

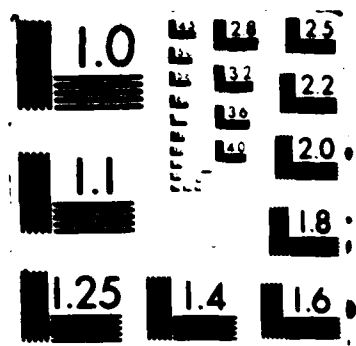
ALIGNMENT OF MANPOWER REQUIREMENTS WITH PROCUREMENT
WORKLOAD(U) ARMY PROCUREMENT RESEARCH OFFICE FORT LEE
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A 10x10 grid of 100 small images showing various stages of a plant's growth, from seed to mature plant. The images are arranged in a grid, with the first row showing the seed and the subsequent rows showing the plant's development over time. The plants are shown in various stages of growth, from small seedlings to mature plants with leaves and flowers. The images are arranged in a grid, with the first row showing the seed and the subsequent rows showing the plant's development over time. The plants are shown in various stages of growth, from small seedlings to mature plants with leaves and flowers. The images are arranged in a grid, with the first row showing the seed and the subsequent rows showing the plant's development over time. The plants are shown in various stages of growth, from small seedlings to mature plants with leaves and flowers.



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by

Whiting John Wicker, M.Phil.

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The pronouns "he", "his", and "him", when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.

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US ARMY PROCUREMENT RESEARCH OFFICE
Fort Lee, Virginia 23801-6045

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EXECUTIVE SUMMARY

A. BACKGROUND/PROBLEM. Army Materiel Command (AMC) Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans and are experiencing significant increases in administrative lead time (ALT). ALT, the number of calendar days from the generation of a Procurement Work Directive (PWD) to contract award, has increased despite additional personnel. Factors such as manpower distribution and the new competition policy are suspected causes of this increase. Procurement and Production Directorates (PPDs) are responsible for the major subset of ALT called Procurement Administrative Lead Time (PALT). PALT is the number of calendar days from the acceptance of a PWD by the PPD to contract award, minus those days the PWD was delayed due to conditions external to the procurement process. Current AMC-developed PALT standards do not detail the times consumed by individual PALT components or specific instrument types. Consequently, it is difficult to assess the causative factors behind the failure to achieve the planned PAA-Secondary obligation rate.

B. OBJECTIVE. Develop a PALT model for determining PPD manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, US Army Missile Command (MICOM). A preliminary evaluation of the applicability of the model to other types of procurement actions and to other MSCs is made, with a more complete evaluation to be based on future analyses.

C. STUDY APPROACH. The approach consisted of describing MICOM PWD flow for Secondary Items, utilizing computer simulation techniques to develop a PWD model and evaluate its portrayal of MICOM Secondary Item Contract Execution using test data, collecting and analyzing MICOM procurement workload and manpower data to develop hypotheses on the relationships between model elements, applying the model to the MICOM PWD process to estimate optimal workforce factors, and evaluating the applicability of the model to other types of procurement actions at the MSCs.

D. SUMMARY AND RECOMMENDATIONS. Current MICOM PPD manpower allocation may be suboptimal. An algorithm was developed for realigning manpower to reduce average PWD PALT and procurement backlog. Future manpower reallocations should be simulated with dedicated computer resources to arrive at an optimal manpower realignment.

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CHAPTER I

INTRODUCTION

A. BACKGROUND/PROBLEM.

Army Materiel Command (AMC) Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans in total or in part and are experiencing significant increases in administrative lead time (ALT). ALT, the number of calendar days from the generation of a Procurement Work Directive (PWD) to contract award, has increased despite additional personnel. Many factors, such as manpower distribution and the new competition policy, are suspected causes of this increase.

Procurement and Production Directorates (PPDs) are responsible for the major subset of ALT called Procurement Administrative Lead Time (PALT). PALT is the number of calendar days from the acceptance of a PWD by the PPD to contract award, minus those days the PWD was delayed due to conditions external to the procurement process. PPDs maintain historical data on PWD processing times which are used by AMC HQs to develop PALT standards. These standards, however, do not detail the times consumed by individual PALT components or specific instrument types. Without this detailed information, it is difficult to assess the causative factors behind the failure to achieve the planned PAA-Secondary obligation rate. This study estimates the effect of such factors as manpower distribution and workload on the attainment of obligation plans. Of particular interest is the number of personnel required to be added or deleted at each major processing point in the procurement process to reduce PALT and thereby improve overall contract execution performance.

B. STUDY OBJECTIVE.

The objective of this study is to develop a PALT model for determining PPD manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, the US Army Missile Command (MICOM). The model cannot be a precise system replica, but only an approximation. Its basic role is to aid procurement decision makers in understanding system problems, and its efficiency depends upon the availability and quality of procurement resource data. The applicability of the model to other types of procurement actions at the MSCs will be evaluated based on future analyses.

C. SCOPE.

The PALT model developed herein simulates MICOM Secondary Item Contract Execution for FY85. MICOM is utilized as a data source based on its long-term use of the new AMC-wide procurement organization. The feasibility of applying the model to other types of procurement actions and to other MSCs is discussed.

D. METHODOLOGY.

1. Describe MICOM PWD flow for Secondary Items.
2. Based on this flow, utilize computer simulation techniques to develop a PWD model and evaluate its portrayal of MICOM Secondary Item Contract Execution using test data.
3. Collect and analyze MICOM procurement workload and manpower data to develop hypotheses on the relationships between model elements.
4. Using these relationships, apply the model to the MICOM PWD process to estimate optimal workforce factors.
5. Make a preliminary evaluation of the applicability of the model to other types of procurement actions at the MSCs.

CHAPTER II

STUDY APPROACH

A. ALTERNATIVES CONSIDERED.

Before the operations of any real-world facility or process can be studied scientifically, assumptions concerning the facility or process of interest (i.e., the system) have to be made. Once a system model has been properly formulated, one considers which alternatives should be employed to obtain information on various questions of interest regarding the system under study.

Two major alternatives employed in system analysis are analytical and simulation techniques. Analytical techniques employ mathematical theory to obtain exact information on system parameters. Simulation techniques employ computers to numerically analyze the system, yielding estimates of parameters under study, as opposed to exact solutions.

Most real-world systems require use of simulation techniques for effective analysis and interpretation. Simulation techniques are used in "What if ...?" situations. For example, a procurement organization may be interested in minimizing paperwork processing time utilizing as few personnel as possible. It would not be cost-effective for management to actually alter existing personnel levels, and then reallocate manpower again should the first allocation be suboptimal. However, by artificially changing personnel levels in a computer simulation model, one can effectively answer the question "What would happen to processing time if the suggested manpower allocation were actually implemented?" (if the model accurately reflects the real-world system).

Simulation modeling requires the system under study be described in a fashion compatible with a computing system. If the system can be characterized by a set of variables (e.g., the number and type of PWDs and their processing times, manpower and backlog levels at each major system processing point, etc.), with each combination of variable values comprising a unique state of the system, then altering these values represents system state-to-state transition. Simulation has been defined as the representation of the dynamic behavior of the system by moving it from state to state in accordance with well-defined operating rules [1].

Simulation languages are utilized in much simulation modeling. Simulation languages automatically provide most features needed in programming a simulation model, thereby decreasing programming time. They provide a natural framework for simulation modeling. Simulation models can be updated more efficiently when written in a specific simulation language than those in a more general language like FORTRAN. Furthermore, most simulation languages provide dynamic storage allocation during program execution [2].

There is a variety of simulation languages, including GASP IV, GPSS, SIMSCRIPT II.5, and SLAM (Simulation Language for Alternative Modeling). In SLAM, one can combine symbols called nodes and branches into an interconnected network which represents the system under study. This network can be visualized as a picture of the process through which entities (e.g., PWDs) "flow". SLAM was chosen as the simulation language for describing MICOM PWD flow as it offers a variety of modeling approaches. The SLAM compiler at the Army Logistics Management Center of Fort Lee, VA was used.

B. PORTRAYAL OF MICOM PWD SPARE PARTS FLOW.

The first step in the design of the model was portraying MICOM PPD PWD spare parts flow for FY85. After several joint AMC/APRO/MICOM consultation reviews, the spare parts flow charts provided at Appendix A were developed.

An overview of the flow appears at Figure 1. A PWD arrives at Procurement Planning, where its planning type category is determined: value not exceeding \$5000 [sent directly to the Buy Station (BS)], Special Buy, Urgent Small Purchase (not exceeding \$25,000), Urgent Large Purchase (exceeding \$25,000), Routine Small Purchase (not exceeding \$25,000), and Routine Large Purchase (exceeding \$25,000).

The flow for each planning type category terminates at the BS. There are five BS categories: Small Purchase Procedure, Priced Basic Ordering Agreement (BOA), Unpriced BOA, Request for Proposal (RFP), and Invitation for Bid (IFB). BS flow terminates at contract award.

Minimal symbolism is utilized in the flow charts. Circles denote entry and departure points. Squares denote locations where PWDs await processing by PPD personnel performing related tasks. Diamonds denote decision or branching points, where the path the PWD is to follow is decisional (yes/no) or probabilistic in nature. Double triangles either denote points where the PWD is delayed while being processed by non-PPD personnel, or signify the PWD is to proceed to the BS or contract award.

An example is the flow for Special Buy PWDs (corresponding flow for the remaining charts is analogous). Such a PWD enters the flow via the leftmost circle labeled "Enter". The PWD proceeds to a processing station staffed by 2 PPD personnel, where it awaits service. Such a point is called a queue station since the PWDs wait in line for service. The PALT model automatically records this waiting time. This particular queue station is labeled "Q1/2",

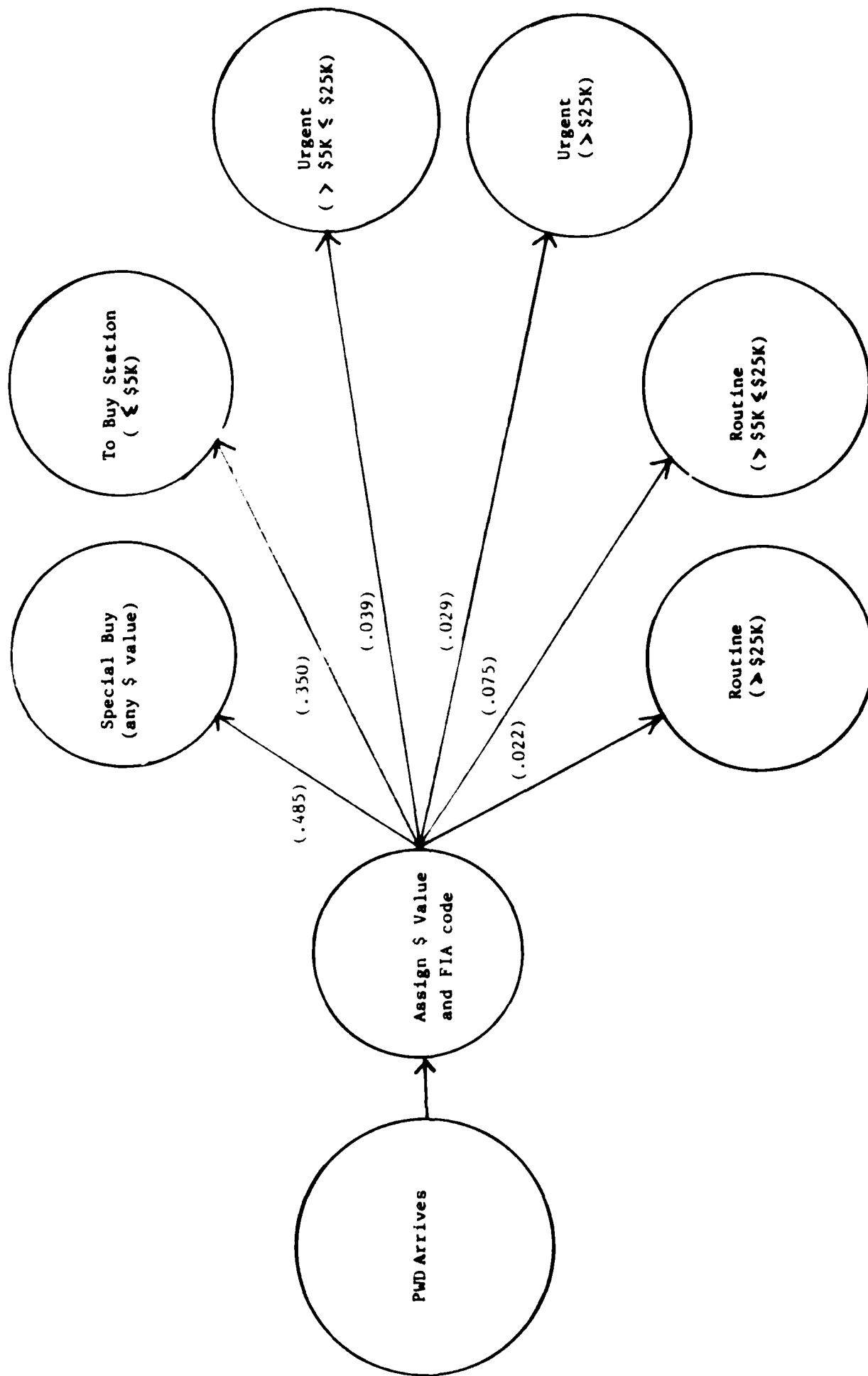


FIGURE 1: OVERVIEW OF MICOM PPD PWD
SECONDARY ITEM FLOW

meaning queue number one has two servers assigned to it. The processing at this queue consists of assigning a planning specialist to the PWD, with a notional "hands-on" service time of 1.45 hours, denoted by "(1.45)". Touch-times such as this are often augmented by such delays as the PWD remaining on a server's desk while the employee is at lunch, at home overnight, etc. This augmentation is automatically performed and recorded by the PALT model via the user-defined function, USERF(2), provided at Appendix C.

Once a planning specialist has been assigned, the PWD buy type is determined probabilistically: 5% of all the PWDs that have just been assigned a planning specialist are General Services Administration Mandatory/Federal Prison Institute (denoted herein by "GSA"), while 95% are Foreign Military Sales/Provisioning (denoted herein by "FMS"). If the PWD is a GSA, it is forwarded to a processing point staffed by seventeen PPD personnel. At this queue (Q2), two activities are performed: reviewing Form 1095 and the master format. The mean unaugmented "hands-on" processing time by any one of these seventeen servers is 1.07 hours. Upon completion of this processing, the GSA PWD proceeds to queue three which is staffed by three PPD personnel, one of whom will perform the task "contracting officer/higher-level review" on the PWD. The PWD is then routed to the Small Purchase section of the appropriate BS branch.

If the PWD is a FMS, it is delayed while non-PPD personnel obtain an urgency statement, technical certifications, FMS case decision, and other related activities. This delay point is not a queue station. A queue station may be considered as an office staffed by PPD personnel, each of whom can perform any or all of the listed set of activities. PWDs arriving to the queue (office) are placed in one "in-box". As a server becomes available to

process a PWD, that PWD which is "next in line" is processed first. Delay points, however, are offices where PWDs await processing by non-PPD personnel. The number of such personnel involved is extraneous to the study objectives; no re-allocation of such personnel is under consideration. Consequently, the number of non-PPD personnel utilized at a delay point is irrelevant. What is relevant at a delay point, however, is the time the PWD is delayed. At the delay point in question, the PWD is delayed anywhere from five to fourteen days, with ten days being the usual delay time. This is denoted, in hours, by (120,240,336).

Upon leaving the first delay point, the FMS PWD is delayed for batching in a "batch-box". Batch-boxes are cleared every thirty days with twelve and a half days (300 hours) being the average (modal) batching delay.

The FMS PWD then arrives at the same queue two, where any or all of the following tasks will be performed on it once one of the same seventeen PPD personnel is available to process the PWD: processing DA Form 1877, Justification and Approval, reviewing Form 1095, master format, and preparing synopsis/waiver. Upon completion of processing, the PWD is forwarded to queue three. Its subsequent routing is a function of its dollar value. If it is greater than \$100,000, the PWD proceeds through a series of approval functions, as applicable. If, at any stage of this series, the PWD is disapproved, its Justification and Approval is amended by PPD personnel at queue two, the PWD is returned to queue three, and the process repeats again. The cycle does not repeat indefinitely, as the following decision-making procedure is utilized: if a given office in the series disapproves the PWD, the same office will approve it should it receive it again for consideration. Once the PWD completes the approval cycle, or if it does not exceed \$100,000, its priority designator is determined. If the designator is 2 through 6, the

PWD proceeds to the BS; if over 6, the PWD is delayed while a Small Business review is conducted. If Small Business is in agreement, the PWD is forwarded to the BS; otherwise it is delayed while a planning resolution procedure is conducted before proceeding to the BS.

C. PROGRAMMING PWD FLOW IN A SIMULATION LANGUAGE.

The second step in designing the model was programming the PWD flow charts in the simulation language SLAM. The program code, over 1700 lines in length, is provided at Appendix B. The code is simply a "snapshot" of the flow charts, augmented by input data provided by the study sponsor. It is in a form the SLAM compiler can understand. It is this code which instructs the computer to simulate the PWD process flow; it enables the simulation to be performed.

The code is comprised of hundreds of modules, each of which can be considered as an "index" card. These modules have the property that the vast majority of them can be "shuffled" without affecting the simulated flow, thereby allowing for ease of program expansion, as appropriate. Furthermore, one should note that semicolons denote comments: for a given line of program code, all items appearing after a semicolon have no effect whatsoever on the simulation; the computer "ignores" all comments. Comments merely aid the reader in understanding what a program code segment is accomplishing.

The first module consists of lines 1 through 93. The GEN statement identifies the program author, title, and date the simulation commenced. The LIMITS statement specifies that 15 adjacent memory files have been allocated for the queue stations, that each PWD possesses 12 attributes (listed on lines 45 through 92), and that a maximum of 18000 PWDs may reside concurrently in all files. The MONTR statement prints a simulation summary report every 730 hours over a two year period of simulated time. The SEEDS statement

initializes the random number generator. The NETWORK statement denotes the beginning of the network description.

The second module (lines 94 through 109) consists of a CREATE node followed by six branches (possible paths) a PWD could follow. PWD influx is generated by the user-defined function, USERF(1), provided at Appendix C. Once a PWD arrives in Planning, its Planning type must be determined. Lines 103 through 108 reflect the corresponding probabilities with which a newly arrived PWD becomes a particular Planning type. For example, line 103 ("ACT,,.485,G3;") specifies that 48.5% of all arriving PWDs are Special Buys. Consequently, the computer will "determine" that an arriving PWD is a Special Buy 48.5% of the time. If it does, then it will route the PWD to node G3, which is the beginning of the Special Buy program subcode (line 113); G3 is the end node label of this activity (ACT) statement.

One notices most modules are of the form "BEGINNING NODE, ACTIVITY STATEMENTS, ENDING NODE LABELS". For example, the second module begins with a CREATE node, followed by six activity statements and corresponding ending node labels, one for each activity. The third module (lines 110 through 112), consists of an assign node (A2) followed by one activity statement ("ACT,24,,BS;") and one ending node label (BS). The results of the simulation (except possibly processing time) are independent of the location of most of the modules in the program code. Although detailed explanations of the SLAM statements utilized in the program are found at [1], a brief description of them follows.

QUEUE(IFL); denotes queue node number IFL and is used to delay entities in file IFL until a server becomes available. For example, line 1464, "Q1 QUEUE(1)" indicates a PWD has arrived to queue number one.

ACT(N)/A, duration, probability, node label; is the service activity statement used in conjunction with the QUEUE node to model a queue with N identical servers. For example, line 1465, "ACT(2)/1,USERF(2),,H1;" indicates that queue number one (line 1464) has 2 PPD personnel assigned to it, that this is service activity number 1, and that the time it takes a server to process the PWD is provided by USERF(2). The PWD then proceeds to node H1 (line 1466), where its subsequent routing is a function of its corresponding value of attribute nine.

ACT, duration, probability or condition, node label; is the regular activity statement, which is used to delay entities, perform conditional and/or probabilistic branching, and to route entities to other nodes. For example, the regular activity statement "ACT,,.022,G80;" (line 108) signifies that, after the PWD is delayed for 0 hours, it has a 2.2% chance of being routed to node G80 (i.e., of being a routine large purchase, line 505). The regular activity statement "ACT,TRIAG(0.,300.,720.),ATTRIB(9).EQ.1,A6;" (line 137) means "delay the PWD for anywhere from 0 to 720 hours (with 300 hours being the most frequent delay time), and then, if the value of attribute 9 for the PWD equals 1, route the PWD to assign node number 6 (line 139)."

ASSIGN,VAR=value,VAR=value,....,M; denotes an assign node, used for assigning values to variables whenever an entity arrives to the node. At most M emanating activities are initiated. For example, lines 139 - 141,

```
A6    ASSIGN, ATTRIB(9)=2,  
        ATTRIB(10)=12.34;  
        ACT,,,Q2;
```

signify that, should a PWD arrive at assign node A6, attributes 9 and 10 of the PWD are set equal to 2 and 12.34, respectively, and that the PWD is

immediately routed to queue two (line 1472). If no value is specified for M, then M defaults to a value of one, as in this example.

GOON,M: denotes a go-on node, used to denote a process continuation, and is often equivalent to the concept of the "dummy" node in PERT. Go-on nodes are used in the program code to portray delay times. For example, lines 1418-1419,

```
G261 GOON,1;           Congressional Notification.  
      ACT,72.,,G265;
```

signify that the Congressional notification process takes 72 hours to perform, and upon completion of this procedure, the PWD is routed to node G265. This subsequent node (lines 1420 - 1425),

```
G265 GOON,1;           Prepare to branch for KO  
      ;               signature.  
      ACT,,ATRI(4).LT.5,A217;   <= $500K.  
      ACT,,ATRI(4).GT.4.AND.  
      ATRI(4).LT.8,A218;       > $500K <= $10M.  
      ACT,,ATRI(4).EQ.8,A219;   > $10M.
```

exercises a decision-making process; the path the PWD follows is a function of dollar value. The PWD proceeds to assign node A217 if the PWD does not exceed \$500,000, to A218 if greater than \$500,000 and at most \$10,000,000, and to A219 if greater than \$10,000,000.

COLCT(N),INT(NATR),ID: is a COLCT node, used to collect statistics related to the time the PWD arrives at the node. N denotes collect node number N, and INT(NATR) records the time interval between the time of the PWDs

arrival to this node and the time stored in attribute number NATR of the arriving PWD. For example, lines 1665 - 1666,

```
C1 COLCT(1),INT(1),LE5KSP;  
ACT,,,C28;
```

signify the following. If a PWD arrives at this first collect node, it must be less than or equal to \$5K (\$5000), and follows a Small Purchase procedure at the BS. INT(1) records the time interval between the PWD's time of arrival to this node and the time stored in attribute number NATR = 1 of the PWD. One should note that the value of the first attribute of any PWD equals the PWD's arrival time to Planning (cf line 47). Consequently, INT(1) equals the PWD's arrival time to the collect node minus its arrival time to Planning. In other words, INT(1) equals PALT. The PWD then proceeds to the twenty-eighth collect node (line 1719) where additional statistics are obtained. Table 1 defines the terminology employed for all collect node labels.

TERM,TC; is the TERMINATE node used to terminate the simulation after all PWDs have been awarded contracts (line 1720). However, since it is desired that the simulation conclude at the close of FY85 and not all PWDs need have exited by this time, an additional simulation cut-off control is required. This is provided by the INITIALIZE statement appearing on line 1723: "INIT,0,17520;." This specifies the beginning and ending times for the simulation as 0 and 17520 hours, respectively, regardless of how many PWDs have been awarded contracts. These two statements collectively ensure that the simulation does not "shut-down" before all PWDs arrive to Planning, and that it does not continue operating past its termination date.

LE5KSP	Small Purchase not exceeding \$5000
SBGSASP	Special Buy GSA Mandatory/FPI Small Purchase
SBFMSIPDSP	Special Buy FMS IPD 2-6 Small Purchase
SBFMSIPDP3OA	Special Buy FMS IPD 2-6 Priced BOA
SBFMSIPDUBOA	Special Buy FMS IPD 2-6 Unpriced BOA
SBFMSIPDRFP	Special Buy FMS IPD 2-6 RFP
SBFMSIPDIFB	Special Buy FMS IPD 2-6 IFB
SBFMSNIPDSP	Special Buy FMS IPD over 6 Small Purchase
SBFMSNIPDPBOA	Special Buy FMS IPD over 6 Priced BOA
SBFMSNIPDUBOA	Special Buy FMS IPD over 6 Unpriced BOA
SBFMSNIPDRFP	Special Buy FMS IPD over 6 RFP
SBFMSNIPDIFB	Special Buy FMS IPD over 6 IFB
UG5KLE25KFCSP	Urgent Small Purchase Format C Small Purchase
UG5KLE25KFCUBOA	Urgent Small Purchase Format C Unpriced BOA
UG5KLE25KNFCSP	Urgent Small Purchase Not Format C Small Purchase
UG5KLE25KNFCUBOA	Urgent Small Purchase Not Format C Unpriced BOA
UG25KFCUBOA	Urgent Large Purchase Format C Unpriced BOA
UG25KFCRFP	Urgent Large Purchase Format C RFP
UG25KNFCUBOA	Urgent Large Purchase Not Format C Unpriced BOA
UG25KNFCRFP	Urgent Large Purchase Not Format C RFP
RG5KLE25KFCSP	Routine Small Purchase Format C Small Purchase
RG5KLE25KFCPBOA	Routine Small Purchase Format C Priced BOA
RG5KLE25KNFCSP	Routine Small Purchase Not Format C Small Purchase
RG25KFCPBOA	Routine Large Purchase Format C Priced BOA
RG25KFCRFP	Routine Large Purchase Format C RFP
RG25KNFCRFP	Routine Large Purchase Not Format C RFP
RG25KNFCIFB	Routine Large Purchase Not Format C IFB
ALL	Independent of PWD type

Note: the word "purchase" has two connotations, depending on its position in a line: when towards the beginning, it denotes a dollar value not exceeding \$25,000; when towards the end, it denotes a procedure.

TABLE 1: Collect Node Label Terminology

D. ASSUMPTIONS.

The third step in the design of the model consisted of making assumptions as to system operation. These assumptions are:

1. The PWD flow charts provided at Appendix A reflect the flow of PWDs through the PPD at MICOM for FY85. Although various processing and routing procedures were collapsed for ease of use, the flow charts are a reasonable representation of the actual flow.

2. All times appearing in this report are in hours, unless specified otherwise. This was done to minimize the effect of computer rounding error in all calculations.

3. Approximate as opposed to actual PWD arrival time is utilized in the model. Arrival times of all funded Secondary Item PWDs issued during FY85 were recorded by MICOM for 169 time periods. This arrival sequence, graphed at Figure 2, is provided at Appendix D. One can see the highly erratic nature of the PWD influx. To employ all this information in the program code would entail the development of a user-defined arrival function with 169 conditional (if...then) statements, which would slow processing time considerably. With current processing time amounting to approximately one week per simulation run, this approach does not seem feasible. To minimize processing time, yet still maintain some semblance of valid PWD influx, it was decided to average the PWD arrival time for each month of FY85. The reciprocal of each average monthly PWD arrival time yields each average monthly PWD interarrival time provided by the user-defined function USERF(1). This function is utilized at the CREATE node (line 94).

4. All the PPD servers at each queue station can perform any or all of the activities listed adjacent their corresponding queue node (cf Appendix A). The server processing times listed at each queue node were assumed to be

PWDs

890

600

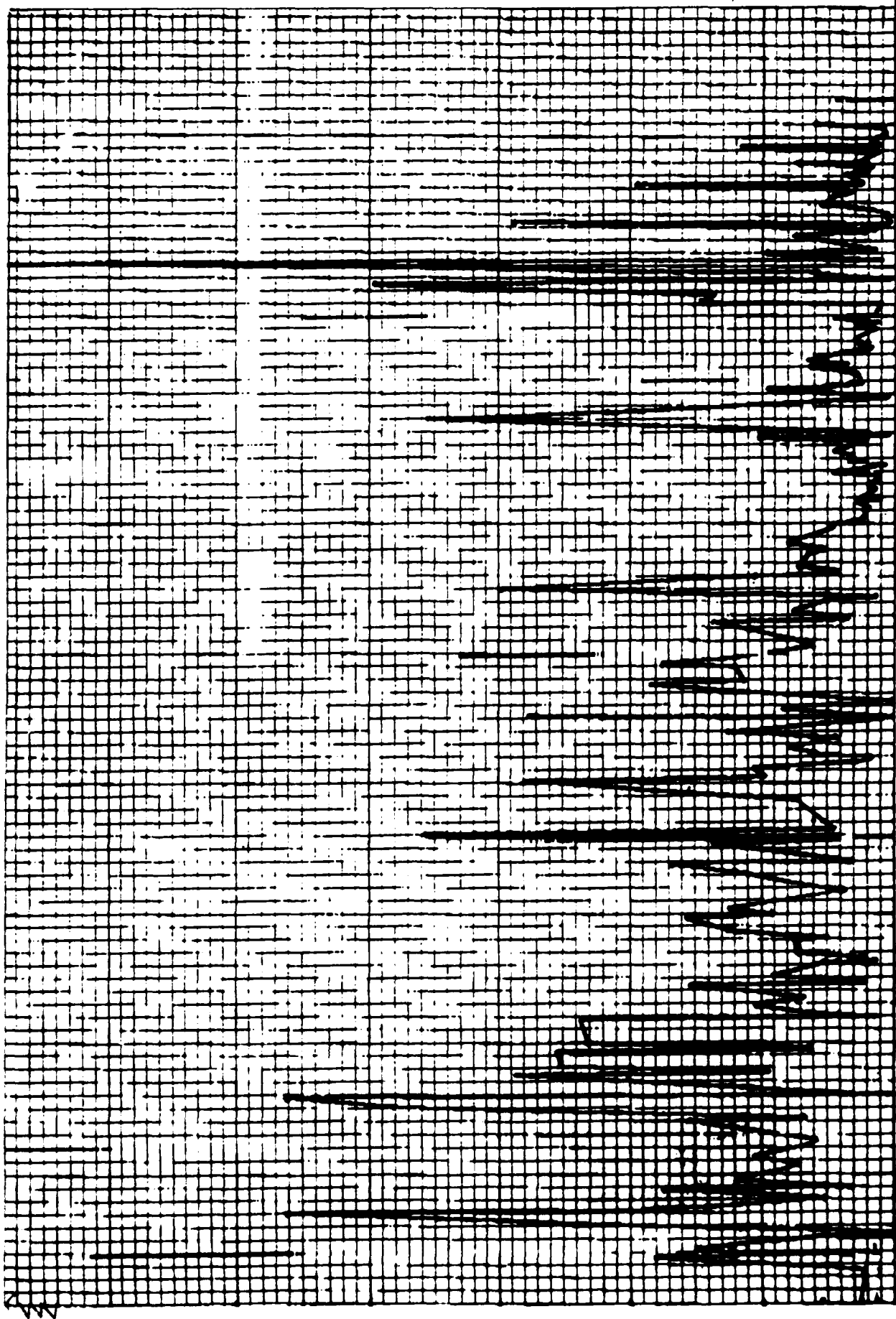
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200

100



10/1 11/2 12/4 1/1 2/2 3/2 4/3 5/1 6/2 7/4 8/1 9/2 9/30 DATE

FIGURE 2: ARRIVAL TIMES OF ALL FUNDED SECONDARY ITEM NICOM PWDs ISSUED DURING FY85

constant and are notional "hands-on" times: actual service time may have to be augmented due to a server being idle (i.e., at lunch or at home). Any such augmentation is automatically performed by the user-defined function, USERF(2). It is assumed for this trial run of the model that server duty hours are 0800 to 1630, seven days per week, with a lunch break from 1200 to 1230 hours. Furthermore, it is assumed that if a server is not processing a PWD, then said server is idle. All PWDs are serviced on a first-in, first-out (FIFO) basis. The FIFO service priority selection rule is commonly employed in simulation.

5. All non-PPD delay times follow triangular probability distributions of the form TRIAG (LOW,MODE,HIGH), pending completion of a more precise database information structure. These delay times are all-inclusive: "hands-on", travel, and waiting times are summed for each delay.

6. Approval functions are formulated in such a way to prevent the occurrence of infinite looping. For example, if a PWD is disapproved by an office, and the PWD returns to said office (after reprocessing) for review, that PWD will not be disapproved again by said office. This occurs, for example, in the series of approval functions for Special Buy PWDs.

7. Travel times between PPD processing points is assumed to equal zero, while travel time to the BS is one day.

8. Batching is not utilized in this trial run of the simulation model. In the batch process, similar PWDs are grouped into purchase requests. The grouping process is such that batches are emptied every thirty days. The typical time a PWD remains in a batch is 12.5 days. Batch PALT is defined as the PALT for that PWD (in the batch) with greatest PALT. Once a batch is formed and routed, the batch service time is assumed equal to that for each

PWD in the batch. Inasmuch as average batch size is 1.12 PWDs (based on AMC-provided input), the effect of non-batching should be minimal on the PALT process.

9. The simulation runs examine PWD flow, PALT, and backlog at the MICOM PPD for FY85. At the commencement of the simulation, the system should not be empty and idle, as PWDs are already being processed on October 1, 1984. Consequently, when the simulation begins, FY84 PWDs (and possibly some from prior years) are flowing through the system. Thus, to permit system "warm-up" when the FY85 simulation commences, replicated (i.e., cloned) FY85 data is utilized throughout FY84.

E. DATA.

No model representation is useful without inputting current and valid data. Data required to simulate PWD flow consists of:

1. PWD arrival rate to the PPD.
2. The number and kinds of PWDs entering the system.
3. The number of PPD personnel assigned to each queue station.
4. "Hands-on" PPD server PWD processing times.
5. Delay times for PWD processing by non-PPD personnel.
6. Travel times between processing points.
7. Probabilities with which PWDs are routed along various paths.

The above data was provided by the study sponsor. Statistics on all funded Secondary Item Basic PWDs issued during FY85 are provided at Appendix D. These statistics are used to develop the aforementioned monthly average PWD interarrival time provided in the program code for the user-defined interarrival function, USERF(1). One must recall that the reciprocal of PWD arrival rate yields PWD interarrival time. The number and kinds of PWDs entering the system are provided in percentage form in parentheses at Fig. 1.

For example, 48.5% (.485) of all arriving PWDs are Special Buys. The number of PPD personnel assigned to each queue station is listed within each queue station box in the PWD flow at Appendix A. For example, queue station number one has two personnel currently assigned to it (Q1/2), while queue two has seventeen (Q2/17). Notional "hands-on" PPD server PWD processing times are provided in parentheses adjacent to queue station boxes. For example, by examining the Special Buy PWD flow chart, one notices this processing time for assigning a planning specialist is 1.45 hours, denoted (1.45). Delay times encountered while a PWD is being processed by non-PPD personnel is listed in the same fashion adjacent to the delay symbol. For example, the delay time for conducting a Small Business review of a Special Buy PWD is anywhere from 120 to 504 hours, with 216 hours being the most frequently encountered delay. This is denoted (120,216,504). Probabilities with which PWDs are routed along various paths are denoted in the following fashion. For example, 95% of all Special Buy PWDs are FMS, while 5% are GSA. This is denoted by ".95" and ".05," respectively, adjacent to the decision diamond labeled "Buy Type?" Thus, an incoming Special Buy PWD will have a 95% chance of being routed along the FMS subflow, and a 5% chance of being routed along the GSA. In other words, 95% of the time, the computer will route an arriving Special Buy PWD along the first subflow, and 5% of the time along the second.

F. MODEL OPERATION.

The PALT model can be operated in two modes: with actual data, and with simulated data. One operates the model with actual data to validate the model, i.e., to see whether it represents reality. Inasmuch as models are but approximations of real-world situations, output from a model run in the first mode usually reflects approximations of reality. Model output is a function of system stability; if the system is unstable, then small changes in data

input can yield large changes in output. If the system is stable, then small changes in input yield small changes in output. In other words, unstable systems are extremely difficult to model; sometimes, no model can represent an unstable system with any semblance of accuracy.

Use of simulated data in the PALT model consists of artificially realigning manpower levels to see their effects on PALT and on PWD backlog at the queue stations. For example, if one notes the current server allocation of two personnel at the first queue station results in an extremely long queue length (backlog) of PWDs, then, by artificially increasing the number of servers at this station, the backlog for this station will be reduced. This causes PWDs to be processed more quickly at queue one. Since these PWDs are consequently routed through this station more quickly, the backlog at other queues may increase. One thus observes that backlog at any queue station may have a direct influence on backlog at another. Therefore, by repeatedly artificially changing the backlog at the queue stations, one can attempt to arrive at a manpower allocation that minimizes PALT and backlog.

For the current model, fourteen queue stations are utilized, and, consequently, thousands of possible manpower allocations exist. Furthermore, each computer run of the program currently takes approximately one week. Therefore, each time the program is run, the major backlog points are examined, and reallocations performed to reduce major backlog areas and system PALT. This strategy results in approximate solutions, and should be continued until negligible improvements can be made.

Consequently, model output depends on the assumptions previously described as well as:

1. System stability.

2. Validity of utilized PWD flow. If exact flow is utilized, longer computer processing time is required; while if consolidated flow is used, then, although model inexactness appears, processing time is reduced.

3. Accuracy of input data. One often has to provide a best estimate as to, say, how long it takes to process a particular PWD type at a specified processing point. While this introduces modeling error, this situation is often unavoidable.

4. The number of simulations performed. To reduce statistical chance variation in output, repeated simulations utilizing a specific manpower allocation may have to be performed. In view of computer processing time constraints, a large number of repetitions is not possible at this time.

CHAPTER III

RESULTS

A. SIMULATION OUTPUT FORMATS.

Those SLAM processor-generated outputs essential for effective analysis of MICOM PWD flow are labeled Statistics for Variables Based on Observation, File Statistics, and Service Activity Statistics. For each utilized manpower allocation, these statistics were collected every 730 hours (approximately one month) of a two year simulated time period. This series of observations comprises a sequence of twenty-four equally spaced system "snapshots," thereby providing insight into the dynamic nature of the system under study. This series reveals that, with the current manpower allocation, the lengths of queues one and five increased dramatically during the two year period of simulated time. Appendix E provides output at 17520 hours into the simulation utilizing the current MICOM PPD manpower allocation.

Statistics for Variables Based on Observation lists the twenty-eight types and number of PWDs processed, as well as the following PALT variable values for each PWD type: average (mean), standard deviation, coefficient of variation (standard deviation divided by mean), minimum, and maximum. For example, by referring to Appendix E, one notices, by time 17520 hours, 9787 Small Purchases not exceeding \$5000 (LE5KSP) were awarded contracts. Furthermore, the average PALT for these PWDs was 735.3 hours, the PALT standard deviation was 348.6 hours, the coefficient of variation was .4741 (47.41%), the minimum PALT was 388.5 hours, and the maximum PALT was 3483 hours. For all PWDs, independent of type (ALL), the average PALT by that time was 3218 hours (134 days (versus 136 in reality)), the standard deviation was

3284 hours, the coefficient of variation was 102 percent, minimum PALT was 388.5 hours, and maximum PALT was 14820 hours, with 17498 PWDs having been awarded contract.

File Statistics refers to the fourteen queue stations employed in the model. It lists, for each station, the average number of PWDs in the queue over time (average length), the standard deviation of the average number of PWDs in the queue over time (standard deviation), the maximum number of PWDs in the queue at any one time (maximum length), the current number of PWDs in the queue (current length), and the average waiting time of all PWDs that arrived to the queue, including those that did not wait for service, i.e., those that were processed immediately upon entering the queue station (average waiting time). For example, by referring to Appendix E, one notes the average length of the first queue station for the two year time period in question was 4948.7441 PWDs, the standard deviation was 2796.3243 PWDs, the maximum length was 9830 PWDs, the current length (at time 17520 hours) was 9826 PWDs, and the average waiting time was 4424.7000 hours. There were times when the queues were empty (i.e., of zero length), as well as when the waiting time for a PWD to be serviced equaled zero (i.e., the queue station had a server available to immediately process a PWD upon its arrival to the station). These zero values were utilized in calculating average length and average waiting time.

Service Activity Statistics refers to the PPD personnel manning the fourteen queue stations involved in the model. Referring again to Appendix E, one notes the two personnel processing PWDs at the first queue station were performing service activity number one. At this station, 1.9997 PWDs, on the average, were in service over the two year time period. Inasmuch as there is a one-to-one correspondence between the number of PWDs in service and the number of busy servers (i.e., a server processes only one PWD at a time), this

signifies that 1.9997 of the servers at the first queue station were, on the average, busy. In other words, this station was operating very close to capacity. The standard deviation of the number of PWDs in service over time at this station was .0214, 2 servers were busy at the conclusion of the time period, at most 2 servers were idle at any time, and at most 2 servers were busy.

B. OUTPUT UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION.

The first simulation was conducted with current MICOM PPD manpower data provided by the study sponsor. This allocation of PPD personnel at the queue stations appears at Table 2. A total of 159 personnel are allocated to the PPD.

The mean PALT after 17520 hours of simulated time for each of the 28 procurement action types listed at Table 1 is provided at Table 3. From Appendix E one notes the coefficient of variation of PALT for each PWD type with more than one entry is over thirty percent, and that for all PWDs collectively is 102 percent. These values reflect the high variability of PWD travel time through the procurement process.

Table 4 provides the maximum and current number of PWDs in the queue stations at 17520 hours, as well as the average waiting time at each station. Major procurement backlog occurs at queue stations one, two, and five, indicating additional processing personnel are probably required at these points.

One should note the excessive backlog of 9826 PWDS at the first queue station 17520 hours into the simulation. This suggests the utilized "hands-on" processing time for assigning a Planning specialist may be in error; it probably should be decreased.

QUEUE STATION	FUNCTION	NUMBER OF SERVERS
1	Planning	2
2	Planning	17
3	Planning	3
5	BS Division	1
6	BS Branch A	28
7	BS Branch A	4
8	BS Branch B	36
9	BS Branch B	4
10	BS Branch C	34
11	BS Branch C	4
12	BS Branch A	1
13	BS Branch B	1
14	BS Branch C	1
15	BS Pricing	23
		<u>159</u>

Note: The fourth queue station was deleted at an early stage of the analysis. To avoid the chance of programming error, the stations were not renumbered.

TABLE 2: Current MICOM PPD Manpower Allocation

PWD TYPE	MEAN PALT	
	Hours	Days
LE5KSP	753.3	31
SBGSASP	5872	245
SBFMSIPDSP	6078	253
SBFMSIPDPBOA	8188	341
SBFMSIPDUBOA	6774	282
SBFMSIPDRFP	8628	360
SBFMSIPDIFB	6710	280
SBFMSNIPDSP	6509	271
SBFMSNIPDPBOA	9155	381
SBFMSNIPDUBOA	6342	264
SBFMSNIPDRFP	9056	377
SBFMSNIPDIFB	7199	300
UG5KLE25KFCSP	5402	225
UG5KLE25KFCUBOA	5435	226
UG5KLE25KNFCSP	5613	234
UG5KLE25KNFCUBOA	10150	423
UG25KFCUBOA	-	- *
UG25KFCRFP	7924	330
UG25KNFCUBOA	12410	517
UG25KNFCRFP	7986	333
RG5KLE25KFCSP	5953	248
RG5KLE25KFCPBOA	7092	296
RG5KLE25KNFCSP	5711	238
RG25KFCPBOA	7380	308
RG25KFCRFP	9233	385
RG25KNFCRFP	6055	252
RG25KNFCIFB	7001	292
ALL	3218	134

* No PWDs of this type were generated during the simulation. This is a consequence of the fact that, based on AMC input, the chance of a PWD of this type actually occurring in reality is almost nil.

TABLE 3: Mean Palt 17520 Hours into Simulation Utilizing Current MICOM PPD Manpower Allocation

QUEUE STATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME	
			Hours	Days
1	9830	9826	4425	184
2	100	91	61	2.5
3	15	3	3.6	.15
5	581	581	2970	124
6	21	0	.06	0
7	13	0	.66	0
8	7	0	0	0
9	18	0	.75	.03
10	11	0	0	0
11	13	0	.73	.03
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0

TABLE 4: Queue Station Data 17520 Hours into Simulation Utilizing Current
MICOM PPD Manpower Allocation

C. OUTPUT UTILIZING FIRST MICOM PPD MANPOWER REALLOCATION.

It appears, based on output utilizing the current manpower allocation, that major procurement backlog occurs at queue stations one, two, and five. Even though these results are subject to statistical chance variation, they are still good estimates of the current state-of-affairs, assuming the input data is valid. Consequently, to reduce this backlog, more servers should be allocated to these three stations.

This is where one tries to answer "What if ... ?": what would happen to average PALT if additional manpower were allocated to these three queue stations? This is where the power of computer simulation arises. One does not actually have to physically alter manpower allocation at MICOM's PPD and wait to see its effect on average PALT. By merely changing manpower input data in the program code, one runs the program to simulate the effect of this manpower reallocation. The results are examined, and if they are within acceptable limits (i.e., the average PALT obtained has been reduced to an acceptable level), then the simulations are terminated. If, however, the new average PALT obtained is not acceptable, then another reallocation of personnel is made, and the process continues. Inasmuch as there are thousands of possible manpower allocations, one cannot continue the reallocation process indefinitely; computer processing time and other time constraints usually limit the number of simulations to be performed.

Some sort of algorithm must be developed to ensure a consistent manpower reallocation procedure. The algorithm employed in this project consists of first evaluating, for each queue station, a usage ratio (UR) in conjunction with the manpower allocation currently being employed. This UR, listed at Table 5 for each queue station, utilizing current manpower allocation, is defined as the average queue utilization divided by the server capacity.

QUEUE STATION	SERVER CAPACITY	AVERAGE UTILIZATION	UR
1	2	1.9997	.9999
2	17	16.4651	.9685
3	3	2.6490	.8830
5	1	.8485	.8485
6	28	16.0398	.5728
7	4	2.2367	.5592
8	36	15.7117	.4364
9	4	2.2360	.5590
10	34	15.9368	.4687
11	4	2.2848	.5712
12	1	.0047	.0047
13	1	.0073	.0073
14	1	.0073	.0073
15	23	1.5438	.0671

TABLE 5: Queue Station Usage Ratio (UR) Values 17520 Hours into
Simulation Utilizing Current MICOM PPD Manpower Allocation

A fuzzy algorithm is an ordered sequence of instructions which may contain fuzzy (i.e., imprecise) assignment and conditional statements (e.g., if backlog at queue one is large, then the UR has a high value). Roughly speaking, a fuzzy algorithm is an ordered set of fuzzy instructions which, upon execution, yield an approximate solution to a specified problem [3]. The following fuzzy algorithm is utilized in this analysis:

1. Remove some servers from those queue stations with small UR values and large server capacity.
2. Place these servers in those queue stations with high UR values and high backlog.
3. Execute program code with new server allocation.
4. Examine results. If PALT and backlog are reduced to acceptable levels, stop. Else, go to step one, provided computer cost limits have not been exceeded.

The algorithm is used as follows:

1. Queue stations twelve through fifteen have smallest UR values. Of these, only queue fifteen has more than one server. Consequently, servers will be removed from queue fifteen.
2. Queue stations one, two, three, and five have highest UR values, but only queues one, two, and five have excessive lengths. However, all PWDs, when flowing through the PPD, pass from the first queue to the second, and then to the third. Hence, backlog at queue three will be affected by any increase in server capacity at queues one and two. Consequently, servers will be removed from queue fifteen, and added to queues one, two, three, and five. It was decided to remove eighteen servers from queue fifteen, and to add two servers to queue one, ten to queue two, four to queue three, and two to queue five.

3. Table 6 provides the mean PALT for each PWD type 17520 hours into the simulation, utilizing this first manpower reallocation. One notes the mean PALT for almost all PWD types has been reduced, with the overall mean PALT reduced by more than twenty percent, from 134 days to 107. Table 7 provides queue lengths and average waiting times for this first reallocation, 17520 hours into the simulation. One can also see that the length of the first queue station has been reduced by a factor of twenty, while the length of the second has increased by a factor of forty-three, due to more PWDs being processed per unit time at queue one, causing queue two to receive greater PWD influx. Note the decrease in average waiting time for queues one and five, and the increase for queue two. UR values and server capacities for the first reallocation are provided at Table 8. Assuming the new PALT and backlog values listed at Tables 6 and 7 are acceptable, the algorithm terminates. However, if these values are not tolerable, the algorithm suggests removing servers from queues eight, ten, and possibly fifteen, and adding them to queues one, two, and possibly six. Output for the first reallocation appears at Appendix F.

PWD TYPE	Hours	MEAN PALT	
			Days
LE5KSP	744.5		31
SBGSASP	2812		117
SBFMSIPDSP	3549		148
SBFMSIPDPBOA	5010		209
SBFMSIPDUBOA	3247		135
SBFMSIPDRFP	4716		197
SBFMSIPDIFB	4307		179
SBFMSNIPDSP	4058		169
SBFMSNIPDPBOA	5110		213
SBFMSNIPDUBOA	3908		163
SBFMSNIPDRFP	5112		213
SBFMSNIPDIFB	4843		202
UG5KLE25KFCSP	3040		127
UG5KLE25KFCUBOA	2833		118
UG5KLE25KNFCSP	4213		176
UG5KLE25KNFCUBOA	-		- *
UG25KFCUBOA	4624		193
UG25KFCRFP	5688		237
UG25KNFCUBOA	6181		258
UG25KNFCRFP	6575		274
RG5KLE25KFCSP	4192		175
RG5KLE25KFCPBOA	6454		269
RG5KLE25KNFCSP	3847		160
RG25KFCPBOA	6230		260
RG25KFCRFP	6559		273
RG25KNFCRFP	5296		221
RG25KNFCIFB	5967		249
ALL	2560		107

* No PWDs of this type were generated during the simulation. This is a consequence of the fact that, based on AMC input, the chance of a PWD of this type actually occurring in reality is almost nil.

TABLE 6: Mean PALT 17520 Hours into Simulation Utilizing First MICOM PPD Manpower Reallocation

QUEUE STATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME Hours	Day
1	960	503	341.65	14
2	3888	3879	1203.75	50
3	12	0	.31	.01
5	11	2	13.13	.55
6	65	0	1.23	.05
7	23	0	1.41	.06
8	23	0	.04	0
9	22	0	1.26	.05
10	25	0	.10	0
11	21	0	1.31	.05
12	0	0	0	0
13	1	0	1.16	.05
14	0	0	0	0
15	2	0	3.31	.14

TABLE 7: Queue Station Data 17520 Hours into Simulation Utilizing First MICOM
PPD Manpower Reallocation

QUEUE STATION	SERVER CAPACITY	AVERAGE UTILIZATION	UR
1	4	3.9144	.9786
2	27	26.2074	.9706
3	7	4.0486	.5784
5	3	2.1575	.7192
6	28	21.2539	.7591
7	4	2.7808	.6952
8	36	20.7459	.5763
9	4	2.6918	.6730
10	34	21.5679	.6344
11	4	2.7366	.6842
12	1	.0063	.0063
13	1	.0083	.0083
14	1	.0146	.0146
15	5	1.7486	.3497

TABLE 8: Queue Station UR Values 17520 Hours into Simulation Utilizing First MICOM PPD Manpower Reallocation

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS.

The algorithm presented in the previous chapter is an iterative method for analyzing an exceedingly complex system composed of hundreds of nodes and routing conditions, each of which interact with each other and influence output. When properly executed, the procedure achieves, with each iteration, a more efficient manpower allocation at major MICOM PPD processing points for PALT reduction and thereby improves overall contract execution performance for Secondary Items. By repeatedly realigning manpower at the queue stations and executing the program for each such reallocation, one can estimate the effects of such reallocations on PALT.

It is obvious from the simulations performed that the current allocation of MICOM PPD manpower resources is suboptimal. Just one simulated reallocation decreased average PALT by over twenty percent. Further simulations can and will be performed to approach the near optimal alignment.

The PALT model does not replicate the effects of manpower reallocation on PALT, but merely estimates them. No simulation output duplicates reality all the time. Such output is a function of the stability of the system under study, the validity of the utilized PWD flow, the accuracy of the input data, and the amount of statistical chance variation arising from the use of random number generators employed by computer hardware.

An insight into the stability of the MICOM Secondary Item system is obtained by referring to Appendix G. Two simulations of the Special Buy PWD flow were made, utilizing the current manpower allocation. Only 1000 PWDs were created to shorten computer processing time. Both portray PALT output

and backlog. The rationale for this is that if the difference in output for these and planned additional simulations is small, then the system is reasonably stable, and the statistical chance variation is minimal. The difference in corresponding output for these first two simulations is small; average PALT differed by less than two percent. This indicates several runs for each manpower allocation for the complete flow are probably not necessary. Consequently, to achieve a reasonably optimal manpower alignment, what is required is that the algorithm be repeatedly performed until an acceptable PALT and backlog level are obtained.

There are two powerful uses of the PALT simulation model which arise from whether altered flow or altered input data are utilized. Although the PALT model represents only Secondary Item Basic PWD flow through the MICOM PPD, should the system's process flow change, the program code can be altered. For example, it may be desirable to expand the model to develop a composite model with MSC unique parameter values by defining the PWD flow for each MSC using the MICOM PALT model as a baseline. Furthermore, one may wish to: distinguish between work-in-process and true backlog; stratify procurement resources into blue-collar, white-collar, and overhead types of labor; and get a handle on utilization of procurement resources in light of the preceding. If altered processing times are input to the system, then PALT and backlog will also be affected. Just what effect the preceding will have on contract execution performance, and its measurement thereof, is unknown; however, by simulating any proposed changes, their effects can be estimated.

B. RECOMMENDATIONS.

Several recommendations concerning the MICOM PPD PALT model are in order:

1. PWD processing time data utilized in this report is notional in nature: single numbers are used for each. Such data in reality follow some

probability distribution, and should be analyzed further. Said distributions should be input instead of the notional ones currently employed. The utilized time for assigning a planning specialist (queue station 1) may be erroneous and should be verified. Development and use of an activity/time matrix log attached to each purchase request should assist in creating an appropriate informational database for this purpose.

2. PWD delay times incurred during processing by non-PPD personnel are assumed to possess triangular probability distributions. Such distributions are usually employed in the absence of sufficient data. Consequently, sufficient records of these delay times should be made, if they do not exist; otherwise, they should be incorporated into the model.

3. Data on PWD travel time between PPD processing points should be collected and incorporated into the model. Assuming an instantaneous travel time between these points is a source of modeling error. Travel time between two processing points that are not both part of the PPD may remain incorporated into the delay times discussed in item 2 above.

4. Repeated simulations of the model utilizing a dedicated computer system should be undertaken to arrive at an optimal manpower allocation. Such a system should reduce considerably the time for each simulation to be conducted. Appendix H lists the computer hardware and software utilized in this project.

5. Any allegedly optimal simulated manpower configuration output must be viewed with caution. One will be confident such output is near optimal (i.e., one utilizes a single value for the manpower allocation at each queue station vice a set of values; e.g., using a mean value instead of a confidence interval) only if,

a. The utilized PWD flow is complete and accurate.

- b. All input data is complete and accurate.
- c. The program code is an error-free "snapshot" of the utilized PWD flow.
- d. The computer commits no numerical rounding errors.

If the model is validated and the simulation output appears reasonable, then one implements the suggested manpower allocation, and views the results. If actual results agree well with those simulated, then one has probably optimized average PALT. However, if actual and simulated results differ markedly, then not all these assumptions are valid. Investigation into the source of the error is subsequently warranted.

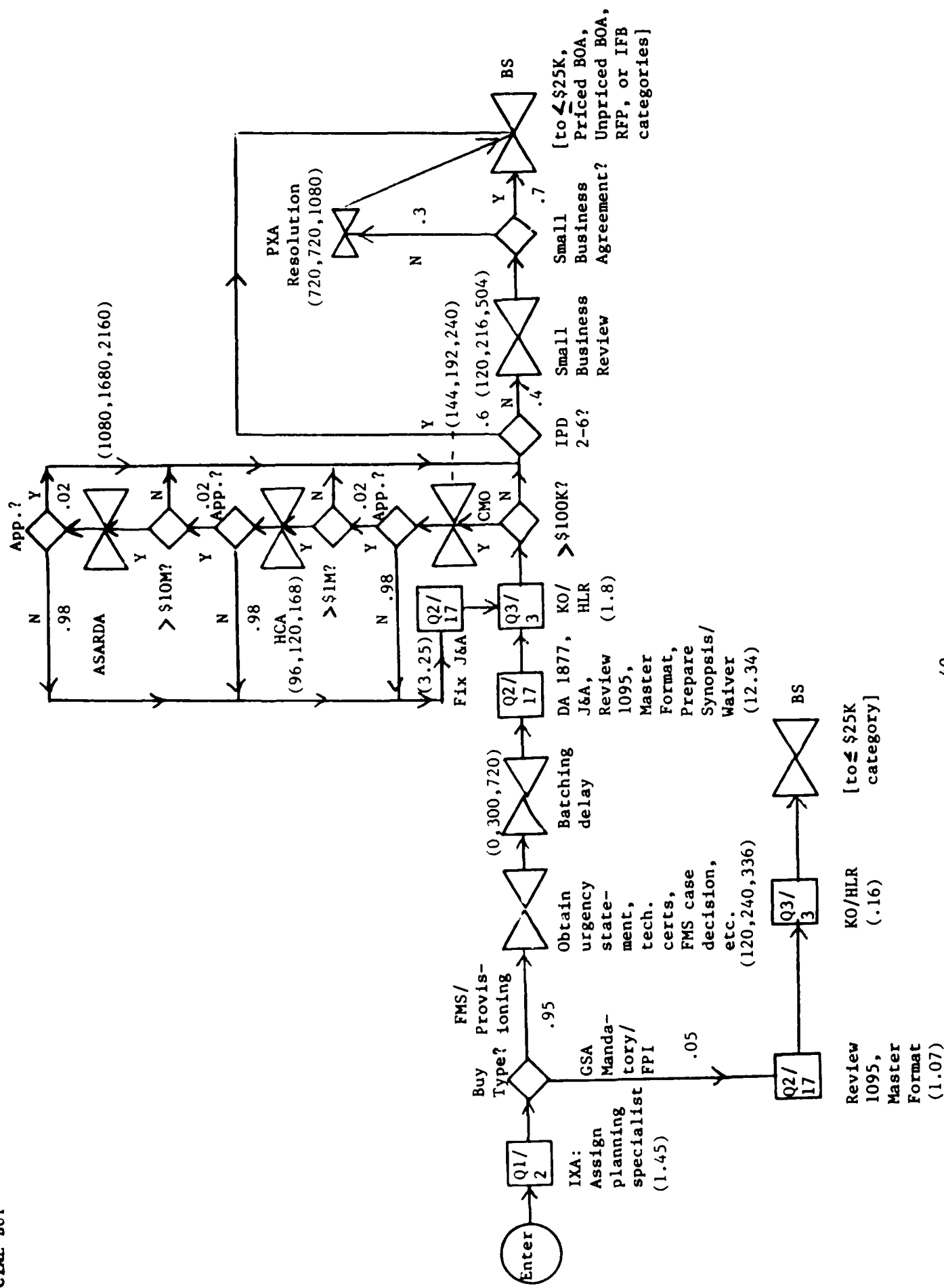
As a follow-on to this report, several simulation runs of the PALT model, utilizing various manpower allocations, will be performed to arrive at a reasonably optimal manpower alignment for the MICOM PPD. The results will be analyzed and forwarded to the study sponsor in a subsequent report.

Furthermore, it is anticipated the model will be expanded to other MSCs using current delimiters, i.e., Secondary Item Contract Execution, including such modeling factors as variable PWD arrival rates (as opposed to average values), cancellations, prioritizations (as opposed to utilizing the FIFO selection rule), amendments, and modifications. Major items and research and development will be subsequently incorporated into model development.

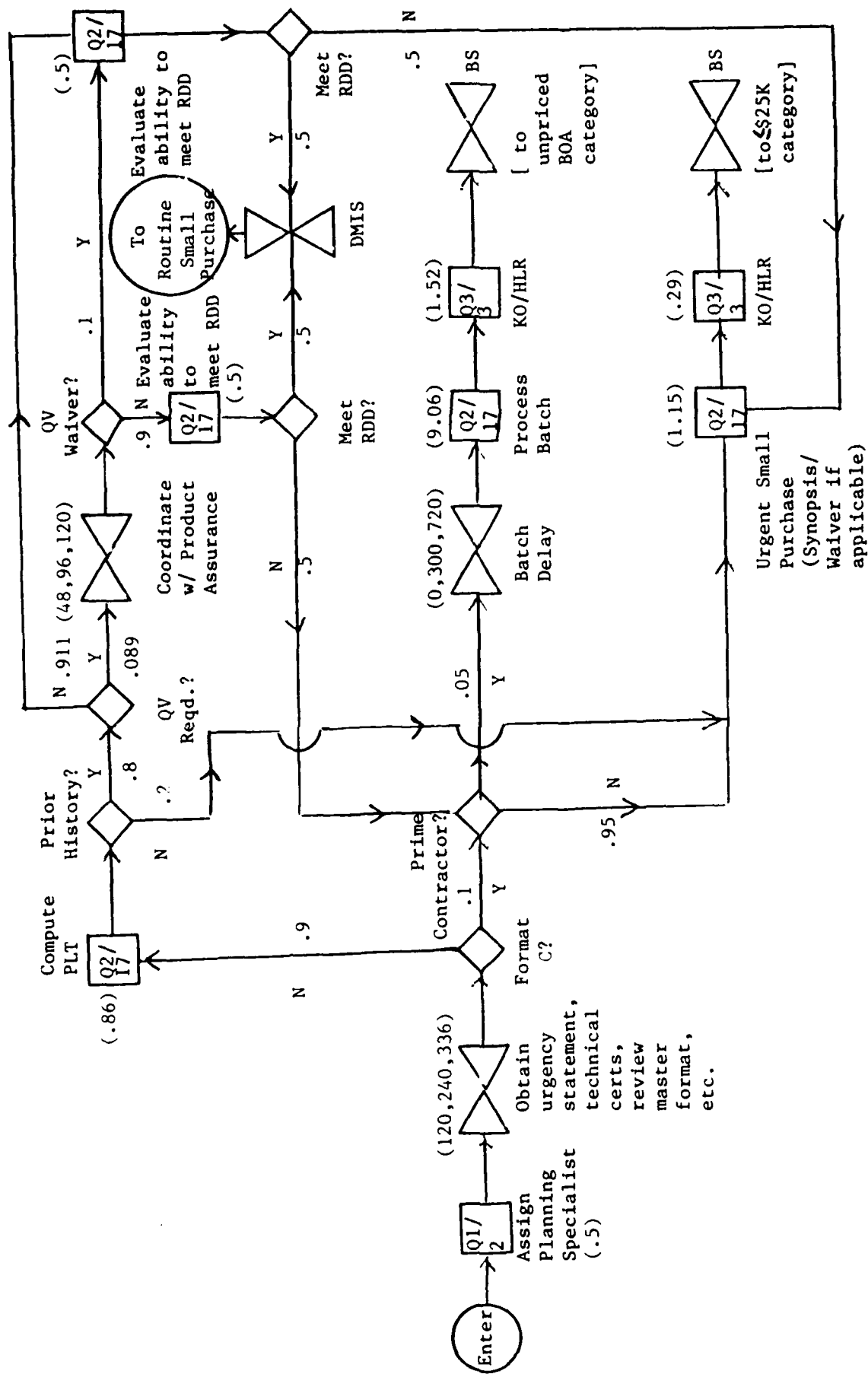
APPENDIX A

MICOM PPD PWD FLOW

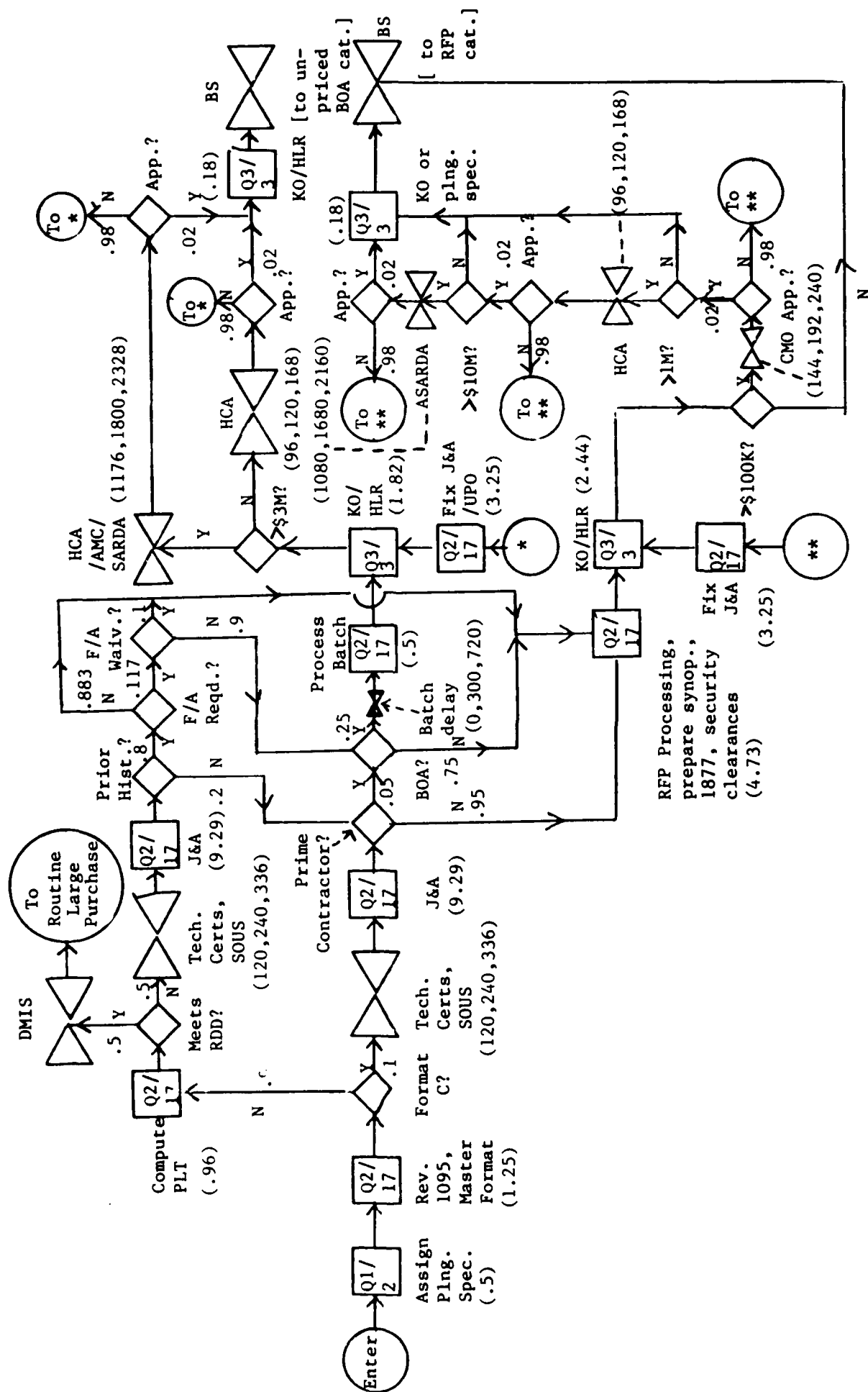
SPECIAL BUY



URGENT SMALL PURCHASE

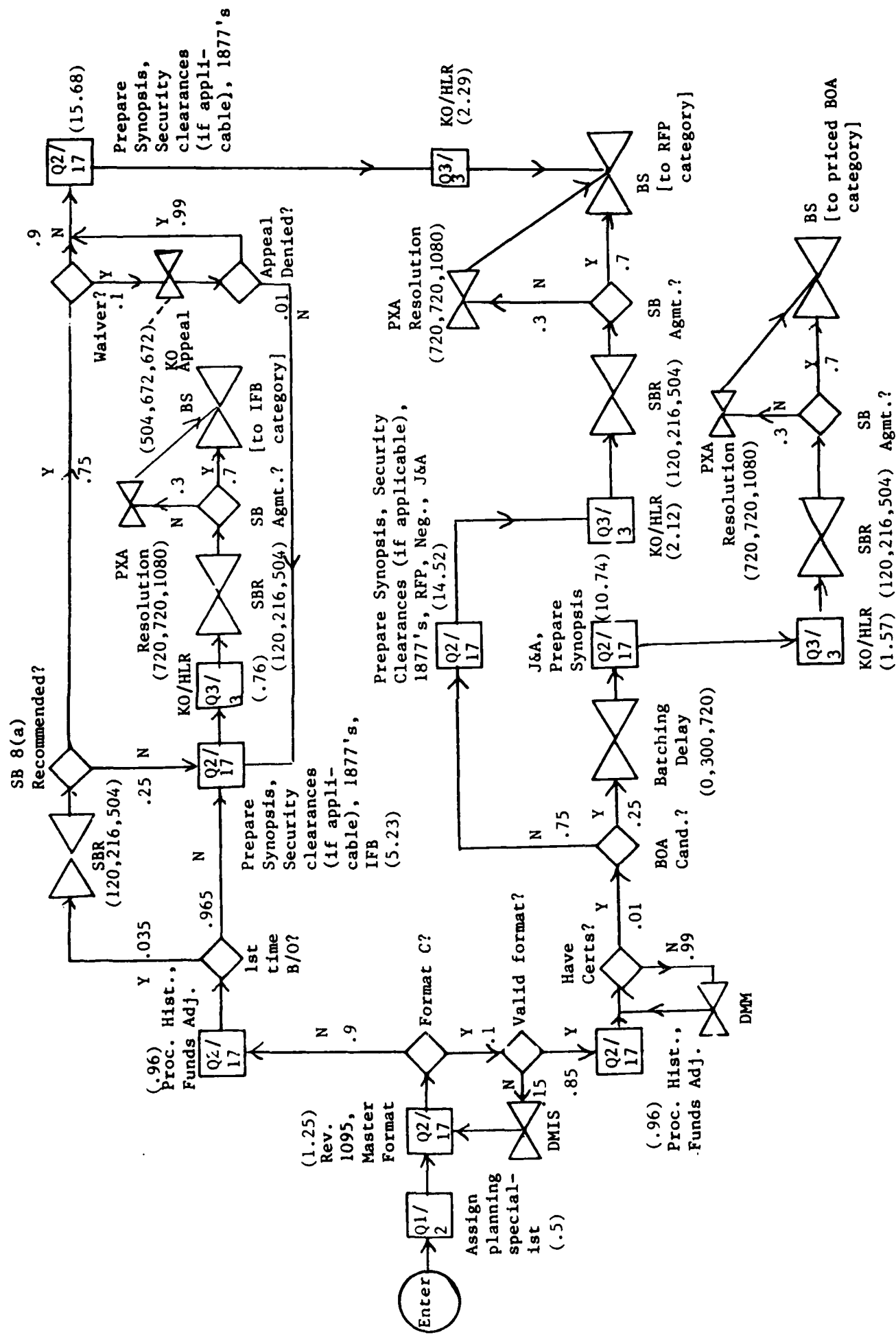


URGENT LARGE PURCHASE



[illegible]

ROUTINE LARGE PURCHASE

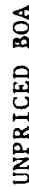


(= \$25K)

Facil.



[Branch A; figures for branches B and C are implied]



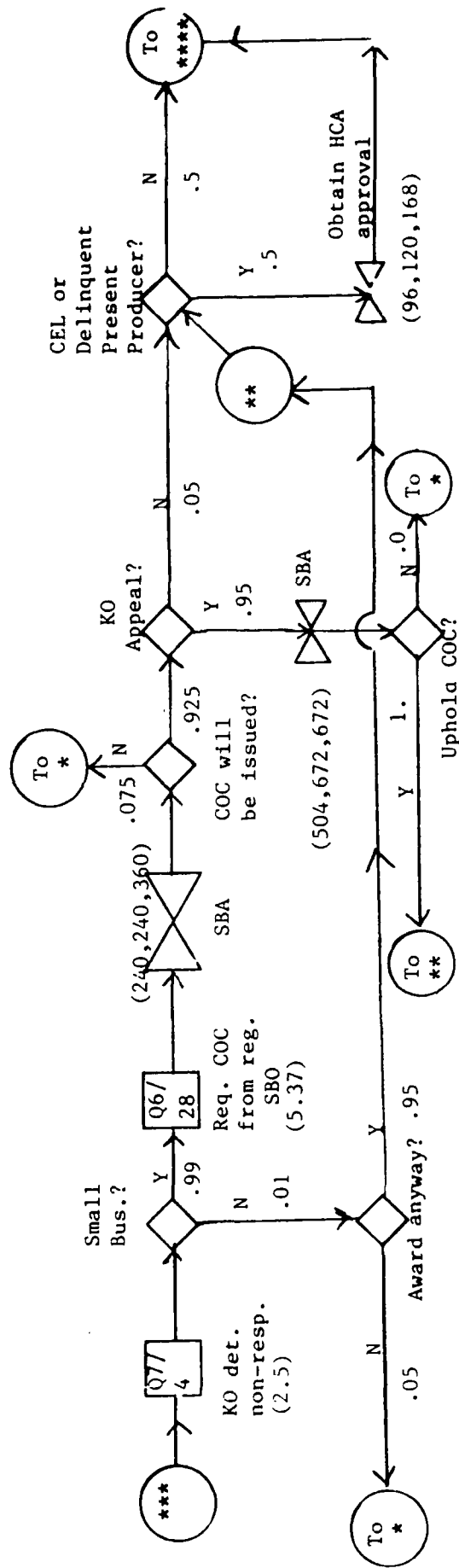
(RFP)

(168, 336, 504)

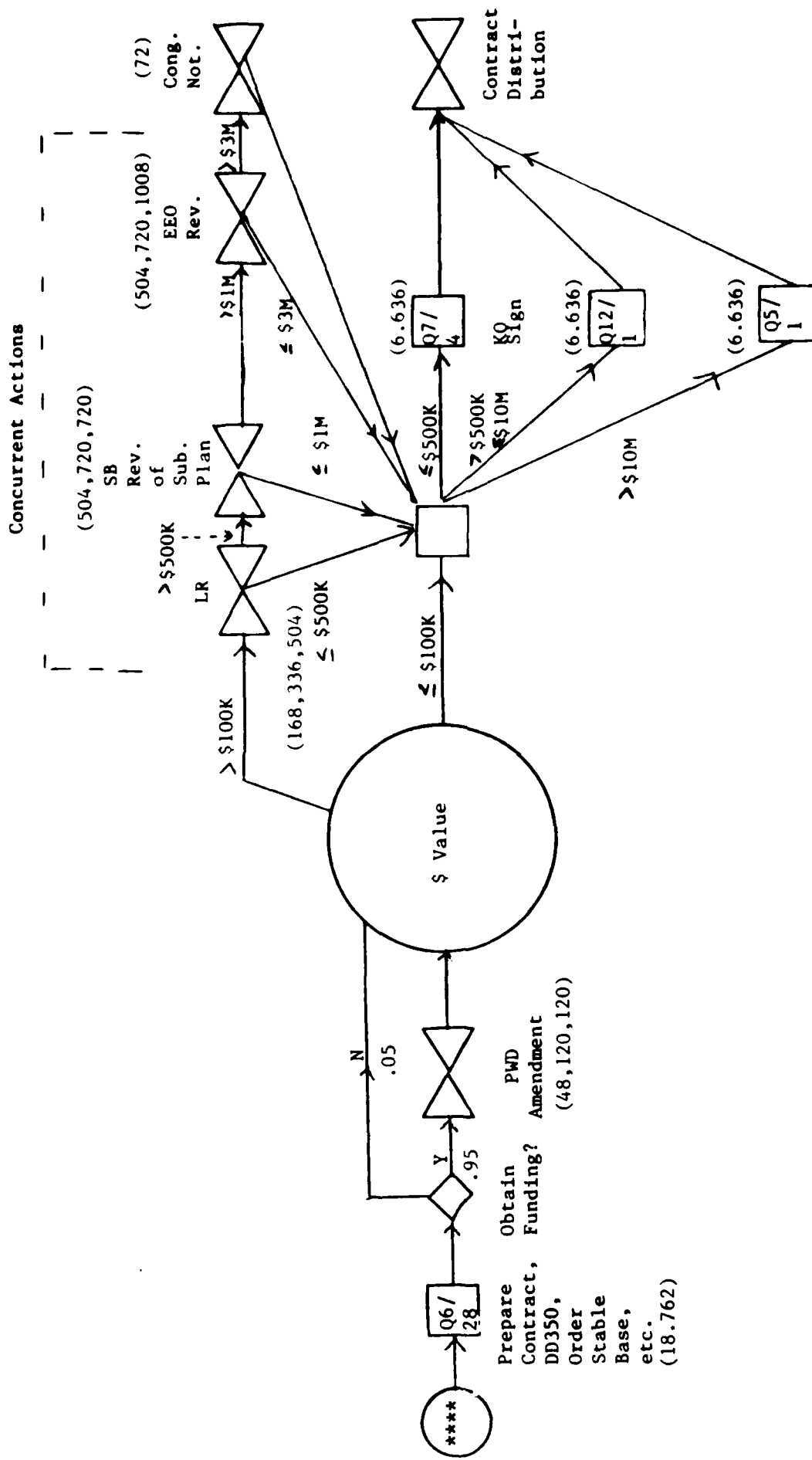


(Branch A; figures for branches B and C are implied)





(Branch A; figures for branches B and C are implied)



APPENDIX B

PALT MODEL PROGRAM CODE

```

1 GEN,WHITING JOHN WICKER,MIC(MSPAPES,9/10/86;
2 ;
3 ; THIS PROGRAM, AUTHORED BY WHITING JOHN WICKER OF THE ARMY
4 ; PROCUREMENT RESEARCH OFFICE (APRO), SIMULATES MISSILE
5 ; CCMHANC (MICON) BASIC PROCUREMENT WORK DIRECTIVE (PDD) FLOW
6 ; FOR FY85, BASED UPON INPUT DATA PROVIDED BY ARMY MATERIAL
7 ; COMMAND (AMC) AND MICON.
8 ;
9 ; THE SIMULATION COMMENCES AT THE BEGINNING OF FY84, AND TERMINATES
10 ; AT THE END OF FY85. REPLICATED FY85 DATA IS USED FOR
11 ; FY84 FOR SYSTEM WARM-UP AND BIAS REDUCTION.
12 ;
13 ; ALL RESULTS ARE SUBJECT TO STATISTICAL CHANCE VARIATION.
14 ;
15 ; FOR FURTHER INFORMATION ABOUT THIS PROGRAM, PLEASE CONTACT:
16 ;
17 ; W. JOHN WICKER
18 ; CCCSLOG
19 ; ATTN: DALO-P&O
20 ; ELOG. T-12113
21 ; FORT LEE, VA 23801-6045
22 ;
23 ; AV 687-1146/1404
24 ; COMN 804-734-1146/1404
25 ;
26 LIMITS,15,12,10000;
27 ;
28 ;
29 ;
30 ;
31 MCNTR,SUMRY,730.,730.;
32 ;
33 ;
34 ;
35 ;
36 ;
37 ;
38 SEEDS,9375295(1)/YES;
39 ;
40 ;
41 ;
42 ;
43 NETWORK;
44 ;
45 ; ATTRIBUTE CHARACTERISTIC VALUE.
46 ;
47 ; 1 FWD ARRIVAL TIME PARK TIME.
48 ;
49 ; 2 FIA CODE TO BE DETERMINED.
50 ;
51 ; 3 PLANNING TYPE 1 IF SPECIAL BUY.
52 ; 2 IF <= 85K.
53 ; 3 IF URGENT > 85K <= 825K.
54 ; 4 IF URGENT > 825K.
55 ; 5 IF ROUTINE > 85K <= 825K.
56 ; 6 IF ROUTINE > 825K.
57 ;

```

58 ;	4	FNC 3 VALUE	0 IF <= 85K.
59 ;			1 IF > 85K < 810K.
60 ;			2 IF >= 810K <= 825K.
61 ;			3 IF > 825K <= 8100K.
62 ;			4 IF > 8100K <= 8500K.
63 ;			5 IF > 8500K <= 81M.
64 ;			6 IF > 81M <= 83M.
65 ;			7 IF > 83M <= 810P.
66 ;			8 IF > 810M.
67 ;			
68 ;	5	IPC 2-67	0 = N/A.
69 ;			1 = YES.
70 ;			2 = NO.
71 ;			
72 ;	6	FORMAT C?	0 = N/A.
73 ;			1 = YES.
74 ;			2 = NO.
75 ;			
76 ;	7	BUY STATION TYPE	1 = SMALL PURCHASE.
77 ;			2 = PRICED 20A.
78 ;			3 = UNPRICED 20A.
79 ;			4 = RFP.
80 ;			5 = TFB.
81 ;			
82 ;	8	BUY BRANCH	1 = A.
83 ;			2 = B.
84 ;			3 = C.
85 ;			
86 ;	9	ROLLING VARIABLE	FUNCTION OF ACTIVITY.
87 ;			
88 ;	10	SERVICE TYPE	FUNCTION OF ACTIVITY.
89 ;			
90 ;	11	ROLLING VARIABLE	FUNCTION OF ACTIVITY.
91 ;			
92 ;	12	ROLLING VARIABLE	FUNCTION OF ACTIVITY.
93 ;			
94 ;		CREATE,USERF(1),0.,1,29374,1;	TIME BETWEEN ARRIVALS = USERF(1)
95 ;			AVERAGE MONTHLY INTERARRIVAL TIME
96 ;			PER MONTH.
97 ;			TIME OF 1ST ARRIVAL = 0..
98 ;			ARRIVAL TIME STORED IN ATTRIBUTE
99 ;			NUMBER 1.
100 ;			29374 ARRIVALS.
101 ;			1 EMANATING BRANCH.
102 ;			
103		ACT,,.485,63;	TO SPECIAL BUY.
104		ACT,,.35,A2;	TO <= 85K.
105		ACT,,.039,620;	TO URGENT SMALL PURCHASE > 85K.
106		ACT,,.029,632;	TO URGENT LARGE PURCHASE.
107		ACT,,.075,G60;	TO ROUTINE SMALL PURCHASE.
108		ACT,,.022,G20;	TO ROUTINE LARGE PURCHASE.
109 ;			
110 A2		ASSIGN,ATRIE(3)=2,	
111		ATRIE(7)=1;	<= 85K (ALSO <= 825K).
112		ACT,24,,B5;	SEND <= 85K TO BUY STATION.
113 G3		GOON,1;	SPECIAL BUY.
114		ACT,,A3;	
115 A3		ASSIGN,ATRIE(3)=1;	

116	ACT,, .2355662, A400;	- ASSIGN -
117	ACT,, .2975137, A401;	- DOLLAR -
118	ACT,, .3316477, A402;	- VALUE -
119	ACT,, .1049305, A403;	- TO -
120	ACT,, .0122208, A404;	- THIS -
121	ACT,, .0126422, A405;	- SPECIAL -
122	ACT,, .0050569, A406;	- BUY -
123	ACT,, .0004214, A407;	- PNC -
124	A410 ASSIGN, ATRIB(5)=1,	
125	ATRIE(10)=1.45;	
126	ACT,, ,01;	
127	G4 GOON, 1;	BUY TYPE?
128	ACT,, .95, G5;	FMS/PROVISIONING.
129	ACT,, .05, A4;	GSA MANDATORY/FPI.
130	A4 ASSIGN, ATRIB(10)=1.07;	
131	ACT,, ,02;	
132	A5 ASSIGN, ATRIB(10)=.16;	
133	ACT,, ,03;	
134	G5 GOON, 1;	OBTAIN URGENCY STATEMENT, TECH
135	ACT, TRIAG(120., 240., 336.), ,G6;	CERTS, FMS CASE DECISION, ETC.
136	G6 GOON, 1;	PATCHING DELAY.
137	ACT, TRIAG(0., 300., 720.), ATRIB(9).EQ.1, A6;	
138	ACT, TRIAG(0., 300., 720.), ATRIB(9).EQ.4, A25;	
139	A6 ASSIGN, ATRIB(5)=2,	
140	ATRIE(10)=12.34;	
141	ACT,, ,G2;	
142	A7 ASSIGN, ATRIB(10)=1.0;	
143	ACT,, ,G3;	
144	G7 GOON, 1;	> \$100K?
145	ACT,, ATRIB(4).GT.3, G2;	YES.
146	ACT,, ATRIB(4).LT.4, G16;	NO.
147	G8 GOON, 1;	CNO.
148	ACT, TRIAG(144., 192., 240.), ,G9;	
149	G9 GOON, 1;	CNO APPROVES?
150	ACT,, ATRIB(5).EQ.3, G10;	IF PREVIOUSLY DISAPPROVED BY CNO,
151	;	THEN CNO APPROVES THIS TIME.
152	ACT,, .98, A2;	CNO DISAPPROVES.
153	ACT,, .02, G10;	CNO APPROVES.
154	G10 GOON, 1;	> \$1M?
155	ACT,, ATRIB(4).GT.5, G11;	YES.
156	ACT,, ATRIB(4).LT.6, G16;	NO.
157	G11 GOON, 1;	HCA.
158	ACT, TRIAG(96., 120., 168.), ,G12;	
159	G12 GOON, 1;	HCA APPROVES?
160	ACT,, ATRIB(11).EQ.1, G13;	IF PREVIOUSLY DISAPPROVED BY HCA,
161	;	THEN HCA APPROVES THIS TIME.
162	ACT,, .98, A9;	HCA DISAPPROVES.
163	ACT,, .02, G13;	HCA APPROVES.
164	G13 GOON, 1;	> \$10M?
165	ACT,, ATRIB(4).EQ.2, G14;	YES.
166	ACT,, ATRIB(4).LT.2, G16;	NO.
167	G14 GOON, 1;	ASARCA.
168	ACT, TRIAG(1080., 1680., 2160.), ,G15;	
169	G15 GOON, 1;	ASARCA APPROVES?
170	ACT,, ATRIB(12).EQ.1, G16;	IF PREVIOUSLY DISAPPROVED BY
171	;	ASARCA, THEN ASARCA APPROVES
172	;	THIS TIME.
173	ACT,, .98, A10;	ASARCA DISAPPROVES.

174 ACT,,.02,G16;
 175 AB ASSIGN,ATRIE(9)=3;
 176 ACT,,A11;
 177 A9 ASSIGN,ATRIE(11)=1;
 178 ACT,,A11;
 179 A10 ASSIGN,ATRIE(12)=1;
 180 ACT,,A11;
 181 A11 ASSIGN,ATRIE(10)=3.25;
 182 ACT,,Q2;
 183 G16 GOON,1;
 184 ACT,,.4,A12;
 185 ACT,,.6,A13;
 186 A12 ASSIGN,ATRIE(5)=2;
 187 ACT,,G17;
 188 A13 ASSIGN,ATRIE(5)=1;
 189 ACT,,G19;
 190 G17 GOON,1;
 191 ACT,TRIAG(120.,216.,504.),,G18;
 192 G18 GOON,1;
 193 ACT,TRIAG(720.,720.,1080.),.3,G19;
 194 ;
 195 ACT,,.7,G19;
 196 G19 GOON,1;
 197 ACT,,.763,A15;
 198 ACT,,.025,A16;
 199 ACT,,.037,A17;
 200 ACT,,.128,A18;
 201 ACT,,.047,A19;
 202 A15 ASSIGN,ATRIE(7)=1;
 203 ACT,24,,BS;
 204 A16 ASSIGN,ATRIE(7)=2;
 205 ACT,24,,BS;
 206 A17 ASSIGN,ATRIE(7)=3;
 207 ACT,24,,BS;
 208 A18 ASSIGN,ATRIE(7)=4;
 209 ACT,24,,BS;
 210 A19 ASSIGN,ATRIE(7)=5;
 211 ACT,24,,BS;
 212 G20 GOON,1;
 213 ACT,,A20;
 214 A20 ASSIGN,ATRIE(3)=3;
 215 ACT,,.4201747,A400;
 216 ACT,,.5798253,A401;
 217 A411 ASSIGN,ATRIE(9)=4,
 218 ATRIE(10)=.5;
 219 ACT,,G1;
 220 G21 GOON,1;
 221 ACT,TRIAG(120.,240.,336.),,G22;
 222 ;
 223 G22 GOON,1;
 224 ACT,,.1,A250;
 225 ACT,,.9,A21;
 226 A250 ASSIGN,ATRIE(6)=1;
 227 ACT,,G23;
 228 A21 ASSIGN,ATRIE(6)=2,
 229 ATRIE(9)=5,
 230 ATRIE(10)=.86;
 231 ACT,,Q2;

ASARCA APPROVES.

IPD 2-6?
 NO.
 YES.

SMALL BUSINESS REVIEW.

SMALL BUSINESS AGREEMENT?

NO (+ PXA RESOLUTION DELAY).
 YES.
 BUY STATICA PROBABILITIES:
 SMALL PURCHASE.
 PRICED BOA.
 UNPRICED BOA.
 RFP.
 IFB.

- NOW -
 - SEND -
 - ALL -
 - THE -
 - SPECIAL -
 - BUYS -
 - TO -
 - THE -
 - BUY -
 - STATION -.
 URGENT SMALL PURCHASE > \$5K.

- ASSIGN DOLLAR VALUE TO THIS -
 - URGENT SMALL PURCHASE FND -

OBTAIN URGENCY STATEMENT,
 TECH CERTS, REVIEW MASTER
 FORMAT, ETC.
 FORMAT C?
 YES.
 NO.

232	G23	GOON, 1;	PRIME CONTRACTOR?
233		ACT, .05, A30;	YES.
234		ACT, .95, A22;	NO.
235	A30	ASSIGN, ATRIB(9)=4;	
236		ACT, .66;	
237	A22	ASSIGN, ATRIB(9)=6,	
238		ATRIB(10)=1.15;	
239		ACT, .02;	
240	A23	ASSIGN, ATRIB(10)=.29;	
241		ACT, .03;	
242	A24	ASSIGN, ATRIB(7)=1;	
243		ACT, 24, .85;	SEND URGENT SMALL PURCHASE
244		;	SMALL PURCHASE TO BLY STATION.
245	A25	ASSIGN, ATRIB(10)=9.06;	
246		ACT, .62;	
247	A26	ASSIGN, ATRIB(10)=1.52;	
248		ACT, .03;	
249	A27	ASSIGN, ATRIB(7)=3;	
250		ACT, 24, .35;	SEND URGENT SMALL PURCHASE
251		;	UNPRICED BOA TO BLY STATION.
252	G25	GOON, 1;	PRIOR HISTORY?
253		ACT, .8, G26;	YES.
254		ACT, .2, A22;	NO.
255	G26	GOON, 1;	CV REQUIRED?
256		ACT, .089, G27;	YES.
257		ACT, .911, A28;	NO.
258	A28	ASSIGN, ATRIB(9)=7,	
259		ATRIB(10)=.5;	
260		ACT, .02;	
261	G27	GOON, 1;	COORDINATE WITH PROJECT
262		;	ASSURANCE.
263		ACT, TRIAG(48., 96., 120.), .628;	
264	G28	GOON, 1;	CV WAIVER?
265		ACT, .1, A28;	YES.
266		ACT, .9, A29;	NO.
267	A29	ASSIGN, ATRIB(9)=3,	
268		ATRIB(10)=.5;	
269		ACT, .02;	
270	G29	GOON, 1;	MEET RCD?
271		ACT, .5, G60;	YES: TO THIS (PALT STOPS), AND
272		;	THEN TO ROUTINE SMALL PURCHASE.
273		ACT, .5, G30;	NO.
274	G30	GOON, 1;	DETERMINE WHICH WAY TO BRANCH:
275		ACT, ATRIB(9).EG.7, A22;	TO URGENT SMALL PURCHASE QUEUE.
276		ACT, ATRIB(9).EG.8, G23;	TO PRIME CONTRACTOR DECISION.
277	G32	GOON, 1;	URGENT LARGE PURCHASE.
278		ACT, .A32;	
279	A32	ASSIGN, ATRIB(3)=4;	
280		ACT, .69876, A403;	- ASSIGN DOLLAR VALUE -
281		ACT, .2355945, A403;	- TO THIS -
282		ACT, .0262582, A404;	- URGENT -
283		ACT, .027717, A405;	- LARGE -
284		ACT, .0116783, A406;	- PURCHASE -
285		ACT, .0, A407;	- PWC -
286	A412	ASSIGN, ATRIB(9)=9,	
287		ATRIB(10)=.5;	
288		ACT, .01;	
289	A33	ASSIGN, ATRIB(10)=1.25;	

290		ACT,,,Q2;	
291	G33	GOON,1;	FORMAT C?
292		ACT,,.1,A251;	YES.
293		ACT,,.9,A34;	NO.
294	A251	ASSIGN,ATRIE(6)=1;	
295		ACT,,,G39;	
296	A34	ASSIGN,ATRIE(6)=2,	
297		ATRIE(9)=10,	
298		ATRIE(10)=.96;	
299		ACT,,,Q2;	
300	G34	GOON,1;	MEET ROD?
301		ACT,,.5,G80;	YES: T/F CMIS (FALT STOPS), AND
302			THEN TO ROUTINE LARGE PURCHASE.
303		ACT,,.5,G35;	NO.
304	G35	GOON,1;	TECH CERTS, SOUS.
305		ACT,TRIAG(120.,240.,336.),,A35;	
306	A35	ASSIGN,ATRIE(9)=11,	
307		ATRIE(10)=9.29;	
308		ACT,,,Q2;	
309	G36	GOON,1;	PRIOR HISTORY?
310		ACT,,.8,G37;	YES.
311		ACT,,.2,G40;	NO.
312	G37	GOON,1;	F/A REQUIRED?
313		ACT,,.117,G38;	YES.
314		ACT,,.883,A38;	NO.
315	G38	GOON,1;	F/A WAIVER?
316		ACT,,.1,A38;	YES.
317		ACT,,.9,G41;	NO.
318	G39	GOON,1;	TECH CERTS, SOUS.
319		ACT,TRIAG(120.,240.,336.),,A36;	
320	A36	ASSIGN,ATRIE(9)=12,	
321		ATRIE(10)=9.29;	
322		ACT,,,Q2;	
323	G40	GOON,1;	PRIME CONTRACTOR?
324		ACT,,.05,G41;	YES.
325		ACT,,.95,A38;	NO.
326	G41	GOON,1;	POA?
327		ACT,,.25,G42;	YES.
328		ACT,,.75,A38;	NO.
329	G42	GOON,1;	CATCHING DELAY.
330		ACT,TRIAG(0.,300.,720.),,A37;	
331	A37	ASSIGN,ATRIE(9)=14,	
332		ATRIE(10)=.5;	
333		ACT,,,Q2;	
334	A38	ASSIGN,ATRIE(9)=13,	
335		ATRIE(10)=4.73;	
336		ACT,,,Q2;	
337	A39	ASSIGN,ATRIE(10)=2.44;	
338		ACT,,,Q3;	
339	G43	GOON,1;	> \$100K?
340		ACT,ATRIE(4).GT.3,G44;	YES.
341		ACT,ATRIE(4).LT.4,A51;	NO.
342	G44	GOON,1;	CMD.
343		ACT,TRIAG(144.,192.,240.),,G45;	
344	G45	GOON,1;	CNC APPROVES?
345		ACT,ATRIE(9).EG.15,G46;	IF PREVIOUSLY DISAPPROVED BY
346			CNC, THEN CNC APPROVES THIS TIME.
347		ACT,,.98,A40;	CNC DISAPPROVES.

348		ACT,,.02,G46;	CPO APPROVES.
349	A40	ASSIGN,ATRIE(9)=15;	
350		ACT,,A44;	
351	G46	GOON,1;	> \$1M?
352		ACT,,ATRIE(4).LT.6,A41;	NO.
353		ACT,,ATRIE(4).GT.5,G47;	YES.
354	A41	ASSIGN,ATRIE(9)=16;	
355		ATRIE(10)=.18;	
356		ACT,,.03;	
357	G47	GOON,1;	HCA.
358		ACT,TRIAG(96.,120.,168.),,G48;	
359	G48	GOON,1;	HCA APPROVES?
360		ACT,,ATRIE(11).EQ.2,G49;	IF PREVIOUSLY DISAPPROVED BY HCA,
361			THEN HCA APPROVES THIS TIME.
362		ACT,,.98,A42;	HCA DISAPPROVES.
363		ACT,,.02,G49;	HCA APPROVES.
364	A42	ASSIGN,ATRIE(11)=2;	
365		ACT,,A44;	
366	G49	GOON,1;	> \$10M?
367		ACT,,ATRIE(4).LT.8,A41;	NO.
368		ACT,,ATRIE(4).EQ.8,G50;	YES.
369	G50	GOON,1;	ASARCA.
370		ACT,TRIAG(1080.,1680.,2160.),,G51;	
371	G51	GOON,1;	ASARCA APPROVES?
372		ACT,,ATRIE(12).EQ.2,A41;	IF PREVIOUSLY DISAPPROVED BY
373			ASARCA, THEN ASARCA APPROVES
374			THIS TIME.
375		ACT,,.98,A43;	ASARCA DISAPPROVES.
376		ACT,,.02,A41;	ASARCA APPROVES.
377	A43	ASSIGN,ATRIE(12)=2;	
378		ACT,,A44;	
379	A44	ASSIGN,ATRIE(10)=3.25;	
380		ACT,,.02;	
381	A45	ASSIGN,ATRIE(10)=1.82;	
382		ACT,,.03;	
383	G52	GOON,1;	> \$3M?
384		ACT,,ATRIE(4).GT.6,G53;	YES.
385		ACT,,ATRIE(4).LT.7,G54;	NO.
386	G53	GOON,1;	HCA/AMC/SARDA.
387		ACT,TRIAG(1176.,1800.,2328.),,G56;	
388	G54	GOON,1;	HCA.
389		ACT,TRIAG(96.,120.,168.),,G55;	
390	G55	GOON,1;	HCA APPROVES?
391		ACT,,ATRIE(11).EQ.2.5.AND.	
392		ATRIE(12).EQ.2.5,A47;	IF PREVIOUSLY DISAPPROVED BY HCA
393			ONLY, THEN HCA APPROVES THIS TIME.
394		ACT,,.98,A46;	HCA DISAPPROVES.
395		ACT,,.02,A47;	HCA APPROVES.
396	G56	GOON,1;	HCA/AMC/SARDA APPROVE?
397		ACT,,ATRIE(11).EQ.2.6.AND.	
398		ATRIE(12).EQ.2.6,A47;	IF PREVIOUSLY DISAPPROVED BY
399			HCA/AMC/SARDA, THEN HCA/AMC/
400			SARDA APPROVE THIS TIME.
401		ACT,,.98,A48;	HCA/AMC/SARCA DISAPPROVE.
402		ACT,,.02,A47;	HCA/AMC/SARDA APPROVE.
403	A46	ASSIGN,ATRIE(11)=2.5,	
404		ATRIE(12)=2.5;	
405		ACT,,A49;	

```

406 A47 ASSIGN, ATRIB(9)=18,
407      ATRIB(10)=.18;
408      ACT,,,G3;
409 A48 ASSIGN, ATRIB(11)=2.6,
410      ATRIB(12)=2.6;
411      ACT,,,A49;
412 A49 ASSIGN, ATRIB(9)=17,
413      ATRIB(10)=3.25;
414      ACT,,,Q2;
415 A50 ASSIGN, ATRIB(7)=3;
416      ACT,24,,BS;
417 ;
418 A51 ASSIGN, ATRIB(7)=4;
419      ACT,24,,BS;
420 ;
421 G60 GCON, 1;
422      ACT,,,A52;
423 A52 ASSIGN, ATRIB(3)=5;
424      ACT,,,5234258, A400;
425      ACT,,,4765142, A401;
426 A413 ASSIGN, ATRIB(9)=19,
427      ATRIB(10)=.5;
428      ACT,,,Q1;
429 A53 ASSIGN, ATRIB(10)=1.25;
430      ACT,,,Q2;
431 G61 GCON, 1;
432      ACT,,,9, A54;
433      ACT,,,1, A252;
434 A54 ASSIGN, ATRIB(6)=2,
435      ATRIB(9)=20,
436      ATRIB(10)=.66,
437      ATRIB(11)=0;
438      ACT,,,Q2;
439 A252 ASSIGN, ATRIB(6)=1;
440      ACT,,,G65;
441 G62 GCON, 1;
442      ACT,,,035, G63;
443      ACT,,,965, G64;
444 G63 GCON, 1;
445      ACT,,,1, G64;
446      ACT,,,9, A55;
447 G64 GCON, 1;
448      ACT,,,9, A55;
449      ACT,,,1, A56;
450 A55 ASSIGN, ATRIB(5)=21,
451      ATRIB(10)=.38;
452      ACT,,,G3;
453 A56 ASSIGN, ATRIB(10)=.38;
454      ACT,,,Q3;
455 G65 GCON, 1;
456      ACT,, ATRIB(11).EG.3, A57;
457 ;
458 ;
459      ACT,,,15, A64;
460 ;
461      ACT,,,85, A57;
462 A64 ASSIGN, ATRIB(11)=3;
463      ACT,,,A53;

```

SEND URGENT LARGE PURCHASE
UNFRICED EOA TO BLY STATION.

SEND URGENT LARGE PURCHASE
RFP TO BUY STATION.
ROUTINE SMALL PURCHASE.

- ASSIGN DOLLAR VALUE TO THIS -
- ROUTINE SMALL PURCHASE FWD -.

FORMAT C?
NO.
YES.

1ST TIME E/C?
YES.
NO.
COMPLEX?
YES.
NO.
SSSA?
YES.
NO.

VALID?
IF ALREADY VALID AFTER 1 LOOP,
THEN SKIP DOWN, ELSE NEXT TWO
LINES.
NOT VALID: TC/FRCO THIS (FALT
STOPS).
VALID.
CONVERT TO VALID.

464	A57	ASSIGN,ATRIE(9)=22,	
465		ATRIE(10)=.26;	
466		ACT,,,Q2;	
467	G66	GOON,1;	POA EXIST?
468		ACT,,.75,A58;	NO.
469		ACT,,.25,G68;	YES.
470	A58	ASSIGN,ATRIE(9)=23,	
471		ATRIE(10)=1.15;	
472		ACT,,,Q2;	
473	A59	ASSIGN,ATRIE(10)=.29;	
474		ACT,,,Q3;	
475	G67	GOON,1;	SBSA?
476		ACT,,.1,G72;	NO.
477		ACT,,.9,A63;	YES.
478	G68	GOON,1;	EATCHING DELAY.
479		ACT,TRIAG(0.,300.,720.),,A60;	
480	A60	ASSIGN,ATRIE(9)=24,	
481		ATRIE(10)=9.06;	
482		ACT,,,Q2;	
483	A61	ASSIGN,ATRIE(10)=1.52;	
484		ACT,,,Q3;	
485	G69	GOON,1;	SBR.
486		ACT,TRIAG(120.,216.,504.),,G70;	
487	G70	GOON,1;	SB AGREEMENT?
488		ACT,,.3,G71;	NO.
489		ACT,,.7,A62;	YES.
490	G71	GOON,1;	PXA RESOLUTION.
491		ACT,TRIAG(720.,720.,1(80.),,A62;	
492	A62	ASSIGN,ATRIE(7)=2;	
493		ACT,24,,BS;	SEND ROUTINE SMALL PURCHASE
494		;	PRICED POA TO BUY STATION.
495	G72	GOON,1;	SBR.
496		ACT,TRIAG(120.,216.,504.),,G73;	
497	G73	GOON,1;	SB AGREEMENT?
498		ACT,,.3,G74;	NO.
499		ACT,,.7,A63;	YES.
500	G74	GOON,1;	PXA RESOLUTION.
501		ACT,TRIAG(720.,720.,1(80.),,A63;	
502	A63	ASSIGN,ATRIE(7)=1;	
503		ACT,24,,BS;	SEND ROUTINE SMALL PURCHASE
504		;	SMALL PURCHASE TO BUY STATION.
505	G80	GOON,1;	ROUTINE LARGE PURCHASE.
506		ACT,,.A65;	
507	A65	ASSIGN,ATRIE(3)=6;	
508		ACT,,.7905238,A402;	- ASSIGN COLLAR VALUE -
509		ACT,,.1/1799,A403;	- TO THIS -
510		ACT,,.0210657,A404;	- ROUTINE -
511		ACT,,.0097245,A405;	- LARGE -
512		ACT,,.006483,A406;	- PURCHASE -
513		ACT,,.0,A407;	- PWC -
514	A414	ASSIGN,ATRIE(5)=25,	
515		ATRIE(10)=.5;	
516		ACT,,,Q1;	
517	A66	ASSIGN,ATRIE(10)=1.25;	
518		ACT,,,Q2;	
519	G81	GOON,1;	FORMAT C?
520		ACT,,.9,A67;	NO.
521		ACT,,.1,A253;	YES.

522	A67	ASSIGN, ATRIB(6)=2,	
523		ATRIE(9)=26,	
524		ATFIB(10)=.96,	
525		ATRIE(11)=0;	
526		ACT,,,02;	
527	A253	ASSIGN, ATRIB(6)=1;	
528		ACT,,,692;	
529	G82	GOON, 1;	1ST TIME 6/07
530		ACT,,,035,684;	YES.
531		ACT,,,965,A68;	NO.
532	G84	GOON, 1;	SR.
533		ACT, TRIAG(120.,216.,564.),,685;	
534	G85	GOON, 1;	SB P(A) RECOMMENDED?
535		ACT,,,25,A68;	NO.
536		ACT,,,75,685;	YES.
537	A68	ASSIGN, ATRIB(9)=27,	
538		ATRIE(10)=5.23;	
539		ACT,,,02;	
540	A69	ASSIGN, ATRIB(10)=.76;	
541		ACT,,,03;	
542	G86	GOON, 1;	SR.
543		ACT, TRIAG(120.,216.,564.),,687;	
544	G87	GOON, 1;	SB AGREEMENT?
545		ACT,,,3,G88;	NO.
546		ACT,,,7,A70;	YES.
547	G88	GOON, 1;	FXA RESOLUTION.
548		ACT, TRIAG(720.,720.,100.),,A70;	
549	A70	ASSIGN, ATRIB(7)=5;	
550		ACT,24,,85;	SEND ROUTINE LARGE FLACASE
551		;	IFB TO BLY STATION.
552	G89	GOON, 1;	WAIVER?
553		ACT,,,9,A71;	NO.
554		ACT,,,1,G90;	YES.
555	A71	ASSIGN, ATRIB(9)=28,	
556		ATRIE(10)=15.68;	
557		ACT,,,02;	
558	A72	ASSIGN, ATRIB(10)=2.29;	
559		ACT,,,03;	
560	G90	GOON, 1;	NO APPEAL.
561		ACT, TRIAG(504.,672.,672.),,691;	
562	G91	GOON, 1;	APPEAL DENIED?
563		ACT,,,99,A71;	YES.
564		ACT,,,01,A58;	AC.
565	G92	GOON, 1;	VALID FORPAT?
566		ACT,, ATRIB(11).E0.4,A74;	IF ALREADY VALID, THEN SKIP
567		;	DOWN, ELSE NEXT TWO LINES.
568		ACT,,,15,A73;	NOT VALID: TO/FROM CPIS,
569		;	(PALT STCFS).
570		ACT,,,05,A74;	VALID.
571	A73	ASSIGN, ATRIB(9)=25,	
572		ATFIB(11)=4;	CONVERT TO VALID.
573		ACT,,,A66;	
574	A74	ASSIGN, ATRIB(9)=29,	
575		ATFIB(10)=.96;	
576		ACT,,,02;	
577	G93	GOON, 1;	HAVE CERTS?
578		ACT,, ATRIB(11).E6.5,A419;	IF ALREADY HAVE CERTS, THEN
579		;	SKIP DOWN, ELSE NEXT TWO LINES.

580		ACT,, .01, A419;	HAVE CERTS.
581		ACT,, .99, A75;	DO NOT HAVE CERTS.
582	A75	ASSIGN, ATRIE(11)=5;	OBTAIN CERTS: TO/FROM CPP,
583		ACT,, ,G93;	(PALY STOPS).
584	A419	ASSIGN, ATRIE(11)=0;	
585		ACT,, ,G94;	
586	G94	GOON, 1;	ECA CANCELLED?
587		ACT,, .75, A75;	NO.
588		ACT,, .25, G98;	YES.
589	A76	ASSIGN, ATRIE(5)=30,	
590		ATRIE(10)=14.52;	
591		ACT,, ,G2;	
592	A77	ASSIGN, ATRIE(10)=2.12;	
593		ACT,, ,G3;	
594	G95	GOON, 1;	SEP.
595		ACT, TRIAG(120., 216., 5(4.), ,G96;	
596	G96	GOON, 1;	SE AGREEMENT?
597		ACT,, .3, G97;	NO.
598		ACT,, .7, A78;	YES.
599	G97	GOON, 1;	PXA RESOLUTION.
600		ACT, TRIAG(720., 720., 1(8C.), ,A78;	
601	A78	ASSIGN, ATRIE(7)=4;	
602		ACT, 24., ,35;	SEND ROUTINE LARGE PURCHASE RFP
603		;	TO BUY STATION.
604	G98	GOON, 1;	EATCHING DELAY.
605		ACT, TRIAG(0., 300., 720.), ,A75;	
606	A75	ASSIGN, ATRIE(5)=31,	
607		ATRIE(10)=10.74;	
608		ACT,, ,G2;	
609	A80	ASSIGN, ATRIE(10)=1.57;	
610		ACT,, ,G3;	
611	G95	GOON, 1;	SEP.
612		ACT, TRIAG(120., 216., 5(4.), ,G100;	
613	G100	GOON, 1;	SE AGREEMENT?
614		ACT,, .3, G101;	NO.
615		ACT,, .7, A81;	YES.
616	G101	GOON, 1;	PXA RESOLUTION.
617		ACT, TRIAG(720., 720., 1(8C.), ,A81;	
618	A81	ASSIGN, ATRIE(7)=2;	
619		ACT, 24., ,35;	SEND ROUTINE LARGE PURCHASE
620		;	PRICED 80% TO BUY STATION.
621		;	
622		;	
623	95	GOON, 1;	BUY STATION.
624		;	
625		;	
626		ACT,, ATRIE(7).EC.1, G1(2);	
627		ACT,, ATRIE(7).EC.2, G1(5);	
628		ACT,, ATRIE(7).EC.3, G1(3);	
629		ACT,, ATRIE(7).EC.4, G1(0);	
630		ACT,, ATRIE(7).EC.5, G2(5);	
631	G102	GOON, 1;	SMALL PURCHASE AT BUY STATION.
632		ACT,, .33, A300;	- DETERMINE WHICH -
633		ACT,, .33, A301;	- BUY STATION BRANCH -
634		ACT,, .34, A302;	- TO ACCESS -
635	A300	ASSIGN, ATRIE(P)=1;	BRANCH A.
636		ACT,, ,A85;	
637	A301	ASSIGN, ATRIE(8)=2;	BRANCH B.

636		ACT,,,A05;	
635	A362	ASSIGN,ATRIE(8)=3;	BRANCH C.
640		ACT,,,A05;	
641	A05	ASSIGN,ATRIE(9)=35,	
642		ATRIE(10)=.52,	
643		ATRIE(11)=0.;	
644		ACT,,,ATRIE(8).EQ.1,07;	
645		ACT,,,ATRIE(8).EQ.2,09;	
646		ACT,,,ATRIE(8).EQ.3,011;	
647	G103	GOON,1;	< 810K?
648		ACT,,,ATRIE(4).LT.2,A06;	YES.
649		ACT,,,ATRIE(4).GT.1,A07;	NO.
650	A06	ASSIGN,ATRIE(10)=.571;	
651		ACT,,,ATRIE(8).EQ.1,06;	
652		ACT,,,ATRIE(8).EQ.2,00;	
653		ACT,,,ATRIE(8).EQ.3,010;	
654	A07	ASSIGN,ATRIE(9)=36,	
655		ATRIE(10)=.2,	
656		ATRIE(11)=552.;	RECORD SYNOPSIS HOLDING PERIOD.
657		ACT,,,ATRIE(8).EQ.1,06;	
658		ACT,,,ATRIE(8).EQ.2,00;	
659		ACT,,,ATRIE(8).EQ.3,010;	
660	A08	ASSIGN,ATRIE(12)=TNOW;	COMMENCE SYNOPSIS TIME CONSTRAINT.
661		ACT,,,G104;	
662	G104	GOON,1;	CV SAMPLES?
663		ACT,,,05,G105;	YES.
664		ACT,,,95,G106;	NO.
665	G105	GOON,1;	ABSTRACT.
666		ACT,TRIAG(144.,160.,240.),,G106;	
667	G106	GOON,1;	CLASSIFIED DRAWINGS?
668		ACT,,,08,G107;	YES.
669		ACT,,,92,G108;	NO.
670	G107	GOON,1;	FACILITIES CLEARANCE.
671		ACT,TRIAG(152.,336.,336.),,G108;	
672	G108	GOON,1;	FORM OF SOLICITATION?
673		ACT,,,90,A09;	WRITTEN.
674		ACT,,,02,A90;	VERBAL.
675	A09	ASSIGN,ATRIE(9)=37,	
676		ATRIE(10)=3.654;	
677		ACT,,,ATRIE(8).EQ.1,06;	
678		ACT,,,ATRIE(8).EQ.2,00;	
679		ACT,,,ATRIE(8).EQ.3,010;	
680	A90	ASSIGN,ATRIE(9)=38,	
681		ATRIE(10)=.654;	
682		ACT,,,ATRIE(8).EQ.1,06;	
683		ACT,,,ATRIE(8).EQ.2,00;	
684		ACT,,,ATRIE(8).EQ.3,010;	
685	G110	GOON,1;	DETERMINE WHICH WAY TO BRANCH:
686		ACT,,,ATRIE(11).EQ.0,G112;	IF NOT SYNOPSISIZED, THEN HOLDING
687			PERIOD = 0, SO SKIP CONC.
688		ACT,,,ATRIE(11).GT.0,A91;	IF SYNOPSISIZED, THEN HOLDING
689			PERIOD > 0; SO RECORD SYNOPSIS
690			TIME CONSTRAINT.
691	A91	ASSIGN,ATRIE(12)=TNOW-ATRIE(12);	RECORD SYNOPSIS TIME CONSTRAINT.
692		ACT,,,G111;	
693	G111	GOON,1;	COMPARE SYNOPSIS TIME CONSTRAINT
694			WITH SYNOPSIS HOLDING PERIOD TO
695			SEE IF PALT ADJUSTMENT NECES-

696	;		SARY.
697		ACT,, ATRIB(11).GT.ATRIB(12),A92;	ADJUSTMENT NEEDED AS SYNOPSIS
698	;		FOLDING PERIOD EXCEEDS SYNOPSIS
699	;		TIME CONSTRAINT; THIS PALT WILL
700	;		HAVE TO BE INCREASED.
701		ACT,, ATRIB(11).LE.ATRIB(12),G112;	ADJUSTMENT NOT NEEDED AS
702	;		SYNOPSIS FOLDING PERIOD DOES NOT
703	;		EXCEED SYNOPSIS TIME CONSTRAINT,
704	;		SO SKIP CCWN.
705	;		
706	A92	ASSIGN, ATRIB(1)=ATRI8(1)+ATRI8(12)-ATRI8(11);	
707	;		
708	;	THE ABOVE ADJUSTS PALT ACCORDINGLY:	
709	;		
710	;	PALT = TNOH - ATRIB(1).	
711	;	ADJUSTED PALT > ORIGINAL PALT IN THIS CASE.	
712	;	ATRI8(12) - ATRI8(11) < 0.	
713	;	ADJUSTED ATRIB(1) = ORIGINAL ATRIB(1) + THIS NEGATIVE NUMBER	
714	;	SO, ADJUSTED PALT = TNOH - ADJUSTED ATRIB(1)	
715	;	= TNOH - ORIGINAL ATRIB(1) - THIS NEGATIVE NUMBER	
716	;	= TNOH - ORIGINAL ATRIB(1) + POSITIVE NUMBER	
717	;	= ORIGINAL PALT + POSITIVE NUMBER	
718	;	> ORIGINAL PALT.	
719	;		
720	;	THUS, A92 IS CORRECT.	
721		ACT,, ,G112;	
722	G112	GOON, 1;	FFG TO/FROM CONTRACTOR.
723		ACT, TRIAG(336.,504.,720.),,G113;	
724	G113	GOON, 1;	TECHNICAL QUESTIONS?
725		ACT,, .1,G114;	YES.
726		ACT,, .9,A93;	NO.
727	G114	GOON, 1;	ENGINEERING REVIEW.
728		ACT, TRIAG(144.,168.,240.),,A93;	
729	A93	ASSIGN, ATRIB(9)=39,	
730		ATRIE(10)=1.301;	
731		ACT,, ATRIB(8).EQ.1,06;	
732		ACT,, ATRIB(8).EQ.2,08;	
733		ACT,, ATRIB(8).EQ.3,010;	
734	A94	ASSIGN, ATRIB(9)=40,	
735		ATRIE(10)=1.05;	
736		ACT,, ATRIB(8).EQ.1,06;	
737		ACT,, ATRIB(8).EQ.2,08;	
738		ACT,, ATRIB(8).EQ.3,010;	
739	G115	GOON, 1;	CONTRACTOR RESPONSIBLE?
740		ACT,, .1,A95;	NO.
741		ACT,, .9,A98;	YES.
742	A95	ASSIGN, ATRIB(9)=41,	
743		ATRIE(10)=25.3;	
744		ACT,, ATRIB(8).EQ.1,06;	
745		ACT,, ATRIB(8).EQ.2,08;	
746		ACT,, ATRIB(8).EQ.3,010;	
747	G116	GOON, 1;	PRE-AWARC SURVEY.
748		ACT, TRIAG(504.,720.,1008.),,G117;	
749	G117	GOON, 1;	POSITIVE?
750		ACT,, .2,A96;	NO.
751		ACT,, .8,A98;	YES.
752	A96	ASSIGN, ATRIB(10)=2.5;	
753		ACT,, ATRIB(8).EQ.1,07;	

754		ACT,, ATRIB(8).EQ.2,09;	
755		ACT,, ATRIB(8).EQ.3,011;	
756	G118	GCON, 1;	SMALL BUSINESS?
757		ACT,, .01, G119;	NO.
758		ACT,, .99, A97;	YES.
759	A97	ASSIGN, ATRIB(9)=42,	
760		ATRIB(10)=5.37;	
761		ACT,, ATRIB(8).EQ.1,06;	
762		ACT,, ATRIB(8).EQ.2,08;	
763		ACT,, ATRIB(8).EQ.3,010;	
764	G119	GCON, 1;	AWARD ANYWAY?
765		ACT,, .05, A94;	NO.
766		ACT,, .95, G125;	YES.
767	G120	GCON, 1;	SBA.
768		ACT, TRIAG(240., 240., 360.),, G121;	
769	G121	GCON, 1;	COC ISSUED?
770		ACT,, .075, A94;	NO.
771		ACT,, .925, G122;	YES.
772	G122	GCON, 1;	KC APPEAL?
773		ACT,, .95, G123;	YES.
774		ACT,, .05, G125;	NO.
775	G123	GCON, 1;	SBA.
776		ACT, TRIAG(504., 672., 672.),, G124;	
777	G124	GCON, 1;	APPEAL DENIED?
778		ACT,, .0, A94;	NO.
779		ACT,, 1., G125;	YES.
780	G125	GCON, 1;	CEL OR DELINQUENT PRESENT
781			PRODUCER?
782		ACT,, .5, G126;	YES.
783		ACT,, .5, A98;	NO.
784	G126	GCON, 1;	HCA FOR APPROVAL TO AWARD TO
785			DELINQUENT CONTRACTOR.
786		ACT, TRIAG(96., 120., 168.),, A98;	
787	A98	ASSIGN, ATRIB(9)=43,	
788		ATRIB(10)=1.;	
789		ACT,, ATRIB(8).EQ.1,06;	
790		ACT,, ATRIB(8).EQ.2,08;	
791		ACT,, ATRIB(8).EQ.3,010;	
792	G127	GCON, 1;	>= \$10K?
793		ACT,, ATRIB(4).GT.1, G128;	YES.
794		ACT,, ATRIB(4).LT.2, G129;	NO.
795	G128	GCON, 1;	CERTS.
796		ACT, TRIAG(240., 240., 336.),, G129;	
797	G129	GCON, 1;	PRICE REASONABLE?
798		ACT,, .1, G130;	NO.
799		ACT,, .9, A100;	YES.
800	G130	GCON, 1;	ENGINEERING REVIEW.
801		ACT, TRIAG(144., 168., 240.),, G131;	
802	G131	GCON, 1;	25% DIFFERENTIAL?
803		ACT,, .1, A99;	YES.
804		ACT,, .9, A100;	NO.
805	A99	ASSIGN, ATRIB(9)=44,	
806		ATRIB(10)=1.;	
807		ACT,, ATRIB(8).EQ.1,06;	
808		ACT,, ATRIB(8).EQ.2,08;	
809		ACT,, ATRIB(8).EQ.3,010;	
810	A100	ASSIGN, ATRIB(9)=45,	
811		ATRIB(10)=1.984;	

012		ACT,, ATRIB(E).EQ.1,06;	
013		ACT,, ATRIB(E).EQ.2,08;	
014		ACT,, ATRIB(E).EQ.3,010;	
015	A101	ASSIGN, ATRIB(10)=1;	
016		ACT,, ATRIB(E).EQ.1,07;	
017		ACT,, ATRIB(E).EQ.2,09;	
018		ACT,, ATRIB(E).EQ.3,011;	
019	G135	GOON, 1;	PRICED 80A AT BUY STATION.
020		ACT,, .33, A321;	- DETERMINE WHICH -
021		ACT,, .34, A322;	- BUY STATION BRANCH -
022		ACT,, .33, A323;	- TO ACCESS -
023	A321	ASSIGN, ATRIB(E)=1;	BRANCH A.
024		ACT,, ,A105;	
025	A322	ASSIGN, ATRIB(E)=2;	BRANCH B.
026		ACT,, ,A105;	
027	A323	ASSIGN, ATRIB(E)=3;	BRANCH C.
028		ACT,, ,A105;	
029	A105	ASSIGN, ATRIB(9)=4E,	
030		ATRIB(10)=.52;	
031		ACT,, ATRIB(E).EQ.1,07;	
032		ACT,, ATRIB(E).EQ.2,09;	
033		ACT,, ATRIB(E).EQ.3,011;	
034	A106	ASSIGN, ATRIB(10)=.2,	
035		ATRIB(11)=552;	RECORD SYNOPSIS HOLDING PERIOD.
036		ACT,, ATRIB(E).EQ.1,06;	
037		ACT,, ATRIB(E).EQ.2,08;	
038		ACT,, ATRIB(E).EQ.3,010;	
039	A107	ASSIGN, ATRIB(12)=TNOW;	COMMENCE SYNOPSIS TIME CONSTRAINT.
040		ACT,, ,A108;	
041	A108	ASSIGN, ATRIB(9)=47,	
042		ATRIB(10)=2.717;	
043		ACT,, ATRIB(E).EQ.1,06;	
044		ACT,, ATRIB(E).EQ.2,08;	
045		ACT,, ATRIB(E).EQ.3,010;	
046	G136	GOON, 1;	LR.
047		ACT, TRIAG(100., 336., 5(4.), ,A109;	
048	A109	ASSIGN, ATRIB(9)=4E,	
049		ATRIB(10)=.025;	
050		ACT,, ATRIB(E).EQ.1,06;	
051		ACT,, ATRIB(E).EQ.2,08;	
052		ACT,, ATRIB(E).EQ.3,010;	
053	A110	ASSIGN, ATRIB(12)=TNOW-ATRIB(12);	RECORD SYNOPSIS TIME CONSTRAINT.
054		ACT,, ,G137;	
055	G137	GOON, 1;	COMPARE SYNOPSIS TIME CONSTRAINT
056		;	WITH SYNOPSIS HOLDING PERIOD TO
057		;	SEE IF PALE ADJUSTMENT NEEDED.
058		ACT,, ATRIB(11).GT.ATRIB(12),/111;	ADJUSTMENT REQUIRED.
059		ACT,, ATRIB(11).LE.ATRIB(12),/140;	NO ADJUSTMENT REQUIRED.
060	A111	ASSIGN, ATRIB(1)=ATRIB(1)+ATRIB(12)-ATRIB(11);	
061		;	ADJUST PALE.
062		ACT,, ,G140;	
063	G140	GOON, 1;	TO/FROM CONTRACTOR.
064		ACT, TRIAG(120., 100P., 1200.), ,A115;	
065	A115	ASSIGN, ATRIB(9)=49,	
066		ATRIB(10)=.301;	
067		ACT,, ATRIB(E).EQ.1,06;	
068		ACT,, ATRIB(E).EQ.2,08;	
069		ACT,, ATRIB(E).EQ.3,010;	

870	G141	GOON, 1;	REQUEST PRICING?
871		ACT,, ATRIB(4).GT.3,A116;	YES (IF > \$100K).
872		ACT,, ATRIB(4).LT.4,A117;	NO (IF <= \$100K).
873	A116	ASSIGN, ATRIB(10)=45.348;	
874		ACT,, Q15;	
875	A117	ASSIGN, ATRIB(9)=50,	
876		ATRIB(10)=.664;	
877		ACT,, ATRIB(8).EQ.1,Q6;	
878		ACT,, ATRIB(8).EQ.2,Q8;	
879		ACT,, ATRIB(8).EQ.3,G10;	
880	A118	ASSIGN, ATRIB(9)=51,	
881		ATRIB(10)=2.;	
882		ACT,, ATRIB(8).EQ.1,G6;	
883		ACT,, ATRIB(8).EQ.2,Q8;	
884		ACT,, ATRIB(8).EQ.3,Q10;	
885	G142	GOON, 1;	CLEARANCE, NEGOTIATION,
886		;	COORDINATE WITH MPD.
887		ACT, TRIAG(144., 168., 240.),, G143;	
888	G143	GOON, 1;	> \$100K?
889		ACT,, ATRIB(4).GT.3,G144;	YES.
890		ACT,, ATRIB(4).LT.4,A119;	NO.
891	A119	ASSIGN, ATRIB(10)=.627;	
892		ACT,, ATRIB(8).EQ.1,Q7;	
893		ACT,, ATRIB(8).EQ.2,Q9;	
894		ACT,, ATRIB(8).EQ.3,G11;	
895	G144	GOON, 1;	PCR.
896		ACT, TRIAG(72., 120., 120.),, A121;	
897	A121	ASSIGN, ATRIB(9)=52,	
898		ATRIB(10)=1.992;	
899		ACT,, ATRIB(8).EQ.1,Q6;	
900		ACT,, ATRIB(8).EQ.2,Q8;	
901		ACT,, ATRIB(8).EQ.3,Q10;	
902	G145	GOON, 1;	PRICING CERTS, DEAFMENT CERTS.
903		ACT, TRIAG(240., 240., 336.),, A122;	
904	A122	ASSIGN, ATRIB(9)=53,	
905		ATRIB(10)=6.726;	
906		ACT,, ATRIB(8).EQ.1,Q6;	
907		ACT,, ATRIB(8).EQ.2,Q8;	
908		ACT,, ATRIB(8).EQ.3,G10;	
909	G146	GOON, 1;	OBTAIN FUNDING?
910		ACT,, .95,G147;	YES.
911		ACT,, .05,G148;	NO.
912	G147	GOON, 1;	PMO AMENDMENT.
913		ACT, TRIAG(48., 120., 120.),, G148;	
914	G148	GOON, 1;	CHECK DOLLAR VALUE:
915		ACT,, ATRIB(4).GT.6,G149;	> \$3P.
916		ACT,, ATRIB(4).GT.4,ANC.	
917		ATRIB(4).LT.7,G150;	> \$500K <= \$3M.
918		ACT,, ATRIB(4).EQ.4,G151;	> \$100K <= \$500K.
919		ACT,, ATRIB(4).LT.4,G152;	<= \$100K.
920	G149	GOON, 1;	LR/RS/CONG NOT.
921		ACT, TRIAG(112., 528., 696.),, G152;	
922	G150	GOON, 1;	LR/RS.
923		ACT, TRIAG(240., 456., 624.),, G152;	
924	G151	GOON, 1;	LR.
925		ACT, TRIAG(168., 336., 504.),, G152;	
926	G152	GOON, 1;	TO/FROM CONTRACTOR.
927		ACT, TRIAG(116., 504., 504.),	

920 ACT,, ATRIE(4).EQ.2,A123;
 925 ACT,, ATRIE(4).GT.4.APC.
 930 ATRIE(4).LT.8,A124;
 931 ACT,, ATRIE(4).LT.5,A125;
 932 A123 ASSIGN,ATRIE(10)=.75;
 933 ACT,,.Q5;
 934 A124 ASSIGN,ATRIE(10)=.75;
 935 ACT,, ATRIE(2).EQ.1,Q12;
 936 ACT,, ATRIE(2).EQ.2,Q13;
 937 ACT,, ATRIE(2).EQ.3,Q14;
 938 A125 ASSIGN,ATRIE(10)=.75;
 939 ACT,, ATRIE(2).EQ.1,Q7;
 940 ACT,, ATRIE(2).EQ.2,Q9;
 941 ACT,, ATRIE(2).EQ.3,Q11;
 942 G153 GOON,1;
 943 ACT,,.34,A341;
 944 ACT,,.33,A342;
 945 ACT,,.33,,A43;
 946 A341 ASSIGN,ATRIE(2)=1;
 947 ACT,,.A126;
 948 A342 ASSIGN,ATRIE(2)=2;
 949 ACT,,.A126;
 950 A343 ASSIGN,ATRIE(2)=3;
 951 ACT,,.A126;
 952 A126 ASSIGN,ATRIE(5)=54,
 953 ATRIE(10)=.52;
 954 ACT,, ATRIE(2).EQ.1,Q7;
 955 ACT,, ATRIE(2).EQ.2,Q9;
 956 ACT,, ATRIE(2).EQ.3,Q11;
 957 G154 GOON,1;
 958 ;
 959 ACT,TRIAG(136,,504,,504.),,,A127;
 960 A127 ASSIGN,ATRIE(9)=53,
 961 ATRIE(10)=2.25;
 962 ACT,, ATRIE(2).EQ.1,Q6;
 963 ACT,, ATRIE(2).EQ.2,Q8;
 964 ACT,, ATRIE(2).EQ.3,Q10;
 965 G160 GOON,1;
 966 ACT,,.33,A361;
 967 ACT,,.33,A362;
 968 ACT,,.34,A363;
 969 A361 ASSIGN,ATRIE(2)=1;
 970 ACT,,.A129;
 971 A362 ASSIGN,ATRIE(2)=2;
 972 ACT,,.A129;
 973 A363 ASSIGN,ATRIE(2)=3;
 974 ACT,,.A129;
 975 A129 ASSIGN,ATRIE(9)=55,
 976 ATRIE(10)=.52;
 977 ACT,, ATRIE(2).EQ.1,Q7;
 978 ACT,, ATRIE(2).EQ.2,Q9;
 979 ACT,, ATRIE(2).EQ.3,Q11;
 980 A130 ASSIGN,ATRIE(10)=.2,
 981 ATRIE(11)=552.7;
 982 ACT,, ATRIE(2).EQ.1,Q6;
 983 ACT,, ATRIE(2).EQ.2,Q8;
 984 ACT,, ATRIE(2).EQ.3,Q10;
 985 A131 ASST,N,ATRIE(12)=TNOW;

IF > 810P,

IF > 8500N <= 810P,

IF <= 8500N,

UNPRICED EOA AT BUY STATION.

- DETERMINE WHICH -
 - BUY STATION BRANCH -
 - TO ACCESS -
 BRANCH A.

BRANCH B.

BRANCH C.

BUDGET ESTIMATE, ATE PRICE FROM CONTRACTOR.

RFP AT BUY STATION.

- DETERMINE WHICH -
 - BUY STATION BRANCH -
 - TO ACCESS -
 BRANCH A.

BRANCH B.

BRANCH C.

RECORD SYNOPSIS MEETING PERIOD.

COMMENCE SYNOPSIS TIME CONSTRAINT

986		ACT,,,A132;	
987	A132	ASSIGN,ATRIE(9)=56,	
988		ATRIE(10)=20.141;	
989		ACT,,ATRIE(8).EQ.1,06;	
990		ACT,,ATRIE(8).EQ.2,08;	
991		ACT,,ATRIE(8).EQ.3,010;	
992	G161	GOON,1;	> \$100K?
993		ACT,,ATRIE(4).GT.3,G162;	YES.
994		ACT,,ATRIE(4).LT.4,G163;	NO.
995	G162	GOON,1;	LR.
996		ACT,TRIAG(168.,236.,5(4.),,G163;	
997	G163	GOON,1;	TO/FROM REPRODUCTION.
998		ACT,TRIAG(168.,240.,240.),,A133;	
999	A133	ASSIGN,ATRIE(12)=TNOW-ATRIE(12);	RECORD SYNOPSIS TIME
1000		;	CONSTRAINT.
1001		ACT,,,G164;	
1002	G164	GOON,1;	COMPARE SYNOPSIS TIME
1003		;	CONSTRAINT WITH SYNCFST
1004		;	HOLDING PERIOD TO SEE IF
1005		;	PALT NEEDS ADJUSTMENT.
1006		ACT,,ATRIE(11).ET.ATRIE(12),A134;	ADJUSTMENT REQUIRED.
1007		ACT,,ATRIE(11).LE.ATRIE(12),G167;	NO ADJUSTMENT REQUIRED.
1008	A134	ASSIGN,ATRIE(1)=ATRIE(1)+ATRIE(12)-ATRIE(11);	
1009		;	ADJUST PALT.
1010		ACT,,,G167;	
1011	G167	GOON,1;	REF TO/FROM CONTRACTOR.
1012		ACT,TRIAG(720.,1008.,1200.),,A135;	
1013	A135	ASSIGN,ATRIE(9)=57,	
1014		ATRIE(10)=4.285;	
1015		ACT,,ATRIE(8).EQ.1,06;	
1016		ACT,,ATRIE(8).EQ.2,08;	
1017		ACT,,ATRIE(8).EQ.3,010;	
1018	G168	GOON,1;	TECH CLARIFICATIONS REQUIRED?
1019		ACT,,,1,G169;	YES.
1020		ACT,,,9,G170;	NO.
1021	G169	GOON,1;	COORDINATE WITH ENGINEERING.
1022		ACT,TRIAG(144.,168.,240.),,G170;	
1023	G170	GOON,1;	> \$100K?
1024		ACT,,ATRIE(4).GT.3,A136;	YES.
1025		ACT,,ATRIE(4).LT.4,A137;	NO.
1026	A136	ASSIGN,ATRIE(10)=53.77;	
1027		ACT,,,015;	
1028	A137	ASSIGN,ATRIE(9)=58,	
1029		ATRIE(10)=1.;	
1030		ACT,,ATRIE(8).EQ.1,06;	
1031		ACT,,ATRIE(8).EQ.2,08;	
1032		ACT,,ATRIE(8).EQ.3,010;	
1033	A138	ASSIGN,ATRIE(9)=59,	
1034		ATRIE(10)=2.;	
1035		ACT,,ATRIE(8).EQ.1,06;	
1036		ACT,,ATRIE(8).EQ.2,08;	
1037		ACT,,ATRIE(8).EQ.3,010;	
1038	G171	GOON,1;	CLEARANCE, NEGOTIATION.
1039		;	COORDINATE WITH MDO.
1040		ACT,TRIAG(144.,168.,240.),,G172;	
1041	G172	GOON,1;	> \$100K?
1042		ACT,,ATRIE(4).GT.3,G173;	YES.
1043		ACT,,ATRIE(4).LT.4,A139;	NO.

1044	G173	GOON, 1;	ECR.
1045		ACT, TRIAG(72., 120., 120.), A140;	
1046	A139	ASSIGN, ATRIB(10)=.627;	
1047		ACT, ATRIB(8).EG.1.07;	
1048		ACT, ATRIB(8).EG.2.09;	
1049		ACT, ATRIB(8).EG.3.011;	
1050	A140	ASSIGN, ATRIB(9)=60,	
1051		ATRIB(10)=12.73;	
1052		ACT, ATRIB(8).EG.1.06;	
1053		ACT, ATRIB(8).EG.2.08;	
1054		ACT, ATRIB(8).EG.3.010;	
1055	G174	GOON, 1;	> \$100K?
1056		ACT, ATRIB(4).GT.3.6175;	YES.
1057		ACT, ATRIB(4).LT.4.A141;	NO.
1058	G175	GOON, 1;	CERTS FROM CONTRACTOR.
1059		ACT, TRIAG(240., 240., 336.), A141;	
1060	A141	ASSIGN, ATRIB(9)=61,	
1061		ATRIB(10)=1.;	
1062		ACT, ATRIB(8).EG.1.06;	
1063		ACT, ATRIB(8).EG.2.08;	
1064		ACT, ATRIB(8).EG.3.010;	
1065	G176	GOON, 1;	CONTRACTOR RESPONSIBLE?
1066		ACT, .1, A142;	NO.
1067		ACT, .9, A145;	YES.
1068	A142	ASSIGN, ATRIB(9)=62,	
1069		ATRIB(10)=25.3;	
1070		ACT, ATRIB(8).EG.1.06;	
1071		ACT, ATRIB(8).EG.2.08;	
1072		ACT, ATRIB(8).EG.3.010;	
1073	G177	GOON, 1;	DELAY.
1074		ACT, TRIAG(504., 720., 1008.), G178;	
1075	G178	GOON, 1;	POSITIVE?
1076		ACT, .2, A143;	NO.
1077		ACT, .8, A145;	YES.
1078	A143	ASSIGN, ATRIB(10)=2.5;	
1079		ACT, ATRIB(8).EG.1.07;	
1080		ACT, ATRIB(8).EG.2.09;	
1081		ACT, ATRIB(8).EG.3.011;	
1082	G179	GOON, 1;	SMALL BUSINESS?
1083		ACT, .99, A145;	YES.
1084		ACT, .01, G180;	NO.
1085	A144	ASSIGN, ATRIB(9)=63,	
1086		ATRIB(10)=5.37;	
1087		ACT, ATRIB(8).EG.1.06;	
1088		ACT, ATRIB(8).EG.2.08;	
1089		ACT, ATRIB(8).EG.3.010;	
1090	G180	GOON, 1;	AWARE ANYWAY?
1091		ACT, .05, A141;	NO.
1092		ACT, .95, G186;	YES.
1093	G181	GOON, 1;	SBA.
1094		ACT, TRIAG(240., 240., 360.), G182;	
1095	G182	GOON, 1;	COC ISSUE?
1096		ACT, .075, A141;	NO.
1097		ACT, .925, G183;	YES.
1098	G183	GOON, 1;	MC APPEAL?
1099		ACT, .95, G184;	YES.
1100		ACT, .05, G186;	NO.
1101	G184	GOON, 1;	SBA.

1102		ACT, TRIAG(504., 672., 672.), G185;	
1103	G185	GOON, 1;	APPEAL DENIED?
1104		ACT, .0, A141;	NO.
1105		ACT, .1, G186;	YES.
1106	G186	GOON, 1;	CEL CR DELINQUENT PRESENT
1107		;	PRODUCER?
1108		ACT, .5, G187;	YES.
1109		ACT, .5, A145;	NO.
1110	G187	GOON, 1;	HCA FOR APPROVAL TO AWARD TO
1111		ACT, TRIAG(56., 120., 168.), A145;	DELINQUENT CONTRACTOR.
1112	A145	ASSIGN, ATRIB(9)=64;	
1113		ATRIB(10)=18.613;	
1114		ACT, ATRIB(8).EG.1, G6;	
1115		ACT, ATRIB(8).EG.2, G2;	
1116		ACT, ATRIB(8).EG.3, G10;	
1117	G188	GOON, 1;	OBTAIN FUNDING?
1118		ACT, .95, G189;	YES.
1119		ACT, .05, A146;	NO.
1120	G189	GOON, 1;	PWC AMENDMENT.
1121		ACT, TRIAG(48., 120., 120.), A146;	
1122	A146	ASSIGN, ATRIB(10)=0.;	
1123		ATRIB(11)=0.;	
1124		ATRIB(12)=0.;	
1125		ACT, ., G190;	
1126	G190	GOON, 1;	VALUE:
1127		ACT, ATRIB(4).GT.4, A147;	> \$500K.
1128		ACT, ATRIB(4).EG.4, A149;	> \$100K <= \$500K.
1129		ACT, ATRIB(4).LT.4, G202;	< = \$100K.
1130	A147	ASSIGN, ATRIB(10)=TRIAE(504., 720., 720.);	
1131		;	RECORD SBR REVIEW SLR-
1132		ACT, ., A149;	CONTRACT PLAN SERVICE TIME.
1133	A149	ASSIGN, ATRIB(11)=TRIAE(240., 456., 624.);	
1134		;	RECORD LEGAL/AWARD ECAFD
1135		ACT, ., G192;	REVIEW SERVICE TIME.
1136	G192	GOON, 1;	DETERMINE IF > \$1P;
1137		ACT, ATRIB(4).GT.5, A150;	YES.
1138		ACT, ATRIB(4).LT.6, G199;	NO.
1139	A150	ASSIGN, ATRIB(12)=TRIAE(504., 720., 1008.);	
1140		ACT, ., G193;	RECORD EEO REVIEW SERVICE TIME.
1141	G193	GOON, 1;	COMPARE THE THREE SERVICE TIMES
1142		;	FOR SBR REVIEW SUECONTRACT PLAN.
1143		;	LEGAL/AWARD BOARD REVIEW, AND
1144		;	EEO REVIEW.
1145		ACT, ATRIB(10).GE.ATRIB(11).AND.	
1146		ATRIB(10).GE.ATRIB(12), G194;	ATRIB(10) = MAXIMUM TIME.
1147		ACT, ATRIB(11).GE.ATRIB(10).AND.	
1148		ATRIB(11).GE.ATRIB(12), G195;	ATRIB(11) = MAXIMUM TIME.
1149		ACT, ATRIB(12).GE.ATRIB(10).AND.	
1150		ATRIB(12).GE.ATRIB(11), G196;	ATRIB(12) = MAXIMUM TIME.
1151	G194	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1152		ACT, ATRIB(10), G197;	
1153	G195	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1154		ACT, ATRIB(11), G197;	
1155	G196	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1156		ACT, ATRIB(12), G197;	
1157	G197	GOON, 1;	DETERMINE IF > \$3P;
1158		ACT, ATRIB(4).GT.6, G198;	YES.
1159		ACT, ATRIB(4).LT.7, G202;	NO.

1160	G158	GOON, 1;	CONGRESSIONAL NOTIFICATION.
1161		ACT, 72, 6202;	
1162	G159	GOON, 1;	COMPARE THE TWO SERVICE TIMES
1163			FOR SBR REVIEW SUE CONTRACT PLAN
1164			AND LEGAL/AWARD BRANCH REVIEW.
1165		ACT, ATRIB(10).LE.ATFIB(11), 6200;	
1166		ACT, ATRIB(10).GT.ATFIB(11), 6201;	
1167	G200	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1168		ACT, ATRIB(11), 6202;	
1169	G201	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1170		ACT, ATRIB(10), 6202;	
1171	G202	GOON, 1;	CONTRACTOR SIGN.
1172		ACT, TRIAG(336, 504, 504, 504);	
1173		ACT, ATRIB(4).EG.0, A151;	> 810M.
1174		ACT, ATRIB(4).GT.4, ANC.	
1175		ATTRIB(4).LT.0, A152;	> 8500M <= 810M.
1176		ACT, ATRIB(4).LT.5, A153;	<= 8500M.
1177	A151	ASSIGN, ATRIB(10)=9.033;	
1178		ACT, 05;	
1179	A152	ASSIGN, ATRIB(10)=9.033;	
1180		ACT, ATRIB(0).EG.1, 012;	
1181		ACT, ATRIB(0).EG.2, 013;	
1182		ACT, ATRIB(0).EG.3, 014;	
1183	A153	ASSIGN, ATRIB(10)=9.033;	
1184		ACT, ATRIB(0).EG.1, 07;	
1185		ACT, ATRIB(0).EG.2, 09;	
1186		ACT, ATRIB(0).EG.3, 011;	
1187	G205	GOON, 1;	IFE AT BUY STATION.
1188		ACT, 33, A301;	- DETERMINE WHICH -
1189		ACT, 33, A302;	- BUY STATION BRANCH -
1190		ACT, 34, A303;	- TO ACCESS -
1191	A301	ASSIGN, ATRIB(0)=1;	BRANCH A.
1192		ACT, A300;	
1193	A302	ASSIGN, ATRIB(0)=2;	BRANCH B.
1194		ACT, A300;	
1195	A303	ASSIGN, ATRIB(0)=3;	BRANCH C.
1196		ACT, A300;	
1197	A160	ASSIGN, ATRIB(9)=65.	
1198		ATTRIB(10)=.52;	
1199		ACT, ATRIB(0).EG.1, 07;	
1200		ACT, ATRIB(0).EG.2, 09;	
1201		ACT, ATRIB(0).EG.3, 011;	
1202	A161	ASSIGN, ATRIB(10)=.2;	RECORD SYNOPSIS PERFORMING PERIOD.
1203		ATTRIB(11)=552.;	
1204		ACT, ATRIB(0).EG.1, 06;	
1205		ACT, ATRIB(0).EG.2, 08;	
1206		ACT, ATRIB(0).EG.3, 010;	
1207	A162	ASSIGN, ATRIB(12)=TNOW;	COMMENCE SYNOPSIS TIME
1208		ACT, A163;	CONSTRAINT.
1209	A163	ASSIGN, ATRIB(9)=66.	
1210		ATTRIB(10)=15.66;	
1211		ACT, ATRIB(0).EG.1, 06;	
1212		ACT, ATRIB(0).EG.2, 08;	
1213		ACT, ATRIB(0).EG.3, 010;	
1214	G206	GOON, 1;	CLASSIFIED CHANGES NEEDED
1215			TO 010?
1216		ACT, 00, 6207;	YES.
1217		ACT, 92, A164;	NO.

1218	G207	GCON, 1;	FACILITIES CLEARANCE.
1219		ACT, TRIAG(192., 336., 336.) , A164;	
1220	A164	ASSIGN, ATRIB(9)=67;	
1221		ATRIE(10)=5.004;	
1222		ACT, ATRIB(8).EG.1.06;	
1223		ACT, ATRIB(8).EG.2.06;	
1224		ACT, ATRIB(8).EG.3.010;	
1225	G208	GCON, 1;	> 8100N;
1226		ACT, ATRIB(4).GT.3.62(9);	YES.
1227		ACT, ATRIB(4).LT.4.6211;	NO.
1228	G209	GCON, 1;	LR.
1229		ACT, TRIAG(168., 336., 504.) , G210;	
1230	G210	GCON, 1;	LEGAL RECOMMENDATIONS?
1231		ACT, .75, A165;	YES.
1232		ACT, .25, 6211;	NO.
1233	A165	ASSIGN, ATRIB(9)=68;	
1234		ATRIE(10)=5.004;	
1235		ACT, ATRIB(8).EG.1.06;	
1236		ACT, ATRIB(8).EG.2.06;	
1237		ACT, ATRIB(8).EG.3.010;	
1238	G211	GCON, 1;	FIELD PRINTING.
1239		ACT, TRIAG(168., 240., 240.) , A166;	
1240	A166	ASSIGN, ATRIB(10)=TNGH-ATRIE(12);	RECORD SYNOPSIS TIME
1241			CONSTRAINT.
1242		ACT, .5, 124;	
1243	G212	GCON, 1;	COMPARE SYNOPSIS TIME
1244			CONSTRAINT WITH SYNOPSIS
1245			HOLDING PERIOD.
1246		ACT, ATRIB(11).LT.ATRIE(12), A167;	ADJUSTMENT REQUIRED.
1247		ACT, ATRIB(11).LE.ATRIE(12), 6215;	NO ADJUSTMENT REQUIRED.
1248	A167	ASSIGN, ATRIB(11) ATRIB(11)+ATRIE(12)-ATRIE(11);	
1249			ADJUST FACT.
1250		ACT, .5, 124;	
1251	G213	GCON, 1;	TRANSFER CONTRACTOR.
1252		ACT, TRIAG(170., 1008., 1200.) , A172;	
1253	A172	ASSIGN, ATRIB(9)=70;	
1254		ATRIE(10)=5.004;	
1255		ACT, ATRIB(8).EG.1.06;	
1256		ACT, ATRIB(8).EG.2.06;	
1257		ACT, ATRIB(8).EG.3.010;	
1258	A173	ASSIGN, ATRIB(9)=70;	
1259		ATRIE(10)=5.004;	
1260		ACT, ATRIB(8).EG.1.06;	
1261		ACT, ATRIB(8).EG.2.06;	
1262		ACT, ATRIB(8).EG.3.010;	
1263	G214	GCON, 1;	SHOULD PRE-AWARE SURVEY
1264			BE REQUIRED?
1265		A 174, 174, 174;	YES.
1266		A 174, 174, 174;	NO.
1267	A174	ASSIGN, ATRIB(9)=71;	
1268		ATRIE(10)=5.004;	
1269		ACT, ATRIB(8).EG.1.06;	
1270		ACT, ATRIB(8).EG.2.06;	
1271		ACT, ATRIB(8).EG.3.010;	
1272	G215	GCON, 1;	PRE-AWARE SURVEY.
1273		A 175, 175, 175, 175, 175, 175;	
1274	A175	ASSIGN, ATRIB(10)=0.;	
1275		ATRIE(11)=0.;	

1276		ATFIE(12)=0.;	
1277		ACT,,,G221;	
1278	G221	GOON, 1;	CONTRACTOR NEEDS TO
1279	;		CONFIRM PRICE?
1280		ACT,,,1.,A175;	YES.
1281		ACT,,,0.,G225;	NO.
1282	A175	ASSIGN,ATFIE(10)=TRIAE(240.,240.,336.);	
1283	;		RECORD CONFIRMATION TIME.
1284		ACT,,,G223;	
1285	G223	GOON, 1;	PRICE CONFIRMED?
1286		ACT,,,967.,G225;	YES.
1287		ACT,,,033.,A177;	NO.
1288	A177	ASSIGN,ATFIE(10)=ATFIE(10)+TRIAE(720.,1440.,2160.);	
1289	;		RECORD ADDITIONAL CONFIRMATION TIME.
1290	;		
1291		ACT,,,G225;	
1292	G225	GOON, 1;	RESOLVED?
1293		ACT,,,95.,G229;	YES.
1294		ACT,,,05.,A173;	NO.
1295	G229	GOON, 1;	REQUEST F/A WAIVER?
1296		ACT,,,0.,A175;	YES.
1297		ACT,,,2.,G234;	NO.
1298	A179	ASSIGN,ATFIE(11)=TRIAE(168.,240.,240.);	
1299	;		RECORD WAIVER TIME.
1300		ACT,,,G234;	
1301	G234	GOON, 1;	CLASSIFIED DRAWINGS NEEDED TO MANUFACTURE?
1302	;		YES.
1303		ACT,,,08.,A180;	NO.
1304		ACT,,,92.,G236;	
1305	A180	ASSIGN,ATFIE(12)=TRIAE(192.,336.,336.);	
1306	;		RECORD FACILITIES CLEARANCE TIME.
1307	;		
1308		ACT,,,G236;	
1309	G236	GOON, 1;	DETERMINE MAXIMUM TIME.
1310		ACT,,,ATFIE(10).GE.ATFIE(11).AND.	
1311		ATFIE(10).GE.ATFIE(12),G237;	ATFIE(10) = MAXIMUM TIME.
1312		ACT,,,ATFIE(11).GE.ATFIE(10).AND.	
1313		ATFIE(11).GE.ATFIE(12),A181;	ATFIE(11) = MAXIMUM TIME.
1314		ACT,,,ATFIE(12).GE.ATFIE(10).AND.	
1315		ATFIE(12).GE.ATFIE(11),A182;	ATFIE(12) = MAXIMUM TIME.
1316	A181	ASSIGN,ATFIE(10)=ATFIE(11);	SET MAXIMUM = TO ATFIE(10).
1317		ACT,,,G237;	
1318	A182	ASSIGN,ATFIE(10)=ATFIE(12);	SET MAXIMUM = TO ATFIE(10).
1319		ACT,,,G237;	
1320	G237	GOON, 1;	DELAY FOR MAXIMUM TIME.
1321		ACT,,,ATFIE(10),G239;	
1322	G239	GOON, 1;	CONTRACTOR RESPONSIBLE?
1323		ACT,,,1.,A200;	NO.
1324		ACT,,,9.,A205;	YES.
1325	A200	ASSIGN,ATFIE(9)=72.	
1326		ATFIE(10)=2.5;	
1327		ACT,,,ATFIE(8).EQ.1.07;	
1328		ACT,,,ATFIE(8).EQ.2.09;	
1329		ACT,,,ATFIE(8).EQ.3.011;	
1330	G240	GOON, 1;	SMALL BUSINESS?
1331		ACT,,,01.,G241;	NO.
1332		ACT,,,99.,A201;	YES.
1333	G241	GOON, 1;	AWARE ANYWAY?

1334		ACT,, .05, A173;	NO.
1335		ACT,, .95, G247;	YES.
1336	A261	ASSIGN, ATRIB(9)=73,	
1337		ATRIB(10)=5.37;	
1338		ACT,, ATRIB(8).EG.1, Q6;	
1339		ACT,, ATRIB(8).EG.2, Q8;	
1340		ACT,, ATRIB(8).EG.3, Q10;	
1341	G242	GOON, 1;	SEA.
1342		ACT, TRIAG(240., 240., 360.), G243;	
1343	G243	GOON, 1;	COC WILL BE ISSUED?
1344		ACT,, .075, A173;	NO.
1345		ACT,, .925, G244;	YES.
1346	G244	GOON, 1;	NO APPEAL?
1347		ACT,, .95, G245;	YES.
1348		ACT,, .05, G247;	NO.
1349	G245	GOON, 1;	SEA.
1350		ACT, TRIAG(504., 672., 672.), G246;	
1351	G246	GOON, 1;	UPHOLD COC?
1352		ACT,, .0, A173;	NO.
1353		ACT,, 1., G247;	YES.
1354	G247	GOON, 1;	CEL OR DELINQUENT PRESENT
1355			PRODUCER?
1356		ACT,, .5, G248;	YES.
1357		ACT,, .5, A205;	NO.
1358	G248	GOON, 1;	OBTAIN HCA APPROVAL.
1359		ACT, TRIAG(96., 120., 168.), A205;	
1360	A205	ASSIGN, ATRIB(9)=74,	
1361		ATRIB(10)=18.762;	
1362		ACT,, ATRIB(8).EG.1, Q6;	
1363		ACT,, ATRIB(8).EG.2, Q8;	
1364		ACT,, ATRIB(8).EG.3, Q10;	
1365	G251	GOON, 1;	OBTAIN FUNDING?
1366		ACT,, .95, G252;	YES.
1367		ACT,, .05, A206;	NO.
1368	G252	GOON, 1;	FWO AMENDMENT.
1369		ACT, TRIAG(48., 120., 120.), A206;	
1370	A206	ASSIGN, ATRIB(10)=0.,	
1371		ATRIB(11)=0.,	
1372		ATRIB(12)=0.;	
1373		ACT,, G253;	
1374	G253	GOON, 1;	VALUE:
1375		ACT,, ATRIB(4).GT.3, A207;	> \$100K.
1376		ACT,, ATRIB(4).LT.4, G265;	<= \$100K.
1377	A207	ASSIGN, ATRIB(10)=TRIG(168., 336., 504.);	
1378			RECORD LR TIME.
1379		ACT,, G254;	
1380	G254	GOON, 1;	DETERMINE IF > \$500K:
1381		ACT,, ATRIB(4).GT.4, A208;	YES.
1382		ACT, ATRIB(10), ATRIB(4).LT.5, G265;	NO (+ LR DELAY TIME).
1383	A208	ASSIGN, ATRIB(11)=TRIG(504., 720., 720.);	
1384			RECORD SB REVIEW (F SUBCOM
1385			PLAN TIME.
1386		ACT,, G265;	
1387		GOON, 1;	DETERMINE IF > \$1K:
1388		ACT,, ATRIB(4).GT.5, A209;	YES.
1389		ACT,, ATRIB(4).LT.6, G475;	NO.
1390	A209	ASSIGN, ATRIB(12)=TRIG(504., 720., 1008.);	
1391		ACT,, G475;	RECORD EEO REVIEW TIME.

1392	G475	GOON, 1;	COMPARE THE 2 SERVICE TIMES FOR
1393	;		LR AND SB REVIEW OF SUECONT PLAN.
1394		ACT,, ATRIB(10).GE.ATRIB(11),G476;	ATRIB(10) = MAXIMUM TIME.
1395		ACT,, ATRIB(10).LT.ATRIB(11),G477;	ATRIB(11) = MAXIMUM TIME.
1396	G476	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1397		ACT, ATRIB(10),,G265;	
1398	G477	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1399		ACT, ATRIB(11),,G265;	
1400	G256	GOON, 1;	COMPARE THE 3 SERVICE TIMES FOR
1401	;		LR, SB REVIEW OF SUECONT PLAN,
1402	;		AND EEO REVIEW.
1403		ACT,, ATRIB(10).GE.ATRIB(11).AND.	
1404		ATRIB(10).GE.ATRIB(12),G257;	ATRIB(10) = MAXIMUM TIME.
1405		ACT,, ATRIB(11).GE.ATRIB(10).AND.	
1406		ATRIB(11).GE.ATRIB(12),G258;	ATRIB(11) = MAXIMUM TIME.
1407		ACT,, ATRIB(12).GE.ATRIB(10).AND.	
1408		ATRIB(12).GE.ATRIB(11),G259;	ATRIB(12) = MAXIMUM TIME.
1409	G257	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1410		ACT, ATRIB(10),,G260;	
1411	G258	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1412		ACT, ATRIB(11),,G260;	
1413	G259	GOON, 1;	DELAY FOR APPROPRIATE TIME.
1414		ACT, ATRIB(12),,G260;	
1415	G260	GOON, 1;	DETERMINE IF > \$3P:
1416		ACT,, ATRIB(4).GT.6,G261;	YES.
1417		ACT,, ATRIB(4).LT.7,G265;	NO.
1418	G261	GOON, 1;	CONGRESSIONAL NOTIFICATION.
1419		ACT, 72,,G265;	
1420	G265	GOON, 1;	PREPARE TO BRANCH FOR NO
1421	;		SIGNATURE.
1422		ACT,, ATRIB(4).LT.5,A217;	<= \$500K.
1423		ACT,, ATRIB(4).GT.4.AND.	
1424		ATRIB(4).LT.8,A218;	> \$500K <= \$10M.
1425		ACT,, ATRIB(4).EQ.6,A219;	> \$10M.
1426	A217	ASSIGN, ATRIB(10)=6.636;	
1427		ACT,, ATRIB(8).EQ.1,G7;	
1428		ACT,, ATRIB(8).EQ.2,Q9;	
1429		ACT,, ATRIB(8).EQ.3,Q11;	
1430	A218	ASSIGN, ATRIB(10)=6.636;	
1431		ACT,, ATRIB(8).EQ.1,Q12;	
1432		ACT,, ATRIB(8).EQ.2,Q13;	
1433		ACT,, ATRIB(8).EQ.3,Q14;	
1434	A219	ASSIGN, ATRIB(10)=6.636;	
1435		ACT,, Q5;	
1436	A400	ASSIGN, ATRIB(4)=1;	> \$5K < \$10K.
1437		ACT,, G450;	
1438	A401	ASSIGN, ATRIB(4)=2;	>= \$10K <= \$25K.
1439		ACT,, G450;	
1440	A402	ASSIGN, ATRIB(4)=3;	> \$25K <= \$100K.
1441		ACT,, G450;	
1442	A403	ASSIGN, ATRIB(4)=4;	> \$100K <= \$500K.
1443		ACT,, G450;	
1444	A404	ASSIGN, ATRIB(4)=5;	> \$500K <= \$1M.
1445		ACT,, G450;	
1446	A405	ASSIGN, ATRIB(4)=6;	> \$1M <= \$3M.
1447		ACT,, G450;	
1448	A406	ASSIGN, ATRIB(4)=7;	> \$3M <= \$10M.
1449		ACT,, G450;	

1456	A407	ASSIGN, ATRIB(4)=P;	> 810M.
1457		ACT,,,G450;	
1458	G450	GOON, 1;	BRANCH BACK TO APPROPRIATE
1459	;		PLANNING TYPE CATEGORY.
1454		ACT,, ATRIB(3).EQ.1, A410;	
1455		ACT,, ATRIB(3).EQ.3, A411;	
1456		ACT,, ATRIB(3).EQ.4, A412;	
1457		ACT,, ATRIB(3).EQ.5, A413;	
1458		ACT,, ATRIB(3).EQ.6, A414;	
1459	;		
1460	;	USEFF(2) = AUGMENTED SERVER PROCESSING TIME TO ACCOUNT FOR A	
1461	;	DAILY WORK SCHEDULE OF 0900 - 1630, WITH LUNCH FROM 1200 - 1230,	
1462	;	SEVEN DAYS A WEEK.	
1463	;		
1464	Q1	QUEUE(1);	IXA: ASSIGN PLANNING SPECIALIST.
1465		ACT(2)/1, USEFF(2),,H1;	
1466	H1	GOON, 1;	
1467		ACT,, ATRIB(5).EQ.1, G4;	
1468		ACT,, ATRIB(5).EQ.4, G21;	
1469		ACT,, ATRIB(5).EQ.9, A33;	
1470		ACT,, ATRIB(5).EQ.19, A53;	
1471		ACT,, ATRIB(5).EQ.25, A66;	
1472	Q2	QUEUE(2);	
1473		ACT(17)/2, USEFF(2),,H2;	
1474	H2	GOON, 1;	
1475		ACT,, ATRIB(5).EQ.1, A5;	REVIEW 1095, MASTER FORMAT.
1476		ACT,, ATRIB(5).EQ.2, AND.	
1477		ATRIB(11).EQ.0, A10.	
1478		ATRIB(12).EQ.0, A7;	DA1877, J&A, REVIEW 1095, MASTER
1479	;		FORMAT, PREPARE SYNOPSIS/WAIVER.
1480		ACT,, ATRIB(5).EQ.3, OF.	
1481		ATRIB(11).EQ.1, OF.	
1482		ATRIB(12).EQ.1, A7;	FIX J&A.
1483		ACT,, ATRIB(5).EQ.4, A26;	PROCESS BATCH.
1484		ACT,, ATRIB(5).EQ.5, G25;	COMPLETE FLT.
1485		ACT,, ATRIB(5).EQ.6, A23;	URGENT SMALL PURCHASE (SYNOPSIS/
1486	;		WAIVER IF APPLICABLE).
1487		ACT,, ATRIB(5).EQ.7, OR.	
1488		ATRIB(5).EQ.8, G25;	EVALUATE ABILITY TO MEET FOC.
1489		ACT,, ATRIB(5).EQ.9, G33;	REVIEW 1095, MASTER FORMAT.
1490		ACT,, ATRIB(5).EQ.10, G34;	COMPLETE FLT.
1491		ACT,, ATRIB(5).EQ.11, G36;	J&A.
1492		ACT,, ATRIB(5).EQ.12, G40;	J&A.
1493		ACT,, ATRIB(5).EQ.13, AND.	
1494		ATRIB(11).EQ.0, AND.	
1495		ATRIB(12).EQ.0, A39;	FFP PROCESSING, PREPARE SYNOPSIS,
1496	;		1877, SECURITY CLEARANCES.
1497		ACT,, ATRIB(5).EQ.14, A45;	PROCESS BATCH.
1498		ACT,, ATRIB(5).EQ.15, OF.	
1499		ATRIB(11).EQ.2, OF.	
1500		ATRIB(12).EQ.2, A39;	FIX J&A.
1501		ACT,, ATRIB(5).EQ.17, A45;	FIX J&A/UFO.
1502		ACT,, ATRIB(5).EQ.19, G61;	REVIEW 1095, MASTER FORMAT.
1503		ACT,, ATRIB(5).EQ.20, G62;	PROCUREMENT HIST, FLNDS
1504	;		ADJUST, ETC.
1505		ACT,, ATRIB(5).EQ.22, G66;	COMPLETE FLT.
1506		ACT,, ATRIB(5).EQ.23, A59;	PURCHASE ORDER.
1507		ACT,, ATRIB(5).EQ.24, A61;	PA WRITES FORMS, PROCESS

1500	;		BATCH, ETC.
1505		ACT,, ATRIB(9).EQ.25,G81	REVIEW 1099, MASTER FORMAT.
1510		ACT,, ATRIB(9).EQ.26,G82;	PROC HIST, FUNDS ADJUST.
1511		ACT,, ATRIB(9).EQ.27,A69;	PREP SYNOP, SEC CLEAR (IF
1512	;		APP), 1877'S, IFB.
1513		ACT,, ATRIB(9).EQ.28,A12;	PREP SYNOP, SEC CLEAR (IF
1514	;		APP), 1877'S.
1515		ACT,, ATRIB(9).EQ.29,G93;	PROC HIST, FUNDS ADJUST.
1516		ACT,, ATRIB(9).EQ.30,A17;	PREP SYNOP, SEC CLEAR (IF
1517	;		APP), 1877'S, RFP, AEG, J8A.
1518		ACT,, ATRIB(9).EQ.31,A10;	J8A, PREPARE SYNOPSIS.
1519	03	QLELE(3);	
1520		ACT(3)/3,USERF(2),,H3;	
1521	H3	GOON,1;	
1522		ACT,, ATRIB(9).EQ.1,A15;	NO/HLR.
1523		ACT,, ATRIB(9).EQ.2,OR.	
1524		ATRIB(9).EQ.3,OR.	
1525		ATRIB(11).EQ.1,OF.	
1526		ATRIB(12).EQ.1,E7;	NO/HLR.
1527		ACT,, ATRIB(9).EQ.4,A27;	NO/HLR.
1528		ACT,, ATRIB(9).EQ.6,A24;	NO/HLR.
1529		ACT,, ATRIB(9).EQ.13,OF.	
1530		ATRIB(9).EQ.15,OF.	
1531		ATRIB(11).EQ.2,OF.	
1532		ATRIB(12).EQ.2,E43;	NO/HLR.
1533		ACT,, ATRIB(9).EQ.14,OF.	
1534		ATRIB(9).EQ.17,G52;	NO/HLR.
1535		ACT,, ATRIB(9).EQ.16,A51;	NO OF PLANNING SPECIALIST.
1536		ACT,, ATRIB(9).EQ.18,A50;	NO/HLR.
1537		ACT,, ATRIB(9).EQ.20,G72;	NO/HLR APPROVAL.
1538		ACT,, ATRIB(9).EQ.21,A63;	NO REVIEW/SIGN.
1539		ACT,, ATRIB(9).EQ.23,G67;	NO REVIEW/SIGN.
1540		ACT,, ATRIB(9).EQ.24,G69;	NO REVIEW/SIGN.
1541		ACT,, ATRIB(9).EQ.27,G86;	NO/HLR.
1542		ACT,, ATRIB(9).EQ.28,A78;	NO/HLR.
1543		ACT,, ATRIB(9).EQ.30,G55;	NO/HLR.
1544		ACT,, ATRIB(9).EQ.31,G59;	NO/HLR.
1545	;		
1546	;	-- ----- QLELE(4) DELETED FROM ANALYSIS -----	
1547	;		
1548	05	QLELE(5);	
1549		ACT(1)/5,USERF(2),,CENT;	NO SIGN.
1550	06	QLELE(6);	(AT BUY STATION BRANCH A).
1551		ACT(28)/6,USERF(2),,HE;	
1552	07	QLELE(7);	(AT BUY STATION BRANCH A).
1553		ACT(4)/7,USERF(2),,H7;	
1554	08	QLELE(8);	(AT BUY STATION BRANCH E).
1555		ACT(36)/8,USERF(2),,HE;	
1556	09	QLELE(9);	(AT BUY STATION BRANCH E).
1557		ACT(4)/9,USERF(2),,H7;	
1558	010	QLELE(10);	(AT BUY STATION BRANCH C).
1559		ACT(34)/10,USERF(2),,H6;	
1560	011	QLELE(11);	(AT BUY STATION BRANCH C).
1561		ACT(4)/11,USERF(2),,H7;	
1562	012	QLELE(12);	(AT BUY STATION BRANCH A).
1563		ACT(1)/12,USERF(2),,CENT;	
1564	013	QLELE(13);	(AT BUY STATION BRANCH E).
1565		ACT(1)/13,USERF(2),,CENT;	

1566 014 QUEUE(14);
 1567 ACT(1)/14,USEFF(2),,CENT;
 1568 H6 GOON,1;
 1569 ACT,,ATRIE(9).EQ.35,G104;
 1570 ACT,,ATRIE(9).EQ.36,A12;
 1571 ACT,,ATRIE(9).EQ.37,G110;
 1572 ACT,,ATRIE(9).EQ.38,G110;
 1573 ACT,,ATRIE(9).EQ.39,A14;
 1574 ;
 1575 ACT,,ATRIE(9).EQ.40,G115;
 1576 ACT,,ATRIE(9).EQ.41,G116;
 1577 ACT,,ATRIE(9).EQ.42,G120;
 1578 ACT,,ATRIE(9).EQ.43,G127;
 1579 ACT,,ATRIE(9).EQ.44,A100;
 1580 ACT,,ATRIE(9).EQ.45,A101;
 1581 ACT,,ATRIE(9).EQ.46,A107;
 1582 ACT,,ATRIE(9).EQ.47,G136;
 1583 ACT,,ATRIE(9).EQ.48,A110;
 1584 ACT,,ATRIE(9).EQ.49,G141;
 1585 ACT,,ATRIE(9).EQ.50,A116;
 1586 ACT,,ATRIE(9).EQ.51,G142;
 1587 ;
 1588 ACT,,ATRIE(9).EQ.52,G145;
 1589 ACT,,ATRIE(9).EQ.53,G146;
 1590 ;
 1591 ;
 1592 ACT,,ATRIE(9).EQ.55,A131;
 1593 ACT,,ATRIE(9).EQ.56,G161;
 1594 ACT,,ATRIE(9).EQ.57,G168;
 1595 ACT,,ATRIE(9).EQ.58,A138;
 1596 ACT,,ATRIE(9).EQ.59,G171;
 1597 ;
 1598 ACT,,ATRIE(9).EQ.60,G174;
 1599 ACT,,ATRIE(9).EQ.61,G176;
 1600 ACT,,ATRIE(9).EQ.62,G177;
 1601 ACT,,ATRIE(9).EQ.63,G181;
 1602 ACT,,ATRIE(9).EQ.64,G188;
 1603 ACT,,ATRIE(9).EQ.65,A162;
 1604 ACT,,ATRIE(9).EQ.66,G206;
 1605 ACT,,ATRIE(9).EQ.67,G208;
 1606 ACT,,ATRIE(9).EQ.68,G211;
 1607 ACT,,ATRIE(9).EQ.69,A173;
 1608 ACT,,ATRIE(9).EQ.70,G216;
 1609 ACT,,ATRIE(9).EQ.71,G217;
 1610 ACT,,ATRIE(9).EQ.73,G242;
 1611 ACT,,ATRIE(9).EQ.74,G251;
 1612 ;
 1613 H7 GOON,1;
 1614 ACT,,ATRIE(9).EQ.35,G103;
 1615 ACT,,ATRIE(9).EQ.41,G116;
 1616 ACT,,ATRIE(9).EQ.45,CENT;
 1617 ACT,,ATRIE(9).EQ.46,A106;
 1618 ACT,,ATRIE(9).EQ.51,A121;
 1619 ACT,,ATRIE(9).EQ.53,CENT;
 1620 ACT,,ATRIE(9).EQ.54,G154;
 1621 ACT,,ATRIE(9).EQ.55,A130;
 1622 ACT,,ATRIE(9).EQ.59,A140;
 1623 ACT,,ATRIE(9).EQ.62,G179;

(AT BUY STATION REACH C).

COMPILE SOURCE LIST.
 SYNOPSIS.
 PACCS, RFG.
 ASSEMBLE RFG, ISSUE SOLICITATION.
 PRICE ANALYSIS, PRE-NEG RFG.
 NEGOTIATE.
 SELECT PROBABLE CONTRACTOR.
 PRE-AWARD SURVEY.
 REQUEST CCC FROM SBA.
 CONTRACT.
 RECONCILIATION.
 CERTS/PURCHASE ORDER.
 ISSUE SYNOPSIS.
 CRAFT RFG.
 REQUESTING RFP FROM PACCS.
 REVIEW PROPOSAL.
 MS PRICES.
 RECONCILE OBJECTIVE TO
 CCAA AUDIT.
 NEGOTIATE.
 PREPARE ORDER/00350 (IF PRICED
 BOA); PREPARE TASK ORDER, ETC.
 (IF UNPRICED BOA).
 ISSUE SYNOPSIS.
 PREPARE RFP.
 EVALUATE PROPOSAL.
 MS PRICES.
 RECONCILE OBJECTIVE TO
 CCAA AUDIT.
 NEGOTIATE.
 SELECT PROBABLE CONTRACTOR.
 PRE-AWARD SURVEY.
 REQUEST CCC FROM SBA.
 CONTRACT, 00350.
 ISSUE SYNOPSIS.
 PREPARE SOLICITATION.
 IFB PRINTED.
 IFB REPRINTED.
 BIDS OPENED/EVALUATED.
 SELECT PROBABLE CONTRACTOR.
 REQUEST PRE-AWARD SURVEY.
 REQUEST CCC FROM SBA.
 PREPARE CONTRACT, 00350,
 ORDER STATE BASE, ETC.
 ASSIGN BUYER.
 NO DETERMINES NON-RESPONSIBILITY.
 NO REVIEW/SIGN.
 ASSIGN BUYER.
 APPROVE NEGOTIATION OBJECTIVES.
 NO SIGN.
 ASSIGN BUYER.
 ASSIGN BUYER.
 APPROVE NEGOTIATION OBJECTIVES.
 NO DETERMINES NON-RESPONSIBILITY.

1620		ACT,, ATRIB(9).EG.64,CNT;	NO SIGN.
1625		ACT,, ATRIB(9).EG.65,A161;	ASSIGN BUYER.
1626		ACT,, ATRIB(9).EG.72,G240;	NO DETERMINES NON-RESPONSIBILITY.
1627		ACT,, ATRIB(9).EG.74,CNT;	NO SIGN.
1628	015	QUEUE(15);	PRICING FRANCH.
1629		ACT(23)/15,USERF(2),+15;	
1630	M15	GOON, 1;	
1631		ACT,, ATRIB(5).EG.49,A118;	OCAA AUDIT, PRICE ANALYSIS.
1632		ACT,, ATRIB(5).EG.57,A138;	OCAA/PRICE ANALYSIS.
1633	CONT	GOON, 1;	CONTRACT DISTRIBUTION.
1634		ACT,, ATRIB(3).EG.2,C1;	
1635		ACT,, ATRIB(3).EQ.1.AN(.ATFIB(5).EG.0.AND.ATRIB(7).EG.1,C2;	
1636		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.1.AND.ATRIB(7).EG.1,C3;	
1637		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.1.AND.ATRIB(7).EG.2,C4;	
1638		ACT,, ATRIB(3).EQ.1.AN(.ATFIB(5).EG.1.AND.ATRIB(7).EG.3,C5;	
1639		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.1.AND.ATRIB(7).EG.4,C6;	
1640		ACT,, ATRIB(3).EQ.1.AN(.ATFIB(5).EG.1.AND.ATRIB(7).EG.5,C7;	
1641		ACT,, ATRIB(3).EQ.1.AN(.ATFIB(5).EG.2.AND.ATRIB(7).EG.1,C8;	
1642		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.2.AND.ATRIB(7).EG.2,C9;	
1643		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.2.AND.ATRIB(7).EG.3,C10;	
1644		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.2.AND.ATRIB(7).EG.4,C11;	
1645		ACT,, ATRIB(3).EG.1.AN(.ATFIB(5).EG.2.AND.ATRIB(7).EG.5,C12;	
1646		ACT,, ATRIB(3).EQ.3.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.1,C13;	
1647		ACT,, ATRIB(3).EG.3.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.2,C14;	
1648		ACT,, ATRIB(3).EQ.3.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.1,C15;	
1649		ACT,, ATRIB(3).EG.3.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.2,C16;	
1650		ACT,, ATRIB(3).EG.4.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.3,C17;	
1651		ACT,, ATRIB(3).EQ.4.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.4,C18;	
1652		ACT,, ATRIB(3).EG.4.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.3,C19;	
1653		ACT,, ATRIB(3).EG.4.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.4,C20;	
1654		ACT,, ATRIB(3).EQ.5.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.1,C21;	
1655		ACT,, ATRIB(3).EG.5.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.2,C22;	
1656		ACT,, ATRIB(3).EG.5.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.1,C23;	
1657		ACT,, ATRIB(3).EQ.6.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.2,C24;	
1658		ACT,, ATRIB(3).EQ.6.AN(.ATFIB(6).EG.1.AND.ATRIB(7).EG.4,C25;	
1659		ACT,, ATRIB(3).EG.6.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.4,C26;	
1660		ACT,, ATRIB(3).EG.6.AN(.ATFIB(6).EG.2.AND.ATRIB(7).EG.5,C27;	
1661	;		
1662	;		INT(1) = FALT
1663	;		= TNOW - ATRIB(1).
1664	;		
1665	C1	COLCT(1),INT(1),LESKSF;	
1666		ACT,, ,C28;	
1667	C2	COLCT(2),INT(1),SEGSASP;	
1668		ACT,, ,C28;	
1669	C3	COLCT(3),INT(1),SBFMSIPDSF;	
1670		ACT,, ,C28;	
1671	C4	COLCT(4),INT(1),SBFMSIPDEOA;	
1672		ACT,, ,C28;	
1673	C5	COLCT(5),INT(1),SBFMSIPUEOA;	
1674		ACT,, ,C28;	
1675	C6	COLCT(6),INT(1),SBFMSIPCRFP;	
1676		ACT,, ,C28;	
1677	C7	COLCT(7),INT(1),SBFMSIPCIFB;	
1678		ACT,, ,C28;	
1679	C8	COLCT(8),INT(1),SBFMSIIFDSP;	
1680		ACT,, ,C28;	
1681	C9	COLCT(9),INT(1),SBFMSIIFDFEOA;	

```

1682      ACT,,C28;
1683 C16    COLCT(10),INT(1),S9FPMNIPUECA;
1684      ACT,,C28;
1685 C11    COLCT(11),INT(1),S8FPMNIPCRFP;
1686      ACT,,C28;
1687 C12    COLCT(12),INT(1),S8FPMNIPCIFE;
1688      ACT,,C28;
1689 C13    COLCT(13),INT(1),UG5MLE25NFCSP;
1690      ACT,,C28;
1691 C14    COLCT(14),INT(1),UG5MLE25NFCLEOA;
1692      ACT,,C28;
1693 C15    COLCT(15),INT(1),UG5MLE25NFCSP;
1694      ACT,,C28;
1695 C16    COLCT(16),INT(1),UG5MLE25NFCLECA;
1696      ACT,,C28;
1697 C17    COLCT(17),INT(1),UG25NFCUECA;
1698      ACT,,C28;
1699 C18    COLCT(18),INT(1),UG25NFCRFP;
1700      ACT,,C28;
1701 C15    COLCT(19),INT(1),UG25NFCLEOA;
1702      ACT,,C28;
1703 C20    COLCT(20),INT(1),UG25NFCRFP;
1704      ACT,,C28;
1705 C21    COLCT(21),INT(1),RG5MLE25NFCSP;
1706      ACT,,C28;
1707 C22    COLCT(22),INT(1),RG5MLE25NFCLEOA;
1708      ACT,,C28;
1709 C23    COLCT(23),INT(1),RG5MLE25NFCSP;
1710      ACT,,C28;
1711 C24    COLCT(24),INT(1),RG25NFCPECA;
1712      ACT,,C28;
1713 C25    COLCT(25),INT(1),RG25NFCRFP;
1714      ACT,,C28;
1715 C26    COLCT(26),INT(1),RG25NFCRFP;
1716      ACT,,C28;
1717 C27    COLCT(27),INT(1),RG25NFCIFE;
1718      ACT,,C28;
1719 C28    COLCT(28),INT(1),ALL;
1720      TERM,29374;
1721      ;
1722      END;
1723 INIT,0,17520;
1724      ;
1725 FIN;

```

TERMINATE SIMULATION AFTER
FINAL PWD EXITS SYSTEM.

PROGRAM STOPS AFTER 2 YEARS.
NOT ALL PWDs NEED EXIT.

APPENDIX C

PWD INTERARRIVAL AND AUGMENTED PROCESSING TIME FUNCTIONS

The average monthly PWD interarrival times provided at Appendix D are used in the attached user-defined interarrival time function, USERF(1). One should note that two sets of the same arrival data are utilized in this function since replicated FY85 data is used for FY84.

A PWD can be delayed

1. while being processed by non-PPD personnel,
2. while waiting in a queue for an available PPD server, and
3. while encountering a "break" in servicing; i.e., the PWD has already been received by a PPD server, yet the server is not on duty (i.e., he is at lunch or away from the office overnight).

The first two types of delay are automatically recorded during the simulation by the SLAM compiler. The third, however, is not, and must be accounted for. The attached user-defined function, USERF(2), does precisely this. The following illustrate its development:

1. A PWD is being serviced by PPD personnel if, and only if, it is physically situated on a PPD server's desk. PWDs in queues are awaiting service; they are not considered to be on a server's desk.

2. Let S = the notional PWD "hands-on" processing time. It is this value that is listed adjacent each queue station at Appendix A.

3. Let B = the time, on a 24 hour clock, that a PWD is placed on said server's desk. Then $B = 24 \times [TNOW/24 - INT(TNOW/24)]$, where $TNOW$ = the current time, and INT = the greatest integer function, i.e., $INT(N)$ = the greatest non-negative integer not exceeding the number N . For example, if a PWD arrives to a server's desk top at 0330 hours, then $TNOW = 3.30$, $TNOW/24 = .1375$, $INT(TNOW/24) = 0$, and $B = 24 \times [.1375 - 0] = 3.3$, as expected.

4. Let A = the PWD server augmented processing time which accounts for the server being away from his desk during lunch and overnight. Note this augmentation only applies if the PWD has already been placed on the server's desk. Since a server is assumed, in the model, to take lunch from 1200 to 1230 hours, and is off duty from 1630 to 0800 hours (15.5 hours), A will be a linear combination of .5 and 15.5.

5. Let $TAST$ = the total augmented PWD service time.

6. Then the following holds:

$$\begin{aligned}
 & S + 8 - B + A, \text{ if } 0 < B \leq 8 \\
 & S + A, \text{ if } 8 < B < 12 \\
 TAST = & S + 12.5 - B + A, \text{ if } 12 \leq B < 12.5 \\
 & S + A, \text{ if } 12.5 \leq B \leq 16.5 \\
 & S + 32 - B + A, \text{ if } 16.5 < B \leq 24.
 \end{aligned}$$

Thus, A must be determined to compute $TAST$. Note from the preceding that the value of A is a function of the time interval in which B is situated.

CASE 1 $0 < B \leq 8$.

The PWD has been placed on the server's desk between 000 and 0800 hours, say at 0500. When he reports for duty at 0800, 3 (8-5) hours of PALT have elapsed for the PWD in question. Assuming the "hands-on" service time is, say, 2 hours, then the server can service the PWD before lunch time, and the PWD server augmented processing time equals zero. Hence, in this example, $S = 2$ hours, $B = 5$ hours, and $A = 0$ hours. Therefore, $TAST = S + 8 - B + A = 2 + 8 - 5 + 0 = 5$ hours. The following can be shown to hold for this case:

if $0[4] < S \leq 1[4]$, then $A = 0[.5] + 0[15.5]$ (no lunch or overnight delay)
 $1[4] < S \leq 2[4]$, $1[.5] + 0[15.5]$ (1 lunch but no overnight delay)
 $2[4] < S \leq 3[4]$, $1[.5] + 1[15.5]$ (1 lunch and 1 overnight delay)
 $3[4] < S \leq 4[4]$, $2[.5] + 1[15.5]$ (2 lunch and 1 overnight delay).

etc.

Let $M = 1, 2, 3, \dots, 18$. Consequently,

if $4[M-1] < S \leq 4[M]$, then $A = .5[INT(M/2)] + 15.5[INT((M-1)/2)]$.

S is measured in hours; hence, so is M . Note from Appendix A that no S ever exceeds 72 ($4[18]$) hours; therefore, M does not exceed 18.

CASE 2 $8 < B < 12$.

If a PWD arrives between 0800 and 1200 hours, then $12-B$ hours remain until lunch at 1200 hours. For example, if a PWD arrives at 0900, then 3 ($12-9$) hours elapse before the server goes to lunch. It can be shown, for this case, that:

if $0 < S \leq 12-B$, then $A = 0$, and

if $12-B+4[M-1] < S \leq 12-B+4[M]$, then $A = .5[INT((M+1)/2)] + 15.5[INT(M/2)]$

with M as before.

CASE 3 $12 \leq B < 12.5$.

The PWD arrives during the server's lunch break. It can be shown that:

if $4[M-1] < S \leq 4[M]$, then $A = .5[INT((M-1)/2)] + 15.5[INT(M/2)]$,

M as before.

CASE 4 $12.5 \leq B \leq 16.5$.

The PWD arrives on the server's desk after lunch, but before close of business. It can be shown that:

if $0 \leq S \leq 16.5 - B$, then $A = 0$, and

if $16.5 - B + 4[M-1] < S \leq 16.5 - B + 4[M]$, then

$$A = .5[\text{INT}(M/2)] + 15.5[\text{INT}((M+1)/2)],$$

M as before.

CASE 5 $16.5 < B \leq 24$.

The PWD arrives on the server's desk after close of business, but no later than midnight. Note it is on the server's desk when he reports for duty; therefore, A is as in Case 1.

```

FUNCTION USERF(I)
COMMON/SCOM1/ ATRIE(100), DD(100), DDL(100), DTNCH, II, PFA,
1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOB, XX(100)
GO TO (1,2),I
1 IF (TNOB.LE.4368.) USERF=USFA(1)
  IF (TNOB.GT.4368..AND.TNOB.LE.8760.) USERF=USFB(1)
  IF (TNOB.GT.8760..AND.TNOB.LE.13128.) USERF=USFC(1)
  IF (TNOB.GT.13128..AND.TNOB.LE.17520.) USERF=USFC(1)
  IF (TNOB.GT.17520.) USERF=999999.
RETURN
2 A=ATRIE(10)
  B=24*(TNOB/24.-INT(TNOB/24.))
  IF (0..LT.8..AND.8.LE.8.) USERF=A+B-US(1)
  IF (8..LT.8..AND.8.LT.12.) USERF=A+US(2)
  IF (12..LE.8..AND.8.LT.12.5) USERF=A+12.5-B+US(3)
  IF (12.5.LE.8..AND.8.LE.16.5) USERF=A+US(4)
  IF (16.5.LT.8..AND.8.LE.24.) USERF=A+32.-B+US(1)
RETURN
END

FUNCTION USFA(I)
COMMON/SCOM1/ ATRIE(100), DD(100), DDL(100), DTNCH, II, PFA,
1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOB, XX(100)
  IF (TNOB.LE.744.) USFA=.693383
  IF (TNOB.GT.744..AND.TNOB.LE.1464.) USFA=.5642833
  IF (TNOB.GT.1464..AND.TNOB.LE.2208.) USFA=.3531087
  IF (TNOB.GT.2208..AND.TNOB.LE.2952.) USFA=.6819432
  IF (TNOB.GT.2952..AND.TNOB.LE.3624.) USFA=.7148936
  IF (TNOB.GT.3624..AND.TNOB.LE.4368.) USFA=.6299746
RETURN
END

FUNCTION USFB(I)
COMMON/SCOM1/ ATRIE(100), DD(100), DDL(100), DTNCH, II, PFA,
1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOB, XX(100)
  IF (TNOB.GT.4368..AND.TNOB.LE.5088.) USFB=.8563355
  IF (TNOB.GT.5088..AND.TNOB.LE.5832.) USFB=.7447447
  IF (TNOB.GT.5832..AND.TNOB.LE.6552.) USFB=.8551069
  IF (TNOB.GT.6552..AND.TNOB.LE.7296.) USFB=.8493151
  IF (TNOB.GT.7296..AND.TNOB.LE.8040.) USFB=.3149873
  IF (TNOB.GT.8040..AND.TNOB.LE.8760.) USFB=.8540925
RETURN
END

FUNCTION USFC(I)
COMMON/SCOM1/ ATRIE(100), DD(100), DDL(100), DTNCH, II, PFA,
1MSTOP, NCLNR, NCRDR, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOB, XX(100)
  IF (TNOB.GT.8760..AND.TNOB.LE.9504.) USFC=.693383
  IF (TNOB.GT.9504..AND.TNOB.LE.10224.) USFC=.5642833
  IF (TNOB.GT.10224..AND.TNOB.LE.10968.) USFC=.3531087
  IF (TNOB.GT.10968..AND.TNOB.LE.11712.) USFC=.6819432
  IF (TNOB.GT.11712..AND.TNOB.LE.12384.) USFC=.7148936
  IF (TNOB.GT.12384..AND.TNOB.LE.13128.) USFC=.6299746
RETURN

```

```

END
FUNCTION USFD(I)
COMMON/SCOM1/ ATRIE(100), DO(100), COL(100), DTNCW, II, PFA,
1MSTOP, NCLNR, NCRDF, NPRNT, ANRLN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOw, XX(100)
IF (TNOw.GT.13120..AND.TNOw.LE.13848.) USFD=.6563355
IF (TNOw.GT.13848..AND.TNOw.LE.14592.) USFD=.7447447
IF (TNOw.GT.14592..AND.TNOw.LE.15312.) USFD=.8551069
IF (TNOw.GT.15312..AND.TNOw.LE.16056.) USFD=.8493151
IF (TNOw.GT.16056..AND.TNOw.LE.16800.) USFD=.3145873
IF (TNOw.GT.16800..AND.TNOw.LE.17520.) USFD=.8540925
RETURN
END
FUNCTION US(I)
COMMON/SCOM1/ ATRIE(100), DO(100), DDL(100), DTNCW, II, PFA,
1MSTOP, NCLNR, NCRDF, NPRNT, NNRUN, NNSET, NTAPE, SS(100),
2SSL(100), TNEXT, TNOw, XX(100)
A=ATRIE(10)
B=24*(TNOw/24.-INT(TNOw/24.))
GO TO (1,2,3,4),I
1 DO 10 M=1,18
IF ((4*(M-1)).LT.A.AND.A.LE.(4*M)) GO TO 15
10 CONTINUE
15 US=.5*(INT(M/2))+15.5*(INT((M-1)/2))
RETURN
2 IF (A.GT.(12.-B)) GO TO 17
US=0.
RETURN
17 DO 20 M=1,18
IF ((12.-B+4*(M-1)).LT.A.AND.A.LE.(12.-B+4*M)) GO TO 21
20 CONTINUE
21 US=.5*(INT((M+1)/2))+15.5*(INT(M/2))
RETURN
3 DO 22 M=1,18
IF ((4*(M-1)).LT.A.AND.A.LE.(4*M)) GO TO 23
22 CONTINUE
23 US=.5*(INT((M-1)/2))+15.5*(INT(M/2))
RETURN
4 IF (A.GT.(16.5-B)) GO TO 24
US=0.
RETURN
24 DO 25 M=1,18
IF ((16.5-B+4*(M-1)).LT.A.AND.A.LE.(16.5-B+4*M)) GO TO 26
25 CONTINUE
26 US=.5*(INT(M/2))+15.5*(INT((M+1)/2))
RETURN
END

```

AD-A181 736

ALIGNMENT OF MANPOWER REQUIREMENTS WITH PROCUREMENT
WORKLOAD(U) ARMY PROCUREMENT RESEARCH OFFICE FORT LEE
VA W J WICKER MAR 87 APRO-86-81

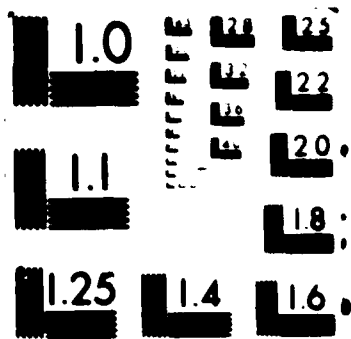
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UNCLASSIFIED

F/G 15/5

NL





APPENDIX D

ARRIVAL TIMES OF FY85 FUNDED SECONDARY ITEM MICOM PWDS

Let A = average monthly PWD interarrival time in hours.

MM/DD	BASICS	MM/DD	BASICS
10/02	25	01/03	69
09	22	07	152
11	22	08	24
15	180	10	92
16	31	14	52
18	148	15	14
22	42	17	71
23	2	21	73
29	461	22	51
31	140	24	125
--	---	28	153
--	---	29	91
--	---	31	124
[Total] = 1073]		[Total] = 1091]	
[A = .693383]		[A = .6819432]	
11/02	52	02/05	38
05	173	11	120
06	31	13	169
08	119	14	32
13	71	20	137
15	104	21	44
19	64	26	356
20	59	28	44
26	154	--	---
27	68	--	---
30	381	--	---
[Total] = 1276]		[Total] = 940]	
[A = .5642633]		[A = .7148936]	
12/03	461	03/05	71
04	4	11	279
06	109	12	99
10	286	14	104
11	97	17	28
13	251	18	18
17	254	19	61
18	63	21	42
20	231	24	125
27	237	26	0
28	13	30	277
31	101	31	
[Total] = 2107]		[Total] = 1181]	
[A = .3531087]		[A = .6299746]	

MM/DD	BASICS
04/02	82
05	1
10	184
11	114
15	120
16	175
18	120
22	61
23	67
29	138
30	35

[Total = 1097]
[A = .6563355]

05/02	77
06	49
07	13
09	298
13	106
14	45
16	71
20	62
21	52
23	79
28	47
29	47
30	31
31	22

[Total = 999]
[A = .7447447]

06/03	20
04	29
05	11
06	23
09	15
10	20
11	15
12	13
13	46
16	10
17	24
18	32
19	31
20	43
23	22
24	101
25	6
26	26
30	355

[Total = 842]
[A = .8551069]

MM/DD	BASICS
07/02	218
07	18
09	94
10	50
11	25
14	28
15	43
16	63
17	36
18	65
21	38
22	18
23	25
24	27
25	29
28	15
29	29
30	12
31	43

[Total = 876]
[A = .8493151]

08/02	15
05	11
06	146
08	138
11	394
12	95
13	4
14	57
15	60
18	840
19	10
20	79
21	97
22	16
26	72
27	22
28	14
29	288
31	4

[Total = 2362]
[A = .3149873]

MM/DD	BASICS
09/03	7
04	19
05	54
08	45
09	32
10	36
11	194
12	26
15	37
16	20
17	19
18	71
19	30
22	16
23	114
24	12
25	18
26	14
27	9
29	10
30	60
[Total] =	843]
[A =	.8540925]

APPENDIX F

OUTPUT UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION

SLAP SUMMARY REPORT

SIMULATED PROJECT HICOPSARES

BY UNITING JOHN WICKER

DATE 5/10/1966

RUN NUMBER 1 OF 1

CURRENT TIME .1752E+05

STATISTICAL ARRAYS CLEARED AT TIME 0.

••STATISTICS FOR VARIABLES BASED ON COSEVATION••

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF COSEVATIONS
LE3HSP	.7353E+03	.3406E+03	.4741E+00	.3002E+03	.3463E+04	9707
S003ASP	.5072E+04	.2262E+04	.3053E+00	.6133E+03	.1009E+05	335
S0FNS1P0SP	.6070E+04	.2173E+04	.3739E+00	.9743E+03	.1000E+05	2000
S0FNS1P0P00A	.0100E+04	.3646E+04	.4452E+00	.3137E+04	.1345E+05	40
S0FNS1P0U00A	.6774E+04	.3666E+04	.5412E+00	.1426E+04	.1276E+05	75
S0FNS1P0RFP	.0628E+04	.3393E+04	.3933E+00	.2021E+04	.1446E+05	263
S0FNS1P01F0	.6710E+04	.2103E+04	.3253E+00	.2761E+04	.1022E+05	162
S0FNSH1P0SP	.6509E+04	.2121E+04	.3412E+00	.1415E+04	.1133E+05	1015
S0FNSH1P0P00A	.9155E+04	.3362E+04	.3675E+00	.3500E+04	.1346E+05	29
S0FNSH1P0U00A	.6342E+04	.3507E+04	.5530E+00	.1591E+04	.1320E+05	55
S0FNSH1P0RFP	.9056E+04	.1120E+04	.3675E+00	.3341E+04	.1402E+05	150
S0FNSH1P01F0	.7199E+04	.2167E+04	.3013E+00	.3067E+04	.1102E+05	85
U05HLE25HFCSP	.5402E+04	.2390E+04	.4060E+00	.0551E+03	.9192E+04	61
U05HLE25HFCU00A	.5435E+04	.4101E+04	.7546E+00	.2752E+04	.1155E+05	4
U05HLE25HFCSP	.5613E+04	.2391E+04	.4260E+00	.1001E+04	.9913E+04	265
U05HLE25HFCU00A	.1015E+05	0.	0.	.1015E+05	.1015E+05	1
U025HFCU00A	NO VALUES RECORDED					
U025HFCRFP	.7924E+04	.3095E+04	.3912E+00	.3602E+04	.1191E+05	12
U025HFCU00A	.1241E+05	0.	0.	.1241E+05	.1241E+05	1
U025HFCRFP	.7906E+04	.3260E+04	.4091E+00	.2495E+04	.1405E+05	89
R05HLE25HFCSP	.5953E+04	.2645E+04	.4443E+00	.1010E+04	.1300E+05	72
R05HLE25HFCP00A	.7092E+04	.2420E+04	.3426E+00	.3024E+04	.1076E+05	10
R05HLE25HFCSP	.9711E+04	.2595E+04	.4544E+00	.4032E+03	.1439E+05	1050
R025HFCP00A	.7380E+04	.3646E+04	.5211E+00	.5005E+04	.1102E+05	3
R025HFCRFP	.9233E+04	.3210E+04	.3477E+00	.6012E+04	.1656E+05	9
R025HFCRFP	.6055E+04	.4263E+04	.7206E+00	.2931E+04	.1225E+05	4
R025HFC1F0	.7001E+04	.2524E+04	.3605E+00	.2261E+04	.1406E+05	315
ALL	.3210E+04	.3204E+04	.1020E+01	.3025E+03	.1422E+05	17490

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	4948.7441	2796.3243	9830	9826	4424.7000
2	QUEUE	49.9013	21.8938	100	91	60.9206
3	QUEUE	2.1405	2.3123	15	3	3.6456
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	224.9597	180.4702	581	581	2970.0720
6	QUEUE	0.1262	0.9237	21	0	0.0584
7	QUEUE	0.4622	1.1861	13	0	0.6633
8	QUEUE	0.0015	0.0726	7	0	0.0007
9	QUEUE	0.5253	1.3970	12	0	0.7517
10	QUEUE	0.0009	0.1260	11	0	0.0040
11	QUEUE	0.5320	1.2236	13	0	0.7319
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	1394.1400	264.3037	1860	1376	20.7103

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE	SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVERS	MAXIMUM BUSY TIME/SERVERS
1	01 QUEUE	2	1.9997	0.0214	2	0.0000	2.0000	2.0000
2	02 QUEUE	17	16.4651	2.5937	17	0.0000	17.0000	17.0000
3	03 QUEUE	3	2.6490	0.7736	3	0.0000	3.0000	3.0000
5	05 QUEUE	1	0.8485	0.3522	1	0.0000	1438.2962	14502.7777
6	06 QUEUE	20	16.0392	6.2168	19	0.0000	22.0000	22.0000
7	07 QUEUE	4	2.2367	1.4703	2	0.0000	4.0000	4.0000
8	08 QUEUE	36	15.7117	6.0276	21	0.0000	36.0000	36.0000
9	09 QUEUE	4	2.2360	1.4825	1	0.0000	4.0000	4.0000
10	010 QUEUE	34	15.5368	6.1911	17	0.0000	34.0000	34.0000
11	011 QUEUE	4	2.2048	1.4745	4	0.0000	4.0000	4.0000
12	012 QUEUE	1	0.0047	0.0623	0	0.0000	6337.5321	22.6360
13	013 QUEUE	1	0.0073	0.0050	0	0.0000	5721.8923	22.6360
14	014 QUEUE	1	0.0073	0.0053	0	0.0000	7435.4752	22.6360
15	015 QUEUE	23	1.5438	1.3270	0	0.0000	23.0000	6.0000

APPENDIX F

OUTPUT UTILIZING FIRST MICOM PPD MANPOWER REALLOCATION

SLAM SUMMARY REPORT

SIMULATION PROJECT NICONSPARES I

BY WHITING JOHN WICKER

DATE 9/16/1986

RUN NUMBER 1 OF 1

CURRENT TIME .1752E+03
STATISTICAL ARRAYS CLEARED AT TIME 0.

STATISTICS FOR VARIABLES BASED ON OBSERVATION

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LESASP	.7445E+03	.3516E+03	.4723E+00	.3985E+03	.3156E+04	10123
SBGSASP	.2812E+04	.9328E+03	.3318E+00	.5090E+03	.5973E+04	586
SBFMSIPDSP	.3549E+04	.1144E+04	.3223E+00	.8489E+03	.9284E+04	4540
SBFMSIPDPBCA	.5010E+04	.1138E+04	.2272E+00	.2963E+04	.8386E+04	109
SBFMSIPOUBCA	.3247E+04	.1019E+04	.3137E+00	.1734E+04	.8525E+04	233
SBFMSIPORFP	.4716E+04	.1056E+04	.2239E+00	.2790E+04	.8912E+04	641
SBFMSIPOIFB	.4307E+04	.1111E+04	.2580E+00	.2447E+04	.9415E+04	265
SBFMSNIPDSP	.6058E+04	.1166E+04	.2874E+00	.1119E+04	.1212E+05	2863
SBFMSNIPDPEQA	.5110E+04	.9745E+03	.1907E+00	.3749E+04	.8256E+04	86
SBFMSNIPDUBQA	.3908E+04	.1072E+04	.2743E+00	.1903E+04	.7293E+04	123
SBFMSNIPORFP	.5112E+04	.9850E+03	.1927E+00	.2765E+04	.9365E+04	428
SBFMSNIPDIFB	.4843E+04	.1137E+04	.2349E+00	.2916E+04	.9935E+04	173
UGSNLE25NFCSP	.3040E+04	.1009E+04	.3320E+00	.1909E+04	.5476E+04	80
UGSNLE25NFCUBQA	.2833E+04	.9778E+03	.3452E+00	.1796E+04	.3823E+04	5
UGSNLE25NFCSP	.4213E+04	.1714E+04	.4067E+00	.6743E+03	.8225E+04	372
UGSNLE25NFCUBCA	NO VALUES RECORDED					
UG25NFCUBQA	.4624E+04	.2707E+04	.5855E+00	.2710E+04	.6538E+04	2
UG25NFCRFP	.5688E+04	.1571E+04	.2762E+00	.2723E+04	.8232E+04	40
UG25NFCUBCA	.6181E+04	.3014E+04	.4876E+00	.2720E+04	.9725E+04	4
UG25NFCRFP	.6575E+04	.2247E+04	.3418E+00	.2431E+04	.1093E+05	145
RGSNLE25NFCSP	.4192E+04	.1904E+04	.4543E+00	.6781E+03	.7779E+04	97
RGSNLE25NFCBQA	.6454E+04	.1522E+04	.2359E+00	.3203E+04	.9161E+04	23
RGSNLE25NFCSP	.3847E+04	.1761E+04	.4578E+00	.4758E+03	.1029E+05	1499
RG25NFCBQA	.6230E+04	.1916E+04	.3076E+00	.3998E+04	.1047E+05	16
RG25NFCRFP	.6559E+04	.1964E+04	.2994E+00	.2673E+04	.1007E+05	31
RG25NFCRFP	.5296E+04	.2222E+04	.4196E+00	.2474E+04	.9003E+04	10
RG25NFCIFB	.5967E+04	.2045E+04	.3427E+00	.2064E+04	.1119E+05	451
ALL	.2560E+04	.1972E+04	.7704E+00	.3985E+03	.1212E+05	22953

••FILE STATISTICS••

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	379.4318	272.0614	960	593	341.6497
2	QUEUE	1800.2724	1140.1067	3888	3979	1203.7544
3	QUEUE	0.2414	0.9504	12	0	0.3134
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	1.4242	2.1192	11	2	13.1254
6	QUEUE	3.3490	8.6305	65	0	1.2290
7	QUEUE	1.2568	2.3176	23	0	1.4071
8	QUEUE	0.1077	1.0227	23	0	0.0393
9	QUEUE	1.1156	2.1617	22	0	1.2557
10	QUEUE	0.2763	1.4638	25	0	0.0974
11	QUEUE	1.2006	2.2301	21	0	1.3082
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0230	1	0	1.1605
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0368	0.2111	2	0	3.3069
16	CALENDAR	2005.0944	376.9666	2475	2078	22.3219

••SERVICE ACTIVITY STATISTICS••

ACTIVITY INDEX	START NODE LABEL / TYPE	SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME / SERVERS	MAXIMUM BUSY TIME / SERVERS
1	Q1 QUEUE	4	3.9144	0.4687	4	0.0000	4.0000	4.0000
2	Q2 QUEUE	27	26.2074	4.0924	27	0.0000	27.0000	27.0000
3	Q3 QUEUE	7	4.0486	2.1156	6	0.0000	7.0000	7.0000
5	Q5 QUEUE	3	2.1575	1.1586	3	0.0000	3.0000	3.0000
6	Q6 QUEUE	28	21.2539	6.8914	20	0.0000	28.0000	28.0000
7	Q7 QUEUE	4	2.7808	1.4251	3	0.0000	4.0000	4.0000
8	Q8 QUEUE	36	20.7459	7.4360	19	0.0000	36.0000	36.0000
9	Q9 QUEUE	4	2.6914	1.4359	3	0.0000	4.0000	4.0000
10	Q10 QUEUE	34	21.5679	7.5387	11	0.0000	34.0000	34.0000
11	Q11 QUEUE	4	2.7366	1.4325	4	0.0000	4.0000	4.0000
12	Q12 QUEUE	1	0.0003	0.0794	0	0.0000	4510.2474	16.8886
13	Q13 QUEUE	1	0.0083	0.0905	0	0.0000	9244.2719	45.2720
14	Q14 QUEUE	1	0.0146	9.1199	0	0.0000	3453.5937	22.6360
15	Q15 QUEUE	5	1.7486	1.5437	1	0.0000	5.0000	5.0000

APPENDIX G

TWO SIMULATION RUNS OF SPECIAL BUY MICOM PWDS
UTILIZING CURRENT MICOM PPD MANPOWER ALLOCATION

SLAN SUMMARY REPORT

SIMULATION PROJECT RECONSPONS

BY WHITING JOHN HECHER

DATE 10/22/1986

RUN NUMBER 1 OF 2

CURRENT TIME .7502E+04

STATISTICAL ARRAYS CLEARED AT TIME 0.

--STATISTICS FOR VARIABLES BASED ON OBSERVATION--

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MINIMUM VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LESASP						
SOG SASP	-.2030E+04	-.7200E+03	-.3537E+00	-.6099E+03	-.4704E+04	61
SOF NSIPDOP	-.2726E+04	-.6000E+03	-.2524E+00	-.1220E+04	-.4977E+04	428
SOF NSIPDPOOA	-.4230E+04	-.6450E+03	-.1522E+00	-.2045E+04	-.5210E+04	16
SOF NSIPDUBOA	-.2792E+04	-.7025E+03	-.2516E+00	-.1731E+04	-.4162E+04	24
SOF NSIPDIFP	-.4539E+04	-.9536E+03	-.2101E+00	-.2067E+04	-.6001E+04	84
SOF NSIPDIFB	-.3520E+04	-.6097E+03	-.1732E+00	-.2575E+04	-.4054E+04	26
SOF NSIPDOSP	-.3292E+04	-.7700E+03	-.2340E+00	-.1416E+04	-.5922E+04	202
SOF NSIPDOPBOA	-.5365E+04	-.1035E+04	-.1920E+00	-.3547E+04	-.6021E+04	7
SOF NSIPDUBOA	-.3336E+04	-.0100E+03	-.2453E+00	-.1906E+04	-.4343E+04	14
SOF NSIPDIFP	-.4044E+04	-.0555E+03	-.1766E+00	-.3026E+04	-.6175E+04	40
SOF NSIPDIFB	-.3060E+04	-.3502E+03	-.9073E+01	-.3235E+04	-.4261E+04	10
UG5ALEZSKFCSP		NO VALUES RECORDED				
UG5ALEZSKFCUBOA		NO VALUES RECORDED				
UG5ALEZSKHFCSP		NO VALUES RECORDED				
UG5ALEZSKHFCUBOA		NO VALUES RECORDED				
UG25KFCUBOA		NO VALUES RECORDED				
UG25KFCIFP		NO VALUES RECORDED				
UG25KFCUBOA		NO VALUES RECORDED				
UG25KFCIFP		NO VALUES RECORDED				
R65ALEZSKFCSP		NO VALUES RECORDED				
R65ALEZSKFCUBOA		NO VALUES RECORDED				
R65ALEZSKHFCSP		NO VALUES RECORDED				
R625KFCUBOA		NO VALUES RECORDED				
R625KFCIFP		NO VALUES RECORDED				
R625KFCIFP		NO VALUES RECORDED				
R625KFCIFB		NO VALUES RECORDED				
ALL	-.3102E+04	-.1037E+04	-.3260E+00	-.6099E+03	-.6001E+04	1000

FILE STATISTICS

FILE NUMBER	ASSOCIATED MODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	90.2500	106.7027	679	0	737.1097
2	QUEUE	1.4210	3.4601	21	0	9.4252
3	QUEUE	0.3404	1.0290	9	0	2.3111
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	0.7047	11.2322	33	0	341.4544
6	QUEUE	0.0000	0.0000	0	0	0.0000
7	QUEUE	0.0029	0.0606	2	0	0.0353
8	QUEUE	0.0000	0.0000	0	0	0.0000
9	QUEUE	0.0003	0.0100	2	0	0.0035
10	QUEUE	0.0000	0.0000	0	0	0.0000
11	QUEUE	0.0005	0.0364	4	0	0.0056
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	271.0593	273.0010	707	1	20.3905

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START MODE LABEL/TYPE	SERVER CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVERS	MAXIMUM BUSY TIME/SERVERS
1	01 QUEUE	2	0.5709	0.9060	0	0.0000	2.0000	2.0000
2	02 QUEUE	17	4.0205	7.2339	0	0.0000	17.0000	17.0000
3	03 QUEUE	3	0.7392	1.2210	0	0.0000	3.0000	3.0000
5	05 QUEUE	1	0.5049	0.5000	0	0.0000	1740.1621	3441.1966
6	06 QUEUE	20	2.3138	2.0065	0	0.0000	20.0000	17.0000
7	07 QUEUE	4	0.2540	0.6262	0	0.0000	4.0000	4.0000
8	08 QUEUE	36	2.5963	3.7023	0	0.0000	36.0000	19.0000
9	09 QUEUE	4	0.2000	0.6344	0	0.0000	4.0000	4.0000
10	010 QUEUE	34	2.7900	3.2543	0	0.0000	34.0000	16.0000
11	011 QUEUE	4	0.3040	0.6607	0	0.0000	4.0000	4.0000
12	012 QUEUE	1	0.0013	0.0357	0	0.0000	4101.5514	9.5246
13	013 QUEUE	1	0.0000	0.0000	0	0.0000	7501.7774	0.0000
14	014 QUEUE	1	0.0000	0.0000	0	0.0000	7501.7774	0.0000
15	015 QUEUE	23	0.4444	0.0207	0	0.0000	23.0000	4.0000

S L A N S U M M A R Y R E P O R T

SIMULATION PROJECT RECONSPTS

BY UNITED JOHN HICHER

DATE 10/22/1966

RUN NUMBER 2 OF 2

CURRENT TIME .9441E+04

STATISTICAL ARRAYS CLEARED AT TIME 0.

--STATISTICS FOR VARIABLES BASED ON OBSERVATION--

	MEAN VALUE	STANDARD DEVIATION	COEFF. OF VARIATION	MEDIAN VALUE	MAXIMUM VALUE	NUMBER OF OBSERVATIONS
LESASP						
306SASP	.2210E+04	.6000E+03	.3077E+00	.0000E+03	.4400E+04	43
30FNSP0SP	.2700E+04	.6710E+03	.2337E+00	.1090E+04	.4560E+04	417
30FNSIP0P00A	.4340E+04	.6020E+03	.1570E+00	.3220E+04	.5560E+04	20
30FNSIP0V00A	.2060E+04	.7010E+03	.2730E+00	.1700E+04	.4440E+04	17
30FNSIP0RFP	.4200E+04	.0335E+03	.1945E+00	.2060E+04	.6720E+04	70
30FNSIP0IF0	.3700E+04	.7020E+03	.2056E+00	.2600E+04	.5040E+04	34
30FNSIP0OSP	.3250E+04	.0090E+03	.2607E+00	.1300E+04	.5300E+04	301
30FNSIP0P00A	.3250E+04	.0900E+03	.1690E+00	.2070E+04	.6000E+04	0
30FNSIP0V00A	.2000E+04	.0790E+03	.2357E+00	.1970E+04	.4420E+04	15
30FNSIP0RFP	.5010E+04	.1090E+04	.2190E+00	.3100E+04	.8700E+04	52
30FNSIP0IF0	.3070E+04	.7490E+03	.1933E+00	.2610E+04	.5540E+04	15
U65ALE25KFCSP		NO VALUES RECORDED				
U65ALE25KFCU00A		NO VALUES RECORDED				
U65ALE25KFCSP		NO VALUES RECORDED				
U65ALE25KFCU00A		NO VALUES RECORDED				
U625KFCU00A		NO VALUES RECORDED				
U625KFCRFP		NO VALUES RECORDED				
U625KFCU00A		NO VALUES RECORDED				
U625KFCRFP		NO VALUES RECORDED				
R65ALE25KFCSP		NO VALUES RECORDED				
R65ALE25KFCP00A		NO VALUES RECORDED				
R65ALE25KFCSP		NO VALUES RECORDED				
R625KFCP00A		NO VALUES RECORDED				
R625KFCRFP		NO VALUES RECORDED				
R625KFCRFP		NO VALUES RECORDED				
R625KFCIF0		NO VALUES RECORDED				
ALL	.3236E+04	.1000E+04	.3124E+00	.0000E+03	.8700E+04	1000

FILE STATISTICS

FILE NUMBER	ASSOCIATED NODE TYPE	AVERAGE LENGTH	STANDARD DEVIATION	MAXIMUM LENGTH	CURRENT LENGTH	AVERAGE WAITING TIME
1	QUEUE	78.0751	171.0954	679	0	737.1097
2	QUEUE	2.1419	5.2924	30	0	17.0956
3	QUEUE	0.2219	0.7773	7	0	1.0530
4		0.0000	0.0000	0	0	0.0000
5	QUEUE	5.4319	9.5925	33	0	249.9000
6	QUEUE	0.0000	0.0000	0	0	0.0000
7	QUEUE	0.0020	0.0590	3	0	0.0276
8	QUEUE	0.0000	0.0000	0	0	0.0000
9	QUEUE	0.0011	0.0436	2	0	0.0150
10	QUEUE	0.0000	0.0000	0	0	0.0000
11	QUEUE	0.0014	0.0374	1	0	0.0207
12	QUEUE	0.0000	0.0000	0	0	0.0000
13	QUEUE	0.0000	0.0000	0	0	0.0000
14	QUEUE	0.0000	0.0000	0	0	0.0000
15	QUEUE	0.0000	0.0000	0	0	0.0000
16	CALENDAR	220.2040	271.9903	029	0	20.6960

SERVICE ACTIVITY STATISTICS

ACTIVITY INDEX	START NODE LABEL/TYPE	SERVEN CAPACITY	AVERAGE UTILIZATION	STANDARD DEVIATION	CURRENT UTILIZATION	AVERAGE BLOCKAGE	MAXIMUM IDLE TIME/SERVERS	MAXIMUM BUSY TIME/SERVERS
1	01 QUEUE	2	0.4600	0.8415	0	0.0000	2.0000	2.0000
2	02 QUEUE	17	1.9023	6.7777	0	0.0000	17.0000	17.0000
3	03 QUEUE	3	0.5929	1.1339	0	0.0000	3.0000	3.0000
5	05 QUEUE	1	0.5926	0.4403	0	0.0000	2130.1057	3100.7369
6	06 QUEUE	20	2.0705	3.0063	0	0.0000	20.0000	19.0000
7	07 QUEUE	4	0.2474	0.6156	0	0.0000	4.0000	4.0000
8	08 QUEUE	36	2.3020	3.3070	0	0.0000	36.0000	21.0000
9	09 QUEUE	4	0.2702	0.6420	0	0.0000	4.0000	4.0000
10	010 QUEUE	34	1.0090	2.6134	0	0.0000	34.0000	16.0000
11	011 QUEUE	4	0.2230	0.5090	0	0.0000	4.0000	4.0000
12	012 QUEUE	1	0.0014	0.0370	0	0.0000	6410.2253	12.9107
13	013 QUEUE	1	0.0000	0.0000	0	0.0000	9441.0330	0.0000
14	014 QUEUE	1	0.0000	0.0000	0	0.0000	9441.0330	0.0000
15	015 QUEUE	23	0.2663	0.5670	0	0.0000	23.0000	3.0000

APPENDIX H

COMPUTER HARDWARE AND SOFTWARE REQUIREMENTS

A. HARDWARE REQUIREMENTS.

SLAM is independent of the machine on which it is run; it neither opens nor closes any files. The random number generator supplied with SLAM is replaceable by a machine-specific generator, if desired. SLAM has been successfully installed on numerous computing systems, including those from AMDAHL, Burroughs, Honeywell, and UNIVAC, to mention but a few.

The simulations conducted in the course of this project were run at ALMC on its BURROUGHS B6800 computer, which includes 393,216 6-byte words (2,359,296 bytes) of main memory, 662 million bytes of disk storage, and three 1600 bit per inch tape drives.

This system is not dedicated; several programs can be executed concurrently. Consequently, processing time for each simulation run was on the order of seven days, due to the system having to share its resources. The amount of CPU time consumed during each simulation was approximately five hours.

B. SOFTWARE REQUIREMENTS.

A compatible FORTRAN compiler is the only prerequisite software required.

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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Procurement Procurement Administrative Lead Time Simulation Modeling Manpower Contract Execution		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) U.S. Army Materiel Command Major Subordinate Commands (MSCs) are failing to accomplish their Procurement Appropriation Army (PAA)-Secondary obligation plans and are experiencing significant increases in Procurement Administrative Lead Time (PALT). A PALT computer simulation model was developed for determining Procurement and Production Directorate (PPD) manpower requirements based upon procurement workload and other factors which might improve overall contract execution performance at one MSC, U.S. Army Missile Command (MICOM). It was		

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found current MICOM PPD manpower allocation may be suboptimal. An algorithm was developed for realigning manpower to reduce average Procurement Work Directive PALT and procurement backlog. Future manpower reallocations should be simulated with dedicated computer resources to arrive at an optimal manpower realignment. A preliminary evaluation of the applicability of the MICOM model to other MSCs is made, with a more complete evaluation to be based on future analyses.

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