel data can be retrieved and analyzed only by special purpose computer programs written by personnel analysts.

Overview

This report describes the analysis of Marine Corps enlisted personnel data, including the ways data are created, updated, maintained, and used. Then, the quality of the data on individual records was assessed. Problems with specific data and the consequences of those problems are also discussed.

Three methods were used to assess the quality of Marine Corps enlisted personnel data. The first method examined individual data elements to ensure that each element contained only legitimate values. For example, only the values E1 through E9 should appear in the present paygrade field for enlisted Marines. During the second phase of the quality assessment, counts of historical inventories and flows were made using criteria supplied by the Budget Unit, Plans, Programs, and Budget Section, Headquarters, Marine Corps (HQMC) (MPP-44). Those counts were then compared to official Marine Corps personnel inventory and flow totals. Finally, personnel flow data were assessed by attempts to perform "manpower conservation." If all of the personnel flows that occur during a fiscal year are applied to the begin fiscal year inventory, the resulting value should match the end fiscal year inventory count obtained separately. If the condition holds, then manpower conservation has been performed, and the counts of personnel flows accurately reflect force behavior.

MARINE CORPS ENLISTED PERSONNEL DATA

The Enlisted Master Record

The Joint Uniform Military Pay System/Manpower Management System (JUMPS/MMS) stores the official pay and personnel records of all active duty Marines. The system resides at the Marine Corps Central Design and Programming Activity (MCCDPA), Kansas City, Missouri. The JUMPS/MMS record, also known as the Central Master Record (CMR), is composed of two parts. The first 1200 spaces or bytes contain information--e.g., military ID number (MID), name, and military occupational specialty (MOS). The remainder of the record, up to 3200 bytes, is devoted to leave, pay, and other financial-related data. Since this analysis was limited to personnel data, the remainder of the

discussion will concentrate on that portion of the CMR. The Marine Corps maintains a single, large data processing system for creating, updating, and deleting the CMR. While the processes described below generally apply to both officer and enlisted personnel, this discussion will be confined to those applicable to enlisted personnel only.

Creating the Enlisted Master Record

The CMR for a Marine with no previous military service is built from information contained in the Automated Recruit Management System (ARMS). ARMS is composed of two parts. An ARMS-Recruiter Station (ARMS-RS) record is built when the individual enlists in the Marine Corps. ARMS carries this record until the individual arrives at the Recruit Depot and is actually accessed into the Marine Corps.¹ From this point, the ARMS-Depot Version record is carried. This second record contains all information maintained on the ARMS-RS record, and information entered while the Marine is in "bootcamp"--e.g., rifle range scores, test scores. The ARMS Accession Record Process transfers information from the ARMS Depot Version record to Kansas City where the CMR is created. This transfer typically takes place on the day the individual is accessed into the Marine Corps. Not all information on the ARMS record is transferred to Kansas City, and once the information is transferred, no check is made at a later date to verify consistency between the two files. For example, if the Armed Forces Active Duty Base Date (AFADBD) passed to Kansas City from the ARMS record is subsequently adjusted, the date on the CMR and the date in ARMS will not be the same. The ARMS record will continue to be updated with information (information not found on the CMR) up to three years after the Marine leaves bootcamp.

Individuals with prior Marine Corps service will not have a CMR record created via the ARMS Accession Record process. Instead, Marines who are returning after more than six months outside the Marine Corps will have a CMR created using information extracted from his/her enlistment papers and information obtained from his/her prior service paper records. Dates taken from the prior service records, including AFADBD, will be adjusted for time spent outside the Marine Corps. This information is submitted to Kansas City on an electronic accession record via the Headquarters Accession Management System (HAMS). Once a Marine leaves, the CMR is held in a separation status for six months.² If an individual returns within 6 months of leaving active duty, the unit gaining the Marine or the Reserve command submits correspondence to Headquarters, Marine Corps (HQMC) requesting reaccession of the Marine's CMR. Some of the information for the returning Marine's CMR is extracted from either an inactive JUMPS/MMS record or the Reserve equivalent. The remainder of the information is input by HQMC. AFADBD and other dates will be adjusted for time spent outside the Marine Corps. Figure 1 depicts the alternative ways a CMR can be created.

Updating the Enlisted Master Record

While the JUMPS portion of the CMR identifies the pay and allowances that a Marine is entitled to receive, the amounts depend on information contained in the MMS portion of the record. The MMS portion needs to reflect the current characteristics of the Marine. Currency is maintained through the update process. The CMR can be updated in two ways: via the Unit Diary Entry process, or the Jams and Utilities process.

¹Individuals entering the Marine Corps via the Delayed Entry Program (DEP) can postpone their accession up to 12 months from date of enlistment.

²The CMR can easily be reactivated to adjust a variety of information. For example, in the case of a Marine who dies, the record must be active in order to make any adjustments to survivor benefits.

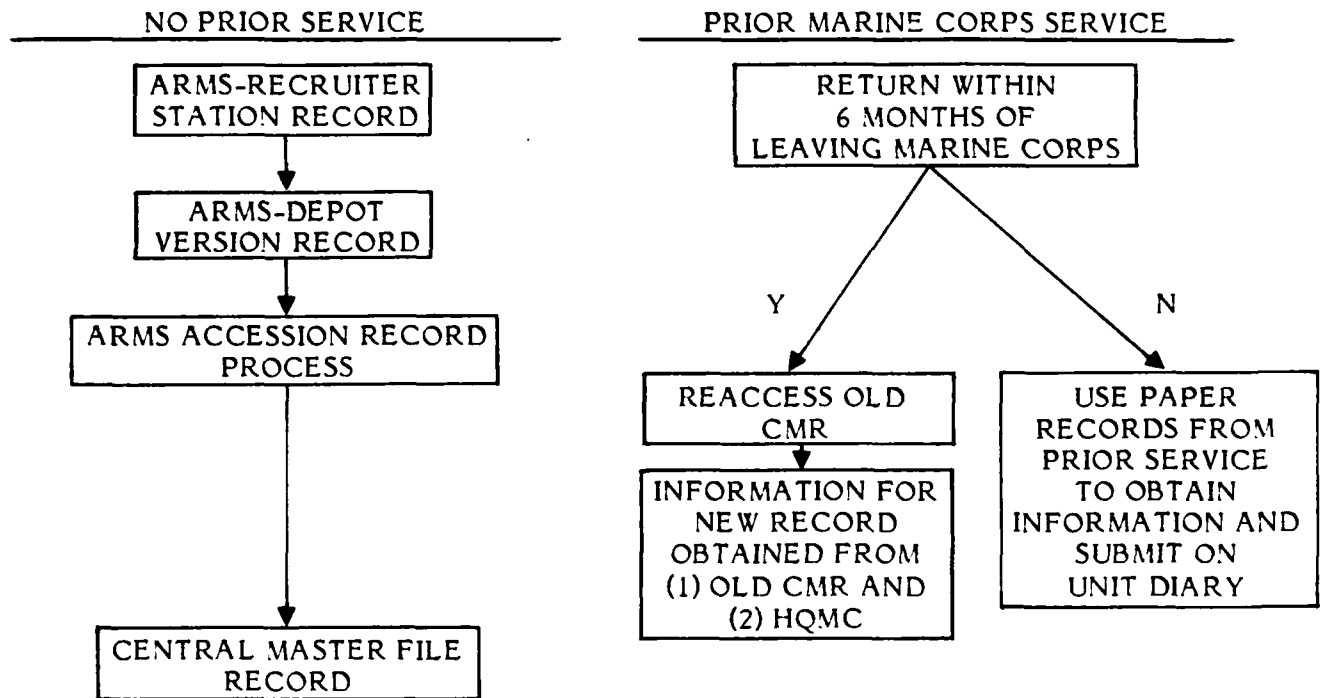


Figure 1. Alternative ways of creating a Central Master Record.

Most changes are triggered when a Marine's unit submits a unit diary entry. A unit diary entry is the basic source document of JUMPS/MMS, used to report personnel gains and losses, establish information, and change, delete, or correct previously reported information³. The diary entry describes, in a combination of codes and English descriptions, the information to be changed or entered in the Marine's CMR. Each unit submits a unit diary, a collection of one or more unit diary entries, each day a change occurs.

A unit diary entry can be absorbed into the system in two ways. The process used depends on whether the unit has on-line access to its assigned Regional Automated Service Center (RASC). Table 1 lists the six RASCs that accept unit diary entries for transmittal to Kansas City. Diary entries move through the system via the on-line process if the unit has a direct computer link to the RASC, otherwise entries travel via the off-line process. Over 50 percent of all units submit diaries via the on-line process, and the goal is to provide most units, including reserve units, with on-line access to their RASC.⁴ The on-line process transfers the information to the RASC (and ultimately Kansas City) faster. The on-line process also reduces the number of errors and failed entries. Figure 2 illustrates the on-line and off-line unit diary entry processes.

³PERSONNEL REPORTING INSTRUCTION MANUAL (PRIM) MCO P1080.35 paragraph 1104.1, p.1-5.

⁴On-line access will not be available for all units. For example, independent duty Marines, remote site based Marines, and Marines aboard ships will continue to submit diaries via the off-line process.

Table 1
Regional Automated Service Centers (RASCs)
Accepting Unit Diaries

Marine Corps Base Camp Lejeune
Marine Corps Base Camp Pendleton
CAMP H. M. Smith
Marine Corps Base Camp Butler
Marine Corps Central Design and Programming Activity (MCCDPA) Quantico ^a
Marine Corps Central Design and Programming Activity (MCCDPA) Kansas City ^a

^aMCCDPA Quantico and Kansas City are not RASCs, however, they do receive unit diaries for processing and forwarding to Kansas City.

Units with on-line access sign on to the RASC and enter the change information into the On-Line Diary System (OLDS). As the information is entered, the system performs a number of checks and edits to ensure that the information is formatted properly and the unit is authorized to transmit this transaction. The RASC accumulates the diaries from all of its reporting units and submits them, as a group, to Kansas City. Next, the CMR is updated, and a change record is created, where appropriate.⁵ The following day, the unit can sign on to the RASC and receive an error report identifying the transactions that failed and were not entered into the system. Finally, the record (only the MMS portion) with the new information is sent back to the RASC.

Units not having on-line access to a RASC must submit their diaries via the off-line diary entry process. First, the unit transmits the diaries to its assigned Manpower Information Systems Support Office (MISSO) using whatever means are available. Some units submit the diaries on a diskette. Other units must type the diary entries on OCR scannable forms. The MISSO accumulates the entries from all assigned units and enters the information into OLDS. These diaries are included with those submitted via the on-line process, and all are sent to Kansas City where the CMR and the associated files are updated. Diary entries that fail during the Kansas City processing are returned with an error report directly to the unit.

The Jams and Utilities process represents an alternative method for updating the CMR. The Jams process is used when time is critical. Correcting a Marine's present paygrade via the Jams process ensures that the Marine will be paid accurately. The Jams process is run only at HQMC and at MCCDPA, Kansas City. During the Jams process, new information is added (or "jammed") into a Marine's record outside of the normal update and edit process. Because the information entered during the Jams process is not

⁵ Approximately 270 update cycles are run each calendar year that translates into an update of a Marine's record approximately every day and a half.

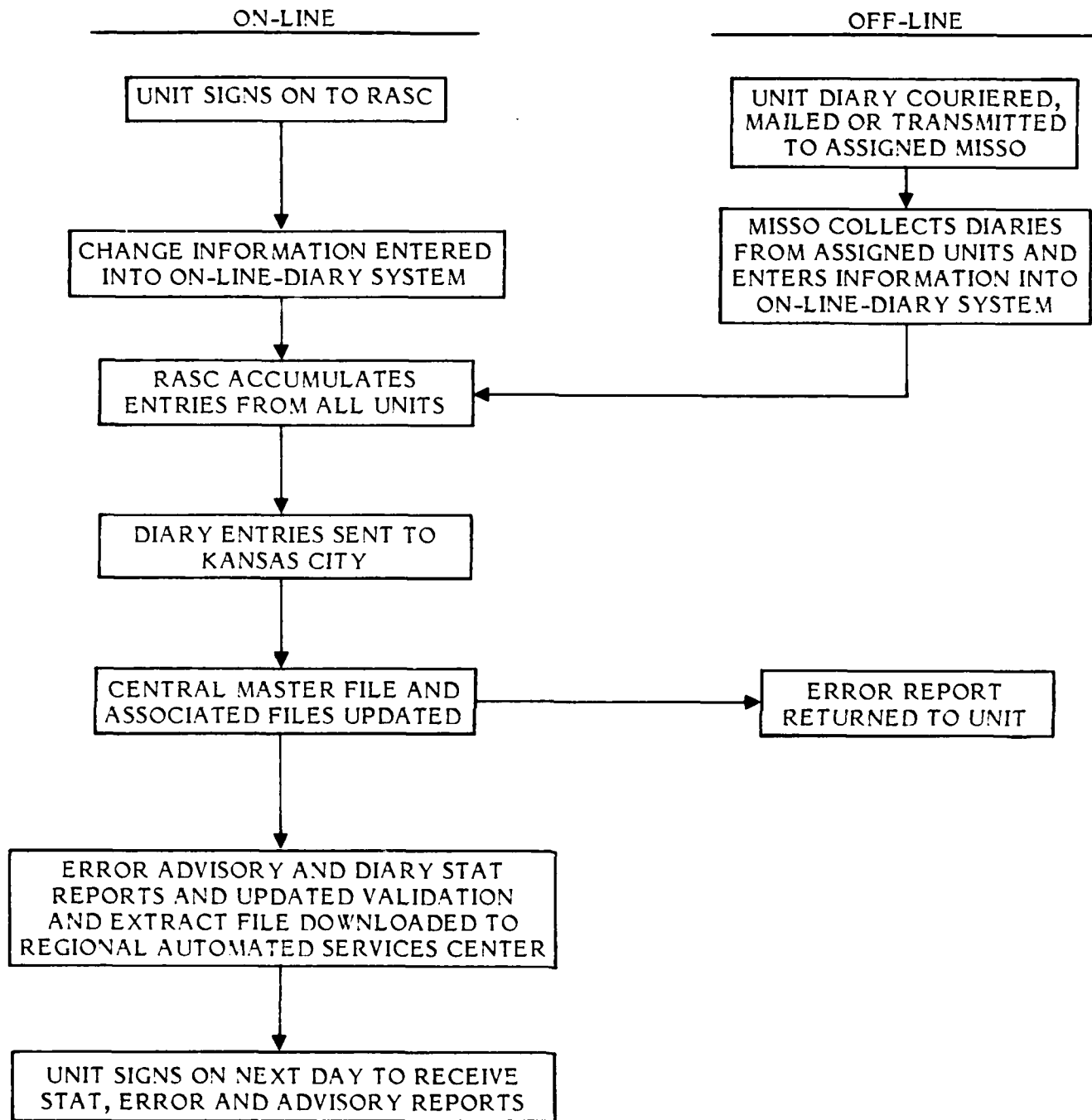


Figure 2. On-line and off-line unit diary entry process.

recorded on a unit diary and does not travel to Kansas City via the on-line or off-line diary entry processes, no change record or audit trail will be created. This presents a problem when trying to count the number of changes (identified by the existence of a change record) that occur during a fiscal year.

The Headquarters Master File (HMF)

Each week, the MMS portion of each Marine's CMR (the first 1200 bytes) is extracted to form the HMF. The HMF "snapshot" is sent to the MCCDPA, Quantico where it is stored on-line, on disk, and on tape. Only the tape HMF contains the records of all Marines. Marines with a Record Status of "E" are excluded from the disk and on-line versions of the HMF. Each HMF has a cycle number indicating the relative position of the HMF "snapshot" during the calendar year. The cycle number identifies the HMF snapshot used to create the official inventory counts for a fiscal year and quarter.

Creating Change Records

Change records or "Statistics" (hereafter referred to as STATs) are created by the submission of change information on a unit diary. The diary entries are submitted via the on-line and off-line processes discussed earlier. (All diary entries arrive in Kansas City via the on-line process since the off-line entries are entered into the OLDS at the MISSO.)

At the MISSO or the unit, if it has on-line access, the diary clerk enters the Sequence Number associated with the specific change information he is reporting. A preformatted computer screen is displayed which contains blanks for information to be entered relevant to the particular transaction. The diary clerk enters the information and the Type Transaction Code (TTC). The TTC identifies the type of change being recorded.

Once the transaction reaches Kansas City, it passes through the Format and Edit process. The Format and Edit process performs a number of checks to ensure that the transaction is valid. These checks include: (1) ensuring that the SSN associated with the transaction is legitimate; (2) ensuring that the change is logically consistent, e.g., if the transaction is recording a promotion to E5, the Marine should currently be an E4; and (3) ensuring that the Military Occupational Specialty (MOS) reported for the Marine is in the current MOS table. The importance of the Format and Edit process has diminished since many of the same error checking functions are now performed as the information is being entered into the OLDS. Once the transaction leaves the Format and Edit process, it moves to the process called Poster. Within Poster, processing routines identify specific TTC's which should generate a STAT. When a transaction with a STAT-producing TTC passes through Poster, it is assigned a Type Change Code (TCC). The TCC identifies the type of STAT being produced. A special "save" record stores individual data elements extracted from the CMR which are needed for the STAT. While the extracted information varies by the type of change, some data common to all STATs (e.g., Present Paygrade, Special Rank Code, Component Code, and Present Reporting Unit Code) are extracted. The information stored in the "save" record when combined with the change information and the TCC forms the STAT.

Some STATs are created during monthly processing at MCCDPA, Quantico. Two adjacent monthly HMF records are compared, and the differences between the records in relevant data elements are identified. Each change is compared against the monthly STAT file to verify that a STAT was created during the processing at Kansas City. If a change is identified without a corresponding STAT, a STAT record is created and assigned a TTC of HQS (Headquarters STAT).

ASSESSING THE QUALITY OF MARINE CORPS HMF AND STAT DATA

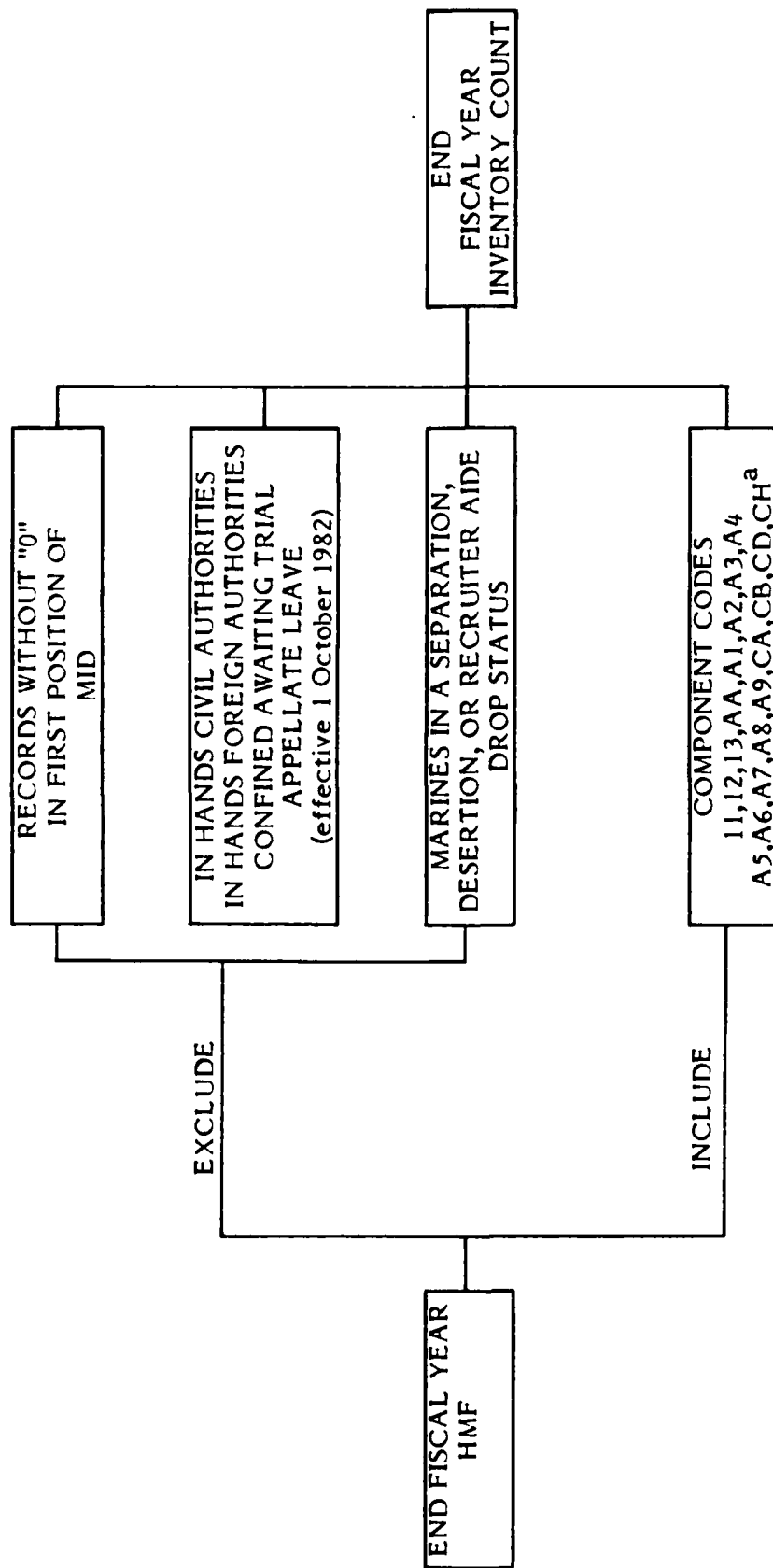
A three-phase process was used to assess the quality of both the HMF and STAT data. First, individual data elements on each of the files were examined to ensure that the data elements contained proper values. The Joint Uniform Military Pay System/Manpower Management System Codes Manual (JUMPS/MMSCODESMAN, MCO P1080.20) was used to verify all data values. Next, inventory and personnel flow counts were made using criteria supplied by HQMC. These counts were then checked against historical inventory and flow totals also provided by HQMC. Finally, the counts were used to test whether manpower conservation could be observed--do the STAT records account for all of the personnel flows that occur between two inventory snapshots.

HMF Data

The quality assessment of HMF data covered the end fiscal year snapshots from FY76 through FY85. The investigation initially focused on those data elements required to count personnel inventory by paygrade and year of service. These elements included Present Paygrade, AFADBD, Pay Entry Base Date (PEBD), and Component Code (COMP-CODE). Few instances of missing or invalid Present Paygrade values were found. AFADBD and PEBD also contained consistently legitimate values. While it is impossible to verify that PEBD and AFADBD values are accurate for each Marine, an examination of related data elements (e.g., Date of Rank for recruits, and Date of Enlistment) suggest that values for PEBD and AFADBD are reasonable. A number of data elements not necessary to produce an inventory count were also examined. Present Reporting Unit Code (RUC) and Present Monitored Command Code (MCC) were also consistently entered. In addition, the investigation discovered no instances of a present RUC associated with an incorrect MCC. Primary Military Occupational Specialty (PMOS) was found on all Marines' records, and all values were found in the Military Occupational Specialties Manual (MCO P1200.7). Race, Sex, Ethnic Group, and Marital Status contained values for most, but not all, Marines. A few individuals had a COMPCODE of "00"--a value not listed in the JUMPS/MMSCODESMAN (Section 1, paragraph 1408, p. 1-52). The results of the first phase of the HMF quality assessment indicate that information is consistently and accurately entered in a Marine's CMR and ultimately in the Marine's HMF record.

Satisfied with the quality of the data elements mentioned above, efforts turned to the second phase of the HMF quality assessment--producing end fiscal year inventory counts. JUMPS/MMS, and consequently the HMF, contain personnel records for a variety of individuals who should not be included in the end fiscal year inventory count. These include members of other U.S. armed services, civilians, service members of foreign countries, and some reserve Marines. To produce an inventory count that most nearly duplicates the "official" count, criteria for determining who should be counted need to be established. Figure 3 depicts the criteria used to produce an end fiscal year inventory count.

First, eliminating those individuals who are not Marines requires selecting those HMF records that do not have "0" in the first position of the Military ID (MID) field. Next, Marines not included in an official strength count are eliminated using COMPCODE. COMPCODE identifies the branch of the Marine Corps in which the individual is serving--regular, retired, or reserve. MPP-44 provided the COMPCODEs used to produce the official end strength. In addition, all official strength counts since end FY82 have excluded Marines in the hands of civil authorities (IHCA) or in the hands of foreign authorities (IHFA) in excess of 180 days, confined awaiting trial, and on appellate leave. A separate file, known as the Appellate Leave File, maintains information on Marines in



^aRecords with Component Code CH must be further examined to identify those Marines working in support of the regular force. CH can be used for both regular and reserve Marines.

Figure 3. Selection criteria to produce end fiscal year inventory count.

these categories. The HMF records of Marines on the Appellate Leave File are not included when producing official inventory counts. Unfortunately, the Appellate Leave File could not be obtained, so an alternative way of identifying these Marines was derived. The HMF data element, Strength Category Code, explicitly identifies, with one minor difference, the Marines in each of the three categories included on the Appellate Leave File. Strength Category Code "C" identifies Marines in a IHCA or IHFA status for more than 30 days while the Appellate Leave File uses a cutoff of 180 days. Since no code could be found that identifies Marines IHCA or IHFA for more than 180 days, Strength Category Code approximately identifies these Marines. Strength Category Codes "B" (confined awaiting trial), "C", and "G" (appellate leave) were used as the proxy identifiers. Finally, the HMF also contains the records of some Marines in a separation status, desertion status, or recruiter aide drop status. Identified by a Record Status code of "E", they are also excluded from official inventory counts.

Using these criteria, end fiscal year strength counts by paygrade were produced. Appendix A displays a comparison between the official inventory counts provided by MPP-44 and inventory counts produced by Navy Personnel Research and Development Center (NAVPERSRANDCEN). Counts prior to end FY80 are for end fiscal year only. Quarterly inventory counts are shown for FY80-FY85.

The large differences between the official counts and the NAVPERSRANDCEN counts for the earlier years (FY77-FY80) merited some additional investigation. The official numbers were produced shortly after the end of the fiscal year. The historical HMF data for those years have been destroyed. Using the June and December HMFs, MPI-30 reconstructed the data provided for this analysis. In an attempt to more accurately duplicate the official inventory counts, the Defense Manpower Data Center (DMDC), Monterey, provided historical inventory data for end FY76-FY79. The DMDC data were compared with the HMF data by matching the MIDs on the two files. Only those HMF records with a MID also in the DMDC data were retained. While the discrepancy was reduced, the difference by paygrade and at the total force level is still significant.

The investigation of the HMF data suggests that data on individuals is accurately and consistently maintained. Very few instances of individual data elements containing invalid values were uncovered. With the exception of end FY76-FY79, official end fiscal year (and the intermediate quarterly) inventory counts can be nearly duplicated. The NAVPERSRANDCEN counts differed from the official counts (in all cases except one, end FY82 (8209)) by less than two-tenths of one percent.⁶

STAT Data

The STAT quality assessment examined many of the same data elements considered during the HMF quality assessment. Since the values of many of the STAT data elements are taken directly from the CMR when the STAT is created, the accuracy of many of the STAT data values closely resembles the results obtained during the HMF quality assessment. Data elements such as COMPCODE, Present Grade, and MOS consistently contain legitimate values.

⁶The small differences can be attributed to adjustments made by MPP-44 based on information unavailable to NAVPERSRANDCEN. For example, MPP-44 has on-line access to the CMR in Kansas City and other files that may show more current information on a Marine's status and thereby change whether the Marine is included in the inventory count.

One data element, not found on the HMF, but which is essential in accurately counting flows is Type Change Code (TCC). The TCC identifies the type of change the STAT represents. The first character broadly categorizes the change (e.g., a "R" indicates a drop), while the second character identifies the specific type of change. For example, an "R1" STAT identifies a separation where the Marine will not reenter the Regular or Reserve establishment. Appendix B identifies the categories and types of STATs and the associated TCCs. In the analysis of STAT data from FY77-FY85, no instances of missing or invalid TCCs were discovered.

A number of problems were uncovered during the investigation of data elements found only on the STAT files. First, the Correction/Deletion Code is not consistently used. This code indicates whether the STAT is a normal transaction or is a modification to a previously produced STAT. A blank indicates a normal transaction, a "1" identifies a correction to a previously reported error, and a "2" identifies a deletion of a previously reported error. STAT documentation indicates that this data element is valid only for "U" type (desertion and unauthorized absence) STATs. However, the investigation found frequent use of the Correction/Deletion Code on the paygrade change (D-type) STATs. For example, an examination of FY82 paygrade change STATs, identified over 1800 instances where the code indicated that the STAT was a correction. On most of these records, the Present Paygrade and Previous Paygrade fields show the same paygrade. Curiously, the majority of the records with a Correction/Deletion Code of "1", and the same Present Paygrade and Previous Paygrade, have an additional paygrade change record of the same type (e.g., both identify a meritorious promotion) with the same date of action. Figure 4 displays an example of this phenomenon.

An inspection of the complete STAT records shown in Figure 4 indicated that with the exception of the Previous Paygrade and Correction/Deletion Code fields, the two records are identical--both STATs record a meritorious promotion to E4. It is possible, however, that the second STAT is correcting some information in the JUMPS portion of the CMR, and no change can be observed. This situation also occurred in FY78, FY81, and FY84.

DOACT (YYMMDD)	TCC	PRESENT PAYGRADE	PREVIOUS PAYGRADE	CORR/DEL CODE	CYCLEDATE
820702	DB	E4	E3	0	820710
820702	DB	E4	E4	1	820820

Figure 4. Multiple STATs showing paygrade change with correction/deletion code.

In FY78, the above situation can be observed, as well as an additional problem. A number of cases can be identified where multiple STATs, exactly the same, show the same paygrade change. Figure 5 illustrates this case.

DOACT (YYMMDD)	TCC	PRESENT PAYGRADE	PREVIOUS PAYGRADE	CORR/DEL CODE	CYCLEDATE
771001	D2	E3	E2	0	771101
771001	D2	E3	E2	0	780131

Figure 5. Multiple STATs showing paygrade change with no correction/deletion code.

In this case the Correction/Deletion Code does not indicate that the second STAT is correcting some information in the first STAT, and Present Paygrade and Previous Paygrade are not the same. An initial conclusion might be that both STATs show a paygrade change (regular advancement to E3) and both should be counted. While it is possible that the second STAT is supposed to be correcting the first STAT (and the Correction/Deletion Code is erroneous), it is more likely that the diary entry was simply resubmitted. Since the second STAT shows the previous grade as E2, this may not have been in error. The previous grade is picked up from the CMR when the STAT is created. If the unit diary entry submitted for the first paygrade change had updated the CMR, then the previous grade showing in the second STAT should have been E3 (not E2).

The Jams and Utilities process may provide an alternative explanation. If the first STAT documents a promotion that was later found to be in error, it is possible that the present paygrade value, E2, was jammed into the CMR. A unit diary entry, again showing the promotion to E3, would have generated the second STAT seen in Figure 5.

The investigation also identified a change in the coding structure of the Correction/Deletion Code data element. All FY77 STATs showing a change in paygrade had a blank in the correction deletion code data element. In all other years under the same circumstances, this data element contains a "0". The "1" does not appear to be used consistently to show a correction entry.

Two additional problems with the paygrade change STATs should be mentioned. First, it appears that punitive reduction in grade STATs (DC-type) do not consistently record the change(s) in paygrade. For example, in FY84, the reduction from E4 to E2 was recorded in two ways as shown in Figure 6.

<u>Marine A</u>					
DOACT (YYMMDD)	TCC	PRESENT GRADE	PREVIOUS GRADE	CORR/DEL CODE	CYCLEDATE
831110	DC	E3	E4	0	831119
831110	DC	E2	E3	0	831119
<u>Marine B</u>					
840918	DC	E2	E4	0	840921

Figure 6. Inconsistencies in reporting same paygrade change.

For Marine A, two disciplinary reduction STATs recorded the demotion to E2. Note that the Dates of Action and Cycle Dates are the same for both STATs. Marine B was also reduced from E4 to E2. However, a single unit diary entry, that produced a single STAT effected the reduction. While the end result is the same, in each case a Marine was reduced two paygrades, the problem lies with the number of STATs produced and, ultimately the number of demotions counted. The problem expands when the previous grade on a STAT showing a reduction in grade is missing. This makes it impossible to determine the number of paygrades the Marine was reduced. In FY79, over 300 cases of reduction STATs with no previous grade were identified.

Problems with the STATs are not limited to paygrade changes. The investigation uncovered occurrences of multiple loss STATs in FY84. Figure 7 shows the three STAT records associated with a single Marine.

DOACT (YYMMDD)	TCC	PRESENT PAYGRADE	CORR/DEL CODE	SDN	CYCLEDATE
831023	R1	E4	0	8611	831104
831023	A5	E4	0	8611	831228
831023	R1	E4	0	8611	840112

Figure 7. Multiple loss STATs.

The first R1 STAT drops the individual from the Marine Corps with a separation designator number (SDN) showing that he was killed in battle outside the U.S. Nearly two months later, the Marine is brought back into active service with an accession STAT (A5), and two weeks later again dropped from the Marine Corps. The Date of Action (DOACT) for all three transactions is the same. An investigation of the unit diary entries submitted for this Marine showed that he was reaccessed into the Marine Corps in order to reactivate his CMR and adjust information in the JUMPS portion. Once completed, he was again dropped from the Marine Corps. In the end, the gain and first loss STAT records cancel each other out, while the second loss STAT accurately counts the Marine as a FY84 loss. However, when these STATs are processed carefully, the count of FY84-E4 losses will be overstated, since both R1 STATs will be counted although the Marine was a true loss only once.

A final problem applies to all STATs. Information entered on the unit diary entry is a combination of codes and English descriptions. Many of the codes have multiple values--some have hundreds of values. The unit diary clerk determines the choice of code(s) for example, the correct SDN indicating reason for loss. The likelihood of entry error and erroneous flow counts is high.

Finally, our investigation did find two types of STATs that seemed to be accurately recorded--the R2 and A4 STATs. These two STATs are paired; the R2 shows a "drop" to immediately reenlist, and the A4 is an immediate reenlistment accession. As the documentation suggests, in all instances, DOACTs were found to be one day apart with the loss occurring first. Since a single unit diary entry generates both STATs, it is not surprising that both STATs of the pair were always colocated.

The STAT file contains change records for all individuals with a CMR. Since not all individuals on the CMR are included in official strength counts, the STAT records of these same individuals should be excluded from the official flow counts. Many of the same criteria used to count records for strength purposes identified the records eligible for inclusion in the flow counts. (Additional criteria, to be discussed below, may lead to the exclusion of some of the "eligible" records from the official flow counts.) Again, only records with a "0" in the first position of the MID were selected. The same COMPCODEs were also used. Marines in a separation status, desertion status, or recruiter aide drop status (Record Status code of "E") should not have STATs, but this check was included just as a precaution. Finally, STAT records of Marines with a Strength Category Code of "B", "C", or "G" were also excluded.

As mentioned above, each STAT has an associated TCC that identifies the particular type of change the STAT is recording. The TCC is used to select the STATs that should be included in the official flow counts. For example, of the five loss STATs, only three are used to count official enlisted strength losses.⁷ R2 and R4 STATs are not considered strength losses. Similarly, only three of seven accession STATs are used to count accessions.⁸ The remaining accession STATs show a change in a Marine's status rather than a new gain that should be applied to the strength count. Figure 8 depicts the selection criteria for counting fiscal year losses and accessions.

In producing loss and/or gain counts, another issue involves the appropriate dates for including or excluding transactions. The issue focuses on whether STAT records are counted using the date the change was reported or the date the change occurred. Each STAT carries a DOACT indicating when the change occurred, and a Cycle Date indicating when the new information updated the master record. Typically, these two dates are only a week or so apart. However, cases were uncovered where the Cycle Date was over 3 years past the DOACT. Clearly, a difference as large as this poses a problem when trying to decide in what year to count the change, but the problem is equally as critical when the two dates are only a week apart but fall in different fiscal years.

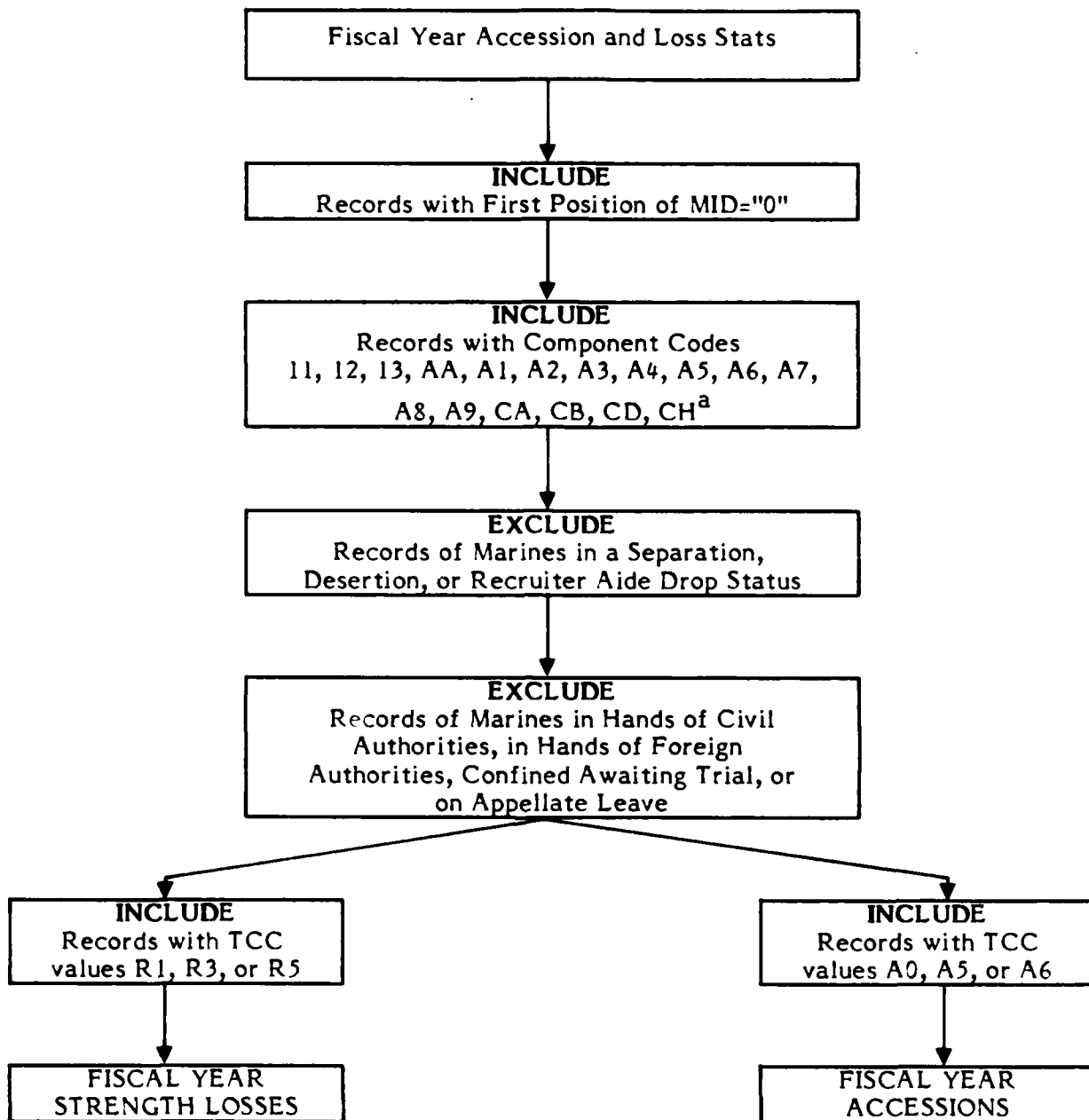
An example will illustrate the problem. An R1 STAT has a DOACT of 830910 and a cycle date of 831015. Using the DOACT, this STAT record would be counted as a FY83 loss. This loss would, however, fall in FY84 if cycle date were used. A check of the end FY83 HMF would likely show that the Marine was included in the end fiscal year strength count. Since the official inventory snapshot is typically taken in early October, this loss STAT would not have been posted in time (based on Cycle Date) to remove the Marine from the inventory count.

Flow counts for a given historical period can vary significantly depending on which date is used to position the flow in time. Table 2 shows how a count of FY84 strength losses can vary when different combinations of Cycle Date and DOACT are used. All numbers are compared with the official numbers provided by MPP-44. A DOACT between 1 October 1983 and 30 September 1984 was used to produce the counts shown in Case A. The counts shown in Case B resulted from the Cycle Date on the STAT falling between 1 October 1983 and 30 September 1984. Case C had the most restrictive criteria: both DOACT and Cycle Date had to be in FY84 for the STAT to be counted. The requirement that only DOACT be in FY84 produces the smallest difference (-37) between the official totals and the NAVPERSRANDCEN totals, while the strictest criteria (Case C) produces the greatest difference.

An alternative can be used to count flows. Each STAT record, like an HMF record, has a cycle number. The cycle number, by association with a specific cycle date, identifies when, during the calendar year, the change information was posted to the master record. If the cycle numbers of the official begin fiscal year inventory snapshot and the official end fiscal year inventory snapshot are known, all of the STATs with cycle numbers between the two inventory cycle numbers would be counted in that fiscal year.

⁷R1 losses with a TTC of 239 are excluded. The loss STATs show a loss because of a social security number change. R1/239 records are not counted because the companion accession record (AN) is not counted as a gain.

⁸The official accession counts are obtained from the Personnel Procurement Division (MR) at HQMC. The three STATs used to count accessions most closely approximate the accessions reported by MR.



^aRecords with Component Code CH must be further examined to identify those Marines working in support of the regular force. CH can be used for both regular and reserve Marines.

Figure 8. Selection criteria to produce fiscal year accessions and strength losses.

Table 2
FY84 Losses

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
MPP44	10031	5041	8165	11148	5082	1093	389	527	276	41752
<u>CASE A</u>										
DOACT	9830	5343	8299	10938	5007	1062	394	517	275	41665
DIFF	-201	+302	+134	-210	-75	-31	+5	-10	-1	-87
<u>CASE B</u>										
<u>CYCLE-</u>										
DATE	9304	5080	7988	10510	4810	1020	383	506	268	39869
DIFF	-727	+39	-177	-638	-272	-73	-6	-21	-8	-1883
<u>CASE C</u>										
<u>CYCLE-</u>										
DATE										
DOACT	9246	4862	7527	9786	4478	949	344	430	234	37856
DIFF	-785	-179	-638	-1362	-604	-144	-45	-97	-42	-3896

For example, the cycle beginning FY85 was 205. Fiscal year 85 ended with cycle number 211. To include all of the STATs to count FY85 losses would require STATs in calendar year 84 with a cycle number of 205 and larger, and STATs in calendar year 85 with a cycle number less than or equal to 211. Using cycle number also avoids the problem of using 30 September as the cutoff date. Frequently, the official snapshot is not taken until the fourth or fifth day of October.

Using all the criteria discussed above and selecting only on DOACT, loss and accession counts for FY77-FY85 were produced and are reported in Appendix C. Note that the NAVPERSRANDCEN-computed accessions for FY85, 38688, and the FY84 gains and losses 43437 and 41665, respectively, are close to the numbers reported by MPP-44, namely, 38836, 43494, and 41752. Two factors may account for the discrepancy observed in the earlier years. First, multiple STAT records with the same TCC and same DOACT for a Marine are eliminated during the monthly processing done at Quantico. No effort was made to eliminate duplicate records from the NAVPERSRANDCEN counts. Second, the counts reported by MPP-44 are obtained from data sent monthly to Quantico. The monthly counts are aggregated to form a fiscal year count. The NAVPERSRANDCEN counts were produced using two calendar years of STATs. Because of the differences in the time horizons of the data, the NAVPERSRANDCEN counts may include (or exclude) STATs that would not have been included (or excluded) in the MPP-44 counts. The lag between DOACT and Cycle Date is also a contributing factor.

This analysis of the STAT data uncovered a number of problems with specific STAT types and STAT data elements. In general, the quality of the data elements is good, especially when one considers that from the one million plus unit diary entries submitted

each month, 30-35 thousand STATs are created.⁹ The problems with specific types of STATs have severe consequences, not the least of which is inaccurate flow counts. These problems in conjunction with the Cycle Date/DOACT issue, and the instances of multiple STATs all affect the ability to perform manpower conservation.

Manpower Conservation

The ability of the STATs to accurately represent flows can also be assessed through tests of "manpower conservation." In the aggregate, given two adjacent and accurate end fiscal year inventory counts, the manpower equation is satisfied and "manpower conservation" achieved if sufficient gains and losses can be identified to exactly explain the differences in the inventories. If the differences cannot be explained, then the STAT records do not accurately account for all personnel flows. Manpower conservation can also be performed for each individual Marine. For example, if Marine A is in the begin fiscal year inventory but not in the end fiscal year inventory, then entity level manpower conservation is achieved if a loss record accounting for Marine A's absence from the end fiscal year inventory can be found. Our attempts to perform manpower conservation in the aggregate were not entirely successful, owing largely to inaccurate STAT data.

Table 3 illustrates the aggregate manpower conservation process using NAVPERS-RANDCEN produced inventory and flow counts. For example, the computed begin FY81 inventory (as of 8009) was 170281. Applying the STAT-generated FY81 losses (42556) and gains (46178) implied an end FY81 inventory of 173903. However, the end FY81 inventory derived from the 8109 HMF "snap-shot" is 172308, a difference of 1595. Notice that the difference declined over time. This is due, in part, to the currency of the data and the increased likelihood of few STATs with Cycle Dates more than one year greater than the DOACT. (For example, STATs with a DOACT in FY84 cannot have a Cycle Date in any years other than FY84 or FY85, while a STAT with a DOACT in FY81 can have a Cycle Date in any one of the five following fiscal years.)

Two primary reasons, discussed earlier, are the most likely causes of the erroneous STAT counts and our inability to perform manpower conservation exactly. First, multiple STATs recording a single transaction will inflate flow counts and subsequently unbalance the manpower equation. Second, the "Jams and Utilities" process permits changes to the master record without a STAT record being generated. The resulting flow counts will not reflect actual force behavior.

The investigation of the STAT data has identified a number of significant problems with the data and the resulting flow counts. Some data elements do not conform to the documented specifications. Some critical data elements do not contain legitimate values, or equally as severe, contain no values at all. Multiple STATs can be generated for a single change to the master record, and conversely, the master record can be updated without a STAT being generated. The flow counts produced using the STATs do not accurately reflect force behavior, and this makes it virtually impossible to balance the manpower equation. In summary, the STAT data do not provide the accuracy needed by manpower analysts.

⁹Unit diary entries are submitted to report a variety of changes, the majority of which change information in the JUMPS portion of the CMR and do not generate a STAT.

Table 3

FY81-FY85 Manpower Conservation Using Navy Personnel
Research and Development Center Inventory and Flow Counts

As of Date	(1) Computed Begin Inventory	(2) Losses (-)	(3) Gains (+)	(4) Implied End Inventory (1)-(2)+(3)	(5) Diff (4)-(1)
8009	170281	42556	46178	-	-
8109	172308	40587	44433	173903	+1595
8209	173863	41864	41279	176154	+2291
8309	174113	41665	43437	173278	-835
8409	175848	36319	38688	175885	+37
8509	177867	-	-	178217	+350

CONCLUSIONS AND RECOMMENDATIONS

The quality assessment of the two primary sources of enlisted personnel data, the HMF and the STATs, has identified a number of problems with these data, primarily with the STATs. Accurate counts of personnel flows, most importantly gains and losses, cannot be obtained using the STATs. This is due to multiple STATs recording the same flow, STATs correcting previously counted STATs, and no STAT being generated when change information is "jammed" into a Marine's record. Change information not consistently reported on the STAT also results in inaccurate flow counts. Data are, however, consistently and accurately entered in a Marine's CMR and the resulting HMF. During the quality assessment of the HMF, only a few instances of data elements containing invalid values were uncovered. The non-availability of the Appellate Leave File hampered efforts to match historical inventory counts derived from the HMF. Minor adjustments made at HQMC to the inventory count obtained from the HMF also account for differences between the official count and the NAVPERSRANDCEN-produced count.

The findings of the quality assessment suggest that the use of the STATs should be minimized. As an alternative to using the STATs, flows can be identified through inference--comparing information on two adjacent HMFs. Using inference eliminates the double counting of flows, the counting of correction STATs as legitimate flows, and the undercounting of flows because of "jammed" information. A data base that contains both inventory and flow data, where flows are identified through inference, would likely result in more accurate flow counts.

REFERENCES

Personnel Reporting Instructions Manual (PRIM), U. S. Marine Corps, MCO P1080.35

Joint Uniform Military Pay System/Manpower Management System Codes Manual (JUMPS/MMSCODESMAN), U.S. Marine Corps, MCO P1080.20

Military Occupational Specialties Manual (MOS Manual), U.S. Marine Corps, MCO P1200.7

APPENDIX A
INVENTORY COUNTS

INVENTORY COUNTS

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
8509										
MPP	13475	22632	54914	32276	24763	15533	9240	3707	1310	177850
NPRDC	13483	22633	54915	32280	24764	15532	9242	3708	1310	177867
DIFF	+8	+1	+1	+4	+1	-1	+2	+1	0	+17
%DIFF	+0.06	+0	+0	+0.01	+0	+0	+0.02	+0.03	0	+0.01
8506										
MPP	11991	23174	54769	32998	24782	15497	9259	3773	1303	177546
NPRDC	12002	23174	54779	33000	24778	15496	9260	3773	1303	177565
DIFF	+11	0	+10	+2	-4	-1	+1	0	0	+19
%DIFF	+0.09	0	+0.02	+0.01	-0.02	-0.01	+0.01	0	0	+0.01
8503										
MPP	12059	25921	51381	33706	25191	15463	9269	3773	1303	178066
NPRDC	12064	25924	51388	33707	25189	15462	9269	3773	1303	178079
DIFF	+5	+3	+7	+1	-2	-1	0	0	0	+13
%DIFF	+0.04	+0.01	+0.01	+0	-0.01	-0.01	0	0	0	+0.01
8412										
MPP	15018	24639	49169	32607	25764	15614	9294	3769	1319	177193
NPRDC	15020	24639	49169	32611	25763	15614	9294	3769	1319	177198
DIFF	+2	0	0	+4	-1	0	0	0	0	+5
%DIFF	+0.01	0	0	+0.01	0	0	0	0	0	0
8409										
MPP	15740	25834	47648	31953	25068	15434	9177	3732	1262	175848
NPRDC	15743	25834	47650	31954	25067	15431	9176	3731	1262	175848
DIFF	+3	0	+2	+1	-1	-3	-1	-1	0	0
%DIFF	+0.02	0	0	0	0	-0.02	-0.01	-0.03	0	0
8406										
MPP	14245	25456	47468	33563	25359	15259	9102	3708	1272	175432
NPRDC	14247	25450	47460	33562	25375	15240	9101	3709	1270	175414
DIFF	+2	-6	-8	-1	+16	-19	-1	+1	-2	-18
%DIFF	+0.01	+0.02	-0.02	0	+0.06	-0.12	-0.01	+0.03	-0.16	-0.01
8403										
MPP	15155	24411	47829	33516	24493	15377	9117	3741	1299	174938
NPRDC	15157	24411	47825	33517	24487	15375	9117	3741	1299	174929
DIFF	+2	0	-4	+1	-6	-2	0	0	0	-9
%DIFF	+0.01	0	-0.01	0	-0.02	-0.01	0	0	0	-0.01

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
8312										
MPP	16103	23624	46387	33013	25312	15312	9159	3691	1255	173856
NPRDC	16110	23620	46387	33087	25274	15291	9149	3691	1255	173864
DIFF	+7	-4	0	+74	-38	-21	-10	0	0	+8
%DIFF	+0.04	-0.02	0	+0.22	-0.15	-0.14	-0.11	0	0	0
8309										
MPP	15582	25966	44673	32400	26393	15102	9002	3745	1243	174106
NPRDC	15576	25971	44679	32401	26394	15103	9001	3745	1243	174113
DIFF	-6	+5	+6	+1	+1	+1	-1	0	0	+7
%DIFF	-0.04	+0.02	+0.01	+0	+0	+0	-0.01	0	0	0
8306										
MPP	13964	27276	44300	33566	27555	15079	9013	3817	1261	175831
NPRDC	13957	27278	44308	33561	27557	15080	9014	3817	1262	175834
DIFF	-7	+2	+8	-5	+2	+1	+1	0	+1	+3
%DIFF	+0.05	+0.01	+0.01	-0.01	+0.01	+0	+0.001	0	+0.08	0
8303										
MPP	16052	26841	45797	34081	27987	14565	8998	3610	1236	179167
NPRDC	16053	26846	45813	34077	27988	14565	9004	3603	1237	179186
DIFF	+1	+5	+16	-4	+1	0	+6	-7	+1	+19
%DIFF	+0	+0.02	+0.03	-0.01	0	0	+0.07	+0.19	+0.08	+0.01
8212										
MPP	17882	24882	46338	31998	26994	14769	8812	3543	1256	176474
NPRDC	17894	24889	46349	31995	26988	14767	8812	3542	1257	176493
DIFF	+12	+7	+11	-3	-6	-2	0	-1	+1	+19
%DIFF	+0.07	+0.03	+0.02	-0.01	-0.02	-0.01	0	-0.03	+0.08	+0.01
8209										
MPP	16878	25640	43807	32539	26155	15109	8747	3286	1239	173400
NPRDC	17530	25639	43804	32490	26082	15076	8727	3279	1236	173863
DIFF	+652	-1	-3	-49	-73	-33	-20	-7	-3	+463
%DIFF	+3.72	-0	-0	-1.51	-0.28	-0.22	-0.23	-0.21	-0.24	+0.27
8206										
MPP	16140	27682	43653	32426	26711	14615	8694	3374	1224	174519
NPRDC	16408	27679	43637	32418	26682	14596	8684	3372	1224	174700
DIFF	+268	-3	-16	-8	-29	-19	-10	-2	0	+181
%DIFF	+1.63	-0.01	-0.04	-0.02	-1.08	-1.30	-1.15	-0.06	0	+0.10

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
8203										
MPP	16919	28270	42817	31703	27452	12905	8728	3400	1236	173430
NPRDC	17131	28269	42811	31709	27450	12901	8722	3399	1235	173627
DIFF	+212	-1	-6	+6	-2	-4	-6	-1	-1	+197
%DIFF	+1.24	0	-0.01	+0.02	0	-0.03	-0.07	-0.03	-0.08	+0.11
8112										
MPP	21589	25207	43067	30939	24249	14040	8302	3320	1242	171955
NPRDC	21815	25202	43064	30942	24248	14038	8298	3316	1241	172164
DIFF	+226	-5	-3	+3	-1	-2	-4	-4	-1	+209
%DIFF	+1.03	-0.02	0	0	0	-0.01	-0.05	-0.12	-0.08	+0.12
8109										
MPP	22690	27465	45301	26741	24465	13166	8229	3002	1197	172256
NPRDC	22771	27462	45299	26736	24453	13163	8226	3002	1196	172308
DIFF	+81	-3	-2	-5	-12	-3	-3	0	-1	+52
%DIFF	+0.36	-0.01	0	-0.02	-0.05	-0.02	-0.04	0	-0.08	+0.03
8106										
MPP	19217	29158	43892	28014	24446	13156	8224	3051	1215	170373
NPRDC	19230	29155	43891	28012	24441	13154	8222	3051	1214	170370
DIFF	+13	-3	-1	-2	-5	-2	-2	0	-1	-3
%DIFF	+0.07	-0.01	0	0	-0.02	-0.02	-0.02	0	-0.08	0
8103										
MPP	20021	29137	42780	28425	23564	13085	8291	3070	1221	169594
NPRDC	20081	29136	42780	28424	23563	13082	8290	3070	1220	169646
DIFF	+60	-1	0	-1	-1	-3	-1	0	-1	+52
%DIFF	+0.30	0	0	0	0	-0.02	-0.01	0	-0.08	+0.03
8012										
MPP	24883	25120	43809	26900	23074	13033	8200	3022	1199	169240
NPRDC	24922	25118	43809	26899	23074	13032	8199	3022	1198	169273
DIFF	+39	-2	0	-1	0	-1	-1	0	-1	+33
%DIFF	+0.16	0	0	0	0	0	-0.01	0	-0.08	+0.02
8009										
MPP	25404	27641	43705	25866	22347	12885	8416	2782	1224	170270
NPRDC	25421	27639	43705	25865	22347	12884	8414	2783	1223	170281
DIFF	+17	+2	0	-1	0	-1	-2	+1	-1	+11
%DIFF	+0.07	+0.01	0	0	0	0	-0.02	+0.04	-0.08	+0.01

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
7909										
MPP	23754	25840	44764	25598	21580	12749	8465	3017	1253	167020
NPRDC	27117	29771	46391	27884	22942	12796	8606	3300	1243	180050
DIFF	+3363	+3931	+1627	+2286	+1362	+47	+141	+283	-10	+13040
%DIFF	+14.16	+15.21	+3.63	+8.93	+6.31	+0.37	+1.67	+9.38	-0.80	+7.80
HMF-DMDC	24873	28176	42716	23506	20513	12262	8403	3086	1155	164690
DIFF	+1119	+2336	-2048	-2092	-1067	-487	-62	+69	-98	-2330
%DIFF	+4.71	+8.29	-4.79	-8.17	-5.20	-3.82	-0.73	+2.29	-7.82	-1.40
7809										
MPP	20331	28148	45689	28874	22084	14066	8605	3396	1233	172426
NPRDC	23792	34575	45417	29784	23748	13925	8616	3257	1211	184325
DIFF	+3461	+6427	-272	+910	+1664	-141	+11	-139	-22	+11899
%DIFF	+17.0	+22.8	0.60	+3.15	+7.53	-1.00	+0.13	-4.09	-1.78	+6.90
HMF-DMDC	21311	32667	42857	26302	21298	13230	8419	3107	1120	170311
DIFF	+980	+4519	-2832	-2572	-786	-836	-186	-289	-113	-2115
%DIFF	+4.82	+16.1	-6.20	-8.91	-3.69	-5.94	-2.16	-8.51	-9.16	-1.23
7709										
MPP	24044	30491	37997	28248	2110	14040	8588	3304	1230	173052
NPRDC	29204	36199	34934	31756	24572	13998	8637	3311	1246	183857
DIFF	+5160	+5708	+3603	+3508	-538	-42	+49	+7	+16	+10805
%DIFF	+21.46	+18.72	+8.06	+12.42	-2.14	-0.30	+0.57	+0.21	+1.30	+6.24
HMF-DMDC	25757	34038	33140	28938	22078	13501	8415	3148	1164	170179
DIFF	+1713	+3547	-4857	+690	-3032	-539	-173	-156	-66	-2873
%DIFF	+7.12	+11.63	-12.78	+2.44	-12.07	-3.84	-2.01	-4.72	-5.36	-1.66
7609										
MPP	23537	32883	36178	29537	23928	14243	8706	3295	1210	173517
NPRDC	25737	30138	34279	29578	23697	13946	8661	3276	1250	170562
DIFF	+2200	-2745	-1899	+41	-231	-297	-45	-19	+40	-2955
%DIFF	+9.35	-8.35	-5.25	+0.14	-0.96	-2.09	-0.52	-0.58	+3.31	-1.70
HMF-DMDC	25103	29917	34156	29520	23666	13939	8661	3275	1250	169487
DIFF	+1566	-2966	-2022	-17	-262	-304	-45	-20	+40	-4030
%DIFF	+6.65	-9.02	-5.59	-0.06	-1.09	-2.13	-0.52	-0.61	+3.31	-2.32

APPENDIX B
CATEGORIES AND TYPES OF STATs

CATEGORIES AND TYPES OF STATUS

ACCESSIONS

(TCC)

-true accession of Regular Marine	A0
-true accession of Reserve Marine	A6
-immediate reenlistment	A4
-reactivation of erroneously separated record	A5
-return from desertion	A7
-join in another status	A8
-reestablishment of a record	AN

DROPS

-true separation will not reenter Regular or Reserve establishment	R1
-drop for immediate reentry	R2
-true separation and transfer to Reserve establishment	R3
-drop to desertion	R4
-drop to enter another status	R5

EXTENSIONS/REENLISTMENTS

-planning to extend	EE
-extension was effected	EF
-extension was effected (discontinued)	EP
-Marine received bonus for reenlistment/extension	ER
-involuntary extension, convenience of the government	EX
-component code change	E1
-reduce/award/terminate proficiency pay	E2
-cancel plans to extend	E4

UNAUTHORIZED ABSENCE/DESERTION

-UA less than 24 hours within same day	UA
-UA greater than 24 hours	U1
-return from UA	U5
-UA less than 24 hours over a 2 day period	U6
-return from UA, absence was excused	U7
-height and weight of deserters	HW
-time lost	TL

TRANSFERS

-departure from present RUC/MCC to new command	TR
-join RUC of a new command	JD
-turbulent move	JP
-to TAD status more than 30 days	HC
-from TAD status less than 30 days	HD

PROMOTION/REDUCTION/GRADE CORRECTION

-enlisted meritorious promotion	DB
-enlisted temporary promotion	DH
-permanent promotion	D2
-enlisted permanent promotion, option at reenlistment	D6
-enlisted administrative reduction for temporary ranks	DY
-enlisted administrative reduction other than temporary ranks	D3
-enlisted disciplinary reduction	DC
-establishment of grade	DE
-grade correction/adjustment	D5

RETIREMENT/TRANSFER TO FMCR

-request to retire with at least 30 years of service	SR
-request transfer to FMCR with less than 30 years of service	SF
-request (above) approved	SA
-request (above) disapproved	SD
-request (above) withdrawn	SW

TRAINING HISTORY

-assignment to training	TH
-completion of training	TH
-disenrollment from training	TH

OTHER

-primary MOS	GW
-composite score (not saved)	CS
-sign up or completion of Marine Corps Institute course	8E
-leave	LV
-change of source of entry (not saved)	HL
-return from sick	HM
-change of strength category	HN

APPENDIX C
FISCAL YEAR LOSSES/GAINS

FISCAL YEAR LOSSES

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
FY85										
MPP	7434	4118	8478	10451	4125	1047	368	555	262	36838
NPRDC	6884	4085	8476	10470	4168	1044	371	557	264	36319
DIFF	-550	-33	-2	+19	+43	-3	+3	+2	+2	-519
%DIFF	-7.4	-0.80	-0.02	+0.18	+0.41	-0.29	+0.82	+0.36	+0.76	-1.41
FY84										
MPP	10031	5041	8165	11148	5082	1093	389	527	276	41752
NPRDC	9830	5343	8299	10938	5007	1062	394	517	275	41665
DIFF	-201	+302	+134	-210	-75	-31	+5	-10	-1	-87
%DIFF	-2.00	+6.00	+4.08	-1.88	-1.48	-2.84	+1.29	-1.90	-0.36	-0.21
FY83										
MPP	10440	5427	8239	10390	5802	974	387	424	231	42314
NPRDC	9821	5416	8269	10417	5911	991	375	433	231	41864
DIFF	+619	+11	-30	-27	-109	-17	+12	-9	0	-450
%DIFF	+5.93	+0.20	-0.36	-0.26	-1.88	-1.75	+1.10	-2.12	0	+1.06
FY82										
MPP	12973	5481	7238	9581	5485	1039	502	498	228	43033
NPRDC	11097	5128	6997	9590	5483	1047	502	511	232	40587
DIFF	-1876	-353	-241	+9	-2	+8	0	+13	+4	-2446
%DIFF	-14.5	-6.44	-3.32	+0.09	-0.04	+0.77	0	+261	+1.75	-5.68
FY81										
MPP	10606	5034	7896	10472	6346	1174	608	496	253	42885
NPRDC	10555	5049	7669	10359	6351	1265	608	474	236	42566
DIFF	+51	+15	-227	-113	+5	+91	0	-22	-17	-319
%DIFF	+0.48	+0.29	+2.87	-1.08	+0.08	+7.75	0	-4.44	-6.72	-0.74
FY80										
MPP	8437	4079	8422	10327	7112	1681	849	695	251	41853
NPRDC	8591	4113	8721	10788	7366	1706	867	710	268	43130
DIFF	+154	+34	+299	+461	+254	+25	+18	+15	+17	+1277
%DIFF	+1.83	+0.833	+3.55	+4.46	+3.57	+1.49	+2.12	+2.16	+6.77	+3.05

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
FY79										
MPP	8930	5191	10095	12209	8078	2366	749	699	264	48581
NPRDC	8733	4951	10089	12295	8119	2351	754	681	264	48247
DIFF	-197	-240	-6	+86	+41	-15	+5	-8	0	-334
%DIFF	-2.21	-4.62	-0.06	+0.70	+0.51	+0.63	+0.67	-1.14	0	-0.69
FY78										
MPP	10272	5482	6809	8898	8358	2393	926	642	315	44095
NPRDC	10194	5333	6554	8765	8075	2332	921	618	294	43086
DIFF	-78	-149	-255	-133	-283	-61	-5	-24	-21	-1009
%DIFF	-0.76	-2.72	-3.75	-1.49	-3.39	-2.55	-0.54	-3.74	-6.67	-2.29
FY77										
MPP	11549	5922	6849	9385	9317	2109	938	581	270	46920
NPRDC	11807	6179	6680	9068	8917	2016	904	563	260	46394
DIFF	+258	+257	-169	-317	-400	-93	-34	-18	-10	-526
%DIFF	+2.23	+4.34	-2.47	-3.38	-4.29	-4.41	-3.63	-3.10	-3.70	-1.12

FISCAL YEAR GAINS

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
FY85										
MPP	26061	9658	834	1354	816	62	41	9	1	38836
NPRDC	25834	9664	848	1384	832	76	38	11	1	38688
DIFF	-227	+6	+14	+30	+16	+14	-3	+2	0	-148
%DIFF	-0.87	+0.06	+1.68	+2.22	+1.96	+22.6	-7.32	+22.2	0	-0.38
FY84										
MPP	30602	10026	699	1112	939	82	28	3	3	43494
NPRDC	30524	10003	712	1120	952	89	30	5	2	43437
DIFF	-78	-23	+13	+8	+13	+7	+2	+2	-1	-57
%DIFF	-0.25	-0.23	+1.86	+0.72	+1.38	+8.54	+7.14	+6.67	-33.3	-0.13
FY83										
MPP	30473	8627	780	1166	1803	145	37	8	1	43040
NPRDC	29049	8363	805	1221	1687	115	24	12	3	41279
DIFF	-1424	-264	+25	+55	-116	-30	-13	+4	+2	-1761
%DIFF	+4.67	-3.06	+3.21	+4.50	+6.43	+2.07	-35.1	+500.0	+200.0	-4.19
FY82										
MPP	32299	7703	1242	1236	1598	121	0	0	0	44199
NPRDC	31382	7865	1397	1873	1682	182	30	19	3	44433
DIFF	-917	+162	+155	+637	+84	+61	+30	+19	+3	+234
%DIFF	-2.84	+2.10	+12.49	+51.5	+5.26	+50.4	?	?	?	+0.53
FY81										
MPP	34689	6607	1169	1149	1145	112	0	0	0	44871
NPRDC	34968	6855	1235	1413	1349	263	70	16	9	46178
DIFF	+279	+248	+66	+264	+204	+151	+70	+16	+9	+1307
%DIFF	+0.80	+3.75	+0.51	+23.0	+17.8	+134.8	?	?	?	+2.91
FY80										
MPP	35139	6863	963	903	1024	211	0	0	0	45103
NPRDC	34732	6864	940	1110	1135	240	48	21	4	45094
DIFF	-407	+1	-23	+207	+111	+29	+48	+21	+4	-9
%DIFF	-1.16	0	+2.39	+22.9	+10.8	+13.7	?	?	?	-0.02

FISCAL YEAR GAINS (Continued)

	E1	E2	E3	E4	E5	E6	E7	E8	E9	TOTAL
FY79										
MPP	34676	6789	347	547	635	171	3	4	3	43175
NPRDC	33858	6680	622	680	714	191	35	11	3	42794
DIFF	-818	-109	+275	+133	+70	+20	+32	+7	0	-381
%DIFF	-2.36	-1.60	+79.3	+24.3	+12.4	+11.7	+1066.	+175.	0	-.882
FY78										
MPP	33077	8875	387	343	902	47	4	2	1	43638
NPRDC	32120	8630	509	508	988	68	24	7	8	42862
DIFF	-957	-245	-122	+165	+86	+21	+20	+5	+7	-776
%DIFF	-2.89	-2.76	-31.5	+48.1	+9.53	+44.7	+500.	+250.	+700.	-1.78
FY77										
MPP	37111	9386	651	584	979	50	3	6	4	48774
NPRDC	37030	9261	582	713	1070	80	22	7	9	48774
DIFF	-81	-125	-69	+129	+91	+30	+19	+1	+5	0
%DIFF	-.218	-1.33	-10.6	+22.1	+9.3	+60.0	+633.	+16.7	+125.	0

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