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PERS-TR-95-003
SEPTEMBER 1995

Estimating Costs of Personnel Security Investigations Conducted by the Defense Investigative Service

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FROM: Marty Wiskoff, BDM

DATE: 19 February 1996

SUBJ: Errata for PERSEREC report, *Estimating Costs of Personnel Security Investigations Conducted by the Defense Investigative Service,* mailed to you 19 January 1996

Please note the following changes in the last column of Tables 12 and 14, on pages 20 and 21 respectively. The headings of these columns should indicate **($)** rather than **($Mil)** for these two tables.

ERRATA AD-A303477

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ESTIMATING COSTS OF PERSONNEL SECURITY INVESTIGATIONS CONDUCTED BY THE DEFENSE INVESTIGATIVE SERVICE

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FOREWORD

The downsizing of the Department of Defense has caused increasingly greater scrutiny to be placed on the costs of the personnel security system. One of the large expenses in this system is the cost of conducting personnel security background investigations. There is a need for more accurate data concerning the costs of investigations.

PERSEREC in this study has examined the costs of conducting different types of personnel security investigations by the Defense Investigative Service (DIS). A methodology was developed for more accurately estimating DIS investigative costs. This methodology was applied to data for FY92 and FY93 and cost estimates were generated for investigation types such as the Single Scope Background Investigation, the Top Secret Periodic Reinvestigation, the Expanded National Agency Check, etc.

The results of this study can be used for establishing a methodology that can be adopted for accurately estimating DIS investigative costs. As this report was being completed, revised information on FY93 costs and new FY94 data were being developed by DIS. While the FY92 and FY93 investigative cost figures in this report can be used at this time as the best estimates of DIS costs for these years, they will be reviewed in a subsequent report and compared to the FY94 figures generated using the methodology.

We would like to thank the DIS for cooperating in this study. In particular, Lynn Reuschel of the DIS Investigative Field Office, Monterey, provided valuable information and insights into DIS field operations. The data needed to conduct the study were supplied by Chuck Forsyth, Janice Fielder and Bonnie Noice from DIS Headquarters.

Roger P. Denk, Ph.D.
Director

EXECUTIVE SUMMARY

Background

The Defense Personnel Security Research Center (PERSEREC) was tasked in March 1995 by the Deputy Assistant Secretary of Defense (I&S) to conduct an empirical review of how much it costs the Defense Investigative Service (DIS) to conduct the various types of personnel security investigations. While estimates of these costs have been provided on a yearly basis by DIS, the methodology and the resulting cost estimates had not been studied in a systematic manner to determine their reliability and validity.

DIS is not required to maintain a cost accounting system for the calculation of investigative costs because they do not conduct investigations on a reimbursable basis for the various agencies they serve. As such, DIS does not use cost accounting procedures that would allow for the direct calculation of costs. Over the years DIS has developed procedures to enable them to estimate these costs.

The basic element in the DIS system is the data recorded by field investigators on the Workload and Time Report (WTR) concerning their work output. This information is recorded on worksheets in terms of time to perform various tasks, such as the hours and fractions of hours to conduct a subject interview, a records check, etc. The time figures are then converted by DIS into a measure called a weighted unit (WU). Costs of investigations are generated by using weighted units in conjunction with: (1) survey estimates of the frequencies of types of work activities that occur during investigations, e.g., the average number of subject interviews during a Single Scope Background Investigation (SSBI); and (2) accounting data on the annual amount of the DIS budget that is attributable to personnel security investigations.

Method

Discussions were held with personnel from the DIS field office in Monterey, CA, and with the DIS comptroller and his staff. DIS provided information concerning the procedures they employ in generating cost estimates for investigations, along with actual data to support their calculations for FY92 and FY93. Our analyses of these data raised questions concerning the accuracy of these cost estimates. For both years DIS significantly overestimated the costs of investigations. Accordingly, we developed a new methodology that would provide more accurate estimates of investigative costs. The methodology was evaluated using the DIS data for FY92 and FY93 and compared with the DIS estimates.

Findings

We evaluated the DIS system and found that it does not result in cost estimates that are internally consistent with the total amount of money available to DIS to conduct investigations.

The estimates were approximately 24% too high in FY92 and 43% too high in FY93. This resulted in inflated estimates of investigative costs for each type of investigation for both years, except for the few "limited investigations" where the cost estimate was too low.

Our analysis of the system found that a major difficulty is the procedure whereby the time to conduct different types of investigative leads is converted into the WU measure. Use of the WU for estimating costs is inappropriate because it is based on a scale of unknown and changing characteristics. Consequently, it leads to cost estimates that are not constrained by the total personnel security system cost.

We developed a different methodology to estimate costs of investigations. The PERSEREC system uses existing data available to DIS and is internally consistent with the DIS budget figures used in their calculations. Our estimates of the average costs of FY93 investigations, including costs of credit checks and national agency checks, are SSBI = $1,271, the expanded national agency check = $1,083, the Top Secret periodic reinvestigation = $667, and a Secret periodic reinvestigation requiring a field investigation = $614.

Recommendations

Results of the study were briefed to representatives of ASD (I&S), ASD (PA&E) and DIS during the week of June 25th, 1995. The study findings and the PERSEREC methodology were endorsed during the meetings. Two sets of recommendations were generated by the study. The first concerns the operational determination of investigative costs. The second addresses those components of the DIS system that could benefit from an objective review.

Operational Recommendations

1. PERSEREC estimates of DIS costs of investigations for FY92 and FY93 that are contained in this report should replace the DIS cost estimates for these years. These figures should be reviewed, however, if additional information concerning the accurate allocation of costs to the DIS personnel security investigation budget is found in subsequent PERSEREC studies.

2. The methodology developed by PERSEREC, documented in this report, should be used in the future to estimate the DIS investigative costs. PERSEREC should work with DIS to ensure that costs are accurately prorated to different program elements. FY94 cost estimates should be developed as soon as complete data is available.

3. For estimating investigative costs, the time spent by field investigators should be made in hours rather than in weighted units; the conversion of time spent to weighted units is unnecessary. DIS should not use this weighted unit system in conjunction with costs of investigations. The WU measure has confused policymakers and analysts who have attempted to understand the DIS costing system.

4. The PERSEREC methodology should be employed as a starting point for generating DIS investigative cost estimates that would be appropriate for conducting investigations on a

reimbursable basis. However, these projected figures must be updated and the procedures refined depending upon the nature of the reimbursable system that will be instituted.

Research Recommendations

1. PERSEREC should work with DIS to review their system for assessing the productivity of field investigators and field units. This agreement was reached during PERSEREC's briefing of DIS in June and initial funding for the project has been provided by DIS. The critical element in the productivity assessment system is the information obtained from the WTR. As part of this study, PERSEREC should review both the WTR changes over time and the guidelines for recording information on the WTR.

2. DIS and PERSEREC should collaborate on the conduct of future Lead Count Surveys. This recommendation was also supported by DIS during the June briefing. At the present time the survey is conducted every few years on a time-available basis. A standardized schedule for the survey should be created and professional research assistance should be provided to DIS to ensure the accuracy of the sampling methodology and procedures employed.

3. DIS and PERSEREC should determine (with input from C3I and the DoD Comptroller) the best procedures for prorating DIS costs to different program areas.

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INTRODUCTION

Purpose and Tasking

The costs to the Department of Defense (DoD) to conduct a personnel security investigation (PSI) by the Defense Investigative Service (DIS) is of critical concern in this era of diminishing budgets. In its February 1994 report, the DoD/Director of Central Intelligence Joint Security Commission stressed the importance of developing accurate security costs, including the costs of various types of personnel security background investigations.

DIS has developed a methodology that they have used for many years to estimate their costs to conduct different types of investigations. However, the methodology and the cost estimates resulting from its use have not been studied in a scientific manner to determine their reliability and validity. In March 1995 PERSEREC was tasked by the DASD (I&S) to conduct an empirical review of how much it costs to conduct the various security investigations by DIS. Further, PERSEREC was asked to share the information with the personnel security community. This report documents the results of the study conducted in response to the tasking.

Method

Initial discussions were held with personnel from the DIS field office in Monterey. Information was obtained concerning the procedures employed by DIS in assigning work to field units and recording the daily activities of agents. In addition, a description was provided of the DIS method for converting the time spent by agents into a scale called weighted units (WUs) that is used in the calculation of costs and evaluation of productivity of agents and field units.

The overall methodology of the DIS cost estimation system was discussed during a meeting with the DIS comptroller and his staff. Information was provided by DIS concerning the methods used for each portion of the DIS cost estimation process. In addition, actual data to support the calculations for FY92 and FY93 (the latest years for which sufficient information was available to enable cost estimates) were supplied by DIS. Discussions are currently ongoing with DIS concerning possible revised information for FY93 and the data to permit analyses for FY94.

Analyses were conducted that aggregated the DIS cost estimates by case type and compared this to the total amount of money available to DIS for conducting personnel security investigations. These analyses found that the DIS methodology did not produce accurate estimates of costs.

Accordingly, an effort was undertaken to develop a new methodology that would provide more accurate estimates of investigative costs. The methodology was then employed with the DIS-provided data, and cost estimates were generated for FY92 and FY93 that were compared with the DIS estimates.

Organization of Report

The first section of the report presents a description and analysis of the system currently used by DIS. It starts with a conceptual overview of the system, followed by a detailed description of each of the methodological steps used by DIS to estimate costs. To assist the reader, actual data corresponding to or generated by each of these steps will be presented. FY92 data will be used in these examples because step C below (the Lead Count Survey) was conducted in 1992. Finally, the FY92 and FY93 DIS personnel security investigation cost estimates are presented and evaluated, along with the DIS methodology.

A conceptual overview and detailed description of the PERSEREC-developed methodology is found in the next section. Revised estimates of investigative costs for FY92 and FY93 are then presented using the PERSEREC methodology.

The last section provides recommendations for future determination of investigative costs and reporting of this data to policymakers. It also contains recommendations for research into the various components of the DIS systems that generate the data used in developing cost estimates. The Appendix provides worksheets and detailed data for the revised estimates of DIS investigative costs for FY92 and FY93.

THE DIS SYSTEM FOR ESTIMATING COSTS OF INVESTIGATIONS

DIS does not have an actual cost accounting system that would allow for the direct calculation of investigation costs. DIS is not required to maintain a cost accounting system because they do not "charge" for investigations, that is, they do not conduct investigations on a reimbursable basis for the various agencies they serve. If they were tasked to maintain such a system, it would require creation of a separate cost center for each investigation opened, and the recording of all the direct costs associated with that investigation, such as investigator time, planning, report writing, etc. To these costs it would be necessary to allocate indirect costs associated with unavoidable delays, automobile travel, office overhead, the Personnel Investigations Center (PIC), DIS headquarters, supervision, training, etc. DIS feels that the expenses to establish and maintain a cost accounting system would outweigh the limited benefits of slightly more accurate cost estimates. Instead of obtaining a calculated cost of investigation through a cost accounting system, DIS combines information from different sources to obtain an estimated cost of investigation.

Detailed Description of the System

A schematic representation of the DIS process for estimating costs is presented in Figure 1. The procedures and calculations that occur in each of the blocks in Figure 1 are described below. References in the text to "Boxes" refer to the blocks corresponding to the capital letters.

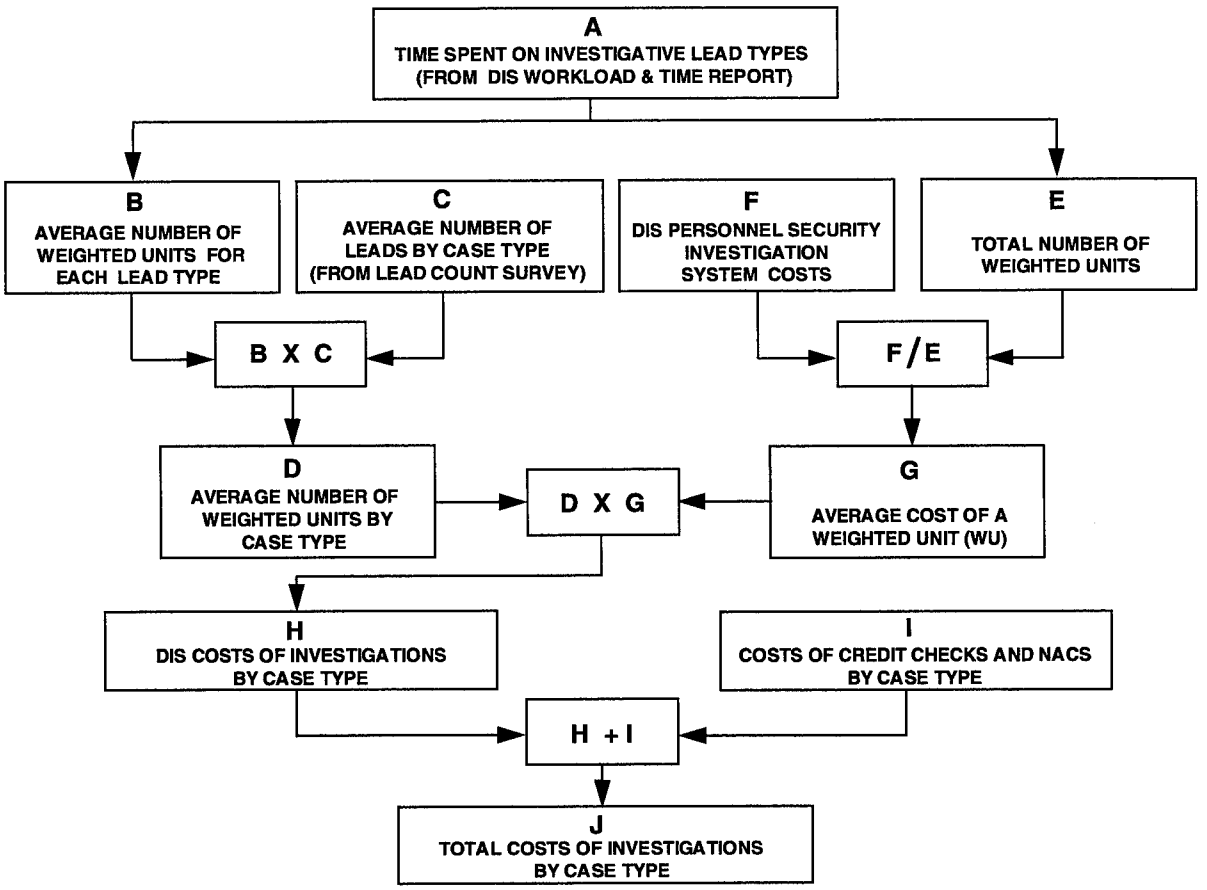

FIGURE 1 Schematic representation of the DIS procedure for calculating costs of investigations

Time Spent on Investigative Lead Types (Box A)

The first component of the system obtains information on the average time spent by field investigators for each of the different types of investigative leads. It employs data collected within a system that DIS uses to assign work and to assess field agent productivity.

DIS uses DIS Action/Lead Sheet (Form 13) to assign actions to be taken on a case to DIS field offices. These actions are assigned as "initial leads" for a particular office to pursue, such as conducting subject interviews (SIs), or records checks (RCs). For example, a Form 13 might be sent to conduct an initial SSBI that assigns the Albuquerque office the responsibility for a SI, the Denver office the requirement for two "other interviews" (OIs) and a local agency check (LAC), the Dallas office the responsibility for RCs, etc. In addition to these initial leads, other leads may be generated during the course of the investigation. For example, the Denver office might assign a "lateral lead" to Monterey to conduct an OI, or DIS might send out an "additional lead" to a field office on a case.

The completion of a single investigation involves the coordinated effort of a number of different field units and possibly different investigators within a single office. Thus the time to complete an investigation is dictated by the workload across offices and being able to complete work in a timely fashion, e.g., locating the appropriate individuals and conducting interviews.

DIS uses Form 45D, DIS Workload and Time Report (WTR), to record the actions of field investigators in pursuing the various lead types, i.e., to document how agents spend the minutes of each day. Field investigators are defined as personnel within each DIS field office who actually conduct interviews, perform record checks, etc. Administrators and clerical personnel within the offices do not complete the WTR. While the format of the WTR has changed over time, the same basic information has been obtained.

Investigators maintain their own monthly copy of the WTR. On a daily basis they enter into the appropriate column of the form the nature of their activity and the number of minutes spent on that activity. Following are the categories for recording information on the July 1992 version of the 45D:

Subject Interviews (Issue and Non-Issue)
Other Interviews (Issue and Non-Issue)
Other Interviews (Negative)
Records Check (Issue and Non-Issue)
Records Check (Negative)
LACs
Investigative Travel
Planning/Report Writing
Indirect Productive Time
All Leave/Unavoidable Delay
Formal Training
Supervision

TABLE 1
Hypothetical Representation of an Investigator's Activities on a Given Day

Activity	Number	Time Spent (minutes)
Subject interview (non-issue)	1	120
Other interviews (non-issue)	3	95
Records checks (non-issue)	5	125
Investigative Travel	n.a.	65
Planning/Report Writing	n.a.	55
Unavoidable Delay	n.a.	35
TOTAL	n.a.	495

Table 1 is a hypothetical representation of time spent on a given day by an investigator. Note that the total number of minutes in this example (495) is more than 480 minutes, the usual

working day (8 hours x 60 minutes/hour). This would happen if the investigator spent voluntary overtime on DIS-related activities.

Data recorded on the monthly WTRs are provided to DIS Headquarters. From this data DIS calculates the average time spent performing each of the lead types during a fiscal year. For example, the sum of all the time spent on SIs for all DIS field investigators during the year is calculated. This sum is divided by the total number of SIs conducted to obtain an average time per SI. Average times for each of the other investigative lead types are calculated in similar fashion.

It should be noted that DIS uses the data from the WTR primarily to monitor productivity of field investigators and the efficiency of DIS field offices. The Form 45D was not designed as an instrument to collect data for determining costs of investigations. Nonetheless, data from WTR entries are employed, along with other information collected by DIS, to provide estimates of costs. This, however, is a secondary, and to DIS, a far less important use of the data on the 45D.

Average Number of Weighted Units for each Lead Type Converted from Average Time Spent Estimates (Box B)

DIS converts the average time spent for each lead type into a measure called a weighted unit. The WU scale is constructed by using the average time spent for one of the lead types as a baseline (denominator), and dividing that number into the time spent for each of the other lead types (numerator). The WU scale is simply the time-spent scale converted into a different metric, like converting hours (including fractions of hours) into minutes. Unlike the hours/minutes conversion, however, the characteristics of the WU scale have not been defined which, as we shall see later, causes difficulty in interpretation.

The WU only considers time spent on leads, i.e., what is called the total investigative time, not travel, report writing or the other categories of time spent by an investigator. The rationale for this is that it is the combination of time spent on a lead and number of leads (as explained in Boxes C and D) that is required for calculations of numbers of weighted units. Information on the other categories of time indirectly enters into the investigative cost calculations because the costs associated with these activities (and in fact all other activities of investigators, supervisors, etc.) are accounted for as part of the total DIS personnel security investigation costs.

DIS prefers using the WU scale because it obviates the need to report minutes and hours spent performing field activities and attaching a dollar cost to those hours. DIS feels that it is easier to discuss WUs than to explain actual time spent by investigators. As elaborated later in this report, we do not reach the same conclusion.

Table 2 presents an FY92 conversion from average time spent for each of the lead types to weighted units. In making the WU calculations for estimating investigative costs the time spent on "other interviews" (.41 hours) was used as the baseline of 1 WU. All other average times for different lead types were divided by .41 to develop a WU equivalency scale.

TABLE 2
FY92 Average Time Spent and Weighted Units for Different Lead Types

Lead Type	Average Time (hours)	Weighted Unit (WU)
Subject Interview	1.70	4.1144
PR Subject Interview	1.24	2.9935
Other Interview	0.41	1.0000
Other Interview (Negative)	0.45	1.0842
Records Check	0.34	0.8301
Records Check (Negative)	0.31	0.7511
Local Agency Checks & XXLACs	0.05	0.1318

As mentioned earlier, other time spent by the investigator, such as on investigative travel, report-writing, and receiving training or supervision, while recorded on the WTR, is not entered into the calculations of WUs. Only the actual contact minutes, or minutes used attempting to obtain information, are considered part of a WU. All other field unit time, including that of supervisors and clerical personnel is not used to calculate the number of WUs. However, all the costs associated with supervisor and clerical time, travel, etc., do enter into the overall calculation of the cost of a WU, as described later.

Average Number of Leads by Case Type (from Lead Count Survey) (Box C)

In this portion of the measurement system, DIS develops an estimate of the average number of lead types for each type of investigation. To do this, DIS analyzes a sample of completed cases through a process they call a Lead Count Survey (LCS). The first LCS was conducted in 1984, with subsequent surveys in 1988, 1990, 1992, and one just completed using 1994 data.

A random sample of approximately 1000 to 1600 cases of each case type is drawn from records at the Personnel Investigation Center. The cases are reviewed by personnel from the quality assurance board and/or DIS headquarters. Information is recorded for each case concerning the number of each lead type in that case. In a particular case there might be one SI, six OIs, four RCs, etc. Lead type data is summed across all the cases (within each case type). For example, the 1992 LCS found that the average number of subject interviews for an SSBI was 1.10. In other words, on the average one case in 10 required two SIs rather than one. Results of the 1992 LCS are presented below and will be discussed as part of the calculation of the average number of weighted units by case type.

Average Number of Weighted Units by Case Type (Box D)

With knowledge of the average number of weighted units by lead type (Box B) and the average number of leads by case type (Box C), DIS then calculates the average number of weighted units by case type.

TABLE 3
Calculation of Average Number of WUs by Case Type for FY92

	Average WU by Lead Type												
	SI* (4.1144)		OI (1.00)		NOI (1.0842)		RC (0.8301)		NREC (0.7511)		LAC & XXLAC (.1318)		
Case Type	Av Lds	Av WU	Av Lds	Av WU	Av Lds	Av WU	Av Lds	Av WU	Av Lds	Av WU	Av Lds	Av WU	Total No. WU
BI	1.19	4.90	7.86	7.86	1.52	1.65	2.40	1.99	.53	.40	4.90	.65	17.43
SBI	.58	2.39	11.00	11.00	4.05	4.39	5.14	4.27	2.08	1.56	7.97	1.05	24.62
SSBI	1.10	4.53	11.56	11.56	3.81	4.13	4.77	3.96	1.49	1.12	6.28	.83	26.09
TS-PR	1.16	4.77	6.37	6.37	1.20	1.30	1.79	1.49	.39	.29	4.60	.61	13.52
S-PR	1.20	4.94	3.56	3.56	.53	.57	3.50	2.91	.81	.61	1.50	.20	12.78
ENAC	1.63	6.71	5.90	5.90	1.86	2.01	7.63	6.33	1.65	1.24	3.06	.40	22.58
POST ADJ	1.39	5.72	5.04	5.04	1.10	1.19	6.58	5.46	.97	.73	1.94	.26	18.39
LI	1.00	4.11	3.00	3.00	1.00	1.08	1.33	1.10	.00	.00	1.00	.13	9.43

*When calculating the Total Weighted Units (WU) of Subject Interviews during TS-PRs, the weighted units per lead were 2.9935.

Table 3 displays the average number of leads for each case type, as shown in the columns labeled Av Lds. These data were obtained from the 1992 Lead Count Survey. For example, the first row labeled BI indicates that the average number of SIs for a BI is 1.19, the average number of OIs is 7.86, etc. The categories of lead type data from this survey correspond to the categories of lead type data collected on the WTR in FY92. Table 3 also shows the average number of FY92 WUs for each lead type that was calculated in Box B of Figure 1. As seen in Table 3, the average number of WUs for an SI is 4.1144, that for an OI is 1.00, etc.

Each of the numbers in a column labeled Av Lds is multiplied by the number at the top of the column (the number of WUs) to obtain the Average WU. For example, the Av Lds for a BI of 1.19 is multiplied by 4.1144 (the number of WUs for an SI) to obtain an Av WU of 4.90. Next, all the Av WUs in a row are added to obtain the total number of WUs which are presented in the last column of Table 3.

Total Number of Weighted Units (Box E)

The discussion of Box B indicated how DIS transformed the time-spent data from the WTR into average number of WUs. DIS also uses the transformed time-spent data to calculate the total number of WUs for each year. This is accomplished once WUs have been obtained by summing all the WUs across all field investigators for a fiscal year. For FY92 DIS calculated that the total number of weighted units was 2,807,880.2.

DIS Personnel Security Investigation System Costs (Box F)

The costs attributable to the PSI program are used by DIS in their calculations of the average cost of a WU. It is important then to understand what is included in PSI costs. DIS has been managing its annual funding under five program elements: (1) Personnel Security Investigations; (2) Defense Commercial Communication Office (DECCO); (3) Industrial Security Program; (4) DIS Headquarters and (5) Department of Defense Security Institute. For FY93 the program element (PE) entitled PSI is approximately 76% of the budget. DIS charges to this PE the expenses associated with civilian pay, travel, permanent change of station, rent, supplies, equipment, communications (other than the DECCO data lines), telephone, maintenance, minor construction, printing, contracting out services, training, etc.

DIS makes two types of adjustments to the PSI program element (PE) allocation to establish a total PSI cost. First, the costs for National Computer Center (NCC) personnel, workers' compensation and ADP are subtracted from the initial PSI PE figure. Next, a proportion of certain DIS costs are added into the PSI costs. For example, given that approximately 76% of the total DIS budget is under the PSI PE, 76% of the costs associated with NCC personnel, workman's compensation, and ADP are placed into the PSI cost figure. In addition, approximately 76% of the DECCO, DIS headquarters, and procurement costs are added into the PSI number. DISCO costs are not included because they are considered unique to the industrial community. This then generates a grand total PSI dollar amount that can be used to calculate the cost of a WU. For FY92 the total DIS PSI cost used in the DIS calculations below is $152,253,780.

Average Cost of a Weighted Unit (WU) (Box G)

This component involves determining the cost of an average WU. The DIS total personnel security investigation system cost obtained in Box F is divided by the total number of weighted units obtained in Box E to obtain an average cost of a WU.

For FY92 the calculations are:

PSI Cost ($152,253,780) ÷ Number of WU (2,807,880.2) = $54.72 WU

These figures include the cost of overseas processing, which averages $.05 per investigation for a total of $141,815 in FY92.

DIS Costs of Investigations by Case Type (Box H)

Table 4 shows the DIS calculations for the different types of investigations. The cost per weighted unit of $54.22 (determined in Box G) is multiplied by the total number of weighted units for each type of investigation (determined in Box D) to obtain the DIS costs for the different types of investigations.

TABLE 4
FY92 DIS Cost of Investigations by Case Type Based on a WU Cost of $54.22

Case Type	Total Number WU*	DIS Costs per Case $
BI	17.39	942.88
SBI	24.66	1,336.98
SSBI	26.12	1,416.49
TS PR	13.53	733.57
S PR	12.48	676.90
ENAC	22.60	1,225.42
POST ADJ	18.40	997.61
LI	9.43	511.57

*The number of WUs provided by DIS are used in this table. While these differ slightly from those calculated by PERSEREC in Table 3, there is no significant cost difference in calculated cost per case using the two different sets of WUs.

Costs of Credit Checks and National Agency Checks by Case Type (Box I)

DIS also calculates the average annual costs of credit checks and national agency checks (NACs), since they are part of the investigative process. For the former, they divide the total number of annual credit checks conducted into the total annual cost of credit checks. Similarly, the total number of annual NACs is divided into the total annual cost of NACs to obtain an average cost per NAC.

As seen in Table 5, the average cost of a credit check in FY92 was $3.26 and the average cost of a national agency check, including the FBI check, was $18.68.

TABLE 5
FY92 Credit Checks and National Agency Checks

Type of Action	Number Closed	Cost $	Average Cost $
Credit Check	321,102	1,047,373	3.26
National Agency Check	733,670	13,704,695	18.68

Table 6 displays the data used by DIS to obtain an average cost per case type for credit checks and national agency checks. For credit checks the average cost of $3.26 was multiplied by the average number of credit leads per case to obtain the average credit check cost per case type (as displayed in column 5 of Table 6). Similarly, the average NAC cost of $18.68 was used to obtain the average NAC cost per case type that is displayed in the last column of Table 6.

TABLE 6
FY92 Cost for Credit Checks and National Agency Checks by Case Type

Case Type	Cases Closed	Total Cred Lds	Cred Lds per Case	Cred Cost ($)	Total NAC Lds	NAC Lds per Case	NAC Cost ($)
BI	15,368	14,753	.96	3.13	15,388	1.00	18.68
SBI	20,238	19,226	.95	3.10	36,226	1.79	33.44
SSBI	29,299	28,420	.97	3.16	48,222	1.68	31.38
TS PR	61,518	62,133	1.01	3.29	68,900	1.12	20.92
S PR*	13,473	13,473	1.00	3.26	94,338	1.00	18.68
ENAC	33,105	25,822	.78	2.54	37,740	1.14	21.30
POST ADJ	10,542	8,539	.81	2.64	9,488	0.90	16.81
LI	17	6	.35	1.15	17	1.00	18.68

*Only includes those Secret PRs that required a field investigation.

Total Costs of Investigations by Case Type (Box J)

The final step in the DIS process involves adding the DIS cost per case type from Table 4 to the credit check and NAC costs from Table 6 to obtain a total cost per case type. Table 7 displays the data for FY92.

TABLE 7
FY92 DIS Estimated Cost of Investigations by Case Type

Case Type	DIS Costs per Case ($)	Cred Cost ($)	NAC Cost ($)	DIS Estimated Cost per Case ($)
BI	942.88	3.13	18.68	964.69
SBI	1,336.98	3.10	33.44	1,373.52
SSBI	1,416.49	3.16	31.38	1,451.03
TS PR	733.57	3.29	20.92	757.78
S PR*	676.90	3.26	18.68	698.84
ENAC	1,225.42	2.54	21.30	1,249.26
POST ADJ	997.61	2.64	16.81	1,017.06
LI	511.57	1.15	18.68	531.40

*Only includes those Secret PRs that required a field investigation.

The last column of Table 7 indicates that the SSBI and SBI are the most expensive investigations but that an expanded NAC costs only slightly less. The Top Secret PRs and Secret PRs cost considerably less, and the few limited investigations that are conducted are the least expensive investigations.

Evaluation of the DIS Cost Estimation System

DIS Estimates of Investigative Costs for FY92 and FY93

PERSEREC found that it is possible to validate the cost of investigation figures presented in Table 7 to determine their accuracy. Since there is no other independent estimate of DIS costs, it is not possible to compare the costs to any measure external to the DIS system. However, it is feasible to determine whether the estimated costs are internally consistent, i.e., can be reconciled within DIS's own figures. This can be accomplished by using information on the number of cases DIS closes each year (by case type), as presented earlier in Table 6, and the DIS costs per case from the last column of Table 4. The number of cases closed multiplied by their cost should yield a total dollar amount that approximates the annual investigative expenditures for DIS.

TABLE 8
Evaluation of FY92 DIS Estimates of Investigative Costs

Case Type	Number of Cases Closed	DIS Cost per Case ($)	Total Costs by Case Type ($)
BI	15,368	943	14,490,180
SBI	20,238	1,337	27,057,801
SSBI	29,299	1,416	41,501,741
TS-PR	61,518	734	45,127,759
S-PR*	13,473	677	9,119,874
ENAC	33,105	1,225	40,567,529
POST ADJ	10,542	998	10,516,805
LI	17	512	8,697
TOTAL	183,560		188,390,385

*Only includes those Secret PRs that required a field investigation

In Table 8 the number of cases closed (column 2) are multiplied by the DIS estimates of cost per case (column 3) to obtain the total costs by case type (column 4). It can be seen that the overall total estimated cost of DIS field investigations adds to $188,390,385. This exceeds the DIS cost of PSIs that was presented in Box F ($152,253,780), by $36,136,605, i.e., it is 24% greater than the amount of money available to DIS in FY92 for personnel security investigations.

A similar internal validity analysis was conducted on the FY93 data and is presented in Table 9. The calculated total cost of investigations for FY93 is $226,148,739 whereas the DIS estimated cost of PSIs was $158,185,057. This is a difference of $67,963,682 or 43%.

TABLE 9
Evaluation of FY93 DIS Estimates of Investigative Costs

Case Type	Number of Cases Closed	DIS Cost per Case ($)	DIS Total Costs by Case Type ($)
BI	151	1,152	173,880
SBI	958	1,623	1,555,256
SSBI	59,471	1,728	102,764,104
TS-PR	60,539	974	58,942,587
S-PR*	9,926	849	8,427,472
ENAC	29,719	1,496	44,471,512
POST ADJ	8,045	1,218	9,801,626
LI	34	362	12,305
TOTAL	168,843		226,148,739

*Only includes those Secret PRs that required a field investigation.

Tables 8 and 9 clearly show that the DIS procedures for estimating costs of investigations were not internally consistent. DIS appears to have generally overestimated the cost of different types of investigations in both FY92 and FY93.

Possible Explanations for the Discrepancies in DIS Cost Estimates

Discussions were held with DIS personnel, and several possible reasons were posited for the discrepancies.

1. The identical cases are not used in: (a) calculating time spent by investigators on different types of leads (from the WTR); and (b) tabulating the types of cases completed during a FY. The reason for this discrepancy is that the WU measure from the WTR is calculated on the actual effort performed in a FY on active cases. The case completion figures include some of the same cases, i.e., those that were started and completed during the FY, but they also include cases that were started in a previous FY and completed in the current FY. They do not, however, include cases started in that year and completed in the next year. A second issue is that the types of cases, and perhaps the amount of derogatory information within the cases, may vary over time. For example, the changeover in 1992 from the BI and SBI to the SSBI created a discrepancy in the types of cases completed during the year and those worked on during the year.

We concluded that these issues could cause minor discrepancies but not the major discrepancies found in the analyses. Because over a period of years the number of pending cases at the beginning and end of each FY has not varied greatly, approximately the same number of

cases would be encompassed by both the time spent and completed case figures. However, there could be some small variation due to the types of cases worked on during the year. This certainly would not cause discrepancies of the magnitude found in the DIS data.

2. The Lead Count Survey may not accurately reflect the number of leads per type of investigation. This could be due to statistical sampling errors or interpretative errors by those recording the information.

We feel that it is unlikely that the Lead Count Survey contains large errors in reporting the average number of leads per case type because of the careful manner in which the survey is conducted. In addition, the results of the survey seem reasonably accurate on purely rational grounds.

3. The calculations are based on FY93 costs but the Lead Count Survey data is from 1992.

Our assessment is that this difference would not generate the large (43%) discrepancy between actual costs and calculated costs of investigations for FY93. However, even in FY92, using both FY92 Lead Count Survey data and FY92 cost data, the difference was $36 million, or a discrepancy of 24%.

We conclude from our analysis of the elements of the DIS cost estimation process that a serious error is committed by transforming time spent in hours into WUs. The WU is almost impossible to interpret, especially since its calculation is not consistent from one FY to another. Over the years DIS has used different lead types as the denominator in the formula to convert time spent on leads to WUs. The rationale for using different lead types is unclear. In addition, calculation of the sum total of all WUs for a fiscal year results in a meaningless number; and the problem is compounded when this number is used in conjunction with total PSI cost to calculate an average cost of a WU. This leads to serious errors in estimating the costs of different types of investigations.

THE PERSEREC SYSTEM FOR ESTIMATING COSTS OF DIS INVESTIGATIONS

PERSEREC developed a new methodology for generating estimates of DIS investigative costs. The following assumptions were made in developing this methodology.

Assumptions

1. The data generated from the WTR that reports the average amount of time to conduct different lead types is reasonably accurate. The fact that DIS makes these calculations based on information from its total population of investigators each year would support the adequacy of this data.

2. The Lead Count Survey estimates of the average number of leads per case type are correct. This assumption cannot be completely supported without a detailed evaluation of the survey methodology. However, as indicated earlier, the survey appears to be designed and conducted in a careful manner.

3. The overall cost figure attributable to PSI activities is a reasonably accurate estimate. Given the careful manner in which DIS performs their cost allocations, this is an acceptable assumption.

4. It is reasonable to distribute the indirect costs of PSI activities in proportion to investigator hours. While there undoubtedly are differences in type, and perhaps magnitude of indirect costs by type of investigation, it is impossible to measure the differences without a cost accounting system. In all likelihood these differences would not make a major impact on the relative costs of types of investigations.

5. The DIS figures on the number of cases closed each year by case type is accurate. This was accepted as a given since PERSEREC has no way of verifying those numbers.

Detailed Description of the PERSEREC System

The basic concept of the PERSEREC system is to: (1) determine the proportion of the total DIS investigator hours that are spent on each type of investigation (e.g., 46% SSBI, 26% TS-PR, etc); and then (2) allocate the total DIS PSI costs to types of investigations in accordance with those proportions.

The information required to perform the calculations for a given FY is:

1. Average hours per lead type from the WTR
2. Average number of leads for each case type from the Lead Count Survey
3. Number of cases closed by case type
4. DIS total PSI cost
5. Average credit check and NAC costs per case type

Figure 2 is a schematic representation of the PERSEREC-developed procedures for calculating costs of DIS investigations. Each of the boxes, and the calculations using FY92 data will be described in turn. The detailed calculations for FY92 and FY93 are found in the Appendix.

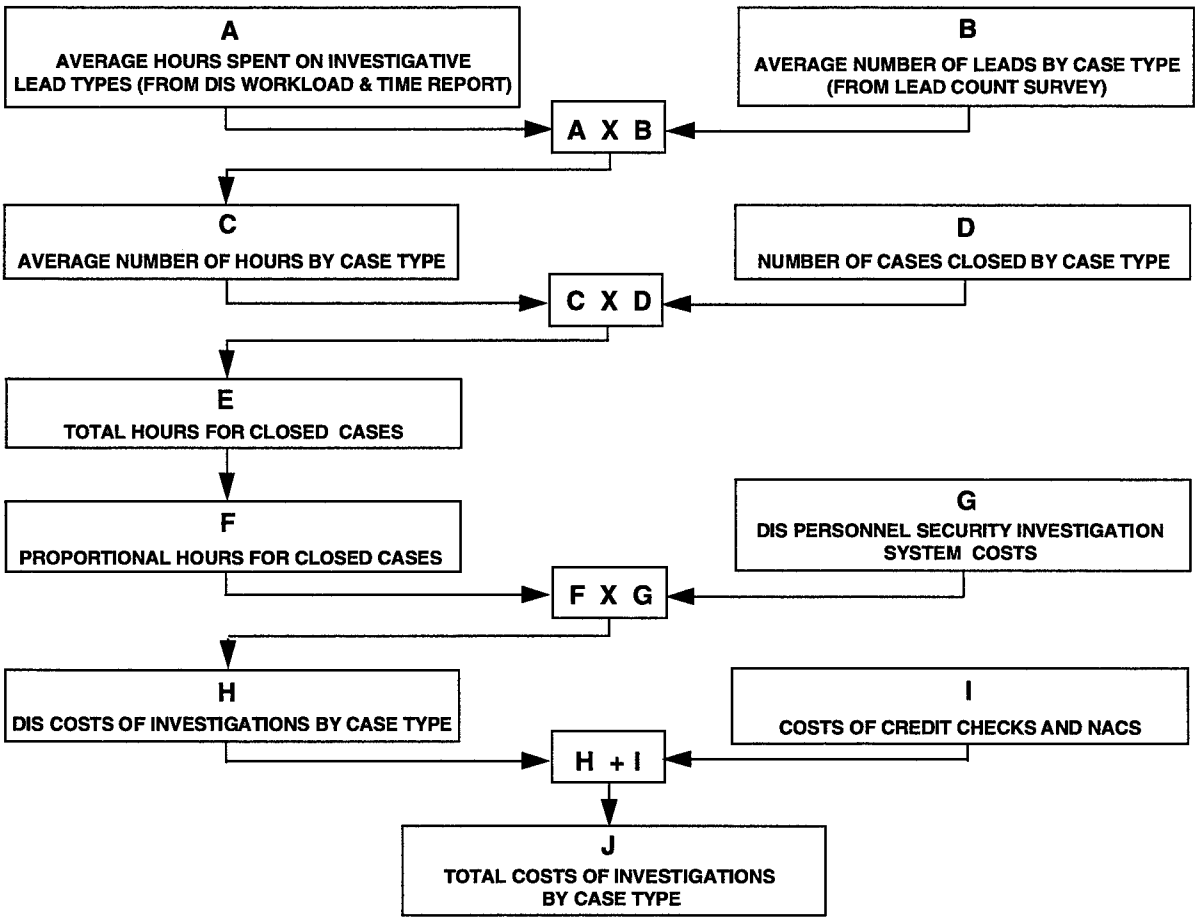

FIGURE 2 Schematic representation of the PERSEREC procedure for calculating costs of DIS investigations

Average Hours Spent on Investigative Lead Types (Box A)

This first component uses the data collected by DIS from the WTR on the time spent by field investigators for each of the different types of investigative leads. The average hours spent across a FY for each of the investigative lead types is calculated by DIS. For example, for FY92 the average for a subject interview was approximately 1.70 hours.

Average Number of Leads by Case Type (From Lead Count Survey) (Box B)

This component is identical to that described as Box C of the DIS procedures, i.e,, the average number of lead types for each type of investigation. For example, for FY92 an average of 1.10 subject interviews were performed for an SSBI investigation.

Average Number of Hours by Case Type (Box C)

The average hours of investigative time by case type are calculated by multiplying average hours per lead (Box A) by average number of leads (Box B). For example, the average hours for the subject interview reported above as 1.70 is multiplied by the average number of leads for an SSBI subject interview (1.10) to determine that on average 1.88 hours of investigator time are spent on subject interviews in conducting an SSBI. A similar procedure is followed in obtaining the average hours for SSBI other interviews, records checks, etc., to obtain the total average number of investigator hours spent conducting an SSBI. The average hours for each of the case types is found in Table 10.

TABLE 10
FY92 Average Hours of Investigative Time by Case Type

Case Type	Average Hours
BI	7.22
SBI	10.20
SSBI	10.81
TS PR	5.60
S PR	5.29
ENAC	9.36
POST ADJ	7.62
LI	3.91

Number of Cases Closed by Case Type (Box D)

The number of cases closed by case type is obtained from DIS. The FY92 figures were presented in Table 8.

Total Hours for Closed Cases (Box E)

The average number of hours of investigator time for each case type (Box C) is multiplied by the number of cases closed of that type (Box D) to obtain the total hours of investigator time spent on each of the case types. Also a sum of all the hours across case types is calculated.

Proportional Hours for Closed Cases (Box F)

In this calculation, the sum of the investigator hours across case types (Box E) is divided into each of the sums of the case type hours to obtain the proportional hours for each case type. For example, approximately 14% of investigator hours in FY92 were spent conducting SBIs, 22% on SSBIs, 24% on TS-PRs and 22% on ENACs.

DIS PSI System Costs (Box G)

This is the cost calculated by DIS as the total PSI cost for a FY. To repeat what was presented earlier, for FY92 the cost was $152,253,780.

DIS Costs of Investigations by Case Type (Box H)

The DIS system costs are obtained by multiplying the DIS PSI cost for a FY (Box G) with each of the proportional hours, to obtain a total yearly cost per case type. A second step for each case type is to divide the total yearly cost by the number of cases closed of that type, to obtain the average investigative cost per case type.

Costs of Credit Checks and National Agency Checks (Box I)

The costs of credit checks and national agency checks are calculated by DIS as described in Tables 5 and 6.

Total Costs of Investigations by Case Type (Box J)

The final step for each case type is to add the DIS investigative cost with the costs of credit checks and NACs to obtain the costs of investigations by case type.

Comparison of DIS and PERSEREC Cost Estimates

The costs of DIS investigations were estimated for FY92 and FY93 using the PERSEREC methodology as described above. Table 11 compares the results of the FY92 analyses to the DIS estimates that were presented in Table 4. This comparison does not include the costs of credit checks and NACs; the data for the total investigative costs including these elements is presented in Table 12.

Table 11 contains the DIS and PERSEREC estimated investigation costs for FY92. The DIS estimates are approximately 24% higher than the PERSEREC figures. This is directly related to the fact that the PERSEREC costs are reconciled to the DIS budget of approximately $152 million, whereas the DIS estimates were essentially unbounded. As indicated earlier, and as can be seen in Table 11, it would have required $188 million for DIS to conduct the investigations at their own cost estimates.

TABLE 11.
PERSEREC Estimates of DIS Investigative Costs for FY92*

Case Type	Number of Cases Closed	DIS Estimated Cost per Case ($)	Summated Costs Using DIS Cost per Case ($Mil)	PERSEREC Estimated Cost per Case ($)	Summated Costs Using PERSEREC Cost per Case ($Mil)
BI	15,368	943	14.490	763	11.731
SBI	20,238	1,337	27.058	1079	21.827
SSBI	29,299	1,416	41.502	1143	33.483
TS-PR	61,518	734	45.128	592	36.426
S-PR	13,473	677	9.120	560	7.541
ENAC	33,105	1,225	40.568	989	32.747
POST ADJ	10,542	998	10.517	805	8.491
LI	17	512	.009	413	.007
TOTAL	**183,560**		**188.392**		**152.254**

*Does not include credit check and NAC costs.

Table 12 contains the PERSEREC estimated total costs of FY92 investigations including credit checks and NACs. The average cost for the SSBI was $1,177 and for the SBI it was $1115. The cost for an ENAC was $1013 and for a TS-PR $616.

TABLE 12.
PERSEREC Estimates of Total Investigative Costs for FY92

Case Type	Number of Cases Closed	PERSEREC Estimated Cost per Case ($)	Average Credit Check Cost per Case ($)	Average NAC Cost per Case ($)	Total Investigative Cost per Case ($Mil)
BI	15,368	763.35	3.13	18.68	785.16
SBI	20,238	1078.50	3.10	33.44	1115.04
SSBI	29,299	1142.81	3.16	31.38	1177.35
TS-PR	61,518	592.12	3.29	20.92	616.33
S-PR	13,473	559.73	3.26	18.68	581.67
ENAC	33,105	989.19	2.54	21.30	1013.03
POST ADJ	10,542	805.45	2.64	16.81	824.90
LI	17	412.87	1.15	18.68	432.70
TOTAL	**183,560**				

In Table 13 it can be seen that the magnitude of the differences between DIS and PERSEREC estimates is larger for FY93 than for FY92. As with FY92, the PERSEREC estimates were bounded by the DIS PSI cost (approximately $158 million) whereas the DIS estimates were unconstrained and exceeded this figure by 43%.

TABLE 13.
PERSEREC Estimates of DIS Investigative Costs for FY93*

Case Type	Number of Cases Closed	DIS Estimated Cost per Case ($)	Summated Costs Using DIS Cost per Case ($Mil)	PERSEREC Estimated Cost per Case ($)	Summated Costs Using PERSEREC Cost per Case ($Mil)
BI	151	1,152	.174	817	0.123
SBI	958	1,623	1.555	1180	1.130
SSBI	59,471	1,728	102.764	1237	73.590
TS-PR	60,539	974	58.943	644	38.970
S-PR	9,926	849	8.427	592	5.875
ENAC	29,719	1,496	44.472	1060	31.507
Post Adj.	8,045	1,218	9.802	867	6.975
LI	34	362	.012	428	0.014
TOTAL	**168,843**		**226.149**		**158.185**

*Does not include credit check and NAC costs.

Table 14 contains the PERSEREC estimated costs of FY93 investigations including credit checks and NACs. For the most frequently conducted initial investigation, the SSBI, the average cost was $1,271; the ENAC cost was $1,083. Reinvestigation cost in the form of the TS-PR was approximately $667. The overall costs of conducting investigations for each of the case types increased by an average of 8% from FY92 to FY93.

TABLE 14.
PERSEREC Estimates of Total Investigative Costs for FY93

Case Type	Number of Cases Closed	PERSEREC estimated Cost per Case ($)	Average Credit Check Cost per Case ($)	Average NAC Cost per Case ($)	Total Investigative Cost per Case ($Mil)
BI	151	816.63	3.85	17.61	838.09
SBI	958	1179.68	3.81	31.52	1215.01
SSBI	59,471	1237.41	3.89	29.59	1270.89
TS-PR	60,539	643.71	4.05	19.72	667.48
S-PR	9,926	591.90	4.01	17.61	613.52
ENAC	29,719	1060.15	3.13	20.06	1083.34
POST ADJ.	8,045	867.03	3.25	15.85	886.13
LI	34	427.63	1.32	17.61	446.56
TOTAL	**168,843**				

FINDINGS AND RECOMMENDATIONS

Results of the study were briefed to representatives of ASD (I &S), ASD (PA&E) and DIS during the week of June 25th, 1995. The PERSEREC methodology was endorsed during these meetings and a request made to document the results of the study in a PERSEREC technical report. This report meets that requirement.

Findings

The major findings of the study are:

1. The DIS system for estimating costs of personnel security investigations does not result in estimates that are internally consistent with the total amount of money available to DIS to conduct investigations. The estimates were approximately 24% too high in FY92 and 43% too high in FY93. This resulted in inflated estimates of investigation costs across each type of investigation for both years.

2. A major difficulty with the DIS system is the procedure whereby the time to conduct different types of investigative leads is converted into a measure called a weighted unit. Use of the weighted unit for estimating costs is inappropriate because it is a scale of unknown and changing characteristics. Consequently, its use leads to cost estimates that are an artifact of the WU system rather than reflecting true system costs.

3. The two components of the DIS system that collect data on the activities of field investigators, i.e., the WTR and the Lead Count Survey, have been in existence for many years. However, they have not been subjected to outside review to determine the accuracy of the processes used and the resultant data.

Recommendations

The results of the study have generated two sets of recommendations. The first concerns the operational determination of investigative costs. The second addresses those components of the DIS system that could benefit from an objective review.

Operational Recommendations

1. PERSEREC estimates of DIS costs of investigations for FY92 and FY93 that are contained in this report should replace the DIS cost estimates for these years. These figures should be reviewed, however, if additional information concerning the accurate allocation of costs to the DIS personnel security investigation budget is found in subsequent PERSEREC studies.

2. The methodology developed by PERSEREC, documented in this report, should be used in the future to estimate the DIS investigative costs. PERSEREC should work with DIS to

ensure that costs are accurately prorated to different program elements. FY94 cost estimates should be developed as soon as complete data is available.

3. For estimating investigative costs, the time spent by field investigators should be made in hours rather than in weighted units; the conversion of time spent to weighted units is unnecessary. DIS should not use this weighted unit system in conjunction with costs of investigations. The WU measure has confused policymakers and analysts who have attempted to understand the DIS costing system.

4. The PERSEREC methodology should be employed as a starting point for generating DIS investigative cost estimates that would be appropriate for conducting investigations on a reimbursable basis. However, these projected figures must be updated and the procedures refined depending upon the nature of the reimbursable system that will be instituted.

Research Recommendations

1. PERSEREC should work with DIS to review their system for assessing the productivity of field investigators and field units. This agreement was reached during PERSEREC's briefing of DIS in June and initial funding for the project has been provided by DIS. The critical element in the productivity assessment system is the information obtained from the WTR. As part of this study, PERSEREC should review both the WTR changes over time and the guidelines for recording information on the WTR.

2. DIS and PERSEREC should collaborate on the conduct of future Lead Count Surveys. This recommendation was also supported by DIS during the June briefing. At the present time the survey is conducted every few years on a time-available basis. A standardized schedule for the survey should be created and professional research assistance should be provided to DIS to ensure the accuracy of the sampling methodology and procedures employed.

3. DIS and PERSEREC should determine (with input from C3I and the DoD Comptroller) the best procedures for prorating DIS costs to different program areas.

APPENDIX

FY92 Average Hours and Cost Per Case Type

Case Type	Subject Interview		Other Interview		Other Interview (negative)	
	Average Hours per Lead = (a) (e)	1.70461089	Average Hours per Lead =	0.41433381	Average Hours per Lead =	0.44566716
	Average Number of Leads (b)	Average Hours per Case Type (1)	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type
BI	1.19	2.0286	7.86	3.2567	1.52	0.6774
SBI	0.58	0.9887	11.00	4.5577	4.05	1.8050
SSBI	1.10	1.8751	11.56	4.7897	3.81	1.6980
TS-PR	1.16	1.4386	6.37	2.6393	1.20	0.5348
S-PR	1.20	2.0456	3.56	1.4750	0.53	0.2362
ENAC	1.63	2.7786	5.90	2.4446	1.86	0.8289
POST ADJ	1.39	2.3695	5.04	2.0882	1.10	0.4902
LI	1.00	1.7047	3.00	1.2430	1.00	0.4457

Case Type	Records Check		Records Check (negative)		LAC & XXLAC		TOTAL
	Average Hours per Lead =	0.3439279	Average Hours per Lead =	0.31121539	Average Hours per Lead =	0.05461205	
	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type	Average Hours per Case Type (2)
BI	2.40	0.8254	0.53	0.1649	4.0	0.2676	7.2206
SBI	5.14	1.7678	2.08	0.6473	7.97	0.4353	10.2017
SSBI	4.77	1.6405	1.49	0.4637	6.28	0.3430	10.8100
TS-PR	1.79	0.6156	0.39	0.1214	4.60	0.2512	5.6010
S-PR	3.50	1.2037	0.81	0.2521	1.50	0.0819	5.2946
ENAC	7.63	2.6242	1.65	0.5135	3.06	0.1671	9.3569
POST ADJ	6.58	2.2630	0.97	0.3019	1.94	0.1059	7.6188
LI	1.33	0.4574	0.00	0.0000	1.00	0.0546	3.9054

FY92 Average Hours and Cost Per Case Type Continued

Case Type	Total Average Hours per Case Type (2)	Number of Cases Closed (c)	Total Hours for All Cases Closed (3)	Proportional Hours for Cases Closed (4)	DIS Total PSI Costs ($) (5)	DIS Investigative Costs ($) (6)	Average Credit Check Costs ($) (d)	Average NAC Costs ($) (d)	Total Investigative Costs ($) (7)
BI	7.2206	15,368	110,966	0.07704972	11,731,111	763.35	3.13	18.68	785.16
SBI	10.2017	20,238	206,462	0.14335754	21,826,727	1078.50	3.10	33.44	1115.04
SSBI	10.8100	29,299	316,723	0.21991766	33,483,295	1142.81	3.16	31.38	1177.35
TS-PR	5.6010	61,518	344,560	0.23924613	36,426,128	592.12	3.29	20.92	616.33
S-PR	5.2946	13,473	71,334	0.04953093	7,541,271	559.73	3.26	18.68	581.67
ENAC	9.3569	33,105	309,761	0.21508304	32,747,206	989.19	2.54	21.30	1013.03
POST ADJ	7.6188	10,542	80,318	0.05576888	8,491,023	805.45	2.64	16.81	824.90
LI	3.9054	17	66	0.00004610	7,019	412.87	1.15	18.68	432.70
TOTAL		**183,560**	**1,440,191**	**1.0000000**	**152,253,780**				

Notes:
a. Average hours per lead type were obtained from the DIS Workload and Time Report (DIS Form 45D, Nov 88). The hours only include investigator time spent on the lead.
b. Average number of leads per case type were obtained from the DIS Lead Count Survey (1992).
c. Number of cases closed per case type for FY92 were provided by DIS.
d. DIS total PSI cost and average credit check and NAC costs were provided by DIS.
e. The average hours per lead for Subject Interview TS-PRs was 1.24020298.

Calculations:
1. Average hours per case type are calculated by multiplying average hours per lead by average number of leads. The hours only include investigator time spent on the lead.
2. Total average hours per case type are the sums ot the average hours per case type for each type of lead. The hours only include investigator time spent on the lead.
3. Total hours for all closed cases are calculated by multiplying the summated average hours by the number of cases closed for each case type.
4. Proportional hours are calculated by dividing the sum of the total hours for all closed cases (1,440,191) into each of the case type total hours.
5. DIS total PSI costs are calculated by multiplying the DIS Sum total PSI cost ($152,253,780) by the proportional total hours for each case type.
6. DIS investigative costs are obtained by dividing for each case type the DIS total PSI costs by the number of cases closed.
7. Total investigative costs are the sum of the DIS average investigative costs plus the average credit check and NAC costs for each case type.

FY93 Average Hours and Cost Per Case Type

Case Type	Subject Interview		Other Interview		Other Interview (negative)	
	Average Hours per Lead (a) =	1.57534552	Average Hours per Lead =	0.48071453	Average Hours per Lead =	0.43663852
	Average Number of Leads (b)	Average Hours per Case Type (1)	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type
BI	1.19	1.8747	7.86	3.7784	1.52	0.6637
SBI	0.58	0.9137	11.00	5.2879	4.05	1.7684
SSBI	1.10	1.7329	11.56	5.5571	3.81	1.6636
TS-PR	1.16	1.4013	6.37	3.0622	1.20	0.5240
S-PR	1.20	1.8904	3.56	1.7113	0.53	0.2314
ENAC	1.63	2.5678	5.90	2.8362	1.86	0.8121
POST ADJ	1.39	2.1897	5.04	2.4228	1.10	0.4803
LI	1.00	1.5753	3.00	1.4421	1.00	0.4366

Case Type	Records Check		Records Check (negative)		LAC & XXLAC		TOTAL
	Average Hours per Lead =	0.41578849	Average Hours per Lead =	0.31028287	Average Hours per Lead =	0.05792811	
	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type	Average Number of Leads	Average Hours per Case Type	Average Hours per Case Type (2)
BI	2.40	0.9979	0.53	0.1644	4.90	0.2838	7.7630
SBI	5.14	2.1372	2.08	0.6454	7.97	0.4617	11.2142
SSBI	4.77	1.9833	1.49	0.4623	6.28	0.3638	11.7630
TS-PR	1.79	0.7443	0.39	0.1210	4.60	0.2665	6.1192
S-PR	3.50	1.4553	0.81	0.2513	1.50	0.0869	5.6267
ENAC	7.63	3.1725	1.65	0.5120	3.06	0.1773	10.0779
POST ADJ	6.58	2.7359	0.97	0.3010	1.94	0.1124	8.2421
LI	1.33	0.5530	0.00	0.0000	1.00	0.0579	4.0651

FY93 Average Hours and Cost Per Case Type Continued

Case Type	Total Average Hours per Case (2)	Number of Cases Closed (c)	Total Hours for All Cases Closed (3)	Proportional Hours for Cases Closed (4)	DIS Total PSI Costs ($) (5)	DIS Investigative Costs ($) (6)	Average Credit Check Costs ($) (d)	Average NAC Costs ($) (d)	Total Investigative Costs ($) (7)
BI	7.7630	151	1,172	0.00077954	123,311	816.63	3.85	17.61	838.09
SBI	11.2142	958	10,743	0.00714440	1,130,138	1179.68	3.81	31.52	1215.01
SSBI	11.7630	59,471	699,555	0.46521607	73,590,231	1237.41	3.89	29.59	1270.89
TS-PR	6.1192	60,539	370,450	0.24635552	38,969,762	643.71	4.05	19.72	667.48
S-PR	5.6267	9,926	55,850	0.03714136	5,875,209	591.90	4.01	17.61	613.52
ENAC	10.0779	29,719	299,504	0.19917554	31,506,594	1060.15	3.13	20.06	1083.34
POST ADJ	8.2421	8,045	66,308	0.04409565	6,975,274	867.03	3.25	15.85	886.13
LI	4.0651	34	138	0.00009191	14,539	427.63	1.32	17.61	446.56
TOTAL		**168,843**	**1,503,720**	**1.000000**	**158,185,057**				

Notes:
a. Average hours per lead type were obtained from the DIS Workload and Time Report (DIS Form 45D, Nov 88). The hours only include investigator time spent on the lead.
b. Average number of leads per case type were obtained from the DIS Lead Count Survey.
c. Number of cases closed per case type for FY93 were provided by DIS.
d. DIS total PSI cost and average credit check and NAC costs were provided by DIS.
e. The average hours per lead for Subject Interview TS-PRs was 1.2080446.

Calculations:
1. Average hours per case type are calculated by multiplying average hours per lead by average number of leads. The hours only include investigator time spent on the lead.
2. Total average hours per case type are the sums ot the average hours per case type for each type of lead. The hours only include investigator time spent on the lead.
3. Total hours for all closed cases are calculated by multiplying the summated average hours by the number of cases closed for each case type.
4. Proportional hours are calculated by dividing the sum of the total hours for all closed cases (1,503,720) into each of the case type total hours.
5. DIS total PSI costs are calculated by multiplying the DIS Sum total PSI cost ($158,185,057) by the proportional total hours for each case type.
6. DIS investigative costs are obtained by dividing for each case type the DIS total PSI costs by the number of cases closed.
7. Total investigative costs are the sum of the DIS average investigative costs plus the average credit check and NAC costs for each case type.