RECONCILIATION OF TRAVEL ADVANCES
AND TRAVEL LIQUIDATIONS

by

Domingo Gonzales

June 1990

Thesis Advisor: James M. Fremgen

Approved for public release; distribution is unlimited.
RECONCILIATION OF TRAVEL ADVANCES AND TRAVEL LIQUIDATIONS

Gonzales, Domingo

13a. Type of Report
Master's Thesis

13b. Time Covered
1990 June

16. Supplementary Notation
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

19. Abstract
This thesis was an investigation of the causes that prevented the matching of the accounting line associated with an advance travel payment with the accounting line associated with the liquidation payment or collection for shore activities serviced by the Fleet Accounting and Disbursing Center Pacific, San Diego, CA. Utilizing a random sample of 179 standard document numbers from fiscal year 1989, the researcher concluded that the two major causes preventing the matching of an advance to the liquidation were document type code errors and execution code errors. Both types of errors are attributable to input error. The researcher identified manual inputs, multiple activity processing and inadequate management reports as the three major barriers affecting the travel reconciliation process. Recommendations designed to prevent input errors and to improve the travel accounting process were provided.

21. Abstract Security Classification
Unclassified

22a. Name of Responsible Individual
James M. Fremgen

22b. Telephone (Include Area Code)
(408) 646-2644

22c. Office Symbol
AS/Fm
Reconciliation of Travel Advances and Travel Liquidations

by

Domingo Gonzales
Lieutenant, United States Navy
B.S., Texas A&M University, 1976

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1990

Author: Domingo Gonzales

Approved by: James M. Fremgen, Thesis Advisor
Glen Eberling, Second Reader
David R. Whipple, Chairman, Department of Administrative Sciences
ABSTRACT

This thesis was an investigation of the causes that prevented the matching of the accounting line associated with an advance travel payment with the accounting line associated with the liquidation payment or collection for shore activities serviced by the Fleet Accounting and Disbursing Center Pacific, San Diego, CA. Utilizing a random sample of 179 standard document numbers from fiscal year 1989, the researcher concluded that the two major causes preventing the matching of an advance to the liquidation were document type code errors and execution code errors. Both types of errors are attributable to input error. The researcher identified manual inputs, multiple activity processing and inadequate management reports as the three major barriers affecting the travel reconciliation process. Recommendations designed to prevent input errors and to improve the travel accounting process were provided.
# TABLE OF CONTENTS

I. INTRODUCTION ........................................................................... 1  
   A. GENERAL INFORMATION ................................................. 1  
   B. NEED FOR A STUDY ON TRAVEL RECONCILIATION ............. 2  
   C. PURPOSE, LIMITATIONS AND ASSUMPTIONS ................... 3  
   D. METHOD OF RESEARCH .................................................... 4  
   E. THESIS ORGANIZATION .................................................... 5  

II. TRAVEL PROCESS ................................................................. 7  
   A. GENERAL ........................................................................ 7  
   B. COMMAND RESPONSIBILITIES ......................................... 8  
      1. Cost Center Responsibilities .......................................... 8  
      2. Department Head Responsibilities ................................... 9  
      3. Commanding Officer's Responsibilities .......................... 12  
      4. Comptroller's Responsibilities ....................................... 12  
      5. Member's Duty Upon Return From TAD/TDY .................. 16  
   C. PSD/PSA RESPONSIBILITIES ........................................... 16  
      1. PSD Responsibilities ................................................... 19  
      2. PSA Responsibilities ................................................... 23  
   D. FIPC AND AAA RESPONSIBILITIES .................................. 24  
      1. FIPC Responsibilities ................................................... 24  
      2. AAA Responsibilities ................................................... 24  

III. RESEARCH METHODOLOGY ............................................... 29  
   A. LITERATURE REVIEW ...................................................... 29  
   B. PERSONAL INTERVIEWS ................................................... 30  

iv
C. PERSONAL OBSERVATION ........................................ 31
D. COLLECTING SAMPLE DATA ...................................... 32
   1. Large Customer Base ...................................... 32
   2. Multiple Fiscal Years (FY) In Process ........... 33
   3. Time Factor ........................................... 33
   4. Sampling Unit Selection .............................. 34
IV. DATA COLLECTION ............................................. 35
   A. SAMPLE SIZE ........................................... 35
   B. SELECTING THE SAMPLE ............................... 36
   C. OBTAINING DATA ...................................... 37
   D. EXAMINATION OF THE DATA ........................... 38
V. DATA ANALYSIS ................................................ 40
   A. STANDARD DOCUMENT NUMBER ERRORS .................. 40
      1. Document Type Code Input Errors ................. 41
      2. Serial Number Errors ................................ 43
      3. SDNs With Less Than 15 Digits .................... 44
   B. EXECUTION CODE ERRORS ................................ 45
   C. OTHER TYPES OF ERRORS .............................. 47
   D. SUMMARY ................................................ 48
VI. CONCLUSIONS .................................................. 51
   A. ASSESSMENT OF THE TRAVEL ACCOUNTING SYSTEM .... 51
      1. Manual Inputs ........................................ 52
      2. Multiple Activity Processing ....................... 52
LIST OF TABLES

TABLE 1  STANDARD DOCUMENT NUMBERS SELECTED PER ACTIVITY................................. 39
TABLE 2  SUMMARY OF ERRORS................................. 50
LIST OF FIGURES

Figure 1  Travel Process ................................. 7
Figure 2  Standard Document Number ...................... 10
Figure 3  Job Order Numbering Structure ................... 11
Figure 4  Travel Request and Orders Process .............. 17
Figure 5  Member Completes Travel ......................... 18
Figure 6  Advance Pay Process ............................. 21
Figure 7  Travel Liquidation ................................. 27
I. INTRODUCTION

A. GENERAL INFORMATION

The management of travel funds within the Department of Defense (DOD) has come under intense Congressional scrutiny in the past few years. Especially with today's austere funding restraints, accounting for travel dollars has become even more important. There is great pressure at all levels of DOD to improve the management and reporting of allotted travel funds.

Another politically sensitive issue concerning travel funds management is the potential for fraud. There have been many recorded cases where individuals received travel funds without performing travel or received advance payments and never submitted liquidating travel claims. These abuses of travel funds have heightened Congressional interest in DOD's travel management policies.

Historically, the Navy has had great difficulty in accounting for its travel funds. In the days before automation it was a tremendous task to reconcile travel claims. The process was painstakingly slow and subject to many computational errors. There was an inordinate time lag between an advance payment and final reconciliation. With the advent of automation the Navy had hoped to improve its
management of the travel process, but problems continue to plague the system. Many laborious hours tracking travel claims through the reconciliation process are still being expended. Automation has helped to decrease the total time a claim spends in the reconciliation process; however, efficiency still seems to elude the Navy. If anything, automation has only magnified the Navy's shortcomings in the management of travel funds. It is for this very reason that the Navy continues to attract high-level interest to improve its management of limited travel funds.

B. NEED FOR A STUDY ON TRAVEL RECONCILIATION

During fiscal year (FY) 1989, $209 million dollars [Ref. 1:p. 9] were allotted to activities serviced by the Fleet Accounting and Disbursing Center, Pacific (FAADCPAC) for travel accounting. FAADCPAC is one of several activities designated by the Navy Comptroller to perform accounting services for shore activities. FAADCPAC is responsible for maintaining the financial data bases and for the recording and reporting of funds allotted to the activities it services. One of FAADCPAC's services is accounting for travel funds, from the payment of an advance before travel through the final liquidation payments after travel has been completed. Once travel had been completed, the advance and liquidation payments should have been matched to complete travel
accounting. However, at any given time, a substantial amount of the advance payments and the liquidation payments for travel were not matched as they should have been. What should have been a routine automated reconciliation process developed into a large, time-consuming endeavor that affected virtually every activity serviced by FAADCPAC. Failure of the reconciliation process was attributed to the exacting nature of the current accounting system, which requires an exact match, character for character, between the advance payment and liquidation.

C. PURPOSE, LIMITATIONS AND ASSUMPTIONS

FAADCPAC requested that a study be conducted to find the reasons that prevent the matching of an advance payment to the liquidation payment. The purpose of this research is to find those reasons. The research will focus on those activities that interact with the reconciliation process, particularly the different levels within the travel initiating Command, the Personnel Support Detachment or Activity (PSD or PSA) and FAADCPAC. A question addressed throughout the research is to what extent the individual activities are responsible for the travel reconciliation difficulties.

Once having determined what the major reasons are for travel reconciliation problems, the question whether the
current accounting system for travel payments can be improved will be addressed.

The following limitations will be observed during this study:

1. Only FY 89 travel documents between 1 October 1988 through 31 July 1989 will be evaluated.

2. Only orders for Temporary Additional Duty (TAD) and Temporary Duty (TDY) will be evaluated.

3. FAADCPAC's data base will be used to extract samples of standard document numbers.

For the purposes of this study the following assumptions will be made:

1. Completed travel claims are submitted according to prescribed standards.

2. Computation of payments are correct.

D. METHOD OF RESEARCH

The primary source of information for this study was the Authorization Accounting Activity (AAA), a component of the Financial Information Processing Center (FIPC) located at FAADCPAC, San Diego, California. Close liaison was maintained with the head of the AAA throughout the research and writing phases. Two research visits to FAADCPAC provided the foundation for this report. During the two visits to FAADCPAC, extensive interviews with the AAA division head and key members of her supporting staff helped put into perspective the travel cycle and the accounting system in
operation. While performing research in San Diego, activities serviced by FAADCPAC were also visited. Discussions concerning the travel process were held and a better appreciation of the environment being evaluated was obtained.

As was mentioned earlier in this report, there are other activities currently engaged in providing the same service as FAADCPAC, San Diego. One such activity is located at the Naval Supply Center, Oakland, California. A visit with its AAA staff to discuss travel-related problems revealed similar reconciliation difficulties. In addition to the visits and interviews a review of the limited available literature was conducted.

In view of the purpose of the research, a selected number of FY 1989 standard document numbers were randomly chosen from a system generated Travel Advances Transaction Listing at FAADCPAC. The standard document numbers were traced through the reconciliation process to identify reasons that prevent the matching of an advance payment to a liquidation payment. A more detailed description on how the standard document numbers were selected and evaluated will be provided in chapter III.

E. THESIS ORGANIZATION

The first chapter of this thesis introduces the topic under investigation, the reconciliation of travel advances to
travel liquidations. The introduction explains the purpose and the scope of the thesis and also describes the research objectives and methods.

Chapter II provides background information concerning the travel process. An in-depth review of every phase in the reconciliation process is included. Each activity and its responsibilities in the travel process are described.

Chapter III addresses the methodology used in conducting the research. The methods used to conduct the research included interviews, personal observations, a review of existing literature, and examination of a sample of travel orders.

Chapter IV presents the data collected. A statement of the facts and the measuring devices used to analyze the data is provided.

Chapter V contains an analysis of the data collected and interpretations of the data.

Chapter VI provides a summary of the study findings. Conclusions and recommendations are also provided.
II. TRAVEL PROCESS

A. GENERAL

The Navy's travel system is a highly complicated and dynamic process. It is complicated in the sense that, when an individual is issued a set of travel orders involving cost to the government (i.e., cost orders) and the orders are carried out, several activities are affected. The affected activities are the traveler's command, a PSD or PSA, FAADCPAC, the Navy Accounting and Finance Center (NAFC) and the U.S. Treasury. Figure 1 illustrates the travel process as it exists today. An explanation of Figure 1 is provided in the following pages. The travel process is dynamic in the sense that standards and regulations are continually changing and accounting systems Navywide are not 100% standard.

Figure 1
Travel Process
The intent of this chapter is to present a typical travel cycle and the activities involved in the reconciliation process. Some procedures outlined in the following pages may vary from one command to another, but the travel process depicted in Figure 1 still prevails.

B. COMMAND RESPONSIBILITIES

When a member requests to go on TAD orders (for military personnel) or TDY orders (for civilian personnel), generally four levels within his or her command are affected. These levels are the traveler's cost center, the traveler's Department, the Comptroller and the Commanding Officer. A description of the actions and responsibilities of each level is provided.

1. Cost Center Responsibilities

Normally all travel starts at this level within a command. Personnel can go on authorized travel for a myriad of reasons, but the most common reasons are for training or to attend a meeting or conference. Usually the travel process originates when a member submits a local document requesting permission to go on travel. In the request the member will indicate the reason for travel, whether he chooses to go on cost or no-cost orders, the type of transportation required, accommodations at the destination point and whether an advance is desired. At the cost center level, the request will either
be approved or disapproved by a division head. If the request is disapproved, usually no further action is required. If the request is approved, it is then forwarded up to the next level in the chain of command, the Department Head.

2. Department Head Responsibilities

At the department head level the request will either be disapproved or approved. If the request is disapproved, no further action is necessary. If the request is approved, the next step is to determine if cost or no-cost orders are requested. If no-cost orders are requested, then travel orders are prepared on NAVPERS 1320/16 (Rev 11-87) for military personnel or DD Form 1610 for civilian personnel, with no accounting data. The orders are forwarded to the Commanding Officer (CO) for authorization and signature and to the Comptroller for verification. The orders are given to the member and no further action is required.

When cost orders are requested, the first step is to obtain the CO's authorization. After authorization is received, then the orders are prepared.

The preparation of the orders is the most critical phase of the travel order process. It is at this stage that the most important elements in the reconciliation process are entered onto the orders -- the standard document number (SDN), the job order number (JON) and the accounting line. All three
elements serve important roles in the identification, reporting and accounting for travel funds.

The SDN's purpose on a set of orders is to uniquely and uniformly identify a specific set of travel orders. It consists of a 15-digit number that identifies the military department, document issuing activity, fiscal year, type of document involved, and a local serial number assigned by the traveler's command [Ref. 2:pp. 7-10]. An SDN is illustrated in Figure 2.

```
Military Department/Service
Designator Code ("N" identifies Navy
Unit Identification Code (UIC) of Document
Issuing Activity
Last Two Digits of Fiscal Year
Document Type Code (Can be either "TO" for per diem, or "TR" for government furnished transportation)
Serial Number (Local number that identifies the cost center or department)
```

Figure 2
Standard Document Number

The JON serves a different purpose on a set of orders than the SDN. The JON is used to capture financial data at the lowest cost level within an activity. The Navy operates on a job order system to account for accrued expenses by
relating a JON to the various categories into which expenses (travel included) are classified [Ref. 3:p. D-66]. The JON consists of an 11-digit alphanumeric field. While there is no standard job order numbering system within the Navy, most shore activities use the numbering structure illustrated in Figure 3.

<table>
<thead>
<tr>
<th>60597</th>
<th>0</th>
<th>E1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIC</td>
<td>FY</td>
<td>Serial No. (local)</td>
</tr>
</tbody>
</table>

Figure 3
Job Order Numbering Structure

The final entry of note to the reconciliation process is the accounting line itself. Its purpose is to provide a uniform system of accumulating and reporting accounting information relating to public voucher disbursements or collections. The accounting line is composed of nine elements, preceded by the Accounting Classification Reference Number (ACRN). The nine elements of the accounting line are the appropriation, the sub-head, object class, bureau control number, sub-allotment holder, Authorization Accounting Activity, transaction type code, property accounting activity, and the cost code [Ref. 3:p. D-55]. See appendix for a detailed breakdown of the nine elements. The number of accounting lines appearing on a set of orders can vary. For instance, if a member is entitled to per diem and government
furnished transportation and is travelling between fiscal years, each would require a separate line of accounting on the orders. In addition, each line of accounting would require a separate SDN and a different JON for each of the two fiscal years.

Once all the accounting information is entered on the orders, the next step is to forward the orders to the CO for signature.

3. Commanding Officer's Responsibilities

The CO or a designated representative must sign the orders before they can be executed. In addition, the CO is responsible for ensuring that the member is notified in the travel orders that a completed travel claim (DD Form 1351-2) must be submitted to PSD or PSA within five days after return to duty following completion of travel. He also must notify the traveler that failure to comply with the requirement may result in the deduction from pay of all travel advances received by the traveler on the orders [Ref. 4:pp. 2-20].

4. Comptroller's Responsibilities

Upon receipt of the travel orders from the CO, they are reviewed in the Comptroller's office to ensure that the accounting line, the SDN and the JON are all entered correctly. If a mistake is made in any of the entries above, the orders are returned to the originating department for
correction. Once the orders are certified to be correct, the next step is to enter obligations for per diem and the cost of government furnished transportation (GTR) into the Integrated Disbursing and Accounting Financial Management System (IDAFMS). IDAFMS is an accounting system designed to process expenditure and collection data at the activity level and provide summary reports. The purpose of the obligation is to legally encumber the activity to set aside a specified sum of money which will require an outlay or an expenditure in the future [Ref. 3:p. D-50].

The process of entering obligations into IDAFMS is driven by the job order numbers assigned to the per diem and GTR. Obligations are entered singularly or in batch processing via CRT terminals and electronically forwarded to FIPC. In batch processing, a group of transactions normally representing a day's worth of transactions are forwarded to the FIPC. Once the obligations are received by the FIPC, the first validation process occurs. The JONs in the obligations are matched against a listing of authorized job order numbers called the Job Order Reference Master (JORM) in the FIPC files. If the JON matches, the obligation is recorded into the legal records of the activity at the FIPC. If the JON does not match (e.g., keying or transposition errors), then it falls into a suspense file and will remain there until the
error is corrected by the activity. In batch processing, if there is one discrepancy in a group of transactions, then only the invalids will fall into the suspense file. Once the obligations have cleared the validation phase and are recorded, they will next be used during the final travel settlement phase to match against the liquidation expenditure. This completes the obligation phase.

The next step is to determine if an advance was requested. Some activities will indicate an advance by adding a separate line of accounting for the advance in the orders. It is identified by a 1K transaction type code. Other activities will refer to the traveler's initial travel request to see if an advance was requested. If no advance is indicated in the initial travel request, then the orders are returned to the traveler and no further entries are required until the completion of travel.

If an advance was requested, the Comptroller has to make an additional entry into IDAFMS to establish the Travel Order Master (TORM) file. The TORM file is necessary to prepare the listing of Overage Outstanding Travel Advances [Ref. 5:pp. 5-12]. This report is a management document for the Comptroller to monitor advance payments outstanding in excess of 90 days from the travel completion date indicated
on the TORM. To establish the TORM file, the following control data must be entered:

2. A one digit report code (enter "S" for self).
3. Job order number.
4. A twenty-seven digit name.
5. A twenty-seven digit address.
6. A four digit travel completion date (numeric).
7. A four digit travel start date (numeric).

Failure to create the TORM file will not inhibit the reconciliation process. If one is not created, then during the Centralized Expenditure and Reimbursable Process System (CERPS) download by the AAA to activity files, a skeletonized TORM will automatically be created by the system. A skeletonized TORM will contain all the entries cited above, except items "4" and "5". The travel start date will be established from the transaction date of the CERPS download tape and the travel completion date will be automatically set at thirty days from the start date generated by the computer.

After completion of the accounting entries and establishment of the TORM file, the orders are then forwarded to the appropriate PSD or PSA. Any undetected errors at this point will adversely impact the reconciliation process.
Figure 4 flow charts the path of the travel request and orders through the chain of command.

5. Member's Duty Upon Return From TAD/TDY

When the traveler returns to his command after completion of travel, his primary responsibility is to ensure that a completed travel claim with the original orders and copies of receipts be submitted to PSD or PSA within five days after return. Some commands require that the completed travel claim be routed through the comptroller before submitting it to PSD or PSA. Figure 5 illustrates the process when a member returns from travel.

C. PSD/PSA RESPONSIBILITIES

Before describing the responsibilities of a PSD, a distinction between a PSD and a PSA is provided. A Personnel Support Detachment (PSD) is a satellite of the parent Personnel Support Activity (PSA). A PSA is an administrative services command responsible for other commands within a specified geographic area. Within this geographic area there can be many commands to serve, and some possibly great distances from the PSA. A single PSA would have difficulty servicing all of its activities; therefore, the Navy created a network of smaller detachments supporting designated commands and reporting to the parent PSA. The PSDs are linked to the parent PSA via an automated system. The PSDs will
Figure 4
Travel Request and Orders Process
TRAVELER'S COMMAND

MEMBER
SUBMITS
TVL CLAIM

COMPTROLLER
INSPECTS DOCUMENTS
VERIFIES RECEIPTS
AND REPORTING
DATES

PSD OR PSA

DEPT
CHECKS
FOR
ACCURACY

CONSOLIDATE
PSD'S
TRANSACTIONS

PSD OR PSA

COMPUTES
TVL
PREPARES
EXPENDITURES

ADV
EXCEEDS
TVL
COSTS

YES
NO

1K (CR) ADV
2D TVL
LIQUIDATION

1K (CR) ADV
2D COLLECTION

FWD TO
PSA

FWD TO
FAADCPAC

NOTIFY MEMBER
*PAY FROM POCKET
*PAY CHECKAGE

PREPARE COLLECTION
VOUCHER

FWD TO
PSA

Figure 5
Member Completes Travel
process travel transactions as necessary and then forward the
transactions to the PSA. The PSA will consolidate the
transactions received from its detachments into a single
reporting transaction and then forward it to FAADCPAC. A PSA
will also act in the same capacity as a PSD for commands in
its area. So the responsibilities of a PSD in the travel
process, as described in the next section, apply also to the
PSA.

1. PSD Responsibilities

PSDs serve two vital functions in the travel and
reconciliation processes. Those functions are to make
disbursements or collections and to register those
transactions into the Financial Reporting System (FRS). The
Financial Reporting System is the vehicle through which
expenditure data are reported to the Navy Accounting and
Finance Center and the Treasury [Ref. 3:p. D-32].

During the advance payment phase, PSD will receive a
set of travel orders directing it to pay the traveler a
percentage (usually 80%) of the total per diem entitlement
and 100% of the transportation entitlement if the traveler is
traveling via personal conveyance. Upon receipt of the
orders, PSD will verify through its automated system that the
following accounting line entries are in the same chain for
reporting purposes: the subhead, the bureau control number and
the Uniform Identification Code (UIC) of the germane AAA. Once the validation is complete, then the automated system will generate the first seven elements of the nine accounting line entries on a voucher [Ref. 6:pp. 14-15]. The seventh element, the transaction code will always be 1K. The eighth and ninth elements are the property accounting activity (PAA) and the cost code (CC), respectively. These entries are entered manually from the orders. Having recorded the expenditure of advance pay on the pay voucher, it is then registered into the FRS system. PSD will then forward the expenditure transaction to the PSA for further processing. No further action will be required on the set of orders for which the advance was paid until the liquidation phase. The orders and the advance payment are picked up by the member and he is ready to go on travel. Figure 6 illustrates the advance payment process.

The liquidation phase is initiated when a completed travel claim is received from a command. The basic steps employed in the advance payment process are used to prepare the travel liquidation. If no advance was received, then the only lines of accounting appearing on the voucher would be for per diem and a GTR (if used). A transaction type code 2D
PSD
VALIDATE SUBHEAD BCN AAA ADV PAY

PASS VALIDATION

YES

PREPARE EXP VOUCHER REGISTER INTO FRS

PAY ADV RTN ORDERS

FWD EXP VOUCHERS TO PSA

NO

RTN TO ACTIVITY FOR CORRECTION

FIPC
VALIDATE ACCTNG LINE EXCEPT: TTC PAA CC

PASS VALIDATION

NO

SUSPENSE FILE

YES

CORRECTED

FWD TO NAFC

NAFC
SEPARATE EXP TO GERMANE AAA

CREATE CERPS TAPE FWD MONTHLY TO AAA

PSA
RCV TRANSACTIONS FM PSDS

CONSOLIDATE

FWD TO FAADCPAC

Figure 6
Advance Pay Process
21
Figure 6 (Continued)

22
would appear in the accounting lines of the per diem and the GTR.

When an advance is paid, at least two accounting lines for per diem must appear on the voucher. The first accounting line is for the travel claim settlement. It is identified by a 2D transaction type code in the accounting line. The second accounting line is for the advance liquidation. A 1K credit transaction type code will appear in the accounting line. If the travel entitlement exceeds the advance payment, then the traveler will be paid the difference. Should the advance exceed the travel entitlement, then the difference will be collected from the member. An additional accounting line may appear on the voucher if a GTR was furnished. The accounting line for the GTR will have a 2D transaction type code. Refer to Figure 7 for an illustration of the liquidation phase.

2. PSA Responsibilities

Travel responsibilities of the PSA in servicing commands in the PSA's area are the same as those of a PSD. Its other responsibility is to receive the expenditure or collection vouchers from its detachments and consolidate them into a single automated reporting transaction. This transaction is then forwarded via tapes or diskettes to FAADCPAC for further processing. Normally all transactions sent to FAADCPAC are automated, but there may be some
instances when manual transactions are forwarded. This will require manual inputs by FAADCPAC.

D. FIPC AND AAA RESPONSIBILITIES

1. FIPC RESPONSIBILITIES

Upon receipt of the expenditure or collection tapes/diskettes from PSA, the first thing the FIPC does is to register the transactions. Once the expenditure or collection transactions have been processed, they are forwarded via FRS to NAFC for CERPS processing. While at NAFC the expenditure and collection transactions are consolidated into a summary transaction report called CERPS. CERPS is used to report payments or collections against Treasury accounts and as a monthly summary report of the transactions affecting the accounting records of the activities serviced by FAADCPAC. This completes the advance cycle for the FIPC. The liquidation phase for the FIPC is identical to the advance phase.

2. AAA Responsibilities

The transactions forwarded to NAFC by the FIPC are retransmitted to the AAA in a CERPS transaction tape. The AAA will then download the CERPS tape to activity accounts to process expenditures and collections. During this phase, all transaction code 1K expenditures will be recorded into IDAFMS using execution code 311. The 311 charge will be used to establish a memorandum file (GLA 1512) for travel advance
payments for each activity serviced by FAADCPAC [Ref. 7:p. 149]. The memorandum file does not affect the activities' Allotment/Operating Budget (OB) and Operations Target (OPTAR) funds account, but serves as a reminder of the amount of travel advances unliquidated. The 1K transactions will either increase the memorandum file (for advances) or decrease the file (for credits) and the 2D liquidation will be charged to the activities' Allotment/OB/OPTAR. It is at this phase that the TORM file created earlier by the activity's comptroller comes into play. If a TORM file exists, then the corresponding entry in the CERPS tape will look for a matching JON and SDN (for 1K transactions only).

The first check is to validate JONs contained in the PAA field of the incoming transaction. If a match to the JORM is not found, then it falls into the invalid file. It will remain there until the activity corrects the error. If a valid JON is found, then the next phase commences.

The next phase of the validation cycle is to match SDNs. If a match occurs, then the expenditure will be posted to the memorandum account. If a match does not occur, then it will create a new TORM file and it will be posted to the memorandum account. Figure 6 illustrates the advance payment process at the PSA and FAADCPAC levels.

During the liquidation phase for a 1K credit the same process described for the advance occurs. When the credit is
posted to the memorandum account it will reduce the balance. Since both JONs and SDNs for the advance and the liquidation matched, the transaction is reconciled and is removed from the advance outstanding file. If SDNs do not match, both will still be processed. However, the advance and the liquidation will both appear as outstanding and remain unreconciled. It will be up to the activity to correct the entries to get the advance and liquidation to match and reconcile. For the 2D transactions a variation in the process described for the 1K and 1K credit exists. If the SDNs match, but the JONs do not, then the computer will overlay the JON in the CERPS tape over the one in the TORM and force the transaction to be posted and reduce the activity's Allotment/OB/OPTAR account [Ref. 8]. Figure 7 illustrates the liquidation process at the FIPC and AAA levels.

In addition to processing the CERPS tape, the AAA will maintain detail records using the SDN to post entries to the memorandum file to reflect the outstanding balance of travel advances due from travelers. Outstanding advances will be included in a Monthly Travel Advances Transaction List (TATL) and an Overage Outstanding Travel Advances (OOTA) List. Both lists are forwarded to every activity serviced by FAADCPAC.
Figure 7
Travel Liquidation
The TATL reflects advances less than 90 days outstanding, while the OOTA reflects advances outstanding in excess of 90 days. These lists are forwarded to the Comptroller to help monitor and manage the command's travel advance process [Ref. 4:p. 2-26].

The travel process described in this chapter can become even more complicated and the potential for error is increased when multiple advance payments are paid, partial settlements are made before final settlement, or when payments are made by more than one activity.
III. RESEARCH METHODOLOGY

The research methodology utilized in this study was driven by the primary research question, seeking the causes that prevent the matching of the accounting line associated with an advance payment with the accounting line associated with the liquidation payment or collection. Having identified the area of study, the next step was to select procedures to provide evidence that would answer the research question. The following techniques were used to conduct the research: literature review, personal interviews, personal observation and the examination of standard document numbers through the reconciliation process.

A. LITERATURE REVIEW

In the literature review phase of the research, the primary objective was to gain an understanding of the reconciliation process. The following data bases were consulted:


2. The Naval Postgraduate School Library, Monterey, California.

No previous studies concerning the research question were found, but the following reference materials were available: the Navy Comptroller Manual, Joint Federal Travel Regulations Volumes 1&2 and various instructions. The manuals and instructions contained details about travel, but they did not specifically address IDAFMS and the specific functions performed by FAADCPAC regarding travel. Two trips to FAADCPAC were necessary to gain an understanding of the travel process from origination to final reconciliation.

B. PERSONAL INTERVIEWS

Having obtained a reasonable understanding of the research problem from the literature review, the next phase of the study was to conduct personal interviews with the managers and technicians who worked in the travel reconciliation process. Initially, the interview process began over the telephone. The first activity contacted was FAADCPAC, and its perspective on the reconciliation problem was obtained. Using the information provided by FAADCPAC, plans for the next phase of the interview process were formulated.

The next phase of the research was to interview in person the managers and technicians who worked with the data in the reconciliation process. The personal interview process began at FAADCPAC with the Financial Information Processing Center (FIPC) and AAA divisions. The purpose of the interviews at
FAADCPAC was to get the "big picture" view of the reconciliation problem. From FAADCPAC, the interview process was directed at the other levels in the travel process, the PSA and PSD levels, and the activity level.

General impressions from the interviews revealed a certain degree of frustration with the present system of accounting because of the reconciliation requirement for exact matching of accounting lines of the advance with the liquidation. Concern was expressed at the activity, PSD and PSA levels at the number of times the accounting line has to be keyed into the system. The perception is that the more times one keys in the accounting line, the greater the risk for input error and thus failure to reconcile the advance to the liquidation.

C. PERSONAL OBSERVATION

Having obtained a basic understanding of the process and the problem from the literature review and the interviews, the next step was to observe the system in operation.

General impressions from personal observations at FAADCPAC, PSA San Diego, PSD Monterey and activities in the San Diego area indicated that, except for some minor deviations from prescribed standards, there appeared to be a reasonable understanding of how the system worked. Personnel demonstrated competence in their specific areas of
responsibility and displayed a genuine concern for system failures in the reconciliation process.

D. COLLECTING SAMPLE DATA

The most difficult task of all was the actual collection of data on specific travel orders. Since the primary research question requires the identification of reasons that prevent the matching of accounting lines between an advance and a liquidation, it was necessary to examine a sample of actual travel orders. The logical sampling unit was a set of orders and the corresponding travel claim processed on those orders. On the surface, obtaining a set of travel orders and the corresponding travel claim did not appear to be an inordinately difficult task, especially when Navy regulations require that files for orders and travel claims be maintained. However, it quickly became apparent that this task would not be so simple, for the following reasons:

1. Large Customer Base

FAADCPAC services 30 shore activities in CONUS and 40 overseas activities in the Pacific (FAADCPAC Det, Pearl Harbor has primary responsibility for overseas activities). In addition, FAADCPAC also services operational units (ships and air squadrons). To examine travel orders for each activity would be an impossible task for one individual. For that
reason the sample was restricted to CONUS shore activities only.

2. Multiple Fiscal Years (FY) In Process

Currently, FAADCPAC is processing travel claims that span three fiscal years, FY 88 through FY 90. To obtain a copy of the travel orders and the liquidated travel claim for FY 88 would require access to Naval Archives to retrieve the data. Time being a limiting factor, FY 88 data was excluded. FY 90 data was also excluded because of the desire to evaluate only travel documents that had already been processed through the system. By keeping FY 90 as part of the base it was conceivable that documents that were only partially completed (i.e., the member was still performing temporary duty or the travel claim had not been submitted) would have been selected. This would prevent obtaining all of the appropriate data required for the research. Given the conditions above, FY 89 was selected to be the base year for the study.

3. Time Factor

Though the scope of the investigation had been narrowed to FY 89 and CONUS activities, the problem of dealing with a highly dispersed geographical area from which to retrieve a sample still existed. FAADCPAC services commands in California, Nevada and Washington. Given this factor, the retrieval of a representative sample of travel orders and
travel claims from every command serviced by FAADCPAC in CONUS would require a considerable amount of time. The decision was made to use another base to retrieve a representative number of travel documents. Because FAADCPAC maintains the data files for all its CONUS activities, its data base was used to retrieve the sample.

4. Sampling Unit Selection

Once having selected the base year and the data base for the analysis, the next step was to determine the appropriate sampling unit. In selecting the sampling unit, consideration had to be given to the accessibility of the travel information in the FAADCPAC data files. For travel, there are two primary data elements that can be used to access travel information in the FAADCPAC files, the job order number and the standard document number. The job order number was eliminated as a sampling unit because it is not necessarily unique for each travel order. The same job order number can be used for various travel orders. The standard document number, on the other hand, is unique for each travel order. Therefore, on the basis of its uniqueness, the standard document was selected as the sampling unit.
IV. DATA COLLECTION

The purpose of this chapter is to describe the data collection process and introduce the reasons identified in the research phase that prevented the matching of the advance payment to the liquidation payment. The data collection process is broken into the following sections: sample size determination, collecting the sample, obtaining data to conduct the research, and examining the data.

A. SAMPLE SIZE

The first phase in the data collection process was to determine the sample size. In determining this, consideration had to be given to the total number of standard document numbers (SDNs) outstanding for all activities at any given point in time. As mentioned previously, FAADCPAC services 30 CONUS activities. The total number of outstanding SDNs by activity at any given point in time depends largely on the size of the activity and the amount of travel being performed. When the number of SDNs outstanding for all activities are combined, however, the total is very large. Therefore, in order to keep the sample size manageable and still be able to select SDNs from each activity, the sample size was arbitrarily set at to 10 percent of the total outstanding SDNs at a given point in time. This sampling plan resulted in many
SDNs being drawn from one activity and a few as one from others. However, the intent was not to evaluate performances by activity, but simply to identify reasons why documents could not be matched.

B. SELECTING THE SAMPLE

The second phase of the data collection process was broken down into two steps. The first step was to find a listing or report from the FAADCPAC data files to draw the required number of SDNs. After considering the available data, the one source that listed SDNs by activity for any given point in time was the monthly Travel Advances Transaction List. In addition, to ensure that a wide range (i.e., early, middle and late) of FY89 SDNs drawn had completed the reconciliation process, a July 1989 Travel Advances Transaction List was used for the sample extraction. The July 1989 transaction lists for all the activities had approximately 1800 outstanding SDNs.

The second step in the data collection process was the actual drawing of the sample. The selection process had to ensure that each listed SDN had an equal chance of being selected [Ref. 9:pp. 648-649]. To do this, a random number table and a consistent numbering pattern in the SDNs were required. Random number tables were readily available, but the numbering scheme for the SDNs was another matter. At
first, it appeared that the last three digits of the SDN could be used to draw the sample, but closer inspection revealed inconsistent numbering patterns (i.e., mixtures of alphanumeric numbering sequences). This required that an alternate numbering scheme be used. Thus each activity's SDNs were assigned a 3-digit number in a series beginning with 001. Having completed the numbering process the next step was to draw the sample. Utilizing a random number table and selecting a starting point at random, 10 percent of an activity's SDNs were drawn. The process was repeated for each activity. Table 1 lists by activity the number of SDNs drawn. A total of 179 document numbers were drawn.

C. OBTAINING DATA

After drawing the requisite number of SDNs, the third phase of the data collection process was to obtain detailed transaction records on each SDN through the reconciliation process. The data required were available through the Expenditure Transaction Detail Inquiry files in the FAADC PAC master data files and the Semi-Annual P.V. Expenditure Journals in microfiche. In addition, other Travel Advances Transaction Lists were available to assist in the study of the reasons that prevent the matching of the advance payment to the liquidation payment.
D. EXAMINATION OF THE DATA

The last phase of the data collection process was to examine the expenditure files and transaction lists retrieved from the FAADCPAC data files and look for reasons that prevented the matching of the advance payment to the liquidation payment. In this process, each SDN fell into one of the following categories:

1. SDN processed through the system without error.
2. SDN processed through the system after error was corrected.
3. SDN unreconciled due to error in processing.
4. SDN unreconciled - reason unknown.

Once having determined that an error in processing had occurred, the final step was to document the reason or reasons that prevented the matching of the advance payment to the liquidation payment.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>SDNs SELECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleet Accounting and Disbursing Center</td>
<td>5</td>
</tr>
<tr>
<td>Operating Forces Accounting U.S. Pacific</td>
<td>8</td>
</tr>
<tr>
<td>Fleet, San Diego, CA</td>
<td>6</td>
</tr>
<tr>
<td>Naval Base, San Diego, CA</td>
<td>1</td>
</tr>
<tr>
<td>Naval Station, San Francisco, CA</td>
<td>3</td>
</tr>
<tr>
<td>Supervisor of Ship Building and Repair</td>
<td>2</td>
</tr>
<tr>
<td>USN, San Francisco, CA</td>
<td>1</td>
</tr>
<tr>
<td>Naval Air Station, Whidbey Island, WA</td>
<td>5</td>
</tr>
<tr>
<td>Naval Submarine Base, San Diego, CA</td>
<td>3</td>
</tr>
<tr>
<td>Naval Air Facility, El Centro, CA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Air Station, Miramar, CA</td>
<td>3</td>
</tr>
<tr>
<td>Naval Base, San Francisco, CA</td>
<td>1</td>
</tr>
<tr>
<td>Naval Station, San Diego, CA</td>
<td>6</td>
</tr>
<tr>
<td>Naval Station, Long Beach, CA</td>
<td>4</td>
</tr>
<tr>
<td>Naval Amphibious Base, Coronado, San Diego, CA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Air Station, North Island, CA</td>
<td>7</td>
</tr>
<tr>
<td>Commander Naval Air Force Pacific Fleet, NAS North Island, San Diego, CA</td>
<td>74</td>
</tr>
<tr>
<td>Fleet Tactical Deception Group Pacific, NAVPHIBBASE Coronado, San Diego, CA</td>
<td>8</td>
</tr>
<tr>
<td>Personnel Support Activity, San Diego, CA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Special Warfare Command, NAVPHIBBASE Coronado, San Diego, CA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Air Station, Alameda, CA</td>
<td>1</td>
</tr>
<tr>
<td>Naval Facility, Centerville Beach, Ferndale, CA</td>
<td>1</td>
</tr>
<tr>
<td>Naval Air Station, Fallon, NV</td>
<td>5</td>
</tr>
<tr>
<td>Naval Air Station, Moffett Field, CA</td>
<td>6</td>
</tr>
<tr>
<td>Naval Station, Mare Island, Vallejo, CA</td>
<td>3</td>
</tr>
<tr>
<td>Personnel Support Activity, San Francisco, CA</td>
<td>8</td>
</tr>
<tr>
<td>Naval Air Station, Lemoore, CA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Station Puget Sound, Seattle, WA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Submarine Base Bangor, Silverdale, WA</td>
<td>6</td>
</tr>
<tr>
<td>Naval Facility Whidbey Island, WA</td>
<td>2</td>
</tr>
<tr>
<td>Personnel Support Activity Bangor, Bremerton, WA</td>
<td>1</td>
</tr>
<tr>
<td>Trident Refit Facility Bangor, WA</td>
<td>2</td>
</tr>
<tr>
<td>Naval Base, Seattle, WA</td>
<td>1</td>
</tr>
</tbody>
</table>
V. DATA ANALYSIS

The purpose of this study was to identify the causes that prevented the matching of the accounting line associated with an advance payment with the accounting line associated with the liquidation payment or collection. Based on the results of examining the sample data, the overwhelming reason for the failure to match the advance to the liquidation was input error. Of the 179 SDNs researched, 137 had some type of input error. Input errors in either the standard document number or expenditure execution code were the major reasons for the reconciliation difficulties. Other input errors that contributed to the reconciliation difficulties were job order number discrepancies and duplicate processing errors. The input errors identified in the study are all attributable to failure to enter data correctly in the orders preparation phase at the traveler's command or expenditure processing phase at the PSD or PSA level. An analysis of the problems identified in the study is provided in the following pages.

A. STANDARD DOCUMENT NUMBER ERRORS

There were 91 standard document numbers errors noted in the sample data. A breakdown of these discrepancies is as follows: 42 discrepancies in the document type code (positions 9 and 10), 31 in the serial number (positions 11 through 15),
17 omissions of characters and one Unit Identification Code (UIC) problem. A further explanation of the major problems associated with the standard document number is provided.

1. Document Type Code Input Errors

There were 42 input errors committed in positions 9 and 10 of the document type code -- 26 errors involving use of TR instead of TO and 16 errors involving other entries instead of TO. An analysis of the two document code error categories is provided in the following paragraphs.

The first category is the TO and TR input error. The correct document code for the advance and liquidation payments is TO. Document code TR is used only for government transportation requests (GTRs). In this study it was noted, though, that in some instances the advance payment would have a TO document code, but the liquidation payment would have TR instead. There were also instances where the advance would have a TR document code, but the liquidation payment would have TO instead. Because the travel accounting system requires the exact matching of characters between the advance and the liquidation, the reconciliation process failed. Moreover, a failure to reconcile means that two transactions were outstanding for the same travel order.

The reasons for the TR vice TO input error can be attributed to technicians not knowing the difference between
document codes TO for per diem and TR for government furnished transportation (GTR) or the inadvertent keying in of an "R" instead of an "O" in the document code. [R and O are not close to each other on the standard keyboard, however.]

The second category of errors involved TO and other entries. There were 16 errors of this type committed. A further breakdown by specific categories of TO and other entries is provided.

Document code entries TA, RV, MD, and TG were listed as errors because they are used with non-travel obligation documents and should not have appeared in conjunction with travel advances. The fact that those entries appeared in the Travel Advances Transaction lists indicate that one of two types of errors was committed. First, if they were used with an advance per diem payment, then the wrong code was used. Second, if they were used in conjunction with another type of obligation, then an error in the transaction type code was committed. Transaction type code 2D should have been used instead of 1K. Because 1K was used, these transactions appeared as travel advances. There is one exception to the above description pertaining to document code TG. If it was used in conjunction with an advance tuition payment, then it was properly processed. A copy of the origination document is needed to ascertain if an error was actually committed.
However, if TG was used in conjunction with registration fees for attendance at a meeting, conference, or a seminar, then it was used incorrectly. Those costs are normally included as part of the total cost of per diem, and document code TO is used.

Document code TX is listed as an input error because it is not a valid entry in the authorized listing prescribed by Navy Comptroller Instruction 7300.99C [Ref. 2]. Only one activity used document code TX. According to that one activity, TX was a command-generated entry because document code TO was often being confused with T0 (zero) and vice versa. This resulted in many transactions failing to reconcile. To overcome that problem, the activity created its own document code for per diem. Transactions with document code TX for the advance and liquidation will reconcile; however, it defeats the intent of Navy Comptroller Instruction 7300.99C to standardize all document code entries.

Document code entries T0 (zero) and TD appeared to be keying errors. Both 0 (zero) and "D" are very close on the standard keyboard to two highly used characters, alpha "O" and "R".

2. Serial Number Errors

In this study there were 17 instances when the serial number did not match because at least one or all of the last
five digits of the advance payment did not match those of the liquidation payment. There are basically two reasons for this type of error. One reason is keying error. The technician inadvertently enters a wrong character. The second reason occurs when more than one line of accounting appears on the orders. In the second case, the technician enters the wrong serial number because he reads the serial number from a different line of accounting on the orders.

There were other types of errors noted in the study involving the serial number. For instance, there were six different occasions where transposition errors were committed. Transposition errors occur because of fatigue, haste or the technician reading the entry incorrectly. There were eight occasions when alpha "O" vice 0 (zero) or "I" vice 1 (one) keying errors were committed. Navy Comptroller Instruction 7300.99C prohibits the use of alpha characters "O" and "I" in the last five digits of the SDN for the very reason cited above. The final type of error noted in the serial number involved characters being omitted. Omission of characters is explained in the next section.

3. **SDNs With Less Than 15 Digits**

Out of the 179 SDNs sampled, 17 SDNs had less than 15 digits. An SDN with less than 15 digits will not prevent the reconciliation process from occurring, provided that the
advance and the liquidation both have the same lesser number of digits. However, it was noted in the study that an advance with an SDN having less than 15 digits was usually followed with a liquidation with a 15-digit SDN, thus creating an unreconcilable situation. This type of error can only be attributed to technician error. Navy instructions clearly specify the required number of digits in a standard document number.

B. EXECUTION CODE ERRORS

There were 34 execution code errors noted in this study. They resulted because the wrong transaction type code was used in the line of accounting. The transaction type code determines the execution code assigned by the computer program to the travel expenditure document. Transaction type code 1K is assigned an execution code 311 and is charged against an activity's Memorandum account. Transaction type code 2D is assigned an execution code 313 and is charged against an activity's OPTAR. The execution code errors noted in the study were of two types. The first type of execution code error resulted because transaction code 2D was used instead of 1K for an advance. The second type of execution code error resulted because transaction code 1K was used instead of 2D in the final travel claim settlement.
The first execution code error discussed pertains to the wrong transaction code for an advance. An advance payment should be processed with a transaction type code 1K, signifying that it should be charged against an activity's Memorandum account. In this study, there were eight instances where a transaction type code 2D was used instead; and the expense was charged to the activity's Allotment/OE/OPTAR. This created two problems for the traveler's command. The first problem was that the cost for travel was charged twice to the Allotment/OE/OPTAR account; the first erroneous charge was the cost of the advance and the second correct charge was the cost when the claim was settled. Unless rectified, the traveler's command will be paying more for travel than was necessary. The second problem was that, when the travel was finally liquidated, a 1K credit to offset the advance (which did not exist) was posted to the memorandum account. This caused the memorandum account to reflect either a negative balance or the appearance of less travel outstanding. The credit entry remained unreconciled until the original advance with the 2D transaction code was corrected.

The second type of execution code error noted in the study, was the processing of the liquidating travel claim with a transaction code 1K instead of a 2D. There were 26 instances when this type of error was committed. This type
of error affected both the activity’s Allotment/OB/OPTAR and Memorandum accounts. It understated the Allotment/OB/OPTAR account balance because the cost of the travel was not charged to it and overstated the Memorandum account because an additional charge was recorded.

C. OTHER TYPES OF ERRORS

The other types of errors noted in the study involved seven job order number discrepancies and 20 duplicate processing errors. Job order number discrepancies were of two types. The first type of error involved the processing of an advance under one job order number and the liquidation under a different one. This type of error occurred because the technician read the wrong job order number from a set of orders with multiple lines of accounting. The second type of discrepancy involved serial number differences, because at least one character differed between the advance and the liquidation. This type of error is probably attributable to keying error.

Duplicate processing errors involved the duplication of entries for the same travel order. This type of error was usually committed during attempts to correct input discrepancies related to execution code problems. In some cases, efforts to correct execution code problems only created more problems because the same correcting entry would be
entered more than once. Then an additional correcting entry was required to correct the duplicate correcting entry.

D. SUMMARY

Table 2 summarizes the errors discussed in the previous pages. Worthy of note from this study was that out of the 179 SDNs examined, only 42 were processed through the system without error. This equates to a 23 per cent errorless processing rate in the sample data.

In addition, there were still 59 SDNs that had not yet reconciled as of the end of March 1990. This indicates that a third of the FY 89 SDNs selected for the sample were still outstanding well into FY 90. Of the 59 outstanding SDNs, 43 exhibited some type of input error which prevented the reconciliation process from occurring. Those reasons were listed in the categories provided in Table 2. There were also 16 outstanding SDNs where the researcher was unable to find an explanation for their failure to reconcile. There were no indications of document code errors, transaction type code errors, job order number discrepancies or serial number errors. A possible explanation could be that a travel claim had not been submitted to liquidate the travel. If that was the case, better travel controls should be implemented at the traveler's commands.
Finally, it should be mentioned that there were 22 SDNs with multiple processing errors. This equated to approximately 12 per cent of the sample SDNs with two or more errors. All of these errors were listed in the categories provided in Table 2.

Regardless of who committed the error or the type of error committed, the bottom line is that time, better spent on other projects, had to be diverted to solving reconciliation errors.
<table>
<thead>
<tr>
<th>TYPE OF ERROR</th>
<th>TOTAL NOTED</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document code error; TO and TR discrepancies</td>
<td>17</td>
<td>9.5</td>
</tr>
<tr>
<td>Document code error; TO and other entries</td>
<td>16</td>
<td>8.9</td>
</tr>
<tr>
<td>Serial number error; last five digits of advance and liquidation did not match</td>
<td>17</td>
<td>9.5</td>
</tr>
<tr>
<td>Serial number error; transposition error</td>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>Serial number error; &quot;O&quot; and &quot;1&quot; in last five digits of SDN</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>SDNs with less than 15 digits</td>
<td>17</td>
<td>9.5</td>
</tr>
<tr>
<td>UIC discrepancy</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Execution code errors</td>
<td>34</td>
<td>19.0</td>
</tr>
<tr>
<td>Job order number discrepancies</td>
<td>7</td>
<td>3.9</td>
</tr>
<tr>
<td>Double processing</td>
<td>10</td>
<td>5.6</td>
</tr>
</tbody>
</table>
VI. CONCLUSIONS

A. ASSESSMENT OF THE TRAVEL ACCOUNTING SYSTEM

The function of any accounting system is to record, classify, post transactions and produce financial reports that can be used by management to evaluate the performance of the organization or its operations [Ref. 10: p. 648]. Given this definition, it is appropriate to conclude that the design of the travel accounting system currently being utilized by FAADCPAC and its serviced activities is fulfilling its responsibilities. However, an accounting system should actually operate as well as it is designed. An accounting system should be able to prevent data input errors. Based on the results of this study, the accounting system currently in use by FAADCPAC and its serviced activities is failing significantly to control the amount of data input error. Thus, it is the researcher's conclusion that the accounting system is deficient in operation. There are three principal features that specifically contribute to the accounting system's failure to control data input errors. These features are manual inputs, multiple activity processing and the system's failure to provide an adequate management assessment report that addresses specific causes of errors.
1. Manual Inputs

The travel reconciliation process requires 100 percent data accuracy between the advance payment and the liquidation payment. This standard could be achieved only if the entire travel process were totally automated. As long as the process requires manual inputs, errors will continue to plague the system.

2. Multiple Activity Processing

The current travel accounting system requires processing of every travel order by several different activities. This only increases the opportunity for input errors. Although the purpose of this study was not to point responsibility to the activity or activities committing the errors, the results indicate that responsibility for many input errors can be shared by the traveler's command, PSD or PSA and FAADCPAC. This is because each activity is required to make some degree of manual input in the travel process. Again, as long as more than one activity is responsible for data input in the travel process, errors will continue to hinder the reconciliation process and impede accounting accuracy.

3. Management Reports

An accounting system should provide management with accurate reporting on the status of its operation and also should readily identify any problem areas in the operation.
It is the researcher's conclusion that the management report in the form of the Travel Advances Transaction List provided to travel managers by FAADCPAC is not fulfilling those objectives. The travel transaction list provides managers with the status of travel that is outstanding, but it does not readily tell them what errors are being committed, who is committing the errors (internal or external parties) and why. Consequently errors are perpetuated from one reporting period to the next. Errors of the magnitude observed in this study clearly indicate that a more comprehensive reporting system is warranted. Managers need to know more than the number of outstanding travel orders. They need to know who inside their organization is committing what input errors and why. They also need this information about input errors in their account caused by others outside their organization. An accounting system can not operate effectively unless its system errors are noted and corrected.

B. RECOMMENDATIONS

1. The biggest problem affecting the reconciliation process is input error. The best way to overcome this obstacle is by totally automating the travel process. The automation process would begin with the travelers' activities and the local PSD or PSA. Both activities would be linked electronically to each other and could share the same travel
data base. When a person needed to go on travel or completed travel, the orders or travel claim would be prepared on a computer at the activity; and then the local PSD or PSA would extract the data from the computer files or receive it through a data linking system. This would eliminate inconsistencies in data processing and virtually all data input errors at the PSD or PSA.

2. A commonly used technology in the Navy Exchange system and Naval Supply Centers is bar coding. This technology can also be utilized in the travel process. First, every order issuing activity would be equipped with the capability of preparing orders in bar coding readable format. The PSDs and PSAs would be furnished with bar code scanning equipment. When orders were received at the PSD or PSA, the accounting line would be scanned and the appropriate information for the payment process extracted. This process would not totally eliminate every input error, but it would ensure data input consistencies.

3. Controlling input error at travel initiating activities can be facilitated with today's software technology. The development of software that includes programmed controls to alert technicians when input errors are being made rather than waiting for error listings later can be incorporated into the existing accounting design. The current system could be upgraded so that it would not accept less than 15-digit SDNs
and would disallow entering other than TO document codes for per diem or the wrong transaction type code. The system could be further enhanced to reject alpha entries "0" and "I" for numeric 0 and 1. Alternatively, the system could also be upgraded to accept alpha "0" and "I" for numeric 0 and 1 in positions 11 through 15 in the standard document number. Input errors need to be addressed at the source. Software improvements to the existing programs could enhance operator performance and significantly reduce data input errors.

4. One of the keys to success for any organization is the ability to do quality work. In order to achieve that goal each travel-initiating activity and the local PSD or PSA should conduct quarterly quality review sessions to resolve input discrepancies and discuss changes in travel procedures or document processing.

5. Training is another key to success for any organization. Personnel who are well trained are less prone to commit errors. Every activity involved in the travel process should ensure that adequate training is being provided periodically to its technicians. Newly reporting personnel should be provided ample opportunity to learn the requisite skills of their position prior to working alone.

6. As the focal point in the travel accounting system, FAADCPAC should conduct, on an annual basis at least, a formal conference with representatives in attendance from every
activity involved in the travel process to discuss problems, concerns, procedural changes or updates to existing procedures. Activity concerns and recommendations to improve the system should be forwarded to the system's design manager, Navy Comptroller Standard Systems Activity (NAVCOMPTSSA), for further consideration.
APPENDIX

USE OF ACCOUNTING CLASSIFICATIONS

1. GENERAL. In order to provide a uniform system of accumulating and reporting accounting information, an accounting classification code is used. This code, shown on all purchase requests and resulting obligation and expenditure documents, enables a Navy regional finance center or a disbursing office outside of the United States to identify the activity responsible for accounting for the allotment or suballotment and, thus, to furnish that accounting activity with reports of allotment or suballotment charges relating to public voucher disbursements and refunds. The accounting activity can then use controlled procedures to analyze obligations and expenditures entered in the allotment records for public vouchers, civilian payroll, and stores issues. The complete accounting classification code consists of a maximum of nine coding elements.

2. STRUCTURE AND USE OF ACCOUNTING CLASSIFICATION CODE
   a. General. The accounting classification code will be shown on all purchase requests and resulting obligation and expenditure documents, including travel orders, collection documents, project orders, and Military Interdepartmental Purchase Requests. The detail required in the accounting classification code will depend on the appropriation and type
of transaction involved. The maximum accounting classification code and the order of the data to be included on documents will be as follows, regardless of any preprinted instructions on the documents to the contrary:

1. appropriation,
2. subhead,
3. object class,
4. bureau control number,
5. suballotment,
6. authorization accounting activity,
7. transaction type,
8. property accounting activity,
9. cost code.

These instructions are not applicable to MILSTRIP requisitions which will be prepared in accordance with MILSTRIP/MILSTRAP (NAVSUP P-437).

b. Completion of Accounting Data Portion of Obligation and Expenditure Documents

(1) General. The accounting data elements will be provided in full with significant alpha/numeric characters or with nonsignificant zeros on all purchase and accounting documents.

(2) Nonapplicable Elements. When an element is not applicable to the procurement, it will be represented in the coding by zeros. For example, when an object class is not
required, three zeros will be shown in the object class element field.

(3) **Elements of Less Than Maximum Length.** Zeros will also precede data to complete the field. For example, the authorization accounting activity 367 should be shown on the document as 000367.

**Example**

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17X1611</td>
<td>1936</td>
<td>026</td>
<td>54002</td>
<td>3</td>
<td>068572</td>
<td>ID</td>
<td>000151</td>
<td>000560852000</td>
</tr>
</tbody>
</table>

3. **ELEMENTS OF ACCOUNTING CLASSIFICATION CODE**

a. **Appropriation**

(1) **Department.** The appropriation code for Navy and Marine Corps funds begins with "17" to identify the Department of the Navy. Certain appropriations transferred to Navy from another department use a combination code, such as "17-97." Complete appropriation codes are listed in pars. 022201-022203 and, except in punched cards, are used on all documents requiring appropriation or fund designation. However, within the accounting classification code for mechanization purposes, the department administering an appropriation is indicated by a 1-digit (DD Code) as follows:
<table>
<thead>
<tr>
<th>Code</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Army</td>
</tr>
<tr>
<td>2</td>
<td>Air Force</td>
</tr>
<tr>
<td>3</td>
<td>Department of Defense</td>
</tr>
<tr>
<td>4</td>
<td>Navy and Marine Corps</td>
</tr>
<tr>
<td>5</td>
<td>Coast Guard</td>
</tr>
</tbody>
</table>

(2) **Year.** Manual entry of appropriation codes on documents as provided in subpar. (1) includes the fiscal year of the appropriation. Within the accounting classification code, for mechanization purposes, two characters have been allowed for the fiscal year of the appropriation in order to accommodate an appropriation involving more than one fiscal year. Normally, only one digit will be used. This digit will be the fiscal year as listed in pars. 022201 and 022203 of the Navy Comptroller Manual, Volume II. Continuing appropriations will be indicated by an X. Other symbols used are F and M.

(3) **Funds and Subheads.** The remainder of the appropriation number and subhead number are those contained in pars 022201 through 022203 of the Navy Comptroller Manual, Volume II.

b. **Object Class and Reimbursement Source Codes.** The appropriate object class code and reimbursement source code will be used in accordance with the procedures prescribed in Chapter 6 of the Navy Comptroller Manual, Volume II. For
transactions affecting the international balance of payments (BOP), the expenditure category code will be used in accordance with Chapter 7 of the Navy Comptroller Manual, Volume II. For collections affecting BOP, the collection source code will be used as prescribed in Chapter 7, followed, when applicable, by the reimbursement source code.

c. **Bureau Control Number.** A bureau control number is a five-digit number that represents the Unit Identification Code (UIC) of the operating budget holder. When necessary, precede the UIC with zeros to complete this field.

d. **Suballotment.** The 1-digit numeric or alphabetic character assigned by the suballotment grantor for regular suballotments will be used as a separate element within an accounting classification code.

e. **Authorization Accounting Activity.** The activity designated to perform accounting for an allotment, or when a suballotment is involved for the suballotment, will be identified by a five-digit unit identification code assigned to the activity. The unit identification code will be preceded by a zero to fill the six-position authorization accounting activity field. In the case of centrally managed allotments for overhead at modified industrial activities, or segments of centrally managed allotments, or special allotments authorized to fund overhead type costs, the unit identification code of the activity that prepares the Status
of Fund Authorization (NAVCOMPT Form 2025) for its share of the centrally managed allotment will be used. In the case of other types of centrally managed allotments, the unit identification code identifying the office, systems command, or Headquarters, U.S. Marine Corps that authorized the centrally managed allotment will be used.

f. Transaction Type. Identification of transactions by type is usually accomplished by use of functional accounts. However, as functional accounts are not a required element of the accounting classification code, a designator must be included to identify purchases for stores accounts, direct charges to plant property account, travel advances, contract progress payments, prepayments to the Navy Industrial Fund, and other charges. Certain other information is identified in this position of the accounting classification code by the Navy Finance Center, regional finance centers, and Headquarters, U.S. Marine Corps. Codes and their uses are contained in Chapter 8 of the Navy Comptroller Manual, Volume II.

g. Property Accounting Activity/Auxiliary Cost Code

(1) General. When this element is not for the usage described in subpara (2), this element will be available as an extension of the cost code element for other pertinent data.
(2) Travel Order Identification

(a) General. For temporary additional duty travel of military members and civilian employees, identification of the travel order is accomplished on transportation requests, military transportation authorization, and travel claims by citing the TANGO or travel order number as an element of accounting data. On travel orders, transportation requests, military transportation authorizations, and travel vouchers, the TANGO or travel order number will be shown on the accounting classification line following the transaction type and preceding the cost code. For all temporary additional duty travel funded by Navy annual appropriations for fiscal year 1977 or subsequent fiscal years (including such travel of Marine Corps personnel), the last digit of the fiscal year funding the travel will be the first character of the six-character TANGO or travel order number. For example, if the appropriation chargeable is 1771804, Operation and Maintenance, Navy, the first character of the six-character TANGO or travel order number will be the numeral 7. When travel is funded by Marine Corps funds, there is no restriction as to the first character of the travel order number.

(b) Exception. An exception to subpar. (a) applies when the travel order cites the appropriation 17-1319, Research, Development, Test, and Evaluation, Navy. Travel
orders, transportation requests, military transportation authorizations, and travel vouchers citing the RDT&EN appropriation will include the TANGO or travel order number in the cost code.

h. **Cost Code.** The cost code, an element of 12 alphanumeric characters, is the source of any information needed for the preparation of reports that require detail beneath the level identified in the remainder of the accounting classification code or for which shortened coding is desired. The cost code will be assigned by the accounting office serving the allotment or suballotment holder in collaboration with the fund administrator and, normally, will consist of all or part of the job order number when a job order system is used. It is not required that all 12 digits be used, nor that a locally devised code be used, if the space is sufficient to permit published codes such as functional accounts.
LIST OF REFERENCES


INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Cameron Station
   Alexandria, Virginia 22304-6145

2. Library, Code 0142
   Naval Postgraduate School
   Monterey, California 93943-5002

3. Dr. James M. Premgen, Code AS/Fm
   Naval Postgraduate School
   Monterey, California 93943-5000

4. CDR Glen Eberling, Code AS/Er
   Naval Postgraduate School
   Monterey, California 93943-5000

5. Commanding Officer, Fleet Accounting and
   Disbursing Center, U.S. Pacific Fleet
   San Diego, California 92132-5111

6. LT Domingo Gonzales
   Navy Resale and Services Support Office
   Naval Station New York Staten Island
   Staten Island, New York 10305-5097