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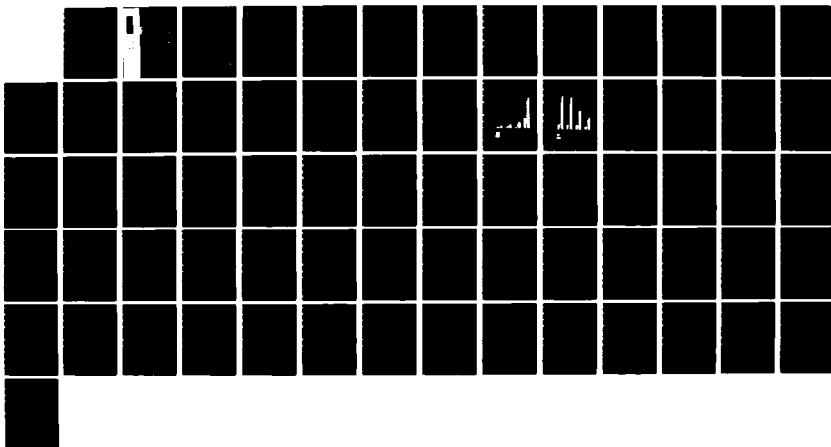
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VERSUS EXPERIENCED DEMAND(U) DEFENSE LOGISTICS AGENCY
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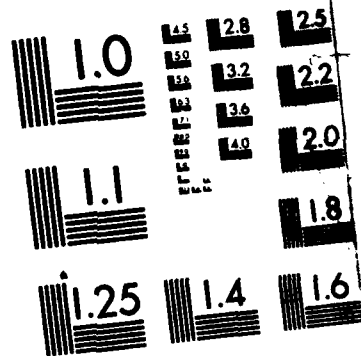
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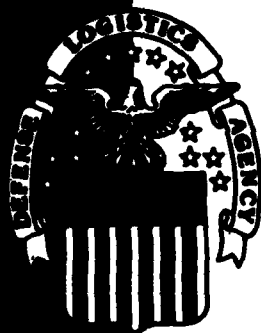
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DEPARTMENT OF DEFENSE
**DEFENSE
LOGISTICS
AGENCY**

Cameron Station,
Alexandria, Virginia 22304-6100

**REPORT ON A COMPARISON OF
FORECASTED PROVISIONING
REQUIREMENTS
VERSUS
EXPERIENCED DEMAND**

MARCH 1985

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A Comparison of Forecasted Provisioning Requirements
Versus Experienced Demand



March 1985

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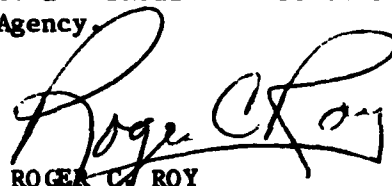
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FOREWORD

This study compares the actual demands for new provisioning items to forecasted demands of Supply Support Requests (SSRs) which are being submitted by the Military Services. The objectives of the study were to determine: first, the validity of initial SSR estimates received in relation to item demands experienced, and second, if the forecast error could be significantly improved by using the additional requirements generated by the follow-on or reprovisioning SSRs. The total requirements estimate for a two-year period using initial SSR quantities in terms of acquisition value was found to be 349 percent greater than the total actual demand. The inclusion of follow-on or reprovisioning SSRs increased that percentage 60 percent to 409 percent.

The effort documented herein was a study; its findings and conclusions reflect the data at the time the study was conducted and should not be construed as the official position of the Defense Logistics Agency.


ROGER C. ROY
Assistant Director,
Policy and Plans

Executive Summary

I. INTRODUCTION. Current DLA provisioning policy uses information on initial Supply Support Requests (SSRs) to forecast demand and set inventory levels for new items, but it does not give equal consideration to forecasted requirements on reprovisioning or follow-on SSRs. Specifically, it does not incorporate the replenishment requirements submitted by the Military Services on follow-on or reprovisioning SSRs. Moreover, in the case of the retail requirements from these SSRs, they are only considered if their quantities exceed the current quarterly demand forecasts for the SSR items. Since these requests are "looked at" on an individual SSR basis, many of the forecasted requirements for an item or national stock number (NSN) are not procured at the time the supported end item is provisioned. The DLA Weapon Systems Support Office (DWSSO) requested that DLA Operations Research and Economic Analysis Office (DLA-LO) perform a comparative analysis of estimated versus actual requirements. The purpose of the analysis was to determine (1) the accuracy of SSR information and (2) the impact of using follow-on or reprovisioning information to forecast demand.

II. ANALYSIS. The methodology followed in the analysis was:

- A. the design of a comparative analysis model,
- B. the development of a data base to support the model,
- C. and the execution of the model using computer resources.

Four DLA commodities (construction, electronics, general, and industrial) were sampled in the analysis. The availability of provisioning data limited the scope of the analysis to a two-year period beginning with the second quarter of Fiscal Year 1983 through the first quarter of Fiscal Year 1985. Requirements for this period were correlated with actual demands by quarter to determine the overall accuracy of SSR estimates.

III. FINDINGS. A total of 112,894 provisioning items having 955,901 SSRs were analyzed. The results of each commodity showing the relationship between actual demands and SSR forecasts were as follows:

Table I. Actual Demand vs. Forecasted SSR Requirements
(Units of Issue)

<u>Commodity</u>	<u>Actual Demand</u>	<u>Initial SSR</u>	<u>Percent</u>	<u>Total SSR</u>	<u>Percent</u>
Construction	416,338	532,959	(+ 28%)	607,793	(+ 46%)
Electronics	457,867	823,944	(+ 80%)	1,070,596	(+134%)
General	314,120	1,598,930	(+409%)	1,823,824	(+481%)
Industrial	2,951,666	7,994,827	(+171%)	8,849,997	(+199%)
Total	4,139,991	10,950,660	(+165%)	12,352,210	(+198%)

Although the volume of requests exhibited a large degree of variability from commodity to commodity, in 30 of the 32 quarters analyzed requirements forecasted exceeded actual usage. At the aggregate level, subsequent SSR requirements did not improve the forecast as related to actual demand. The industrial commodity accounted for approximately 71 percent of the total units issued. To obtain a more absolute measure of the magnitude of the differences that existed between the demands that were experienced for these items versus the initial and follow-on forecast requirements, the acquisition value of the items was used to determine a dollar cost difference between actual costs, initial SSR costs, and follow-on SSR costs:

Table II. Actual Demand vs. Forecasted SSR Requirements
(Acquisition Value)

<u>Commodity</u>	<u>\$ Value Actual</u>	<u>\$ Value Initial SSR (%)</u>	<u>\$ Value Follow-On SSR</u>	<u>\$ Value Total SSR (%)</u>
Construction	190.7	1039.8 (+445%)	144.8	1184.6 (+521%)
Electronics	181.6	935.7 (+415%)	207.6	1143.3 (+529%)
General	177.2	664.7 (+275%)	3.8	668.6 (+277%)
Industrial	120.9	372.5 (+208%)	45.1	417.5 (+245%)
Total	670.4	3012.7 (+349%)	401.3	3414.0 (+409%)

The construction commodity accounted for the largest portion of the provisioning buys with 34.5 percent, with the electronics items being second with 31 percent. *D. from Logistics Agency*

IV. CONCLUSIONS. The intention of this effort was to assess the effectiveness of the current DLA provisioning policy as well as to provide a basis and direction for future provisioning analyses. The methodology used in the analysis successfully provided a quantitative measure of the correlation between actual demand versus SSR forecasted requirements at the commodity level. *As can be seen from the magnitude of the percentages in the above tables, estimates being received at each of the DLA Supply Centers (DSCs) for provisioning items were far in excess of actual recorded usage.* Two variables, units of issue requested and acquisition dollar value, were used to measure the difference between actual demands and the forecasted requirements. Results from these separate analyses produced differences in terms of raw percentages at the commodity level. However, each confirmed the same conclusion, that aggregate item forecasts from the Military Services are substantially greater than true item demands. When the follow-on requirements were included in the total provisioning forecast, the percentage increases were remarkably close; 13.3 percent for acquisition value and 12.8 percent for units of issue. Although these results do indicate that some type of policy change considering the unique characteristics of items be developed, it does not endorse a blanket policy of using the total requirements from the initial and follow-on SSRs. The acquisition dollar value of buying the follow-on SSR requirements would be in excess of 400 million dollars for the two-year period studied.

V. RECOMMENDATIONS. The following recommendations are made as a result of this analysis:

- A. Item-level analysis of each commodity should be conducted to identify the percentage of items that are being overforecasted, underforecasted, or accurately forecasted. This analysis should also include, as a minimum, stratification of items into subgroups based on their cost, weapon system criticality, and requesting Military Service.
- B. The construction and industrial commodities should be given special attention because of their disproportionate share of the total provisioning activity.
- C. Integrate key data elements from the Provisioning Control History File into the DLA Inventory Data Bank to ensure that a historical file of SSR requests older than two years is available for future analysis and access.
- D. Initiate development of a stochastic-type simulation model to develop, evaluate, and design variable provisioning policies based on an item or group of items characteristics and behavior.

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I. INTRODUCTION.

A. The Provisioning Mission. "The principal objective of provisioning is to assure the timely availability of minimum initial stocks of support items at using organizations and at maintenance and supply activities to sustain the planned operation of end items until normal replenishment can be effected, and to provide this support at the least initial investment cost" [Ref:1]. To successfully accomplish this mission certain supply actions are required. Many of the related decisions are made in an environment of uncertainty as the true demand for support items is unknown at the time they are provisioned for.

B. The Provisioning Process. The provisioning process begins at the time a production contract is awarded for an end item of materiel, and continues through the period of time required to have such support items shipped by manufacturers and suppliers. The provisioning process does not normally include the acquisition of items for replenishment purposes or to augment existing stocks of items already established in the supply system. Follow-on provisioning is the subsequent provisioning of the same end item from the same contractor, and re-provisioning is the subsequent provisioning of the same end item from a different contractor [Ref:2].

The using Military Service has sole responsibility for the final selection and computation of the range and quantity of support items required for the initial service support requirements of an end item [Ref:1]. However, to be fully effective, provisioning must be a cooperative series of scheduled events between the customer (Military user) and the supplier (Defense Logistics Agency).

C. The Study.

1. Reason. To assess the effectiveness of current DLA provisioning policies, the DLA Weapons System Support Office (DWSSO) requested that the DLA Operations Research and Economic Analysis Office (DLA-LO) conduct an analysis of DLA managed provisioning items.

2. Scope. The scope of this study encompasses provisioning items managed at the following DLA Supply Centers (DSCs):

- Defense Construction Supply Center (DCSC)
- Defense Electronics Supply Center (DESC)
- Defense General Supply Center (DGSC)
- Defense Industrial Supply Center (DISC)

A more detailed description of these items will be provided in paragraph III, Data Base Requirements.

3. Objective. The intent of this study was to determine the magnitude of the impact at the commodity level of using subsequent provisioning (follow-on or reprovisioning) requests from the Military Services when computing initial stock levels for new items. Appendix A contains the study plan that was jointly developed with the DWSSO to accomplish this objective.

II. MODEL DESIGN.

A. System Description. The document which the Military Services utilize to communicate a specific provisioning requirement for an item to a DSC is called a Supply Support Request (SSR). Two important entries on the SSR are the retail quantity and the replenishment quantity. These quantities are the primary basis for determining the initial stocks of an item to be procured. The Standard Automated Materiel Management System (SAMMS) logic related to this process is discussed in detail in Chapter 38, New Item Procedures, and Chapter 39, Provisioning Procedures, of the DLA Supply Operations Manual [Ref:3]. Currently, the Services are only allowed to submit forecasted requirements based on the supported end items deployment schedule and use for the first year after the date of primary operational capability (POC) [Ref:4].

The retail quantity is intended to represent the quantities needed to initially stock or increase levels at the activities supporting the end item being provisioned. This requirement is considered a nonrecurring demand. Conversely, the replenishment quantity is defined as the number of items that are estimated to be required for replacement of pipeline stocks issued during the first year of operation of the end items being provisioned. Using these quantities from the initial SSR, initial stock levels are established for the item. These levels are limited to be no greater than the estimated procurement leadtime requirement (PALT) plus a 3-month combination Procurement Cycle/Safety Level requirement. The intent of this policy is to minimize the possibility of over procurement of a support item which, at this point, has only an estimated demand on which to base initial stock levels. This constraint is maintained during the demand development period (DDP) or until actual demands exceed forecasted demand. The DDP for DLA is the 2-year period subsequent to the Date Repair Parts Required (DRPR) as indicated in the SSR. Subsequent SSR retail and replenishment quantities are used separately to revise the Quarterly Forecasted Demand (QFD) or Numeric Stock Objective (NSO). Retail requirements are compared to the existing Procurement Cycle Quantity. If the retail quantity is greater, the difference is considered as an additive requirement. In the case of follow-on SSR replenishment quantities, adjustments are normally only made if there is a significant increase in forecasted demands validated by the item manager [Ref:5]. Since subsequent SSRs from the Military Services are transmitted and evaluated individually, a cumulative item requirement is not visible to the item manager at any specific point in time.

B. Analytical Framework. In an effort to evaluate the magnitude of requirements being submitted by the DLA customers (i.e., Military Services), a methodology was developed to accumulate item requirements and compare them to actual demand patterns on a quarterly basis over time. By design, the methodology contains specific assumptions and, consequently, has inherent limitations.

To model a typical DDP for a new item, a 2-year time period was delineated, beginning with the item's Date Management Assumed (DMA). The initial SSR was defined as the SSR with a DRPR date closest to but not earlier than the DMA date. All subsequent SSRs with DRPR dates occurring within a 2-year period thereafter were accumulated in an intermediate work file.

The allocation of the retail and replenishment quantities was another area which required clarification. It was assumed that 100 percent of the retail quantity of an SSR would be placed in the quarter in which its DRPR date was scheduled. The reasoning for this decision was that although the actual consumption of these items would probably occur beyond the DRPR date, the purpose of the retail requirement is to initially fill the supply pipeline below the wholesale level. Therefore, it was assumed that the entire quantity would be needed on the DRPR date. For the replenishment quantity, proration was done on a uniform basis with 25 percent of the total requirement being apportioned per quarter on a recurring basis beginning with the DRPR quarter.

C. Methodology. To obtain a comparison of actual demand and forecasted requirements, a uniquely designed database consisting of selected data fields from multiple data files was developed. This was done for each of the four hardware commodities; electronics, general, construction, and industrial. Once the provisioning items were identified among the total population summary, statistics were calculated to determine patterns or trends between or within commodities.

To isolate new provisioning items, two criteria were established. First, the item's Age of Item Code (AIC) was checked for code "N," which indicates that the item is "new" to the system. The second requirement used to categorize an item as a new item was to verify that the DMA date was after 1 January 1983. Only if an item met both of these criteria was it considered a new item and used in the subsequent analysis. By separating the new items from the established items, it was possible to compare provisioning requirements from the SSRs to the actual demand from the item records.

Two different item characteristics, units of issue and acquisition dollar value, were selected to be used to measure the differences between the SSR forecasts and the actual demands. Units of issue, although a nonstandard measure from item to item, is one of the critical data elements in terms of the total quantity requisitioned and is a common frame of reference for obtaining an aggregate assessment of the validity of item forecasts. However, acquisition value, computed as the item's unit price times its SSR quantity or demand quantity, provided a more accurate measure of the difference between the forecasted and actual quantities.

III. DATA BASE REQUIREMENTS.

A. Provisioning Data. To collect and accumulate the provisioning requirements, the Provisioning Control History File (PCHF) was requested from the Office of Data Processing (DASC-D) at DLA Headquarters. Appendix B contains a description and record layout of this file which is maintained at the commodity level. Each record in this file represents a SSR. Using the SSR's date of request (DOR) as a basis, the time period covered by the files received from DASC-D ranged from September 1982 to September 1984. Copies of these files were generated on magnetic tape and cataloged on the mainframe IBM computer located at Richmond, Virginia. The labeling convention used for these data sets is as follows:

FLO.ARNETT.PROV.X

where: X represents the commodity (i.e., C, E, G, I).

B. Item Data. To obtain demand data at the national stock number (NSN) level, the master item data files from the DLA Inventory Data Bank (DIDB) were used. These files contain recurring and nonrecurring quarterly demand quantities for the current quarter as well as for the three previous quarters. The record layout for this file is contained in Appendix C. The labeling convention used for these data sets is as follows:

QOR.ITEM.YYQ.X

where: YY - represents the calendar year (i.e., 84)
Q - represents the quarter (i.e., 1, 2, 3, 4)
X - represents the commodity

Selected data elements from both the provisioning and the item files were extracted to create a combined fixed block record 246 bytes in length. The complete record layout of the new datasets is contained in Appendix D. The labeling convention used for these data sets is as follows:

FLO.FJP.PROV.CMBYX

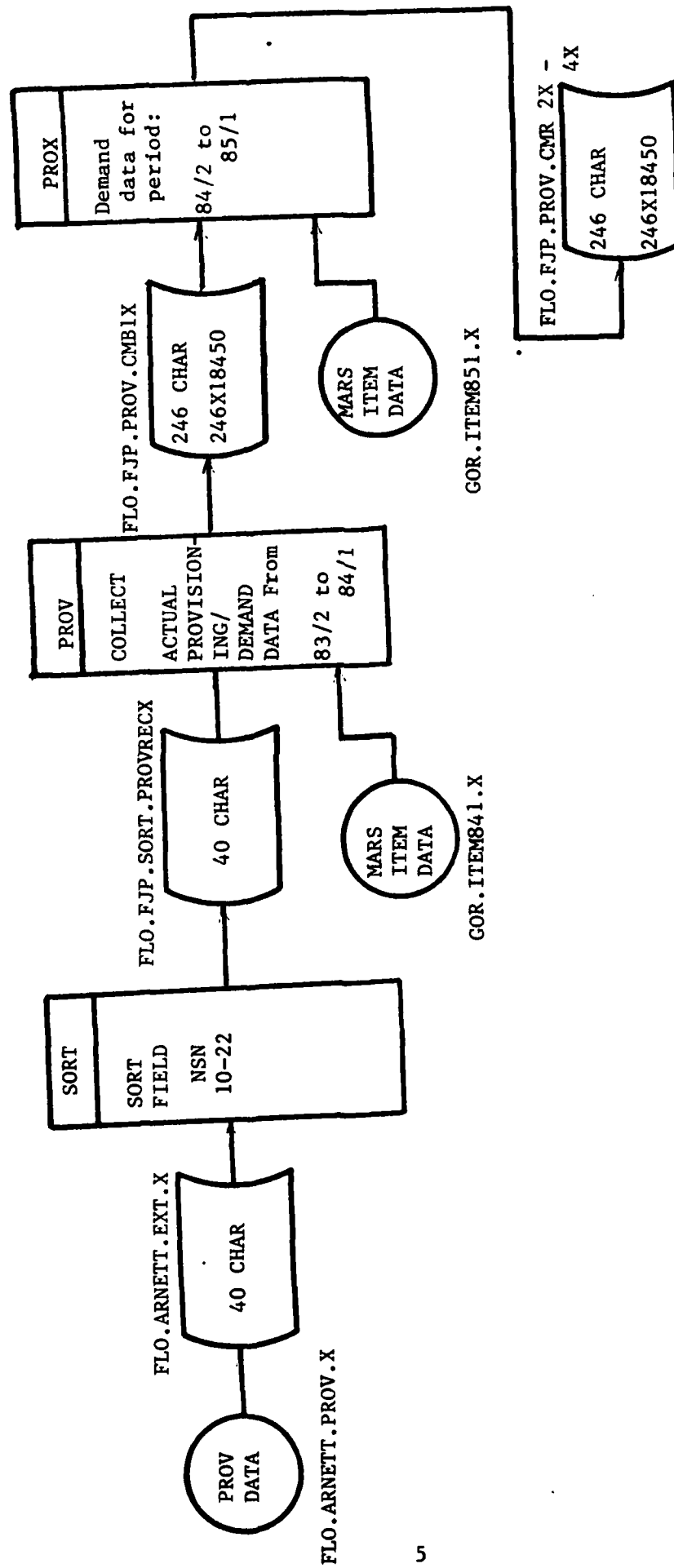
where: Y - is "4" for the case of using initial SSR requirements
- is "2" for the case of using follow-on SSR requirements
X - represents the commodity

The automated process which created these files will be explained in the next section, Model Computerization.

IV. MODEL COMPUTERIZATION.

A. Programming Languages. Due to the required sorting and matching of extremely large databases, COBOL was determined to be an appropriate computer language. To analyze the data sets which were created from the computer model, the Statistical Analysis System (SAS) language and the LOTUS 1-2-3 software on an IBM personal computer were utilized. The following paragraphs will explain how these languages were specifically used throughout the analysis.

B. Programming Execution. To develop the required data bases, COBOL extraction programs were written. A logic flow diagram describing this process is shown in Figure 1. The first step of this process was to extract the needed data elements from the provisioning file.



Provisioning Model Logic Diagram

Figure 1

Ten data elements were selected from this file to be used in the analysis:

<u>Data Element</u>	<u>Field Length</u>	<u>Position in Record</u>
1. Activity Code	2AN	1-2
2. Date of Request	4N	6-9
3. Date Repair Parts Required	5N(3P)*	52-54
4. Weapon System Designator	2AN	76-77
5. Replacement-NSN	13AN	110-122
6. Retail Quantity	5N(3P)*	123-125
7. Acquisition Advice Code	1AN	127
8. Replenishment Quantity	5N(3P)*	128-130
9. Action taken code	2AN	306-307
10. Service Code	1AN	329

*indicates original layout has a "packed" data element.

A copy of the COBOL program used to accomplish this requirement can be found at Appendix E, pages E-1 to E-3. The data set name for this program is FLO.ARNETT.ASM(PRO2). A second COBOL program was written to select the item data from the DIDB item data file and merge it with the provisioning data. This program is called, FLO.ARNETT.COBOLE(PROV), and a listing of its computer code is contained in Appendix E, pages E-4 to E-9.

Twenty-one data elements from the 600 byte length item record were identified as needed for the analysis. The names of these elements, their field length, and position are listed below:

<u>Data Element</u>	<u>Field Length</u>	<u>Position in Record</u>
DLA Supply Center (DSC)	1 AN	1
National Stock Number (NSN)	13 AN	2-14
Supply Status Code (SSC)	1 AN	48
Standard Unit Price (UP)	9 N	55-63
Age Item Code (AIC)	1 AN	98
Item Category Code (ICC)	1 AN	99
Administrative Leadtime (ALT)	3 N	146-148
Production Leadtime (PLT)	3 N	149-151
Manage Assume Date (DMA)	5 N	165-169
Backorder Quantity (BOQTY)	9 N	204-212
Numeric Stock Objective (NSO)	9 N	270-278
Quarterly Forecasted Demand (QFD)	9 N	286-294
Quarterly Forecasted Demand, New (QFDN)	9 N	295-303
1st Qtr, Nonrecur Demand Qty (NDQ)	9 N	434-442
2nd Qtr, Nonrecur Demand Qty (NDQ)	9 N	443-451
3rd Qtr, Nonrecur Demand Qty (NDQ)	9 N	452-460
4th Qtr, Nonrecur Demand Qty (NDQ)	9 N	461-469
1st Qtr, Recur Demand Qty (RDQ)	9 N	490-498
2nd Qtr, Recur Demand Qty (RDQ)	9 N	499-507
3rd Qtr, Recur Demand Qty (RDQ)	9 N	508-516
4th Qtr, Recur Demand Qty (RDQ)	9 N	517-525

The first quarter data fields from the GOR.ITEM commodity files for Fiscal Years (FY) 84 and 85 were used to collect the eight successive quarters of demand data needed for the analysis. The matrix in Figure 2 indicates the demand data contained in each of these files.

Figure 2. Data Source Matrix for Quarterly Demand Data

Demand Data Input File	1Qtr	2Qtr	3Qtr	4Qtr
GOR.ITEM841.X	1/84	4/83	3/83	2/83
GOR.ITEM851.X	1/85	4/84	3/84	2/84

Both the recurring as well as the nonrecurring demand quantities were accumulated by NSN from these files. This was accomplished in two phases. The first phase collected the first four quarters (2/83 thru 1/84) of demand using the FLO.ARNETT.COBOL(PROV) program. Then using only those items identified in the first phase, a slightly modified version of this program called FLO.ARNETT.COBOL(PROX), was used to select the final four quarters of demand data. The code for this COBOL program is located in Appendix E on pages E-10 through E-15.

C. Validation Procedures. Each program used in the analysis was separately validated. Using the data files for the DGSC the results from each of the intermediate steps were reviewed for both computational as well as logical accuracy. Individual records from the new data sets were printed and matched against the proposed file layout to ensure that data fields were properly aligned with the desired formats. Intermediate counters were placed in the program to verify total record counts, invalid record counts, and output record counts. These counters provided an audit trail throughout the program so that program errors could be quickly isolated and resolved.

V. FINDINGS.

A. Defense General Supply Center (DGSC). For this Center, 12,372 NSNs were sampled. For each quarter from 2nd Qtr of 1983 to 1st Qtr of 1985 the actual demand quantities and the estimated demand quantities were compared. The statistical results from the SAS program for the General commodity are contained in Appendix F, pages F-1 to F-4. The initial SSR requirements experienced exceeded the total actual demands in six of the eight quarters. The standard deviation of the actual demand quantities exhibited an exponentially increasing pattern. The correlation coefficient matrix did not display any significant relationships between forecasted quantities and actual demand quantities.

All pairwise correlations greater than .7 from the matrix are shown below:

<u>Quarter</u>	<u>Quarter</u>	<u>Correlation Coefficient</u>
SDQ843	SDQ844	.98375
SDQ844	SDQ851	.97347
SDQ843	SDQ851	.95808
SDQ842	SDQ844	.94868
SDQ842	SDQ851	.92393
SDQ842	SDQ843	.91750
SDQ832	SDQ833	.78644
SDQ841	SDQ844	.78413
ADQ844	ADQ851	.77487
SDQ841	SDQ851	.76359
SDQ841	SDQ843	.75824
ADQ832	ADQ833	.75146
SDQ834	SDQ844	.73514
SDQ834	SDQ851	.71595
SDQ834	SDQ843	.71095

where: SDQ is total provisioning estimates (SSRs only)
ADQ is total actual demand

Unfortunately, the highest correlations were between estimated quantities (SDQ values) in the most recent quarters and not between actual and forecasted values for the same quarter. This indicates that requirements for these items appear to be stabilizing at a steady-state level. A variety of factors could be the cause of this. One explanation could be stabilization of the end item force structure or the use of some other procedure such as special program requirement (SPR) requests being used as a surrogate to provisioning. This observation seems to support the current SAMMs procedures which uses the most recent demand quantities in the computation of the QFD.

After the additional SSR requirements were incorporated into the provisioning requirements, the SAS program was again executed. Once again in only two cases, 4th Quarter/84 and 1st Quarter/85 (see page F-3), did the actual demands exceed the forecast. Next, a comparison of the estimated demand quantities from the initial run and this subsequent run were made. A major finding from this analysis showed that the requirements from the initial SSR accounted for 90 percent of the total requirement. The correlation coefficient matrix displayed results similar to the first run. The resultant statistics for this computer run are contained in Appendix F, pages F-3 to F-4.

B. Defense Construction Supply Center (DCSC). The sample size for this commodity was 24,845 items. In every quarter estimated demand far exceeded actual demand. As in the case of the general commodity, the standard deviations of the estimated values were relatively uniform, while standard deviations of the actual values showed a nonlinear increase over time. The stability of the standard deviation of the estimated values indicates that the estimating techniques being used are applied consistently quarter to quarter; however, for the actual demand quantities, it reveals an erratic pattern caused by a wide range of units demanded.

The correlation matrix values for predicting actual demand greater than .7 were as follows:

<u>Quarter</u>	<u>Quarter</u>	<u>Correlation Coefficient</u>
ADQ842	ADQ843	.85046
ADQ842	ADQ851	.73614
ADQ843	ADQ851	.80753

When the follow-on SSR requirements were added and the SAS program rerun, the disparity between actual and estimated values increased. For the construction commodity, initial SSR requirements accounted for over 87 percent of the total requirements.

C. Defense Electronics Supply Center (DESC). There were 38,460 items contained in the DESC sample. When using the initial SSR requirements, the aggregate level statistics continued to show a large variation between the estimated and actual quantities required. In every quarter, except the 1st Qtr/1985, the estimate from the initial SSR was substantially larger than the actual requirements. The correlation matrix did not reveal any strong predictors for the actual demand quantities. The results from the initial run can be found in Appendix F, pages F-9 thru F-10. When the follow-on SSR requirements were added, marginal increases were observed in each quarter. For DESC, the initial SSR requirements accounted for 76.9 percent of the total requirement. The correlation matrix using the follow-on requirements did not yield an improvement between any of the actual demand quantities and the other quarterly values. The statistical output using follow-on SSRs is shown on pages F-11 to F-12.

D. Defense Industrial Supply Center (DISC). This commodity had a sample size of 37,217 NSNs. In seven of the eight quarters, the requirements from initial SSR requests exceeded the actual demands. None of the coefficients from the correlation matrix for the actual demand quantities were greater than .5, which as in the case of the other commodities, indicated little or no predictability between the estimated and actual quantities. When the program was rerun with the follow-on requirements, all of the estimated quarterly quantities were greater than the actual demands. Initial SSRs accounted for 90 percent of the total DISC requirements. The output reports for the DISC commodity can be found from pages F-13 to F-16.

E. Summary. A total of 112,894 provisioning NSNs for all Centers were used in this analysis. The SSR requirements for the four DSCs totaled 12,352,210 units of issue of which 10,950,660 (88.7 percent) were submitted on the first SSR. The actual demand quantity for the two year period totaled 4,139,991. Percentagewise, initial SSR requirements for the two year period exceeded actual demands by 165 percent. When the additional requirements from the follow-on SSRs were added, this percentage increase to 198 percent. In 30 of the 32 quarters, it was observed that when the follow-on SSRs were considered, estimated quantities were greater than actual demand quantities. A commodity to commodity comparison is shown in Table III indicating the percentage overforecasted by SSR submittals.

Table III. Actual Demand vs. Forecasted SSR Requirements
(Units of Issue)

<u>Commodity</u>	<u>Actual Demand</u>	<u>Initial SSR</u>	<u>Percent</u>	<u>Total SSR</u>	<u>Percent</u>
Construction	416,338	532,959	(+ 28%)	607,793	(+ 46%)
Electronics	457,867	823,944	(+ 80%)	1,070,596	(+134%)
General	314,120	1,598,930	(+409%)	1,823,824	(+481%)
Industrial	2,951,666	7,994,827	(+171%)	8,849,997	(+199%)
Total	4,139,991	10,950,660	(+165%)	12,352,210	(+198%)

A graphical representation of the estimated versus actual values in terms of units of issue by commodity is shown in Figure 3. In terms of units of issue, DISC received the greatest requirements for provisioning items; however, the total dollar value represented by these requirements was the smallest of the four Centers analyzed.

When the dollar values of the initial SSR requirements and the follow-on requirements were compared, there was a significant decrease in the difference between the two categories as compared to the cost of items actually demanded. As in the case of units of issue, similar statistics for acquisition value, as shown in Table IV, were calculated.

Table IV. Actual Demand vs. Forecasted SSR Requirements
(Acquisition Value)

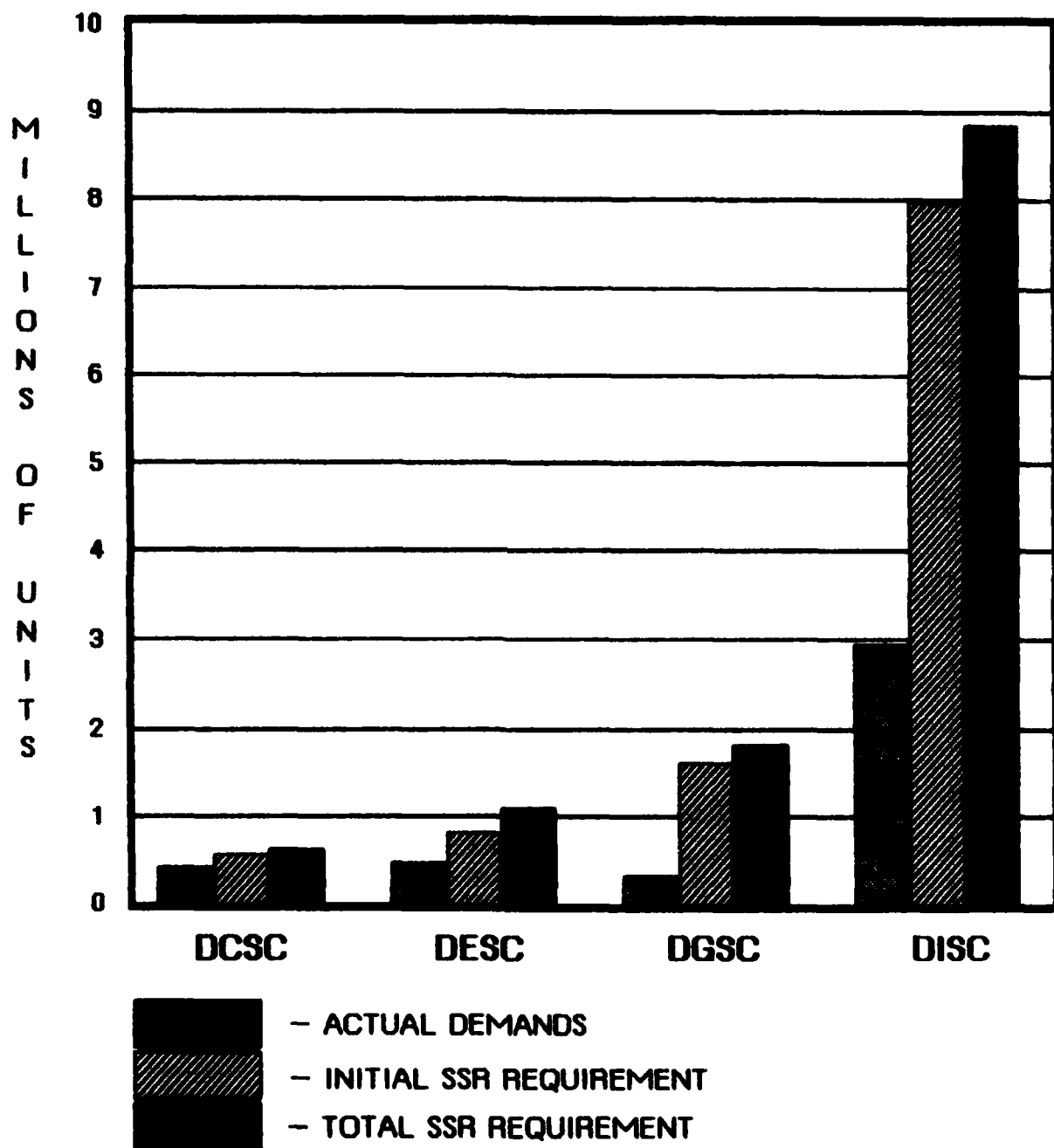
<u>Commodity</u>	<u>\$ Value Actual</u>	<u>\$ Value Initial SSR (%)</u>	<u>\$ Value Follow-On SSR</u>	<u>\$ Value Follow-On SSR (%)</u>
Construction	190.7	1039.8 (+445%)	144.8	1184.6 (+521%)
Electronics	181.6	935.7 (+415%)	207.6	1143.3 (+529%)
General	177.2	664.7 (+275%)	3.8	668.6 (+277%)
Industrial	120.9	372.5 (+208%)	45.1	417.5 (+245%)
Total	670.4	3012.7 (+349%)	401.3	3414.0 (+409%)

These dollar values in terms of millions of dollars by commodity are shown in Figure 4.

FIGURE 3.

ACTUAL DEMAND VS. SSR REQUIREMENTS

(UNITS OF ISSUE)

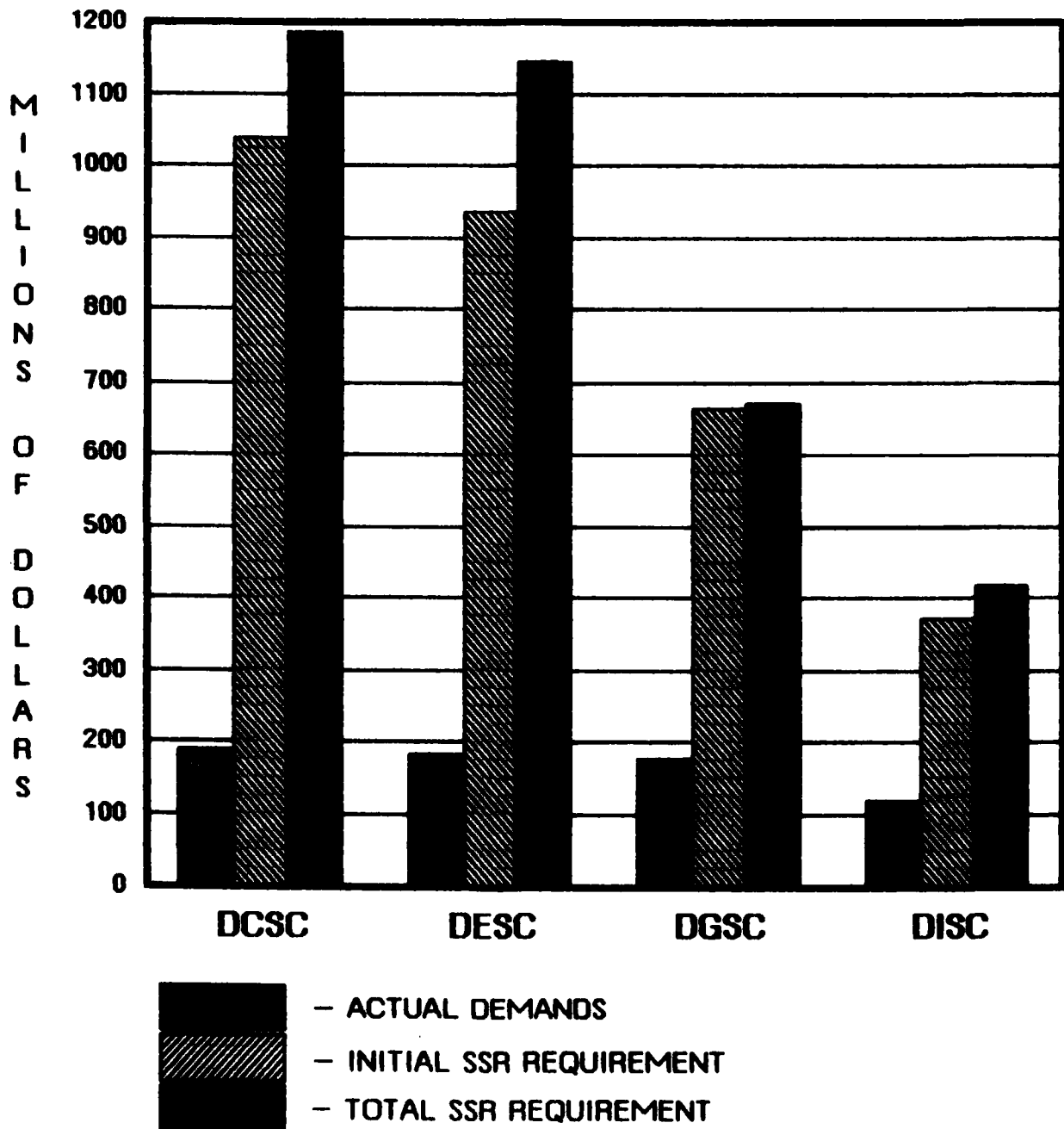


¹ TOTAL UNITS OF ITEMS DEMANDED
OVER THE TWO YEAR PERIOD, 2/83 - 1/85

FIGURE 4.

ACTUAL DEMAND VS. SSR REQUIREMENTS

(ACQUISITION VALUE) ¹



¹ TOTAL ACQUISITION VALUE FOR ALL ITEMS
OVER THE TWO YEAR PERIOD, 2/83 - 1/85

Although this analysis provides only a macrolevel view of the provisioning process, a distinct pattern within and among commodities was evident. Provisioning estimates were consistently greater than the actual demand experienced for the four DLA commodities investigated. The result of including the follow-on or reprovisioning requirements continued to increase rather than decrease the percent error between the two values. Using the correlation coefficient matrices, a statistically significant relationship was not observed between actual quarterly demand values and estimated quarterly demand values. However, in some cases, the high correlation obtained between successive quarters of actual demand seems to endorse the current methodology used by SAMMS to compute the QFD value.

VI. RECOMMENDATIONS. As described in the study plan at Appendix A, the objective of this study was to assess the impact of follow-on or reprovisioning SSR requirements on the accuracy of provisioning estimates. First, it should be highlighted that even in the case of initial SSR forecast accuracy, there is an apparent tendency to overforecast the actual usage experienced for new provisioning items. The impact of subsequent SSRs shown on these estimates was approximately a 20 percent increase in the forecasted requirement. The model developed for this study was successful in collecting the data needed and performing the analysis requested by the DWSSO.

The visibility of provisioning requirements gained from this study provides many additional areas for more detailed analysis. The data bases that have been constructed from this project could be used for these follow-on efforts. Recommended items for investigation could include but would not be limited to:

- A. Item-level analysis of each commodity should be conducted to identify the percentage of items that is being overforecasted, underforecasted, or accurately forecasted. This analysis should also include, as a minimum, stratification of items into subgroups based on their cost, weapon system criticality, and requesting Military Service.
- B. The construction and industrial commodities should be given special attention because of their disproportionate share of the provisioning activity. This should be conducted in coordination with the appropriate Operations Research Offices at these Centers.
- C. Integrate key data elements from the Provisioning Control History File into the DLA Inventory Data Bank to ensure that a historical file of SSR requests older than two years is available for future analysis and access.
- D. Newly provisioned items, as evidenced by the results of this study, are not experiencing the demand which has been predicted for them by the Military Services. Although individual items may experience excessive demands, the aggregate statistics collected by this study's analysis does not support adoption of a blanket policy of using total forecasted SSR requirements. Development of a stochastic-type simulation model to evaluate alternative provisioning policies would be the appropriate tool to identify specific policies for new items.

APPENDIX A

Study Plan (Revised)

Estimating Provisioning Requirements DLA-IO Project #3033

I. Background: Currently, when a new item is provisioned in the DoD inventory, a supply support request (SSR) is submitted by the using Service in accordance with DoDI 4140.42. One objective of the SSR is to provide the managing ICP requirements information to establish item management levels. This data consists of the retail and replenishment quantities for the item.

The retail quantity is defined as the number of units of an item that are needed to fill the initial supply pipeline. This quantity is based on supporting the weapon systems which are fielded during the year after the initial operational capability (IOC) date. The replenishment quantity is defined as the number of items that are estimated to be required on an annual basis to initially establish wholesale levels. Both of these quantities are used to establish the initial levels of stock for the NSN in the SAMMS.

When an item initially enters the DLA system, the initial quarterly forecasted demand (QFD) in the SAMMS is determined taking the replenishment quantity and dividing it by 4. Since this quantity is based on requirements expected during the first year after IOC, the result has been backorders for some provisioning items. The item manager (IM) is then forced to make "spot" buys for these items at a premium cost.

After the NSN becomes an "established item," the retail quantity on follow-on SSRs is compared to the procurement cycle period (PCP) quantity. If the retail quantity is greater than the PCP quantity, then the difference in the two quantities is procured. By using this procedure, supply availability percentages are being maintained at acceptable levels; however, there is a desire to determine if other estimating techniques or management procedures could be used to increase supply availability within current budget constraints.

II. Objective:

A. Compare actual demand data to provisioning estimates of selected DLA items to determine the accuracy of currently used forecasting techniques.

B. Assess the impact of follow-on SSRs.

III. Scope:

A. This study will specifically investigate the appropriateness and feasibility of using provisioning data contained on follow-on SSRs to predict an items' demand pattern.

B. A representative cross section of DLA-managed items from selected ICPs will be examined.

IV. Study Approach:

A. Compare actual demand data to provisioning estimates of selected DLA items to determine the accuracy of currently used forecasting techniques.

1. Review current DLA provisioning policy.

Examine the SAMMS requirements computations used for provisioning items.

2. Survey existing or on-going research relating to the DoD wholesale provisioning process.

3. Evaluate currently used provisioning techniques.

a. Obtain actual provisioning data from the Provisioning Control History File (PCHF) from selected ICPs.

b. Collect actual demand data from the Supply Control File (SCF) for these NSNs.

c. Compare the actual demand experienced for these items to the provisioning requirements that were originally estimated by the Services on a quarter by quarter basis.

d. Perform statistical tests to determine if a significant difference exists between the actual and the estimated forecast.

B. Assess the impact of follow-on SSRs on an item level basis.

1. Merge selected data fields from the PCHF and DIDB item data files at an NSN level by commodity.

2. Utilize the Statistical Analysis System (SAS) to generate descriptive statistics of provisioning estimates from follow-on SSRs.

C. Final report.

1. Prepare final draft study report and information briefing.

2. Present briefing on study findings to DLA-OP.

V. Responsibilities:

A. Study Sponsor: The Logistics Program Division of the Directorate of Supply Operations (DLA-OP) is the sponsor for this study.

1. Point of Contact is Mr. Mike Pouy, primary, DWSSO (x47975).

2. Sponsor will:

a. Assist in determining the appropriate field activities of DLA to gather study information.

b. Provide needed interpretations to DLA provisioning policies as outlined in DoDI 4140.42.

c. Assist in developing and verifying the study assumptions, methodology, and results.

d. Assist in the collection of needed provisioning and demand data.

B. Performing Organization: The Operations Research and Economic Analysis Office (DLA-LO) is the developer of this study.

1. Point of contact is Captain Gary W. Arnett, USAF, DLA-DORO (Team F), Ext. 46183.

2. Analyst will:

a. Determine program resources, develop approach, and complete study objectives.

b. Provide monthly status report by IOM to sponsor.

c. Develop final report and give briefing.

VI. Schedule:

<u>Milestones</u>	<u>Estimated Completion Date</u>
A. Review DLA provisioning policy	15 Jul 1984
B. Survey of on-going research	15 Aug 1984
C. Fact finding/evaluate current policies	15 Sep 1984
D. Finalize study objectives	22 Sep 1984
E. Objective IIA and IIB	
(1) Develop methodology	15 Dec 1984
(2) Perform analysis	31 Jan 1985
(3) Document results	15 Feb 1985
G. Prepare final draft report and briefing for internal review	28 Feb 1985
H. Publish final report and present briefing to DLA-OP	15 Mar 1985

VII. Costs and Benefits:

A. Costs: An estimated level of effort of 6.0 analyst staff-months will be expended by DLA-LO on this study. Additionally, computer programming and administrative resources will be required by DLA-LO to complete this project.

B. Benefits: Findings from this study will provide an assessment of currently used provisioning criteria. These results will provide a basis for future efforts directed at improving the effectiveness of DLA provisioning policies.

Robert L. Sims

ROBERT L. SIMS, Colonel USAF
Chief, Operations Research and
Economic Analysis Office

7 March 85

Date

Laurence G. Kohler

LAURENCE G. KOHLER
Chief, Logistics Program
Division

18 March 1985

Date

APPENDIX B

FILE SUMMARY

FILE NAME: Provisioning Control History File

FILE INDEX NUMBER: USXTPCHF

PURPOSE: To provide for the retention of Supply Support Requests up to 180 days after all decisions have been made as to the support or nonsupport of the item.

RECORD SIZE: 360 Bytes - Fixed Length

BLOCK SIZE: 6120 Bytes

ACCESS METHOD: Sequential

SEQUENCE: Provisioning File Controls (Activity Code From
- Provisioning Control Code - Date of Request
- Item Serial Number)

<u>DATA ELEMENT</u>	<u>FIELD DEFINITION</u>	<u>POSITION IN RECORD</u>
PVNG-CTL-KEY A093 FROM CWA	15 AN	1-15
ACTY-CD-FR A072	2 AN	(1-2)
PVNG-CLT-CD A082	3 AN	(3-5)
REQST-DT A083	4 AN	(6-9)
ITM-SERNO A083 (FROM CXA, CXB, CXC)	6 AN	(10-15)
DLSC DOCNO 1015 (GENERATED)	16 AN	16-31
ORGTG-ACTY-CD 4210	2 AN	(16-17)
SUBMG-ACTY-CD 3720	2 AN	(18-19)
ESTAB DT 2310	5 AN	(20-24)
DLSC-DOC-CTL-SERNO 1000	7 AN	(25-31)
ORC A055	3 AN	(25-27)
FILLER	4 AN	(28-31)
DIC 3920 FROM SSR	3 AN	32-34
END-ITM-NSN A752	13 AN	35-47
DT-NSN-RQD A753	3 P	48-50
(Blank Field)	1 AN	51

<u>DATA ELEMENT</u>	<u>FIELD DEFINITION</u>	<u>POSITION IN RECORD</u>
DT-RPR-PART-RQD A754	3 P	52-54
DEL-IND A006	1 AN	55
CONTR-CTL-NO A703	20 AN	56-75
WPN-SYS-DES A473	2 AN	76-77
MAINT-LVL-CD A732	2 AN	78-79
FSCM 9250 (PRIME)	5 AN	80-84
SPACE	2 AN	85-86
ESNTLT-CD A705	1 AN	87
RIC A030	3 AN	88-90
TY-LOG-REASGM-CD A706	1 AN	91
(Blank Field)	1 AN	92
PCT-ENDITEM-EAST A761	2 P	93-94
CRD-NO 3805	1 AN	95
TY-CHN-CD A736	1 AN	96
ORIG-NSN-PSCN A739	13 AN	97-109
REPLM-NSN-PSCN 8878	13 AN	110-122
RETL-QTY A762	3 P	123-125
IMC 2744	1 AN	126
ACQUIS-ADV-CD 2507	1 AN	127
RPLN-QTY A735	3 P	128-130
SVC-CD A085 (LIM)	1 AN	131
ACTY-CD-LIM A047	2 AN	132-133
SRC-CD A747	2 AN	134-135
UI 3050	2 AN	136-137

<u>DATA ELEMENT</u>	<u>FIELD DEFINITION</u>	<u>POSITION IN RECORD</u>
(Blank Field)	1 AN	138
DMIL-CD 0167	1 AN	139
MTHD-PCMT-CD 2871	1 AN	140
SPACE	2 AN	141-142
SHLF-LIFE-CD 2943	1 AN	143
PDLT A051	2 AN	144-145
STD-UP 7075	4 P	146-149
SPACE	1 AN	150
CXB2 DATA	83 AN	151-233
FSCM 9250 (ORIG)	5 AN	(151-155)
REFNO-LOG 3570	32 AN	(156-187)
REPLM-FSCM-CD 3595	5 AN	(188-192)
REPLM-REFNO A776	32 AN	(193-224)
REFNO-FMT-CD 2920	1 AN	(225)
REFNO-CTGY-CD 2910	1 AN	(226)
REFNO-VARN-CD 4780	1 AN	(227)
DOC-AVAIL-CD 2640	1 AN	(228)
TECH-DATA-DT A710	3 P	(229-231)
TECH-DATA-JUSTN-CD A711	1 AN	(232)
REFNO-JUSTN-CD A712	1 AN	(233)
CXF DATA	51 AN	234-284
ITM-NAME 5000	47 AN	(234-280)
FSC 3990	4 AN	(281-284)
CXK DATA	21 AN	285-305
SVC-CD A085	1 AN	(285)
ACTY-CD-USER A775	2 AN	(286-287)
SVC-CD A085	1 AN	(288)
ACTY-CD-USER A775	2 AN	(289-290)
SVC-CD A085	1 AN	(291)
ACTY-CD-USER A775	2 AN	(292-293)
SVC-CD A085	1 AN	(294)
ACTY-CD-USER A775	2 AN	(295-296)
SVC-CD A085	1 AN	(297)
ACTY-CD-USER A775	2 AN	(298-299)
SVC-CD A085	1 AN	(300)
ACTY-CD-USER A775	2 AN	(301-302)
SVC-CD A085	1 AN	(303)
ACTY-CD-USER A775	2 AN	(304-305)

<u>DATA ELEMENT</u>	<u>FIELD DEFINITION</u>	<u>POSITION IN RECORD</u>
ACTN-TKN-CD A748	2 AN	306-307
GENERATED DATES	21 P	308-328
SUBM-DT A064	3 P	(308-310)
FYL-MAINT-DT A713	3 P	(311-313)
RCD-DROP-DT A714	3 P	(314-316)
FUP-DT-30-DAYS A715	3 P	(317-319)
FUP-DT-45-DAYS A716	3 P	(320-322)
FUP-DT-60-DAYS A717	3 P	(323-325)
SPT-DT-YX A718	3 P	(326-328)
INDICATORS	19 AN	329-347
SVC-CD A085	1 AN	(329)
COND-CD 2610	1 AN	(330)
DLSC-IND A443	1 AN	(331)
SSC-CHN-IND A719	1 AN	(332)
RPT-IND-F217 A783	1 AN	(333)
FYL-MAINT-CD A059	2 AN	(334-335)
FM1	1 AN	(334)
FM2	1 AN	(335)
ROUTG-IND-ZRP-IMC A721	1 AN	(336)
ADV-SENT-IND A722	1 AN	(337)
PARTNO-IND A723	1 AN	(338)
NSN-RQST-IND A724	1 AN	(339)
DIC-RCVD-IND-YDR A725	1 AN	(340)
TENTV-DIC-IND-YX A726	1 AN	(341)
DIC-RCVD-IND-KNA A727	1 AN	(342)
INTRGN-IND-ORIG A729	1 AN	(343)
ACQUIS-ADV-CD A159	1 AN	(344)
RPT-IND-F458 A700	1 AN	(345)
RPT-IND-F205 A701	1 AN	(346)
INTRGN-IND-DLSC A721	1 AN	(347)
ADV-CD-INTRM	2 AN	348-349
(Blank Field)	11 AN	350-360

APPENDIX C

IBM 360 STORAGE LAYOUT

SYSTEM	USCJLORI	DATE LAST CHANGE	9 AUG 84
FILE NAME	ANALYST/PROGRAMMER	DAKER	

DSC	NATIONAL	Stock	Number	UNIT	WEIGHT	CUBE	BACK	ORDER	LINES	DUE	IN	ITEM	NAME	OUTPUT	ROUTING	UNIT	OF	ISSUE	SUP. STATUS	ARMY USER	AIR FORCE USER	NAVY USER	OTHER USER	STANDARD	UNIT	PRICE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

Standard	Unit	Price	UNIT	WEIGHT	CUBE	BACK	ORDER	LINES	DUE	IN	LINES	CATALOG	CHANGE CD	DEMAND VALUE	FORECAST BASIS	HAZARDOUS STORE	COMPAT. CD	AGE ITEM CD	ITEM CAT CD	ITEM ESSENT CD	METH COMP	MOBL RESERVE	PECULIAR	MANAGEMENT	CODES
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	

Proc Cycle	Group	Code	Safety Level	SL ESSENT	SHELF LIFE CD	SPEC REQ CD	STD STAT CD	STORAGE	MISSION CD	TRACK SIG	TYPE CARGO	VIP	WPN SYS CD	WEAPON SYS	INTEREST CD	ALPHA	FACTOR	TRACKING	SIGNAL	COUNTER	ADMIN	LEAD TIME	DAYS	PRODUCTION	LEAD TIME	DAYS	OPERATING	LEVEL	MONTHS	PROCUR	CYCLE	MONTH	SAFETY	LEVEL	MONTHS	SHELF LIFE	MONTHS	LESS THAN	TRUCK LOAD	MANAGE	ASSUME	DATE	LAST	BUY	DATE	LAST	DISPOSAL	DATE	LAST	DEM IT									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60

LAST	DRWD	DATE	APPLIC	NONREC	DEM PCT	IPC 1	PERCENT	IPC 2	PERCENT	ADDITIONAL	RETENTION	QTY	AVERAGE	QTY	BACK	ORDER	QTY	DUE	IN	QTY	DOUBLE	SMOOTH	QTY	ISSUABLE	QTY	MRQ

MAX	RELEASE	QUANTITY	(Cont.)	MEAN	ABSOLUTE	DEVIATION	MIN	PROCUR	QTY	NORFOLK	FILL	QTY	NUMERIC	STORAGE	OBJECTIVE	OAKLAND	FILL	QTY	LEGEND:	P = PACK DECIMAL	B = BINARY	2 = ZONE DECIMAL	S = SIGN	SEQUENCED BY	NSN	COMMENTS:	LRCEL = 600	BLKSIZE = 21000	RECFM = FB	ZONED DECIMAL FIELDS																													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60

1855-1856

DATE LAST CHANGE 9 Aug 84

ANALYST/PROGRAMMER BAKER

[illegible]

RECORD LAYOUT					
PROGRAM TITLE Provisioning/Demand File			PREPARED BY		DATE
PROGRAM NUMBER	FILE NAME FLO.FJP.PROV.CMBYX				TYPE LABEL
RECORD TYPE (Check One) ☐ CARD ☐ TAPE ☒ DISK			LABEL		RECORD SIZE 246
					BLOCKING FACTOR 18450
FIELD NAME/DESCRIPTION	NUMBER OF BYTES	FIELD LOCATION		PICTURE	USAGE
		FROM	TO		
Date of Request (DOR)	4	1	4	AN	
Established Date (ESDATE)	5	5	9	AN	
National Stock Number (NSN)	13	10	22	AN	
Date Repair Parts Required (DRPR)	5	23	27	AN	
Weapon System Designator (WSD)	1	28	28	AN	
Retail Quantity (RTLQTY)	5	29	33	AN	
Replenishment Quantity (REPLNOTY)	5	34	38	AN	
Aquisition Advice Code (AAC)	1	39	39	AN	
Service Code (SVC)	1	40	40	AN	
Defense Supply Center (DSC)	1	41	41	AN	
Supply Support Request Counter (SSRCTR)	2	42	43	AN	
Supply Status Code (SSC)	1	44	44	AN	
Unit Price (UP)	9	45	53	AN	
Age of Item Code (AIC)	1	54	54	AN	
Item Category Code (ICC)	1	55	55	AN	
Administrative Leadtime (ALT)	3	56	58	AN	
Production Leadtime (PLT)	3	59	61	AN	
Date Management Assumed (DMA)	5	62	66	AN	
Backorder Quantity (BOQTY)	9	67	75	AN	
Numeric Stockage Objective (NSO)	9	76	84	AN	
Quarterly Forecasted Demand (QFD)	9	85	93	AN	
Quarterly Forecasted Demand, New (QFDN)	9	94	102	AN	
Actual Demand Qty (ADQ832)	9	103	111	AN	

APPENDIX E

```
*****
*
* FLO6515                      85.071 14.44.56 *
* FLO.ARNETT.ASM                *
* (PRO2)                        *
*
*****
```

```
//FLO6515I JOB (6515,LO), 'ARNETT', CLASS=A, MSGCLASS=X,
//      NOTIFY=FLO6515
//STEP2   EXEC COBUCLG, REGION=300K,
//      PARM='SIZ=400K, SXR, BUF=50K, CNT=56'
//SYSIN   DD *
```

```
IDENTIFICATION DIVISION.
PROGRAM-ID.    PROVIS.
AUTHOR. CAPT. GARY ARNETT.
INSTALLATION.  DLA-LOO.
DATE-WRITTEN.  JAN 1985.
DATE-COMPILED.
SECURITY.      CLASSIFY.
REMARKS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  IBM-SYS-3033.
OBJECT-COMPUTER.  IBM-SYS-3033.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
        SELECT PCHF          ASSIGN TO UT-S-SYS010.
        SELECT NEW-PROV ASSIGN TO UT-S-SYS020.
DATA DIVISION.

FILE SECTION.
```

```
FD  PCHF
    LABEL RECORDS STANDARD
    RECORDING MODE F
    RECORD CONTAINS 360 CHARACTERS
    BLOCK CONTAINS 0 CHARACTERS
    DATA RECORD IS SSR-REC.

01  SSR-REC.
    05  ACTV-CD          PIC X(2).
    05  FILLER           PIC X(3).
    05  DOR              PIC X(4).
    05  FILLER           PIC X(42).
    05  DRPR             PIC 9(5)  COMP-3.
    05  FILLER           PIC X(21).
    05  WSD              PIC X(2).
    05  FILLER           PIC X(32).
    05  NSN              PIC X(13).
    05  RETL-QTY         PIC 9(5)  COMP-3.
    05  FILLER           PIC X.
    05  AAC              PIC X.
    05  REPLN-QTY        PIC 9(5)  COMP-3.
    05  FILLER           PIC X(175).
    05  ACT-CD           PIC X(2).
```

```

05 FILLER PIC X(21).
05 SVC-CD PIC X.
05 FILLER PIC X(31).
FD NEW-PROV
    LABEL RECORDS ARE STANDARD
    RECORD CONTAINS 40 CHARACTERS
    DATA RECORD IS DATA-LN.
01 DATA-LN PIC X(40).
WORKING-STORAGE SECTION.
01 CTR1 PIC 999999.
01 CTR2 PIC 999999.
01 NSNCTR PIC 999999.
01 NSN-OLD PIC X(13).
01 FIRST-DTE PIC X(4) VALUE '9999'.
01 EOF-SW PIC X VALUE 'N'.
01 SSR-REC-OUT.
05 DOR-O PIC X(4).
05 ACTV-CD-O PIC X(2).
05 NSN-O PIC X(13).
05 DRPR-O PIC X(5).
05 WSD-O PIC X(2).
05 RETL-QTY-O PIC X(5).
05 REPLN-QTY-O PIC X(5).
05 ACT-CD-O PIC X(2).
05 AAC-O PIC X.
05 SVC-CD-O PIC X.
PROCEDURE DIVISION.
000-MAIN.
    PERFORM 100-START.
    PERFORM 210-NSN-CHECK UNTIL EOF-SW = 'Y'.
    PERFORM 300-TERMINATE.
    STOP RUN.
100-START.
    OPEN INPUT PCHF.
    OPEN OUTPUT NEW-PROV.
    PERFORM 110-COUNTERS.
    READ PCHF AT END MOVE 'Y' TO EOF-SW.
    ADD 1 TO CTR1.
    MOVE NSN TO NSN-OLD.
110-COUNTERS.
    MOVE 0 TO CTR1.
    MOVE 0 TO CTR2.
    MOVE 0 TO NSNCTR.
210-NSN-CHECK.
    IF NSN IS NOT EQUAL NSN-OLD PERFORM 220-DATA-TRANSFER.
        ADD 1 TO NSNCTR
        IF DOR < FIRST-DTE
            MOVE DOR TO FIRST-DTE
            MOVE DOR TO DOR-O
            MOVE ACTV-CD TO ACTV-CD-O
            MOVE NSN TO NSN-O
            MOVE NSN TO NSN-OLD
            MOVE DRPR TO DRPR-O
            MOVE WSD TO WSD-O
            MOVE RETL-QTY TO RETL-QTY-O
            MOVE REPLN-QTY TO REPLN-QTY-O

```

```

        MOVE AAC TO AAC-0
        MOVE ACT-CD TO ACT-CD-0
        MOVE SVC-CD TO SVC-CD-0.
    READ PCHF AT END MOVE 'Y' TO EOF-SW.
    ADD 1 TO CTR1.
220-DATA-TRANSFER.
    WRITE DATA-LN FROM SSR-REC-OUT.
    ADD 1 TO CTR2.
    MOVE SPACES TO SSR-REC-OUT.
    MOVE 9999 TO FIRST-DTE.
    MOVE NSN TO NSN-OLD.
300-TERMINATE.
    DISPLAY CTR1.
    DISPLAY CTR2.
    CLOSE PCHF NEW-PROV.
    STOP RUN.
/*
//GO.SYS010 DD DSN=FLO.ARNETT.PROV.I,UNIT=3350,DISP=OLD
//GO.SYS020 DD DSN=FLO.PROV.I,UNIT=3350,DISP=(NEW,CATLG,DELETE),
//          SPACE=(CYL,(50,10),RLSE),DCB=(RECFM=FB,LRECL=40,
//          BLKSIZE=19000),VOL=SER=FLO002
//GO.SYSOUT DD SYSOUT=*
//

```

```
*****
*
* FLO6515                      85.071 14.39.39 *
* FLO.ARNETT.COBOL             *
* (PROV)                       *
*                               *
*****
```

```
//FLOPROVI JOB (6512,LO),'FJP',CLASS=R,MSGCLASS=X,NOTIFY=FLO6512
//*
//*   FRANK PENDER;ROOM 3B330;CAMERON STATION ALEXANDRIA;274-7227
//*
//*   THIS IS DATASET   FLO.ARNETT.COBOL(PROV)
//*
//*   THE JCL AND PROGRAM TO GENERATE A FILE OF PROVISIONING
//*   ITEMS WITH DATA ELEMENTS FROM THE PROVISIONING HISTORY FILE
//*   AND THE MARS ITEM DATA FILE. FOR USE IN A PROVISIONING STUDY.
//*
//STEP1   EXEC COBUCLG,REGION=800K,PARM='SIZ=800K,SXR,CNT=56'
//SYSUDUMP DD SYSOUT=*
//SYSIN   DD   *
IDENTIFICATION  DIVISION.
PROGRAM-ID.     PROVIS01.
AUTHOR.         FRANK J. PENDER.
INSTALLATION.   DLA-LOO.
DATE-WRITTEN.   JAN 1985.
DATE-COMPILED.
SECURITY.       EYES.
REMARKS.        THIS PROGRAM SELECTS CERTAIN ITEMS FROM THE
                  PROVISION HISTORY FILE AND MARS DATA FILE BASED
                  ON CRITERIA FROM GARY ARNETT.

ENVIRONMENT     DIVISION.
CONFIGURATION   SECTION.
SOURCE-COMPUTER.
OBJECT-COMPUTER.
INPUT-OUTPUT    SECTION.
FILE-CONTROL.

    SELECT PROVFILE ASSIGN TO UT-S-SYS010.
    SELECT IMARS    ASSIGN TO UT-S-SYS020.
    SELECT OUTFILE  ASSIGN TO UT-S-SYS030.
*   SELECT WORKFILE ASSIGN TO UT-S-SYS040.

DATA            DIVISION.
FILE            SECTION.
FD  PROVFILE
    LABEL RECORDS ARE STANDARD
    RECORDING MODE IS F
    BLOCK CONTAINS 0 RECORDS
    DATA RECORD IS PROVREC.
01  PROVREC.
    03  PATV                PIC X(2).
    03  PDOR                PIC X(4).
    03  PNSN                PIC X(13).
    03  PDRPR               PIC X(5).
    03  FWSD                PIC X(2).
    03  PRTAIL              PIC 9(5).
    03  PRPLEN              PIC 9(5).
    03  PAAC                PIC X.
```

```

03 PATN          PIC X(2).
03 PSVC          PIC X.
FD IMARS
  LABEL RECORDS ARE STANDARD
  RECORDING MODE IS F
  BLOCK CONTAINS 0 RECORDS
  DATA RECORD IS IMARSREC.
01 IMARSREC.
  03 IDSC          PIC X.
  03 INSN          PIC X(13).
  03 FILLER        PIC X(33).
  03 ISSC          PIC X.
  03 FILLER        PIC X(6).
  03 IUPR          PIC X(9).
  03 FILLER        PIC X(34).
  03 IAIC          PIC X.
  03 IICC          PIC X.
  03 FILLER        PIC X(46).
  03 IALT          PIC X(3).
  03 IPLT          PIC X(3).
  03 FILLER        PIC X(13).
  03 IDMA          PIC X(5).
  03 FILLER        PIC X(34).
  03 IBOQ          PIC X(9).
  03 FILLER        PIC X(57).
  03 INSOQ         PIC X(9).
  03 FILLER        PIC X(7).
  03 IQFD          PIC X(9).
  03 IQFDN         PIC X(9).
  03 FILLER        PIC X(130).
  03 INDQ1         PIC 9(9).
  03 INDQ2         PIC 9(9).
  03 INDQ3         PIC 9(9).
  03 INDQ4         PIC 9(9).
  03 FILLER        PIC X(20).
  03 IRDQ1         PIC 9(9).
  03 IRDQ2         PIC 9(9).
  03 IRDQ3         PIC 9(9).
  03 IRDQ4         PIC 9(9).
  03 FILLER        PIC X(75).
FD OUTFILE
  LABEL RECORDS ARE STANDARD
  RECORDING MODE IS F
  BLOCK CONTAINS 0 RECORDS
  DATA RECORD IS OUTFILERECD.
01 OUTFILERECD SYNC.
  03 OPROVREC      PIC X(40).
  03 ODSC          PIC X.
  03 OIND          PIC X(2).
  03 OSSC          PIC X.
  03 OUPR          PIC X(9).
  03 OICC          PIC X.
  03 OAIIC         PIC X.
  03 OALT          PIC X(3).
  03 OPLT          PIC X(3).
  03 ODMA          PIC X(5).

```

03	OBOQ	PIC	X(9).
03	ONSOQ	PIC	X(9).
03	OQFD	PIC	X(9).
03	OQFDN	PIC	X(9).
03	ODQ832	PIC	9(9).
03	ODQ833	PIC	9(9).
03	ODQ834	PIC	9(9).
03	ODQ841	PIC	9(9).
03	ODQ842	PIC	9(9).
03	ODQ843	PIC	9(9).
03	ODQ844	PIC	9(9).
03	ODQ851	PIC	9(9).
03	OPQ832	PIC	9(9).
03	OPQ833	PIC	9(9).
03	OPQ834	PIC	9(9).
03	OPQ841	PIC	9(9).
03	OPQ842	PIC	9(9).
03	OPQ843	PIC	9(9).
03	OPQ844	PIC	9(9).
03	OPQ851	PIC	9(9).

*FD WORKFILE
 * LABEL RECORDS ARE STANDARD
 * RECORDING MODE IS F
 * BLOCK CONTAINS 0 RECORDS
 * DATA RECORD IS WORKFILERECD.
 *01 WORKFILERECD.

* 03	FILLER	PIC	X(9).
* 03	WNSN	PIC	X(13).
* 03	FILLER	PIC	X(80).
* 03	FILLER	PIC	X(36).
* 03	WDQ842	PIC	9(9).
* 03	WDQ843	PIC	9(9).
* 03	WDQ844	PIC	9(9).
* 03	WDQ851	PIC	9(9).
* 03	FILLER	PIC	X(72).

WORKING-STORAGE SECTION.
 01 DUM-HEAD PIC X(15) VALUE 'BEGIN WORK STOR'.
 01 CTRS SYNC.

03	CTR1	PIC	9(6) COMP VALUE ZEROES.
03	CTR2	PIC	9(6) COMP VALUE ZEROES.
03	CTR3	PIC	9(6) COMP VALUE ZEROES.
03	CTR4	PIC	9(6) COMP VALUE ZEROES.
03	CTR5	PIC	9(6) COMP VALUE ZEROES.
03	CTR6	PIC	9(6) COMP VALUE ZEROES.
03	CTR7	PIC	9(6) COMP VALUE ZEROES.
03	CTR8	PIC	9(6) COMP VALUE ZEROES.
03	CTR9	PIC	9(6) COMP VALUE ZEROES.
03	CTR10	PIC	9(6) COMP VALUE ZEROES.

01 IND PIC 9(4) VALUE ZEROES.
 01 PRATE PIC 9(5) VALUE ZEROES.
 01 PNSNH PIC X(13) VALUE SPACE.
 01 PRQTY PIC 9(8) VALUE ZEROES.

PROCEDURE DIVISION.
 BEGIN-PROG.
 OPEN INPUT PROVFILE.
 OPEN INPUT IMARS.

```

*   OPEN INPUT   WORKFILE.
    OPEN OUTPUT  OUTFILE.
    MOVE 00000 TO OUTFILREC.
DQLVL.
    MOVE 000000000 TO ODQ832.
    MOVE 000000000 TO ODQ833.
    MOVE 000000000 TO ODQ834.
    MOVE 000000000 TO ODQ841.
    MOVE 000000000 TO ODQ842.
    MOVE 000000000 TO ODQ843.
    MOVE 000000000 TO ODQ844.
    MOVE 000000000 TO ODQ851.
    MOVE 000000000 TO OPQ832.
    MOVE 000000000 TO OPQ833.
    MOVE 000000000 TO OPQ834.
    MOVE 000000000 TO OPQ841.
    MOVE 000000000 TO OPQ842.
    MOVE 000000000 TO OPQ843.
    MOVE 000000000 TO OPQ844.
    MOVE 000000000 TO OPQ851.
READPROV.
    READ PROVFILE AT END MOVE '999999999999' TO PNSN.
    IF PNSN NOT NUMERIC ADD 1 TO CTR9 GO TO READPROV.
    ADD 1 TO CTR1.
    IF CTR1 = 1 MOVE PNSN TO PNSNH.
PROVMATCH.
    IF PNSNH NOT = PNSN GO TO MARSMATCH.
    IF PDRPR < 83001 GO TO READPROV.
    IF PDRPR > 84365 GO TO READPROV.
    ADD 1 TO IND.
    IF IND > 001 GO TO READPROV.
    ADD 1 TO CTR6.
    MOVE PROVREC TO OPROVREC.
    COMPUTE PRATE = PRPLEN * .25 + .5.
    COMPUTE PRQTY = PRATE + PRTAIL.
    IF PDRPR < 83091 COMPUTE OPQ832 = OPQ832 + PRQTY GO TO QTR3.
    IF PDRPR < 83181 COMPUTE OPQ833 = OPQ833 + PRQTY GO TO QTR4.
    IF PDRPR < 83271 COMPUTE OPQ834 = OPQ834 + PRQTY GO TO QTR5.
    IF PDRPR < 83365 COMPUTE OPQ841 = OPQ841 + PRQTY GO TO QTR6.
    IF PDRPR < 84091 COMPUTE OPQ842 = OPQ842 + PRQTY GO TO QTR7.
    IF PDRPR < 84181 COMPUTE OPQ843 = OPQ843 + PRQTY GO TO QTR8.
    IF PDRPR < 84271 COMPUTE OPQ844 = OPQ844 + PRQTY GO TO QTR9.
    IF PDRPR < 84365 COMPUTE OPQ851 = OPQ851 + PRQTY GO TO QTR10.
QTR3. COMPUTE OPQ833 = OPQ833 + PRATE.
QTR4. COMPUTE OPQ834 = OPQ834 + PRATE.
QTR5. COMPUTE OPQ841 = OPQ841 + PRATE.
QTR6. COMPUTE OPQ842 = OPQ842 + PRATE.
QTR7. COMPUTE OPQ843 = OPQ843 + PRATE.
QTR8. COMPUTE OPQ844 = OPQ844 + PRATE.
QTR9. COMPUTE OPQ851 = OPQ851 + PRATE.
QTR10.
    GO TO READPROV.
MARSMATCH.
    IF IND < 001 ADD 1 TO CTR7 GO TO RESETPROV.
    IF PNSNH < INSN GO TO RESETPROV.
    IF PNSNH > INSN GO TO READIMARS.

```

```

MOVE IND      TO OIND.
MOVE IDSC     TO ODSC.
MOVE ISSC     TO OSSC.
MOVE IUPR     TO OUPR.
MOVE IICC     TO OICC.
MOVE IAIC     TO OAIC.
MOVE IALT     TO OALT.
MOVE IPLT     TO OPLT.
MOVE IDMA     TO ODMA.
MOVE IBOQ     TO OBOQ.
MOVE INSOQ    TO ONSOQ.
MOVE IQFD     TO OQFD.
MOVE IQFDN    TO OQFDN.
COMPUTE ODQ832 = INDQ4 + IRDQ4.
COMPUTE ODQ833 = INDQ3 + IRDQ3.
COMPUTE ODQ834 = INDQ2 + IRDQ2.
COMPUTE ODQ841 = INDQ1 + IRDQ1.
WRITE OUTFILREC.
ADD 1 TO CTR2.
READIMARS.
  READ IMARS AT END GO TO EOJ.
  IF IDMA < 83001 GO TO READIMARS.
  IF IAIC = 'N' NEXT SENTENCE ELSE GO TO READIMARS.
  ADD 1 TO CTR3.
  GO TO MARSMATCH.
RESETPROV.
  MOVE PNSN TO PNSNH.
  ADD IND TO CTR8.
  MOVE 0000 TO IND.
  MOVE 00000 TO OUTFILREC.
  PERFORM DQLVL.
  IF PNSN = '99999999999999' GO TO EOJ.
  GO TO PROVMATCH.
*WORKMATCH.
*  IF INSN < WNSN GO TO READIMARS.
*  IF INSN > WNSN GO TO READWORKFILE.
*  COMPUTE WDQ842 = INDQ4 + IRDQ4.
*  COMPUTE WDQ843 = INDQ3 + IRDQ3.
*  COMPUTE WDQ844 = INDQ2 + IRDQ2.
*  COMPUTE WDQ851 = INDQ1 + IRDQ1.
*  MOVE WORKFILREC TO OUTFILREC.
*  WRITE OUTFILREC.
*  ADD 1 TO CTR4.
*READWORKFILE.
*  READ WORKFILE AT END GO TO EOJ.
*  ADD 1 TO CTR5.
*  GO TO WORKMATCH.
EOJ.
  DISPLAY 'PROVFILE INPUT ' CTR1.
  DISPLAY 'OUTFILE OUTPUT ' CTR2.
  DISPLAY 'IMARS INPUT ' CTR3.
  DISPLAY 'OUTFILE2 OUTPUT ' CTR4.
  DISPLAY 'WORKFILE INPUT ' CTR5.
  DISPLAY 'VALID PROV RECS ' CTR6.
  DISPLAY 'INVAL PROV RECS ' CTR7.
  DISPLAY 'TOTL NBR SSRS ' CTR8.

```

```
DISPLAY 'INVAL NSN FIELD ' CTR9.  
CLOSE PROVFILE.  
CLOSE IMARS.  
CLOSE OUTFILE.  
* CLOSE WORKFILE.  
STOP RUN.
```

```
/*  
//GO.SYS010 DD DSN=FLO.FJP.SORT.PROVRECI,DISP=OLD,UNIT=3350  
//GO.SYS020 DD DSN=GOR.ITEM841.I,DISP=OLD,UNIT=TAPE  
//GO.SYS030 DD DSN=FLO.FJP.PROV.CMB3I,DISP=(NEW,CATLG,DELETE),  
//          DCB=(RECFM=FB,LRECL=246,BLKSIZE=18450),  
//          UNIT=3350,SPACE=(TRK,(2000,50),RLSE),VOL=SER=FLO001  
//GO.SYSOUT DD SYSOUT=*  
/*  
//
```

```

*****
*
* FLO6515                      85.071 14.40.29 *
* FLO.ARNETT.COBOL             *
* (PROX)                       *
*                               *
*****

```

```

//FLOPROXI JOB (6512,LO),'FJP',CLASS=R,MSGCLASS=X,NOTIFY=FLO6515
/**
/**      FRANK PENDER;ROOM 3B330;CAMERON STATION ALEXANDRIA;274-7227
/**
/**      THIS IS DATASET   FLO.ARNETT.COBOL(PROX)
/**
/**      THE JCL AND PROGRAM TO GENERATE A FILE OF PROVISIONING
/**      ITEMS WITH DATA ELEMENTS FROM THE PROVISIONING HISTORY FILE
/**      AND THE MARS ITEM DATA FILE. FOR USE IN A PROVISIONING STUDY.
/**
//STEP1  EXEC COBUCLG,REGION=800K,PARM='SIZ=800K,SXR,CNT=56'
//SYSUDUMP DD SYSOUT=*
//SYSIN   DD      *
IDENTIFICATION  DIVISION.
PROGRAM-ID.     PROVIS02.
AUTHOR.         FRANK J. PENDER.
INSTALLATION.   DLA-LOO.
DATE-WRITTEN.   JAN 1985.
DATE-COMPILED.
SECURITY.       EYES.
REMARKS.        THIS PROGRAM SELECTS CERTAIN ITEMS FROM THE
                  PROVISION HISTORY FILE AND MARS DATA FILE BASED
                  ON CRITERIA FROM GARY ARNETT.

ENVIRONMENT     DIVISION.
CONFIGURATION   SECTION.
SOURCE-COMPUTER.
OBJECT-COMPUTER.
INPUT-OUTPUT    SECTION.
FILE-CONTROL.
                SELECT PROVFILE ASSIGN TO UT-S-SYS010.
                SELECT IMARS   ASSIGN TO UT-S-SYS020.
                SELECT OUTFILE  ASSIGN TO UT-S-SYS030.
                SELECT WORKFILE ASSIGN TO UT-S-SYS040.

DATA            DIVISION.
FILE            SECTION.
FD  PROVFILE
    LABEL RECORDS ARE STANDARD
    RECORDING MODE IS F
    BLOCK CONTAINS 0 RECORDS
    DATA RECORD IS PROVREC.
01  PROVREC.
    03  PDOR          PIC X(4).
    03  PESDAT        PIC X(5).
    03  PNSN          PIC X(13).
    03  PDRPR         PIC X(5).
    03  PWSO          PIC X.
    03  PRTAIL        PIC 9(5).
    03  PRPLEN        PIC 9(5).
    03  PAAC          PIC X.

```

```

03 PSVC PIC X.
FD IMARS
  LABEL RECORDS ARE STANDARD
  RECORDING MODE IS F
  BLOCK CONTAINS 0 RECORDS
  DATA RECORD IS IMARSREC.
01 IMARSREC.
  03 IDSC PIC X.
  03 INSN PIC X(13).
  03 FILLER PIC X(33).
  03 ISSC PIC X.
  03 FILLER PIC X(6).
  03 IUPR PIC X(9).
  03 FILLER PIC X(35).
  03 IICC PIC X.
  03 FILLER PIC X(46).
  03 IALT PIC X(3).
  03 IPLT PIC X(3).
  03 FILLER PIC X(13).
  03 IDMA PIC X(5).
  03 FILLER PIC X(34).
  03 IBOQ PIC X(9).
  03 FILLER PIC X(57).
  03 INSOQ PIC X(9).
  03 FILLER PIC X(7).
  03 IQFD PIC X(9).
  03 IQFDN PIC X(9).
  03 FILLER PIC X(130).
  03 INDQ1 PIC 9(9).
  03 INDQ2 PIC 9(9).
  03 INDQ3 PIC 9(9).
  03 INDQ4 PIC 9(9).
  03 FILLER PIC X(20).
  03 IRDQ1 PIC 9(9).
  03 IRDQ2 PIC 9(9).
  03 IRDQ3 PIC 9(9).
  03 IRDQ4 PIC 9(9).
  03 FILLER PIC X(75).
FD OUTFILE
  LABEL RECORDS ARE STANDARD
  RECORDING MODE IS F
  BLOCK CONTAINS 0 RECORDS
  DATA RECORD IS OUTFILERECD.
01 OUTFILERECD SYNC.
  03 OPROVREC PIC X(40).
  03 ODSC PIC X.
  03 OIND PIC X(2).
  03 OSSC PIC X.
  03 OUPR PIC X(9).
  03 OAIC PIC X.
  03 OICC PIC X.
  03 OALT PIC X(3).
  03 OFLT PIC X(3).
  03 ODMA PIC X(5).
  03 OBOQ PIC X(9).
  03 ONSOQ PIC X(9).

```

03	OQFD	PIC X(9).
03	OQFDN	PIC X(9).
03	ODQ832	PIC 9(9).
03	ODQ833	PIC 9(9).
03	ODQ834	PIC 9(9).
03	ODQ841	PIC 9(9).
03	ODQ842	PIC 9(9).
03	ODQ843	PIC 9(9).
03	ODQ844	PIC 9(9).
03	ODQ851	PIC 9(9).
03	OPQ832	PIC 9(9).
03	OPQ833	PIC 9(9).
03	OPQ834	PIC 9(9).
03	OPQ841	PIC 9(9).
03	OPQ842	PIC 9(9).
03	OPQ843	PIC 9(9).
03	OPQ844	PIC 9(9).
03	OPQ851	PIC 9(9).

FD WORKFILE
 LABEL RECORDS ARE STANDARD
 RECORDING MODE IS F
 BLOCK CONTAINS 0 RECORDS
 DATA RECORD IS WORKFILERECD.

01 WORKFILERECD.

03	FILLER	PIC X(6).
03	WNSN	PIC X(13).
03	FILLER	PIC X(83).
03	FILLER	PIC X(36).
03	WDQ842	PIC 9(9).
03	WDQ843	PIC 9(9).
03	WDQ844	PIC 9(9).
03	WDQ851	PIC 9(9).
03	FILLER	PIC X(72).

WORKING-STORAGE SECTION.

01 DUM-HEAD PIC X(15) VALUE 'BEGIN WORK STOR'.

01 CTRS SYNC.

03	CTR1	PIC 9(6) COMP VALUE ZEROES.
03	CTR2	PIC 9(6) COMP VALUE ZEROES.
03	CTR3	PIC 9(6) COMP VALUE ZEROES.
03	CTR4	PIC 9(6) COMP VALUE ZEROES.
03	CTR5	PIC 9(6) COMP VALUE ZEROES.
03	CTR6	PIC 9(6) COMP VALUE ZEROES.
03	CTR7	PIC 9(6) COMP VALUE ZEROES.
03	CTR8	PIC 9(6) COMP VALUE ZEROES.
03	CTR9	PIC 9(6) COMP VALUE ZEROES.
03	CTR10	PIC 9(6) COMP VALUE ZEROES.

01 IND PIC 9(3) VALUE ZEROES.

01 PRATE PIC 9(5) VALUE ZEROES.

01 PNSNH PIC X(13) VALUE SPACE.

01 PRQTY PIC 9(8) VALUE ZEROES.

PROCEDURE DIVISION.

BEGIN-PROG.

OPEN INPUT	PROVFILE.
OPEN INPUT	IMARS.
OPEN INPUT	WORKFILE.
OPEN OUTPUT	OUTFILE.

```

      MOVE 000000 TO OUTFILERECD.
DQLVL.
      MOVE 0000000000 TO ODQ832.
      MOVE 0000000000 TO ODQ833.
      MOVE 0000000000 TO ODQ834.
      MOVE 0000000000 TO ODQ841.
      MOVE 0000000000 TO ODQ842.
      MOVE 0000000000 TO ODQ843.
      MOVE 0000000000 TO ODQ844.
      MOVE 0000000000 TO ODQ851.
      MOVE 0000000000 TO OPQ832.
      MOVE 0000000000 TO OPQ833.
      MOVE 0000000000 TO OPQ834.
      MOVE 0000000000 TO OPQ841. )
      MOVE 0000000000 TO OPQ842.
      MOVE 0000000000 TO OPQ843.
      MOVE 0000000000 TO OPQ844.
      MOVE 0000000000 TO OPQ851.
ENDQLVL.
      GO TO READWORKFILE.
READPROV.
      READ PROVFILE AT END GO TO EOJ.
      IF PNSN NOT NUMERIC ADD 1 TO CTR9 GO TO READPROV.
      ADD 1 TO CTR1.
      IF CTR1 = 1 MOVE PNSN TO PNSNH.
PROVMATCH.
      IF PNSNH NOT = PNSN GO TO MARSMATCH.
      IF PDRPR < 83001 GO TO READPROV.
      IF PDRPR > 84365 GO TO READPROV.
      ADD 1 TO IND.
      ADD 1 TO CTR6.
      MOVE PROVREC TO OPROVREC.
      COMPUTE PRATE = PRLEN * .25 + .5.
      COMPUTE PRQTY = PRATE + PRTAIL.
      IF PDRPR < 83091 COMPUTE OPQ832 = OPQ832 + PRQTY GO TO QTR3.
      IF PDRPR < 83181 COMPUTE OPQ833 = OPQ833 + PRQTY GO TO QTR4.
      IF PDRPR < 83271 COMPUTE OPQ834 = OPQ834 + PRQTY GO TO QTR5.
      IF PDRPR < 83365 COMPUTE OPQ841 = OPQ841 + PRQTY GO TO QTR6.
      IF PDRPR < 84091 COMPUTE OPQ842 = OPQ842 + PRQTY GO TO QTR7.
      IF PDRPR < 84181 COMPUTE OPQ843 = OPQ843 + PRQTY GO TO QTR8.
      IF PDRPR < 84271 COMPUTE OPQ844 = OPQ844 + PRQTY GO TO QTR9.
      IF PDRPR < 84365 COMPUTE OPQ851 = OPQ851 + PRQTY GO TO QTR10.
QTR3.  COMPUTE OPQ833 = OPQ833 + PRATE.
QTR4.  COMPUTE OPQ834 = OPQ834 + PRATE.
QTR5.  COMPUTE OPQ841 = OPQ841 + PRATE.
QTR6.  COMPUTE OPQ842 = OPQ842 + PRATE.
QTR7.  COMPUTE OPQ843 = OPQ843 + PRATE.
QTR8.  COMPUTE OPQ844 = OPQ844 + PRATE.
QTR9.  COMPUTE OPQ851 = OPQ851 + PRATE.
QTR10.
      GO TO READPROV.
MARSMATCH.
      IF IND < 001 ADD 1 TO CTR7 GO TO RESETPROV.
      IF PNSNH < INSN GO TO RESETPROV.
      IF PNSNH > INSN GO TO READIMARS.
      MOVE IND TO OIND.

```

```

      MOVE IDSC      TO ODSC.
      MOVE ISSC      TO OSSC.
      MOVE IUPR      TO OUPR.
      MOVE IICC      TO OICC.
      MOVE IALT      TO OALT.
      MOVE IPLT      TO OPLT.
      MOVE IDMA      TO ODMA.
      MOVE IBOQ      TO OBOQ.
      MOVE INSOQ     TO ONSOQ.
      MOVE IQFD      TO OQFD.
      MOVE IQFDN     TO OQFDN.
      COMPUTE ODQ832 = INDQ4 + IRDQ4.
      COMPUTE ODQ833 = INDQ3 + IRDQ3.
      COMPUTE ODQ834 = INDQ2 + IRDQ2.
      COMPUTE ODQ841 = INDQ1 + IRDQ1.
      WRITE OUTFILERE.
      ADD 1 TO CTR2.
READIMARS.
      READ IMARS AT END GO TO EOJ.
      ADD 1 TO CTR3.
      GO TO WORKMATCH.
RESETPROV.
      MOVE PNSN TO PNSNH.
      ADD IND TO CTR8.
      MOVE 000 TO IND.
      MOVE 00000 TO OUTFILERE.
      PERFORM DQLVL.
      GO TO PROVMATCH.
WORKMATCH.
      IF INSN < WNSN GO TO READIMARS.
      IF INSN > WNSN GO TO READWORKFILE.
      COMPUTE WDQ842 = INDQ4 + IRDQ4.
      COMPUTE WDQ843 = INDQ3 + IRDQ3.
      COMPUTE WDQ844 = INDQ2 + IRDQ2.
      COMPUTE WDQ851 = INDQ1 + IRDQ1.
      MOVE WORKFILERE TO OUTFILERE.
      WRITE OUTFILERE.
      ADD 1 TO CTR4.
READWORKFILE.
      READ WORKFILE AT END GO TO EOJ.
      ADD 1 TO CTR5.
      GO TO WORKMATCH.
EOJ.
      DISPLAY 'PROVFILE INPUT ' CTR1.
      DISPLAY 'OUTFILE OUTPUT ' CTR2.
      DISPLAY 'IMARS INPUT ' CTR3.
      DISPLAY 'OUTFILE2 OUTPUT ' CTR4.
      DISPLAY 'WORKFILE INPUT ' CTR5.
      DISPLAY 'VALID PROV RECS ' CTR6.
      DISPLAY 'INVAL PROV RECS ' CTR7.
      DISPLAY 'TOTL NBR SSRS ' CTR8.
      DISPLAY 'INVAL NSN FIELD ' CTR9.
      CLOSE PROVFILE.
      CLOSE IMARS.
      CLOSE OUTFILE.
      CLOSE WORKFILE.

```

STOP RUN.

```
/*  
//GO.SYS010 DD DUMMY,DSN=FLO.FJP.SORT.PROVRECI,DISP=OLD  
//GO.SYS020 DD DSN=GOR.ITEM851.I,DISP=OLD,UNIT=TAPE  
//GO.SYS030 DD DSN=FLO.FJP.PROV.CMB4I,DISP=(NEW,CATLG,DELETE),  
//          DCB=(RECFM=FB,LRECL=246,BLKSIZE=18450),  
//          UNIT=3350,SPACE=(TRK,(1500,100),RLSE),VOL=SER=FLO001  
//GO.SYS040 DD DSN=FLO.FJP.PROV.CMB3I,DISP=OLD  
//GO.SYSOUT DD SYSOUT=*  
/*  
//
```

```

*****
*
* FLO6515                      85.071 14.39.01 *
* FLO.ARNETT.SAS                *
* (PROV)                        *
*                               *
*****

```

```

//FLO6515E JOB (6515,LO), 'ARNETT', CLASS=A, MSGCLASS=X,
//  NOTIFY=FLO6515
// EXEC SAS
//DATAIN DD DSN=FLO.FJP.PROV.CMB4E, DISP=OLD
//SYSIN DD *
DATA STATS;
  INFILE DATAIN;
  INPUT ADQ832 103-111 ADQ833 112-120 ADQ834 121-129 ADQ841 130-138
  ADQ842 139-147 ADQ843 148-156 ADQ844 157-165 ADQ851 166-174
  SDQ832 175-183 SDQ833 184-192 SDQ834 193-201 SDQ841 202-210
  SDQ842 211-219 SDQ843 220-228 SDQ844 229-237 SDQ851 238-246;
PROC MEANS SUM;
PROC CORR;
RUN;

```

APPENDIX F

DGSC Initial SSRs

SAS

VARIABLE	SUM
ADQ832	668.000000
ADQ833	2431.000000
ADQ834	16852.000000
ADQ841	18258.000000
ADQ842	59889.000000
ADQ843	76518.000000
ADQ844	108037.000000
ADQ851	133685.000000
SDQ832	7558.000000
SDQ833	43286.000000
SDQ834	74187.000000
SDQ841	86818.000000
SDQ842	85404.000000
SDQ843	81294.000000
SDQ844	74747.000000
SDQ851	79665.000000

DGSC Initial SSRs

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO RHO=0 / N = 12372

	AD0832	AD0833	AD0842	AD0843	AD0844	AD0851	SD0832	SD0833	SD0842	SD0843	SD0844	SD0851	SD0852	SD0853	SD0854	SD0855
AD0832	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0833	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0842	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0843	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0844	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0851	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0852	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0853	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0854	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
AD0855	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

DCSC Follow-on SSRs

SAS

VARIABLE	SUM
ADQ832	468.000000
ADQ833	2431.000000
ADQ834	16852.000000
ADQ841	18258.000000
ADQ842	59889.000000
ADQ843	76518.000000
ADQ844	108037.000000
ADQ851	133685.000000
SDQ832	7558.000000
SDQ833	43851.000000
SDQ834	77371.000000
SDQ841	96045.000000
SDQ842	100128.000000
SDQ843	94683.000000
SDQ844	94004.000000
SDQ851	94153.000000

DCSC Follow-on SSRG

CORRELATION COEFFICIENTS / PROB > IRI UNDER H0: RHO=0 / N = 12372

	ADQB32	ADQB33	ADQB34	ADQB41	ADQB42	ADQB43	ADQB44	ADQB51	SDQB32	SDQB33	SDQB34	SDQB41	SDQB42	SDQB43	SDQB44	SDQB51
ADQB32	1.00000 0.00000	0.75146 0.00001	0.00067 0.9407	0.02046 0.0228	0.00670 0.4560	0.00524 0.5597	-0.00045 0.9603	0.00227 0.8003	0.00005 0.9959	-0.00049 0.9568	-0.00052 0.9539	-0.00062 0.9451	0.00069 0.9390	-0.00083 0.9261	-0.00082 0.9272	-0.00077 0.9311
ADQB33	0.75146 0.00001	1.00000 0.00000	0.01152 0.2002	0.03884 0.0001	0.01572 0.0803	0.01487 0.0982	0.00454 0.6139	0.00534 0.7101	0.14097 0.0001	0.13856 0.0001	0.10690 0.0001	0.06916 0.0001	0.05190 0.0001	0.06813 0.0001	0.06793 0.0001	0.06692 0.0001
ADQB34	0.00067 0.9407	0.01152 0.2002	1.00000 0.00000	0.40725 0.0001	0.13874 0.0001	0.09646 0.0001	0.08161 0.0001	0.01969 0.0285	0.06682 0.4482	0.01601 0.0750	0.40152 0.0001	0.20084 0.0001	0.15005 0.0001	0.19629 0.0001	0.19615 0.0001	0.19260 0.0001
ADQB41	0.02046 0.0228	0.03884 0.0001	0.01572 0.0803	1.00000 0.00000	0.35656 0.0001	0.15462 0.0001	0.16709 0.0001	0.05268 0.0001	-0.00058 0.9483	0.01090 0.2253	0.01230 0.1712	0.02745 0.0023	0.01416 0.1153	0.02206 0.0141	0.02078 0.0208	0.01955 0.0296
ADQB42	0.00670 0.4560	0.01572 0.0803	0.0803 0.0001	0.0001 0.0000	1.00000 0.00000	0.28156 0.0001	0.24950 0.0001	0.23268 0.0001	0.00274 0.7608	0.01317 0.1431	0.07327 0.0001	0.04624 0.0001	0.03560 0.0001	0.04832 0.0001	0.04765 0.0001	0.04652 0.0001
ADQB43	0.05268 0.0001	0.01969 0.0285	0.0001 0.0000	0.15462 0.0001	0.35656 0.0001	0.15462 0.0001	0.16709 0.0001	0.05268 0.0001	-0.00058 0.9483	0.01090 0.2253	0.01230 0.1712	0.02745 0.0023	0.01416 0.1153	0.02206 0.0141	0.02078 0.0208	0.01955 0.0296
ADQB44	0.00670 0.4560	0.01572 0.0803	0.0803 0.0001	0.0001 0.0000	1.00000 0.00000	0.28156 0.0001	0.24950 0.0001	0.23268 0.0001	0.00274 0.7608	0.01317 0.1431	0.07327 0.0001	0.04624 0.0001	0.03560 0.0001	0.04832 0.0001	0.04765 0.0001	0.04652 0.0001
ADQB51	0.00227 0.8003	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101	0.00534 0.7101
SDQB32	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB33	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB34	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB41	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB42	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB43	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB44	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959
SDQB51	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959	0.00005 0.9959

DCSC Initial SSRs

SAS

VARIABLE	SUM
ADQ832	1765.000000
ADQ833	5606.000000
ADQ834	12370.000000
ADQ841	24387.000000
ADQ842	41839.000000
ADQ843	55612.000000
ADQ844	79392.000000
ADQ851	93149.000000
SDQ832	48914.000000
SDQ833	215650.000000
SDQ834	232380.000000
SDQ841	308242.000000
SDQ842	206024.000000
SDQ843	198479.000000
SDQ844	193863.000000
SDQ851	195378.000000

DCSC Initial SSRs

CORRELATION COEFFICIENTS / PROB > IRI UNDER H0:RHO=0 / N = 24845

	ADQ832	ADQ833	ADQ834	ADQ841	ADQ842	ADQ843	ADQ844	ADQ851	SDQ832	SDQ833	SDQ834	SDQ841	SDQ842	SDQ843	SDQ844	SDQ851
ADQ832	1.00000 0.00000	0.02193 0.00000	0.12967 0.00000	0.00807 0.2034	0.01781 0.0050	0.00340 0.5925	0.02811 0.0001	0.01394 0.0280	-0.00048 0.9391	0.00304 0.6316	0.00161 0.7998	0.00200 0.7526	0.00179 0.7782	0.00155 0.8069	0.00228 0.7188	0.00224 0.7243
ADQ833	0.02193 0.00000	1.00000 0.00000	0.12065 0.00000	0.03643 0.0001	0.03520 0.0001	0.01384 0.0291	0.03645 0.0001	0.01935 0.0023	0.00466 0.4627	0.00555 0.3817	0.01190 0.0607	0.00627 0.3233	0.00941 0.1379	0.00968 0.1272	0.01165 0.0662	0.01157 0.0683
ADQ834	0.12967 0.0001	0.12065 0.0001	1.00000 0.00000	0.19518 0.0001	0.12450 0.0001	0.03682 0.0001	0.18820 0.0001	0.13965 0.0001	0.00826 0.1930	0.05676 0.0001	0.05497 0.0001	0.03606 0.0001	0.04501 0.0001	0.05500 0.0001	0.05663 0.0001	0.05627 0.0001
ADQ841	0.00807 0.2034	0.03643 0.0001	0.19518 0.0001	1.00000 0.00000	0.30471 0.0001	0.25108 0.0001	0.25191 0.0001	0.15835 0.0001	0.00738 0.2450	0.03534 0.0001	0.03441 0.0001	0.02655 0.0001	0.06693 0.0001	0.05207 0.0001	0.05993 0.0001	0.05893 0.0001
ADQ842	0.01781 0.0050	0.03520 0.0001	0.12450 0.0001	0.30471 0.0001	1.00000 0.00000	0.85046 0.0001	0.54476 0.0001	0.73614 0.0001	0.01393 0.0282	0.01027 0.1056	0.02001 0.0016	0.01416 0.0256	0.22986 0.0001	0.12389 0.0001	0.14621 0.0001	0.14422 0.0001
ADQ843	0.00340 0.5925	0.01384 0.0291	0.03682 0.0001	0.25108 0.0001	0.85046 0.0001	1.00000 0.00000	0.51462 0.0001	0.80753 0.0001	0.00465 0.4637	0.00918 0.1481	0.01459 0.0215	0.01095 0.0844	0.22217 0.0001	0.11728 0.0001	0.13622 0.0001	0.13525 0.0001
ADQ844	0.02811 0.0001	0.03645 0.0001	0.18820 0.0001	0.25191 0.0001	0.54476 0.0001	0.51462 0.0001	1.00000 0.00000	0.46531 0.0001	0.01348 0.0337	0.01881 0.0030	0.02961 0.0001	0.29743 0.0001	0.33819 0.0001	0.29339 0.0001	0.34270 0.0001	0.34080 0.0001
ADQ851	0.01394 0.0280	0.01935 0.0023	0.13965 0.0001	0.15835 0.0001	0.73614 0.0001	0.80753 0.0001	0.46531 0.0001	1.00000 0.00000	0.00610 0.3365	0.01304 0.0399	0.02221 0.0095	0.01410 0.0263	0.19478 0.0001	0.10713 0.0001	0.12214 0.0001	0.12121 0.0001
SDQ832	-0.00048 0.9391	0.00466 0.4627	0.00826 0.1930	0.00738 0.2450	0.01393 0.0282	0.00465 0.4637	0.00337 0.0337	0.00610 0.3365	1.00000 0.00000	0.01304 0.0399	0.02221 0.0095	0.01410 0.0263	0.19478 0.0001	0.10713 0.0001	0.12214 0.0001	0.12121 0.0001
SDQ833	0.00304 0.6316	0.00555 0.3817	0.05676 0.0001	0.03534 0.0001	0.01027 0.1056	0.00918 0.1481	0.01459 0.0215	0.01304 0.0399	0.00610 0.3365	0.01238 0.0510	0.01238 0.0510	0.00366 0.5644	0.00937 0.1397	0.00882 0.1643	0.01190 0.0607	0.01175 0.0641
SDQ834	0.00161 0.7998	0.01190 0.0607	0.05497 0.0001	0.03441 0.0001	0.02001 0.0016	0.01095 0.0844	0.02221 0.0095	0.01410 0.0263	0.00610 0.3365	0.01238 0.0510	0.01238 0.0510	0.00366 0.5644	0.00937 0.1397	0.00882 0.1643	0.01190 0.0607	0.01175 0.0641
SDQ841	0.00200 0.7526	0.00627 0.3233	0.03606 0.0001	0.04501 0.0001	0.05500 0.0001	0.05663 0.0001	0.05627 0.0001	0.05663 0.0001	0.05627 0.0001	0.05663 0.0001	0.05627 0.0001	0.05663 0.0001	0.05627 0.0001	0.05663 0.0001	0.05627 0.0001	0.05627 0.0001
SDQ842	0.00179 0.7782	0.00941 0.1379	0.04501 0.0001	0.06693 0.0001	0.22986 0.0001	0.22217 0.0001	0.33819 0.0001	0.34270 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001	0.34080 0.0001
SDQ843	0.00155 0.8069	0.00968 0.1272	0.05500 0.0001	0.05207 0.0001	0.12389 0.0001	0.1272 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001	0.1379 0.0001
SDQ844	0.00228 0.7188	0.01165 0.0662	0.05663 0.0001	0.05993 0.0001	0.14621 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001
SDQ851	0.00224 0.7243	0.01157 0.0683	0.05627 0.0001	0.05893 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001	0.14422 0.0001

DCSC Follow-on SSRs

SAS

VARIABLE	SUM
ADQ832	1765.000000
ADQ833	5606.000000
ADQ834	12370.000000
ADQ841	24387.000000
ADQ842	41839.000000
ADQ843	55612.000000
ADQ844	79392.000000
ADQ851	93149.000000
SDQ832	52735.000000
SDQ833	248909.000000
SDQ834	242123.000000
SDQ841	338068.000000
SDQ842	232347.000000
SDQ843	260633.000000
SDQ844	223987.000000
SDQ851	225022.000000

DCSC Follow-on SSRs

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0 RHO=0 / N = 24845

	ADQ832	ADQ833	ADQ834	ADQ841	ADQ842	ADQ843	ADQ844	ADQ851	SDQ832	SDQ833	SDQ844	SDQ841	SDQ842	SDQ843	SDQ844	SDQ851
ADQ832	1.00000 0.0000	0.02193 0.0005	0.12967 0.0001	0.00807 0.2034	0.01781 0.0050	0.00340 0.5925	0.02811 0.0001	0.01394 0.0280	-0.00047 0.5339	0.00395 0.5339	0.00175 0.7827	-0.00002 0.9975	0.00097 0.8781	0.00126 0.8420	0.00133 0.8336	0.00130 0.8376
ADQ833	0.02193 0.0005	1.00000 0.0000	0.12065 0.0001	0.03643 0.0001	0.03520 0.0001	0.01384 0.0291	0.03645 0.0001	0.01935 0.0023	0.00685 0.2800	0.00685 0.2800	0.01227 0.0531	0.00537 0.3970	0.00992 0.1179	0.01209 0.0566	0.01225 0.0535	0.01211 0.0564
ADQ834	0.12967 0.0001	0.12065 0.0001	1.00000 0.0000	0.19518 0.0001	0.12450 0.0001	0.03682 0.0001	0.18820 0.0001	0.13965 0.0001	0.07149 0.0001	0.07149 0.0001	0.05588 0.0001	0.02659 0.0001	0.04506 0.0001	0.05449 0.0001	0.05500 0.0001	0.05441 0.0001
ADQ841	0.00807 0.2034	0.03643 0.0001	0.12967 0.0001	1.00000 0.0000	0.30471 0.0001	0.25108 0.0001	0.25191 0.0001	0.15835 0.0001	0.04366 0.0001	0.04366 0.0001	0.03497 0.0001	0.01726 0.0665	0.03121 0.0001	0.03690 0.0001	0.03707 0.0001	0.03664 0.0001
ADQ842	0.01781 0.0050	0.03520 0.0001	0.03643 0.0001	0.30471 0.0001	1.00000 0.0000	0.05046 0.0001	0.54476 0.0001	0.73614 0.0001	0.01332 0.0358	0.01332 0.0358	0.01981 0.0018	0.00929 0.1429	0.03126 0.0001	0.02195 0.0905	0.0157 0.0007	0.02137 0.0008
ADQ843	0.00340 0.5925	0.01384 0.0291	0.03682 0.0001	0.25108 0.0001	0.05046 0.0001	1.00000 0.0000	0.51462 0.0001	0.80753 0.0001	0.00525 0.4082	0.01179 0.0631	0.01487 0.0190	0.00736 0.2463	0.02227 0.0004	0.01117 0.0001	0.01579 0.0128	0.01558 0.0141
ADQ844	0.02811 0.0001	0.03645 0.0001	0.18820 0.0001	0.25191 0.0001	0.54476 0.0001	0.51462 0.0001	1.00000 0.0000	0.46531 0.0001	0.01543 0.0063	0.02296 0.0063	0.02930 0.0001	0.30040 0.0001	0.25136 0.0001	0.30005 0.0001	0.30059 0.0001	0.29758 0.0001
ADQ851	0.01394 0.0280	0.01935 0.0023	0.13965 0.0001	0.15835 0.0001	0.73614 0.0001	0.80753 0.0001	0.46531 0.0001	1.00000 0.0000	0.00697 0.2717	0.01699 0.0074	0.02271 0.0003	0.00965 0.1282	0.02261 0.0004	0.01939 0.0022	0.01828 0.0040	0.01805 0.0044
SDQ832	-0.00047 0.9405	0.00395 0.3962	0.00895 0.1582	0.00838 0.1863	0.00525 0.4082	0.00156 0.8052	0.00110 0.8052	0.00110 0.8052	0.00110 0.8052	0.00110 0.8052	0.00110 0.8052	-0.00137 0.8287	0.00104 0.7479	0.00283 0.6557	0.00297 0.6279	0.00297 0.6397
SDQ833	0.00395 0.5339	0.00485 0.2800	0.07149 0.0001	0.04366 0.0001	0.03332 0.0358	0.01179 0.0631	0.02296 0.0001	0.01699 0.0074	0.00000 0.0056	0.00000 0.0056	0.34864 0.0001	0.18912 0.0001	0.30665 0.0001	0.37018 0.0001	0.37201 0.0001	0.36901 0.0001
SDQ834	0.00175 0.7827	0.01227 0.0531	0.05588 0.0001	0.03497 0.0001	0.01981 0.0018	0.00929 0.1429	0.03126 0.0001	0.02195 0.0905	0.00000 0.0060	0.00000 0.0060	1.00000 0.0000	0.22915 0.0000	0.37239 0.0001	0.44960 0.0001	0.45284 0.0001	0.44822 0.0001
SDQ841	-0.00002 0.9975	0.00992 0.1179	0.04506 0.0001	0.03621 0.0001	0.03126 0.0001	0.02227 0.0004	0.01117 0.0001	0.00965 0.1282	0.00110 0.8052	0.00110 0.8052	0.22915 0.0000	0.00000 0.0000	0.75510 0.0000	0.91024 0.0001	0.91593 0.0001	0.90636 0.0001
SDQ842	0.00097 0.8781	0.00992 0.1179	0.04506 0.0001	0.03621 0.0001	0.03126 0.0001	0.02227 0.0004	0.01117 0.0001	0.00965 0.1282	0.00110 0.8052	0.00110 0.8052	0.22915 0.0000	0.00000 0.0000	0.75510 0.0000	0.91024 0.0001	0.91593 0.0001	0.90636 0.0001
SDQ843	0.00126 0.8420	0.01209 0.0566	0.05449 0.0001	0.03690 0.0001	0.02195 0.0905	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.44960 0.0001	0.91024 0.0001	0.82206 0.0001	1.00000 0.0000	1.00000 0.0000	0.99539 0.0001
SDQ844	0.00133 0.8336	0.01225 0.0535	0.05500 0.0001	0.03707 0.0001	0.03664 0.0001	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.45284 0.0001	0.91593 0.0001	0.82206 0.0001	1.00000 0.0000	1.00000 0.0000	0.99539 0.0001
SDQ851	0.00130 0.8376	0.01211 0.0564	0.05441 0.0001	0.03664 0.0001	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.00000 0.0060	0.44822 0.0001	0.90686 0.0001	0.81905 0.0001	0.98535 0.0001	0.98935 0.0001	1.00000 0.0000

DESC Initial SSRs

VARIABLE	SUM
ADQ832	697.000000
ADQ833	2072.000000
ADQ834	11714.000000
ADQ841	17148.000000
ADQ842	67046.000000
ADQ843	77634.000000
ADQ844	113387.000000
ADQ851	168169.000000
SDQ832	3123.000000
SDQ833	42746.000000
SDQ834	94666.000000
SDQ841	119621.000000
SDQ842	141762.000000
SDQ843	140012.000000
SDQ844	143064.000000
SDQ851	138950.000000

DESC Initial SSRs

CORRELATION COEFFICIENTS / PROB > IRI UNDER H0 KHO=0 / N = 38460

	ADQB32	ADQB33	ADQB34	ADQB41	ADQB42	ADQB43	ADQB44	ADQB51	SDQB32	SDQB33	SDQB34	SDQB41	SDQB42	SDQB43	SDQB44	SDQB51
ADQB32	1.00000 0.00000	0.38430 0.00001	0.01135 0.02600	0.01830 0.00003	0.00112 0.8259	0.01363 0.0075	0.00499 0.3279	0.00122 0.8116	0.00027 0.9585	0.00167 0.7434	-0.00036 0.9437	-0.00073 0.8868	-0.00114 0.8230	-0.00069 0.8922	-0.00052 0.9188	-0.00057 0.9104
ADQB33	0.38430 0.00001	1.00000 0.00000	0.03099 0.00001	0.12315 0.00001	0.05305 0.0001	0.03809 0.0001	0.02232 0.0001	0.01116 0.0287	0.04470 0.0001	0.02029 0.0001	0.02057 0.0001	0.01899 0.0002	0.02290 0.0001	0.01537 0.0026	0.01177 0.0210	0.01212 0.0115
ADQB34	0.01135 0.02600	0.03099 0.00001	1.00000 0.00000	0.05631 0.00001	0.02257 0.0001	0.09671 0.0001	0.03880 0.0001	0.00207 0.0852	0.00451 0.3770	0.00789 0.0001	0.01009 0.0479	0.01002 0.0494	0.01696 0.0316	0.00737 0.1485	0.00561 0.2717	0.00560 0.2557
ADQB41	0.01830 0.00003	0.12315 0.00001	0.05631 0.00001	1.00000 0.00000	0.08948 0.0001	0.06819 0.0001	0.04643 0.0001	0.01326 0.0093	0.02737 0.0001	0.03616 0.0001	0.03390 0.0001	0.03734 0.0001	0.03106 0.0001	0.02549 0.0001	0.01666 0.0011	0.01124 0.0007
ADQB42	0.00112 0.8259	0.05305 0.00001	0.03809 0.00001	0.02232 0.00001	1.00000 0.00000	0.08948 0.00001	0.11836 0.0001	0.04693 0.0001	0.00661 0.1950	0.05552 0.0001	0.00968 0.0577	0.02356 0.0001	0.01363 0.0072	0.01105 0.0305	0.00794 0.1395	0.00176 0.1179
ADQB43	0.01363 0.0075	0.03809 0.00001	0.09671 0.00001	0.03880 0.00001	0.08948 0.00001	1.00000 0.00000	0.30449 0.0001	0.09624 0.0001	0.03982 0.0001	0.06708 0.1650	0.00759 0.1365	0.00543 0.2873	0.00817 0.1049	0.00512 0.2420	0.00340 0.5047	0.00352 0.4890
ADQB44	0.00499 0.3279	0.02232 0.00001	0.04643 0.00001	0.08948 0.00001	0.11836 0.00001	0.30449 0.00001	1.00000 0.00000	0.05107 0.0000	0.00600 0.2392	0.03117 0.0001	0.01238 0.0152	0.00879 0.0847	0.00942 0.0643	0.00698 0.1713	0.00473 0.3538	0.00491 0.3354
ADQB51	0.00122 0.8116	0.01116 0.0287	0.01326 0.0093	0.02737 0.0001	0.03616 0.0001	0.03390 0.0001	0.03734 0.0001	1.00000 0.00000	0.00821 0.1075	0.01044 0.0407	0.00211 0.6795	0.02085 0.0001	0.00735 0.1493	0.03182 0.0001	0.00353 0.4887	0.00366 0.4731
SDQB32	0.00027 0.9585	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000	0.00001 0.00000
SDQB33	0.00167 0.7434	0.02029 0.0001	0.02057 0.0001	0.01899 0.0002	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001	0.02290 0.0001
SDQB34	-0.00036 0.9437	0.02057 0.0001	0.01009 0.0479	0.03390 0.0001	0.00968 0.0577	0.00737 0.1485	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852
SDQB41	-0.00073 0.8868	0.01009 0.0001	0.01002 0.0494	0.03734 0.0001	0.02356 0.0001	0.00968 0.0577	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852	0.00451 0.3770	0.00207 0.0852
SDQB42	-0.00114 0.8230	0.02290 0.0001	0.01096 0.0316	0.03166 0.0001	0.01363 0.0075	0.00827 0.1049	0.00942 0.0643	0.00735 0.1493	0.01549 0.0001	0.02085 0.0001	0.00735 0.1493	0.02085 0.0001	0.00735 0.1493	0.01549 0.0001	0.02085 0.0001	0.00735 0.1493
SDQB43	-0.00069 0.8922	0.01537 0.0026	0.00737 0.1485	0.02349 0.0001	0.01103 0.0305	0.00596 0.2420	0.00698 0.1713	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182	0.00509 0.3182
SDQB44	-0.00052 0.9188	0.01177 0.0210	0.00561 0.2717	0.01666 0.0011	0.00754 0.1395	0.00340 0.5047	0.00473 0.3538	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887	0.00353 0.4887
SDQB51	-0.00057 0.9104	0.01212 0.0115	0.00580 0.2557	0.01724 0.0007	0.00775 0.1279	0.00353 0.4890	0.00491 0.3354	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731	0.00366 0.4731

DESC Follow-on SSRs

SAS

VARIABLE	SUM
ADQ832	697.000000
ADQ833	2072.000000
ADQ834	11714.000000
ADQ841	17148.000000
ADQ842	67046.000000
ADQ843	77634.000000
ADQ844	113387.000000
ADQ851	168169.000000
SDQ832	3594.000000
SDQ833	47587.000000
SDQ834	104890.000000
SDQ841	144638.000000
SDQ842	174631.000000
SDQ843	186747.000000
SDQ844	208374.000000
SDQ851	200135.000000

DESC Follow-on SSRs

CORRELATION COEFFICIENTS / FROM > IRI UNDER H0:RHO=0 / N = 38460

	ADQ832	ADQ833	ADQ834	ADQ841	ADQ842	ADQ843	ADQ844	ADQ851	SDQ832	SDQ833	SDQ834	SDQ841	SDQ842	SDQ843	SDQ844	SDQ851
ADQ832	1.00000	0.38430	0.01135	0.01830	0.00112	0.01363	0.00499	0.00122	0.00018	0.00272	-0.00037	-0.00048	-0.00108	-0.00032	-0.00046	-0.00054
	0.00066	0.00061	0.00266	0.00093	0.00259	0.00075	0.00279	0.00116	0.00716	0.5943	0.9429	0.9253	0.8322	0.9505	0.9278	0.9151
ADQ833	0.38430	1.00000	0.03099	0.12315	0.05305	0.03809	0.02232	0.01116	0.04095	0.19435	0.02058	0.01362	0.01708	0.01341	0.00875	0.00892
	0.00001	0.00000	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ834	0.01135	0.03099	1.00000	0.05631	0.02257	0.00671	0.03880	0.00297	0.00410	0.08398	0.01035	0.00759	0.00850	0.00645	0.00424	0.00464
	0.00266	0.00001	0.00000	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ841	0.01830	0.12315	0.05631	1.00000	0.00948	0.00819	0.04643	0.01326	0.02525	0.03436	0.03433	0.02993	0.05725	0.02299	0.01374	0.01421
	0.00063	0.00001	0.00001	0.00000	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ842	0.00112	0.05305	0.02257	0.00948	1.00000	0.00000	0.11836	0.04693	0.00597	0.05324	0.01009	0.01863	0.02610	0.01552	0.01166	0.01000
	0.00259	0.00001	0.00001	0.00001	0.00000	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ843	0.01363	0.03809	0.00671	0.00819	0.00948	1.00000	0.30449	0.09424	0.03669	0.00768	0.00921	0.00531	0.02148	0.01651	0.01772	0.01220
	0.00075	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ844	0.00499	0.02232	0.03880	0.04643	0.11836	0.00000	1.00000	0.05107	0.00571	0.02989	0.01242	0.00699	0.01065	0.00933	0.01002	0.00779
	0.00279	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ADQ851	0.00122	0.01116	0.00207	0.01326	0.04693	0.00001	0.09424	1.00000	0.00750	0.00996	0.00214	0.01519	0.00886	0.00529	0.00394	0.00382
	0.00116	0.00287	0.00052	0.00093	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SDQ832	0.00018	0.04095	0.00410	0.02525	0.00597	0.03669	0.00449	0.00750	1.00000	0.13080	0.06767	0.04552	0.05510	0.04266	0.02854	0.02924
	0.9716	0.0001	0.4215	0.0001	0.2415	0.0001	0.0001	0.00750	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SDQ833	0.00272	0.19435	0.00398	0.03436	0.05324	0.00768	0.02989	0.00996	0.13080	1.00000	0.16044	0.11270	0.13653	0.10539	0.06999	0.07271
	0.5943	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ834	-0.00037	0.02058	0.01035	0.03433	0.01009	0.00921	0.01242	0.00214	0.06767	0.16044	1.00000	0.02571	0.52014	0.39741	0.26770	0.27413
	0.9429	0.0001	0.0423	0.0001	0.0479	0.0710	0.0148	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SDQ841	-0.00048	0.01362	0.00759	0.02893	0.01863	0.00531	0.00699	0.01519	0.04552	0.11270	0.42571	1.00000	0.87028	0.66986	0.45170	0.46220
	0.9253	0.0007	0.1364	0.0001	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
SDQ842	-0.00108	0.01708	0.00850	0.05725	0.02610	0.02148	0.01065	0.00699	0.05510	0.13653	0.52014	0.87028	1.00000	0.70731	0.47694	0.48793
	0.8322	0.0008	0.0954	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ843	-0.00032	0.01341	0.00645	0.02299	0.01552	0.01651	0.00933	0.00529	0.04266	0.10539	0.39741	0.66986	0.70731	1.00000	0.54777	0.55999
	0.9505	0.0005	0.2057	0.0001	0.0023	0.0012	0.0072	0.2993	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ844	-0.00046	0.00875	0.00424	0.01374	0.01166	0.01772	0.01002	0.00394	0.02854	0.06999	0.26770	0.45170	0.47694	0.54777	1.00000	0.99143
	0.9278	0.0000	0.4055	0.0070	0.0222	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
SDQ851	-0.00054	0.00892	0.00464	0.01421	0.01000	0.01220	0.00779	0.00382	0.02924	0.07271	0.27413	0.46220	0.48793	0.55999	0.99143	1.00000
	0.9151	0.0001	0.3626	0.0053	0.0499	0.0168	0.1265	0.4534	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000

DISC Initial SSRs

SAS

VARIABLE	SUM
ADQ832	16686.00000
ADQ833	64820.00000
ADQ834	82900.00000
ADQ841	234256.00000
ADQ842	406072.00000
ADQ843	419627.00000
ADQ844	1112848.00000
ADQ851	614457.00000
SDQ832	90783.00000
SDQ833	1371962.00000
SDQ834	923966.00000
SDQ841	1248801.00000
SDQ842	1093464.00000
SDQ843	1118097.00000
SDQ844	1053873.00000
SDQ851	1093881.00000

DISC Initial SSRs

CORRELATION COEFFICIENTS / PROB > IRI UNDER HO:RHO=0 / N = 37217

	ADQ832	ADQ833	ADQ834	ADQ841	ADQ842	ADQ843	ADQ844	ADQ851	SDQ832	SDQ833	SDQ834	SDQ841	SDQ842	SDQ843	SDQ844	SDQ851
ADQ832	1.00000	0.81332	0.24151	0.05456	0.26310	0.12320	0.01469	0.11536	0.00002	-0.00056	-0.00055	-0.00111	-0.00098	-0.00099	-0.00095	-0.00098
	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.9966	0.9135	0.9148	0.8309	0.8500	0.8479	0.8539	0.8497
ADQ833	0.81332	1.00000	0.18088	0.03405	0.22150	0.10001	0.01439	0.13099	-0.00002	0.00434	0.00149	0.00152	0.00159	0.00154	0.00166	0.00160
	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.9966	0.4020	0.7744	0.7687	0.7597	0.7664	0.7485	0.7577
ADQ834	0.24151	0.18088	1.00000	0.18338	0.34680	0.39003	0.07713	0.32162	0.03772	0.00066	0.00255	0.00508	0.01076	0.00534	0.00559	0.00542
	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.8987	0.6232	0.3272	0.0378	0.3034	0.2808	0.2961
ADQ841	0.05456	0.03405	0.18338	1.00000	0.11621	0.12821	0.25741	0.10146	0.00357	0.00119	0.00081	0.00578	0.00503	0.00376	0.00388	0.00377
	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.4908	0.8187	0.8752	0.2649	0.3320	0.4688	0.4547	0.4667
ADQ842	0.26310	0.22150	0.34680	0.11621	1.00000	0.49418	0.15242	0.33244	0.01239	0.00100	0.04291	0.04405	0.03498	0.02727	0.02794	0.02770
	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0168	0.8474	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
ADQ843	0.12320	0.10001	0.39003	0.12821	0.49418	1.00000	0.12895	0.49729	0.02476	0.01848	0.03434	0.04395	0.10874	0.05773	0.05868	0.06028
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
ADQ844	0.01469	0.01439	0.07713	0.25741	0.15242	0.12895	1.00000	0.08615	0.00429	0.00267	0.02797	0.01439	0.01355	0.01245	0.01263	0.01277
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001	0.2248	0.6071	0.0001	0.0055	0.0090	0.0163	0.0148	0.0138
ADQ851	0.11536	0.13099	0.32162	0.10146	0.33244	0.49729	0.08615	1.00000	0.00732	0.02170	0.01829	0.03120	0.04853	0.03994	0.03796	0.03860
	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.1580	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ832	0.00002	-0.00002	0.03772	0.00357	0.01239	0.02476	0.00629	0.00732	1.00000	0.00676	0.01357	0.01599	0.01713	0.01685	0.01761	0.01718
	0.9966	0.9966	0.0001	0.4908	0.0168	0.0001	0.2248	0.1580	0.0000	0.1922	0.0088	0.0020	0.0010	0.0012	0.0007	0.0009
SDQ833	-0.00056	0.00434	0.00066	0.00119	0.00100	0.01848	0.00267	0.02170	0.00676	1.00000	0.57772	0.75444	0.76822	0.76157	0.78013	0.77070
	0.9135	0.4020	0.8987	0.8187	0.8474	0.0004	0.6071	0.0001	0.1922	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ834	-0.00055	0.00149	0.00255	0.00081	0.04291	0.03434	0.02797	0.01829	0.01357	0.57772	1.00000	0.50836	0.51812	0.51355	0.52627	0.51978
	0.9148	0.7744	0.6232	0.8752	0.0001	0.0001	0.0001	0.0004	0.0088	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001
SDQ841	-0.00111	0.00152	0.00508	0.00578	0.04405	0.04395	0.01439	0.03120	0.01599	0.75444	0.50836	1.00000	0.85201	0.84448	0.86546	0.85475
	0.8309	0.7687	0.3272	0.2649	0.0001	0.0001	0.0001	0.0001	0.0020	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001
SDQ842	-0.00098	0.00159	0.01076	0.00503	0.03498	0.10874	0.01355	0.04853	0.01713	0.76822	0.51812	0.85201	1.00000	0.87293	0.89449	0.88350
	0.8500	0.7597	0.0378	0.3320	0.0001	0.0001	0.0001	0.0001	0.0010	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001
SDQ843	-0.00099	0.00154	0.00534	0.00376	0.02727	0.05773	0.01245	0.03994	0.01685	0.76157	0.51355	0.84448	0.87293	1.00000	0.98713	0.97504
	0.8479	0.7664	0.3034	0.4688	0.0001	0.0001	0.0163	0.0001	0.0012	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001
SDQ844	-0.00095	0.00166	0.00559	0.00388	0.02794	0.05868	0.01263	0.03796	0.01761	0.78013	0.52627	0.86546	0.89449	0.98713	1.00000	0.98712
	0.8539	0.7485	0.2808	0.4547	0.0001	0.0001	0.0148	0.0001	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001
SDQ851	-0.00099	0.00160	0.00542	0.00377	0.02770	0.06028	0.01277	0.03860	0.01718	0.77070	0.51978	0.85475	0.88350	0.97504	0.98712	1.00000
	0.8497	0.7577	0.2961	0.4667	0.0001	0.0001	0.0138	0.0001	0.0009	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000

DISC Follow-on SSRs

SAS

VARIABLE	SUM
ADQ832	16686.00000
ADQ833	64820.00000
ADQ834	82900.00000
ADQ841	234256.00000
ADQ842	406072.00000
ADQ843	419627.00000
ADQ844	1112848.00000
ADQ851	614457.00000
SDQ832	101224.00000
SDQ833	1411065.00000
SDQ834	976866.00000
SDQ841	1397222.00000
SDQ842	1203932.00000
SDQ843	1320527.00000
SDQ844	1202567.00000
SDQ851	1236594.00000

DISC Follow-on SSRs

CORRELATION COEFFICIENTS / PROB IN UNDER μ_0 RHO=0 / N = 37217

	ADQ832	ADQ833	ADQ834	ADQ841	ADQ842	ADQ843	ADQ844	ADQ851	SDQ832	SDQ833	SDQ834	SDQ841	SDQ842	SDQ843	SDQ844	SDQ851
ADQ832	1.00000 0.00000	0.81332 0.00001	0.24151 0.00001	0.05456 0.00001	0.26310 0.00001	0.12320 0.00001	0.01469 0.00466	0.11556 0.00001	0.00000 0.99994	0.00025 0.96008	0.00014 0.97866	-0.00023 0.96488	-0.00008 0.98700	0.00050 0.92355	0.00020 0.96994	0.00013 0.98006
ADQ833	0.81332 0.00001	1.00000 0.00000	0.18088 0.00001	0.03405 0.00001	0.22150 0.00001	0.10001 0.00001	0.01439 0.00555	0.13099 0.00001	-0.00008 0.98883	0.00729 0.15977	0.00403 0.43697	0.00485 0.34977	0.00504 0.33133	0.00663 0.20120	0.00552 0.28655	0.00543 0.29511
ADQ834	0.24151 0.00001	0.18088 0.00001	1.00000 0.00000	0.18338 0.00001	0.34680 0.00001	0.39003 0.00001	0.07713 0.00001	0.32162 0.00001	0.03696 0.00001	0.00273 0.59779	0.00480 0.35500	0.01556 0.00227	0.01791 0.00006	0.01847 0.00004	0.01546 0.00029	0.01512 0.00035
ADQ841	0.05456 0.00001	0.03405 0.00001	0.18338 0.00001	1.00000 0.00000	0.11621 0.00001	0.12821 0.00001	0.25741 0.00001	0.10146 0.00001	0.00398 0.44297	0.00145 0.77966	0.00125 0.80911	0.00715 0.16766	0.00609 0.24020	0.00632 0.22266	0.00601 0.24633	0.00592 0.25333
ADQ842	0.26310 0.00001	0.22150 0.00001	0.34680 0.00001	0.11621 0.00001	1.00000 0.00000	0.49418 0.00001	0.15242 0.00001	0.33244 0.00001	0.01179 0.02300	0.00187 0.71811	0.04351 0.00001	0.04508 0.00001	0.03704 0.00001	0.02948 0.00001	0.03029 0.00001	0.03017 0.00001
ADQ843	0.12320 0.00001	0.10001 0.00001	0.39003 0.00001	0.12821 0.00001	0.49418 0.00001	1.00000 0.00000	0.12895 0.00001	0.49729 0.00001	0.02363 0.00001	0.01916 0.00002	0.03531 0.00001	0.04538 0.00001	0.10898 0.00001	0.06078 0.00001	0.06051 0.00001	0.06242 0.00001
ADQ844	0.01469 0.00001	0.01439 0.00001	0.07713 0.00001	0.25741 0.00001	0.15242 0.00001	0.12895 0.00001	1.00000 0.00000	0.08615 0.00001	0.00599 0.24811	0.00281 0.58811	0.02790 0.00001	0.01457 0.00001	0.01392 0.00733	0.01301 0.01121	0.01311 0.01144	0.01324 0.01077
ADQ851	0.11556 0.00001	0.13099 0.00001	0.32162 0.00001	0.10146 0.00001	0.33244 0.00001	0.49729 0.00001	0.08615 0.00001	1.00000 0.00000	0.00684 0.18720	0.02338 0.00001	0.02002 0.00001	0.03272 0.00001	0.05190 0.00001	0.05155 0.00001	0.04411 0.00001	0.04470 0.00001
SDQ832	0.00000 0.99994	-0.00008 0.98883	0.00008 0.00001	0.00398 0.44297	0.01179 0.02300	0.00187 0.71811	0.04351 0.00001	0.04508 0.00001	0.03704 0.00001	0.02948 0.00001	0.03029 0.00001	0.03017 0.00001	0.03017 0.00001	0.03017 0.00001	0.03017 0.00001	0.03017 0.00001
SDQ833	0.00025 0.96688	0.00729 0.15977	0.00273 0.59779	0.00145 0.77966	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811	0.00187 0.71811
SDQ834	0.00014 0.97866	0.00403 0.43697	0.00480 0.35500	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911	0.00125 0.80911
SDQ841	-0.00023 0.96488	0.00485 0.34977	0.00227 0.00006	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035	0.00029 0.00035
SDQ842	-0.00008 0.98700	0.00504 0.33133	0.01791 0.00006	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020	0.00609 0.24020
SDQ843	0.00050 0.92355	0.00663 0.20120	0.01847 0.00004	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266	0.00632 0.22266
SDQ844	0.00020 0.96994	0.00552 0.28655	0.01546 0.00029	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633	0.00601 0.24633
SDQ851	0.00013 0.98006	0.00543 0.29511	0.01512 0.00035	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333	0.00592 0.25333

APPENDIX G

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