Report No. 78-1

A STUDY TO DEVELOP AN IMPROVED ENLISTED PERFORMANCE EVALUATION SYSTEM FOR THE U. S. COAST GUARD

Edwin T. Cornelius III
Milton D. Hakel
Ohio State University Research Foundation
1314 Kinnear Road
Columbus, Ohio 43210

February 1978

FINAL REPORT

Prepared for

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD
OFFICE OF PERSONNEL
Washington, D.C. 20590

(18) USCG (19) 78-1

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
78-1		

(6) 4. Title and Subtitle
A Study to Develop an Improved Enlisted Performance Evaluation System for the U. S. Coast Guard.

(11) 5. Report Date: Feb[illegible]1978
6. Performing Organization Code

(10) 7. Author(s)
Edwin T. Cornelius, III
Milton D. Hakel

8. Performing Organization Report No.
(12) 124p.

9. Performing Organization Name and Address
Ohio State University Research Foundation
1314 Kinnear Road
Columbus, Ohio 43210

10. Work Unit No.

(15) 11. Contract or Grant No.
DOT-CG-62625-A new

(9) 13. Type of Report and Period Covered
FINAL REPORT
Oct[illegible]1976 -
Sep[illegible]1977

12. Sponsoring Agency Name and Address
U. S. Coast Guard, Office of Personnel
Department of Transportation
Washington, D.C. 20590

14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

A worker-oriented job element inventory was developed and administered to a random sample of 3,000 Coast Guard enlisted personnel from nine different rates and 28 different job ratings. The survey responses were analyzed by Tucker's Three Mode Factor Analysis in order to determine effectively how many different performance appraisal forms should be developed for Coast Guard use. Seven prototype evaluation forms were developed from the job inventory data and introduced in technical conferences with samples of personnel from the various rate and rating groups. Data gathered in these conferences were used to develop the final evaluation instruments. A feedback system was proposed, and an experimental design for testing the effectiveness of the new forms was also developed.

17. Key Words	18. Distribution Statement
Performance evaluation Performance appriasal Job Analysis Job inventory	This document is available to the U. S. public through the National Technical Information Service, Springfield, Virginia 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED		

Form DOT F 1700.7 (8-69)

i 26736 Gm (1) 2X

Report No. 78-1

A STUDY TO DEVELOP AN IMPROVED ENLISTED PERFORMANCE EVALUATION SYSTEM FOR THE U. S. COAST GUARD

Edwin T. Cornelius III
Milton D. Hakel
Ohio State University Research Foundation
1314 Kinnear Road
Columbus, Ohio 43210

February 1978

FINAL REPORT

Document is available to the public through the National Technical Information Service, Springfield, Virginia 22151

Prepared for

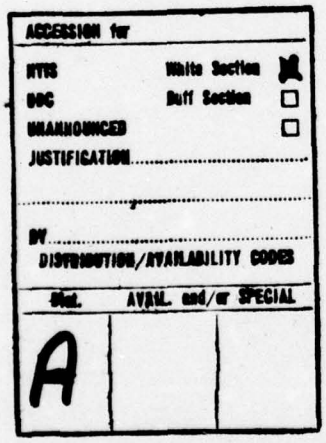
DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD
OFFICE OF PERSONNEL
Washington, D.C. 20590

ACKNOWLEDGMENTS

We would like to acknowledge the support for this project that we received throughout from CPT Gordon D. Hall and his staff at Coast Guard Headquarters. We especially thank LCDR Dwight C. Broga and LCDR Richard W. Werner for their help and expertise. We appreciate also the efforts of LJG William A Jordon during the field conference phase of this research. In addition, we recognize the enthusiastic support LCDR Clinton H. Smoke gave our staff during our conference sessions at Governor's Island, and the help from CDR George E. Krietemeyer during our session at Elizabeth City.

We gratefully acknowledge the direction and help given to us by our excellent and patient technical advisor, Mr. Joseph J. Cowan, and his staff in the Psychological Research Branch, especially Charles D. Waser and Richard S. Lanterman. These people not only facilitated our progress, but also spawned many of the ideas that guided our work.

Finally, we would like to state our appreciation to the many Coast Guard officers and Non-Commisioned officers who gave input to us during the final phase of this project. The candid expression of differing opinions and lively discussions help enormously to shape the final product proposed here.



A STUDY TO DEVELOP AN IMPROVED ENLISTED PERFORMANCE EVALUATION SYSTEM FOR THE U.S. COAST GUARD: FINAL REPORT

Table of Contents

continued

(5)

Table of Contents
continued

continued

(6)

Table of Contents
continued

List of Tables

List of Tables
continued

SUMMARY

I. Background (p. 5)

This project was undertaken to develop an improved performance evaluation system for enlisted personnel in the United States Coast Guard. The existing appraisal system tends to be unresponsive to the increased manpower planning and development needs of the Coast Guard. A major problem with the existing form is that one single instrument is used to assess performance in all types of work for individuals with differing levels of responsibility. Other problems with the existing system include overall leniency in the marking system, pronounced rank effects in the distribution of marks, and extreme redundancy of information collected.

II. Goals of the Project (p. 11)

To develop an improved enlisted evaluation system, four specific goals for the contract period were established. These were:

a. Determine how many different evaluation instruments should be developed to adequately describe performance in the various Coast Guard jobs (p. 11)

b. Develop prototypes of the proposed evaluation forms that would be based on job analysis data and be acceptable to users in the field (p.11)

c. Propose monitoring and feedback procedures, as well as a rater training concept plan for appraisal system maintenance (p. 11)

d. Propose a field try-out of the new appraisal system (p. 11)

III. Identification of Homogenous Job and Rank Clusters (p. 13)

The first goal of this project was to determine how many different evaluation instruments should be developed in order to adequately describe performance in various Coast Guard jobs. To do this, a worker-oriented job analysis questionnaire was especially designed for the Coast Guard (p. 13). This questionnaire was sent to 3160 enlisted Coast Guard personnel, randomly selected to represent 32 different job ratings and 9 different ranks. Responses from 2023 returned questionnaires (64 percent return rate) were then averaged for each job rating within each rank (p. 17).

Tucker's three mode factor analysis was used to analyze the responses to identify job characteristics that related clusters of similar job

(11)

ratings to clusters of similar ranks (p. 19). The results of this analysis for rated personnel indicated that separate performance appraisal forms could be developed for the following groups:

1. Chief Petty Officers, all ratings
2. Petty officers for Deck and Watch type ratings
3. Petty officers for Aviation ratings
4. Petty officers for service ratings
5. Petty officers for Electronics ratings
6. Petty officers for Engineering ratings

In addition, a separate evaluation form should be developed for non-rated personnel (Seamen, Firemen, and Airmen).

IV. Development of Prototype Evaluation Forms (p. 30)

The results from the three mode factor analysis were used as a guide in determining how many different evaluation forms should be developed. Two different systems were developed. One system, System A, contained seven forms and was based on the results of the statistical analyses. This system contained one form for Chief Petty Officers in all job ratings, one form for non-rated personnel across all job ratings, and five forms for Petty Officers, one for each of the following groups of job ratings: Aviation, Electronics, Engineering, Service, and Deck/ Watch. It is believed that this system of seven forms will be maximally sensitive to the different types of work and levels of responsbility in the Coast Guard. The second system, System B, was devised in the event that a system of seven forms would not be practical to implement from an administrative standpoint. This system contained one form for Chief Petty Officers, one form for petty officers, and one form for non-rated personnel.

Two types of rating items appear on all forms: Performance of Duties items and Personal Qualities items. The source for the performance items was the 153 job elements from the job inventory. An attempt was made to identify and include those job element items that had high relative time spent ratings and that were idiosyncratic to the group for which the form was being developed. For the most part there was a different set of performance items for each form (p. 38). The sources for Personal Qualities items were previous Coast Guard forms, other armed forces rating forms, lists of performance dimensions from the personnel psychology literature, and discussions with Coast Guard personnel. The Personal Qualities rating items were the same for each form (p. 37).

(12)

V. Development of the Motivational Components of the Evaluation System (p. 47)

A rater feedback system and rater training concept plan were developed as means for maintaining good operating characteristics of the new evaluation system once it is implemented. The recommended feedback system involves giving field commanders the responsibility for summarizing distributions of marks within their commands and forwarding the results to a central location. On a periodic basis the Coast Guard wide data would be tabulated and sent back to the field.

The purpose of the feedback system is two fold: First, it will provide information to the individual rater regarding his marking characteristics in relation to others in the Coast Guard so that he can improve his use of the forms. Secondly, feedback of actual results will serve to let all raters know how the system is working, and thereby maintain openness and trust in the system.

The purpose for conducting rater training sessions in the field is for both skill improvement and motivational reasons. The skill improvement component of the training involves discussions about the rating instrument and how to use it. The motivational component of the training involves group discussions about rating errors and their causes, beliefs about the rating process, and outcomes related to rating behaviors. A concept plan for developing one-day rater training workshops was developed (p. 51).

VI. A Proposal to Conduct an Experimental Try-Out (p. 54)

An experimental design was developed whereby the Coast Guard could evaluate under "live" conditions the efficacy of the proposed evaluation system to solve some of the problems inherent in the existing system. There are four specific purposes of the field try-out:

1. Calibrate the new appraisal instruments

2. Compare the proposed system with the existing system on psychometric and psychological measures

3. Solicit attitudes and opinions about the new system from selected Coast Guard commands

4. Make necessary revisions in the new evaluation system

To conduct the study will require Performance evaluation marks from three different samples of enlisted personnel: an experimental sample of 2800 personnel evaluated on the new form; a calibration sample of 500 enlisted personnel who are evaluated on both the new forms and the old forms; and a second experimental sample of 200 to test the effect of rater training workshops on the quality of the resulting

performance ratings. In addition, questionnaires will be mailed to selected Coast Guard commands to solicit opinions regarding the new evaluation forms.

I. Background.

This document is a final report submitted by The Ohio State University Research Foundation under the terms of contract DOT-CG-62625-A. The purpose of this report is to summarize the procedures and findings of a ten-month project to develop an improved enlisted performance evaluation system for the United States Coast Guard. The theoretical rationale as well as the details of the tasks performed in this project are contained in the May, 1976 technical proposal entitled, "A Proposal to Develop an Improved Performance Evaluation System for Enlisted Personnel in the United States Coast Guard." Detailed accounts of various administrative and budgetary aspects of the progress of this project are documented in ten monthly progress reports previously submitted during the course of the contract. The focus of the present document, therefore, will be on several technical aspects of the development of the proposed evaluation system. Only minimum emphasis will be given administrative aspects of this project.

A major reason for the development of an improved performance appriasal system for enlisted Coast Guard personnel was the increased manpower planning and development needs of the Coast Guard. According to the Personnel manual (CF-207), there are nine uses for which performance appraisal will be made. All nine of these uses are administrative in nature, such as determining advancement in rate, transfers to special programs, type of discharges, and good conduct medals. In addition, two more uses for performance data will become increasingly prominent (as cited in the RFP CG-62625-A, dated 19 March 1976). One use is for criterion measures in subsequent test validation studies, and the second use is for aids in assignment and placement of personnel. These 11 varied uses for performance effectiveness data in the Coast Guard are outlined in Table 1.

The current enlisted evaluation system consists of a single form ("Enlisted Performance Evaluation Worksheet", CG-3788) that is used twice a year for all enlisted personnel, regardless of rank or job rating. A copy of the existing rating instrument is included as Appendix A to this report. Essentially three characteristics are measured in the current system: Proficiency, Leadership, and Conduct. Each trait rating is made on a scale from 0.0 to 4.0. Since marks are assigned by tenths (3.3 3.4 3.5, etc.), each ratee can be evaluated theoretically on a forty point scale, although in practice raters tend to use at most about 12 points along the scale (2.9 to 4.0). The worksheet itself has 10 rating category boxes for Proficiency and Leadership, and 4 boxes for Conduct.

In evaluating an individual's *Proficiency*, the rater is supposed to assess the skill, efficiency, and knowledge that the individual has about his specialty. In short, the rater is to evaluate the individual's demonstrated ability to perform effectively. An "average" rating on the Proficiency scale is 3.3. A value of 3.3 is supposed to indicate an individual who is qualified for advancement and needs minimum supervision

Table 1

Uses of Performance Evaluation Information for Enlisted Personnel, U.S. Coast Guard

1. A factor for advancement in rate score
2. Selection for proficiency pay
3. Selection to warrant or commissioned status
4. Selection for special programs, projects, and courses of instruction
5. Good Conduct Medal
6. Type of discharge
7. Desirability for reenlistment
8. Reduction in rate for incompetency
9. Propriety of early separation by administrative discharge
10. Possible criteria in predictive validity studies
11. Uses as an assignment tool

Note: Items 1-9 above are taken from the Personnel Manual, CG-207, Chapter 10.

Items 10-11 are taken from RFP CG-62625-A dated 19 March, 1976 from the Commandant, U.S. Coast Guard.

In evaluating an individual's *Leadership*, the rater must consider a large number of heterogenous traits such as confidence and morale, military bearing, initiative, appearance, and ability to plan and assign work, among others. A rating of 3.3 on this scale is also considered "average", and reflects an individual who maintains morale and respect, gets adequate results from his men, has good bearing, initiative, and is good petty officer material.

The expected or "average" value on the *Conduct* scale is 4.0. That is, it is anticipated that the majority of individuals will have not court-martial convictions, non-judicial punishment, or minor civil convictions; and will be marked 4.0.

There are some problems with the present rating instrument that tend to make the system less responsive to the intended uses as outlined in Table 1. For one thing, the instrument is not sensitive to the variety of different types of jobs and job performance requirements that exist in the Coast Guard. Secondly, raters are asked to make much finer discriminations (40 scale points) than humans are generally regarded as capable of making (5 to 7 points). This means that differences in one or more points along the scale are porbably not reliable differences (e.g., the difference between a rating of 3.6 for one person and a rating of 3.7 for another person may not mean that the second person is a better performer than the first). Also, the Leadership scale as defined is measuring a complex of different variables, which makes it difficult for the rater to evaluate a person accurately. In addition, some of the descriptions of the rating categories do not apply to the higher NCO rankings. In particular, it would be difficult to rate most E8's and E9's other than 4.0 on the Proficiency scale by using strictly the descriptive labels supplied on the form. It has also been demonstrated that the current system suffers from leniency effects, grade effects, and redundancy among trait ratings.

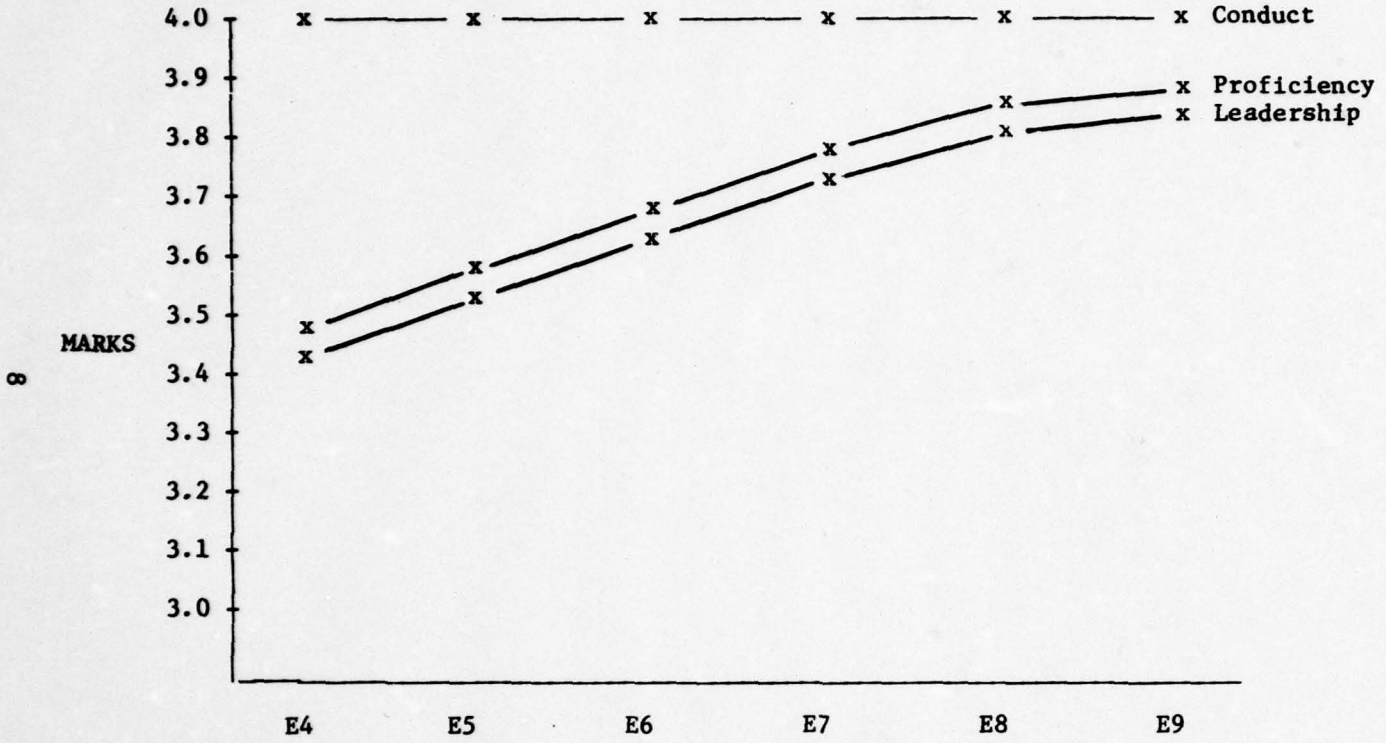
Leniency and grade effects in the present system can be briefly illustrated by the graph of points displayed in Figure 1. Figure 1 was constructed from data provided by Stumpff and Chevalier (1976), and represents a plot of the means from a sample of 2,230 marks for the period ending 31 December 1975. Direct inspection of this plot dramatizes three points: 1) the recomended "average" of 3.3 is not in reality the average performance level used by raters in the system; 2) there is a comparison with others of similar rank and rating; and 3) there is virtually no variance in the conduct scores.

Redundancy of rating information is dramatized by the high correlations between Proficiency marks and Leadership marks, and the lack of variability in Conduct marks. The Pearson Product Moment Correlation Coefficient between Proficiency and Leadership in the sample of 2,230 enlisted personnel was $r = .90$. A relationship this high means that knowledge of what an individual scores on Proficiency will almost perfectly predict his score on Leadership.

Figure 1

Analysis of Coast Guard-wide Sample of Performance
Marks for 31 December 1975*

N = 2230



*Taken from J. F. Stumpff and R. D. Chevalier, *An Analysis and Proposal for Revision of the Coast Guard Enlisted Performance Evaluation System.* Thesis submitted to the Naval Post Graduate School, Monterey, California, December, 1976.

One consequence of leniency and redundancy of marks is that performance data cannot be put to the intended uses. As an example, one of the uses for performance data in the Coast Guard is for determining advancement in rate (see Table 1). Actual performance of an individual is supposed to be used in conjunction with scores on an examination, as well as time in service, time in paygrade, and medals and awards received to determine which personnel should be promoted. Due to leniency of marks and lack of variability within grades compared to between grades, the role of performance evaluations in promotion decisions has deteriorated. Table 2 compares the actual versus the intended contribution of various components of the enlisted promotion system, based on a multiple regression analysis of servicewide data for the March 1976 examinations. These data indicate that in actuality promotion in the Coast Guard today is heavily influenced by scores on a paper and pencil test and months in service, rather than performance of duties as assessed by supervisors and commanders in the system.

It is within this context that the present project began. In general, the purpose of the project was to develop an improved performance appraisal system that would better meet the manpower needs of the Coast Guard. The specific goals of the contract are presented in the next section of this report.

Table 2

Actual Contributions of Factors for Advancement in Rate During March 1976 E3-E8 Servicewide Competition for Advancement*

Factor	Percent Contribution	
	Intended	Actual
Examination Score	44	40
Performance Evaluations	28	15
Time in Service	11	38
Time in Paygrade	11	6
Medals and Awards	6	1

*Taken from J. F. Stumpff and R. D. Chavalier, *An Analysis and Proposal for Revision of the Coast Guard Enlisted Performance Evaluation System*. Thesis submitted to the Naval Post Graduate School, Monterey, California, December, 1976.

II. Goals of the Project

The primary goal of this project was to develop an improved enlisted personnel evaluation system that would be more responsive to the many Coast Guard uses for performance data than the existing system. In order to accomplish this, four specific objectives had to be met. These four objectives are described below.

a. *Determine how many different evaluation forms should be developed.*

A problem with the existing rating form was the lack of sensitivity to the variety of types of work and the variety of levels of responsibility in various jobs in the Coast Guard. A single evaluation instrument for all jobs cannot be as valid as multiple instruments carefully designed to measure performance in specific jobs and ranks. However, it was not feasible to develop separate evaluation instruments for every job rating and every grade in the Coast Guard. Therefore, a first and major objective of this study was to analyze existing jobs and ranks to determine job/rank clusters that were similar enough to be combined and evaluated with the same performance appraisal instrument.

b. *Develop prototypes of the proposed evaluation forms.*

Once the number and type of different forms was determined, a second goal of the project was to construct prototype evaluation forms with certain desirable characteristics. First, they should measure important elements of Coast Guard jobs. Second, they should incorporate important Coast Guard values. Third, they should be easy to use and be acceptable to raters in the system. And finally, they should meet professional standards for technical quality.

c. *Develop system maintenance procedures.*

An important philosophy of the contractors was that good technical rating instruments alone were not sufficient to solve the leniency, grade effects, and redundancy problems inherent in the existing system. Therefore,an emphasis in this project was placed on developing methods that could maintain the evaluation system once it was implemented. In particular, a monitoring and feedback system was to be developed to insure trust in the system and to give feedback to help raters improve their rating behavior. Another important element of system maintenance was to develop a rater training concept plan to improve knowledges and abilities of raters in the field, as well as to motivate raters to use the new system accurately.

d. *Propose a field tryout for the new appraisal system.*

Another element of this project was to develop an experimental design for a field tryout of the proposed evaluation system. One purpose of the tryout would be to compare the proposed system with the existing system

on various psychometric and psychological measures. A second purpose of the tyrout would be to develop norms and to calibrate the new system for use in various administrative actions.

III. Identification of Homogeneous Job and Rank Clusters

The first objective of the project was to determine how many similar job and rank clusters could be identified for which separate performance appraisal forms could be developed. Two problems had to be solved in selecting an approach to this problem. First, a means of analyzing Coast Guard jobs for the purpose of comparing similarities and differences among jobs had to be chosen. This is essentially a problem of producing an appropriate type of job analysis data. And secondly, a statistical methodology had to be selected that could use the job analysis data to simultaneously consider rank and rating effects.

a. *Approach*

There are several philosophies about studying jobs, as well as several methods of collecting job analysis information. Traditionally the Coast Guard has used the task-oriented philosophy and the job inventory method of collecting job data from incumbents. For both practical and theoretical reasons developed and presented in the Technical Proposal, it was decided that for the present study a task-oriented job analysis approach would not work. Instead, a worker-oriented or process-oriented approach to analyzing the similarities and differences among Coast Guard jobs was appropriate. In terms of data collection methods, it was decided that the job inventory questionnaire approach would supply the best job information given the time and manpower constraints of the contract.

Thus, a worker-oriented job inventory booklet was developed specifically for the United States Coast Guard and mailed to 3,160 enlisted Coast Guard personnel randomly selected to represent 32 different job ratings and 9 different ranks. Responses from 2,032 returned questionnaires were averaged for each different job rating within each different rank. These average responses were then used as the basic data for a Three Mode Factor analysis. Tucker's (1966) Three Mode analysis was the statistical methodology used to identify job element factors (mode 1) that maximally related factors of job ratings (mode 2) to factors of ranks (mode 3). These factors were used to identify the number and type of different similar rank/job clusters for which separate performance appraisal forms could be developed.

b. *Development of the job inventory.*

Items from the Position Analysis Questionnaire, a standardized, well researched worker-oriented job questionnaire, were used as a starting point for developing a Coast Guard job inventory. The Position Analysis Questionnaire, PAQ, is an 194-element questionnaire designed to measure six *a priori* job dimensions according to a stimulus (information input) - organism (mediation processes) - response (work output) model. In addition, the PAQ contains items related to interpersonal activities associated with jobs, the nature of the work situation or job context, and certain other miscellaneous aspects of work.

The PAQ was adapted for Coast Guard use in several ways. First, all instructions and items from the original PAQ were rewritten to reduce the reading level of the instrument. Previous studies with the PAQ (Asch and Edgell, 1975) had shown that the reading level of the PAQ was at the college graduate level. For use by job incumbents in the Coast Guard, rather than job analysts, it was felt that a reading level at or about the 10th grade would be appropriate. Assessing the reading level of the original PAQ and all subsequent versions was accomplished through the computer program STAR. STAR is a program developed by the General Motors Corporation as part of a project to assess and reduce the reading level of some of their shop manuals. STAR will analyze a reading sample and output the following statistics: number of sentences in the sample, number of words in the sample, number of syllables, average sentence length, average syllables per word, the Flesch Reading-Ease index, the Dale-Chall reading index, and the grade level equivalent of the reading sample. STAR will also output a list of all the words in the sample containing three or more syllables. The reading level of the final rewritten version of the PAQ was assessed at the 10.6 grade level, according to the STAR program.

A second set of changes involved deleting items not derectly relevant to the military setting, as well as changing the wording and examples of some items to conform to the Coast Guard setting. Ninety-four items on the final Coast Guard job inventory (out of a total of 153) were developed on the basis of 90 items from the PAQ. Fourteen of these items were identical to PAQ items except that examples were shortened or changed to fit the Coast Guard setting. Sixty-five items involved changing the wording of the stems as well as the examples. (Many of these wording changes were accomplished in the attempt to reduce the reading level of items, as described above). Eleven PAQ items were either combined or revised to fit the unique characteristics of the Coast Guard job setting.

A third change involved abandoning the various response rating scales on the PAQ (e.g., Extent of Use, Degree of Detail, Importance to the Job, Level of Decision) in favor of the Relative Time Spent scale. This particular job inventory rating scale has been used quite extensively in military task analyses (see Christal, 1974), and provides suitable data for entry into the United States Air Forces' CODAP computer program package that has been frequently used in Coast Guard task analyses. In several instances, items from the PAQ were deleted entirely because they couldn't fit this particular response scale.

Although 94 items on the final questionnaire had their genesis in the PAQ, an additional 59 items were added to the questionnaire specifically for this project. Most of these items were leadership and adminstrative process items. After carefully studying the items on the PAQ, it was felt that the PAQ item pool contained too few items delineating various types of processes, particularly in the supervision/leadership area. One type of source for these additional 59 items was other published job task inventories (e.g., Hemphill's *Executive Position*

Description Questionnaire). However, the primary source was a list of verbs compiled from previous Coast Guard job task inventories. These items were jointly developed by Ohio State personnel and personnel at Coast Guard headquarters.

A copy of the final inventory is attached as Appendix B to this report. The final job element inventory contained instructions plus 153 *elements in a 12-page booklet.* Cover design, instructions, response format, number of scale points, and other aspects of the questionnaire were designed to conform to previous Coast Guard task analysis inventories.

c. *Enlisted Personnel Sample.*

The job inventory booklet described above was administered to a cross-section sample of Coast Guard enlisted personnel. The sample was selected in the following manner. A magnetic tape containing information about rank, social security number, job code, and other personnel data was supplied by the Coast Guard. This tape contained information about the 31,188 enlisted personnel who were in the Coast Guard as of late fall, 1976. Appendix C contains a table that is a cross-tabulation by the 32 job ratings and 9 grades of all enlisted personnel on the magnetic tape. Row totals and column totals have been converted to percents in order to show percentage distributions of the various grade and job ratings for the population of Coast Guard personnel at the time of this study.

From the population described in Appendix C a random sample was constructed to insure equal (*not* proportionate)[1] representation of 28 of the original 32 job ratings across 9 job grades. The following four ratings were not included in the sampling procedure at this stage due to the small numbers in the population: Electronics Technicians Communications (N = 102), Electronics Technician Watch Stander (N = 11), Officer Candidate (N = 65), and Aviation Pilot (N = 1). A sample of non-rated personnel (Seaman, Fireman, and Airman) was then selected by numerically ordering the personnel in each rank (E1, E2, E3) and job rating combination (6 combinations possible). The individuals were ordered in ascending order according to the 3rd, 4th, and 5th digits of the social security number. The first 50 persons in each rank for each job rating were then identified as members of the random sample. This procedure resulted in the identification of 150 Seamen, 100 Firemen (there were no E1 firemen in the population), and 71 Airmen (there were no E1 airmen and only 21 E2 airmen in the population).

---

[1]The purpose of the subsequent analyses required a maximum liklihood sample rather than a stratified, or Bayesian, sample.

The sample from the remaining 25 job ratings was constructed in a similar manner. For each job rating and for each rank (E4 - E9 only) all individuals were reordered numerically according to the 3rd, 4th, and 5th digits of the social security number. The first 25 individuals in each cell were then selected for inclusion in the present sample. If less than 25 members existed for a particular rank/job combination, then all members in that cell were selected as members of the sample. Using this algorithm produced a list of 3,235 individuals.

Appendix D contains a table with a breakdown by rank and job code of the 3,235 individuals selected for inclusion in the job inventory sample. Row totals and column totals were converted to percentages of the total sample and displayed in the last column to indicate the extent of equal representation in the various ratings and ranks that was achieved by the sampling procedure. As an examination of Appendix D reveals, the ranks E4, E5, E6, and E7 have about the same percentage of individuals in the sample (17 - 18 percent). Combining ranks E8 and E9 results in another similar percent (17.5). With respect to job ratings, the small numbers in some job categories precluded the possibility of obtaining exactly equal representation across ratings. However, most major ratings contain between 4.2 and 4.6 percent of the sample. Excluding the non-rated specialties (Airmen, Seamen, Firemen), the job ratings with especially low representation in the sample were Musicians (1.5 percent), Photojournalists (2.5 percent), Fire Control Technicians (2.3 percent) and Dental Technicians (2.6 percent). The lack of large numbers of high ranking NCO's resulted in sample representation less than 4.0 percent but greater than 3.0 percent in 11 of the remaining job rating categories.

The names and social security numbers of these 3,235 individuals were sent to Coast Guard headquarters to produce address labels for mailing the job element inventories. By the time the program was run to create the address labels, 75 individuals in the sample had left the Coast Guard, reducing the sample size to 3,160. All 3,160 inventory booklets were mailed to the field by February 5, 1977. A cut-off date for including returned questionnaires in the final sample was set for March 16, 1977, approximately six weeks later. By March 16th, a total of 2,023 booklets had been received (64 percent return rate).[2]

Table 3 presents a breakdown by rating and grade of the 2,023 job inventory booklets that were returned by March 16th. Return rates by job categories are also displayed in Table 5. As an examination of this table reveals, most job ratings had very good return rates. The two ratings with the poorest return rates were Sonar Technician (43.3 percent) and Aviation Survivalman (46.6 percent). The two ratings with the best return rates were Yoeman (76.9 percent) and Boatswain's Mate (74.1 percent).

---

[2]Since that date, and additional 263 booklets have been received.

Table 3

Returned Questionnaire Sample: Breakdown by Rating and Grade as of March 6, 1977

N = 2023

Code	Rating	RANK 1	2	3	4	5	6	7	8/9	Row Total	Percent of Total	Total Sent	Percent Returned
100	Boatswain's Mate	0	0	0	17	19	20	17	33	106	5.2	143	74.1
110	Quartermaster	0	0	0	16	14	16	17	24	87	4.3	137	63.5
130	Radarman	0	0	0	13	14	18	13	11	69	3.4	113	61.1
140	Sonar Technician	0	0	0	7	8	15	9	3	42	2.1	97	43.3
150	Seaman	25	27	34	0	0	0	0	0	86	4.2	145	59.3
170	Gunner's Mate	0	0	0	14	15	17	13	10	69	3.4	107	64.5
180	Fire Control Technician	0	0	0	13	9	13	7	2	44	2.2	74	59.4
200	Machinery Technician	0	0	0	17	14	17	15	34	97	4.8	146	66.4
210	Damage Controlman	0	0	0	13	19	16	14	12	74	3.6	117	63.2
240	Electronics Technician	0	0	0	12	13	17	14	24	80	4.0	139	57.6
270	Electronics Mate	0	0	0	13	12	17	17	20	79	3.9	131	60.3
280	Telephone Technician	0	0	0	17	13	19	18	9	76	3.8	105	72.4
320	Fireman	0	30	32	0	0	0	0	0	62	3.1	98	63.3
340	Photojournalist	0	0	0	11	15	17	9	3	55	2.7	78	70.5

350	Radioman	0	0	0	18	14	15	14	31	92	4.5	140	65.7
360	Yoeman	0	0	0	21	20	22	17	33	113	5.6	147	76.9
420	Storekeeper	0	0	0	16	16	20	22	20	94	4.6	135	69.6
500	Subsistence Specialist	0	0	0	16	17	16	16	21	86	4.2	133	64.7
520	Aviation Machinist's Mate	0	0	0	12	13	18	17	26	86	4.2	136	63.2
530	Aviation Survivalman	0	0	0	6	13	16	7	1	43	2.1	92	46.7
550	Aviation Electronics Tech	0	0	0	18	15	19	18	15	85	4.2	117	72.6
560	Aviation Electronics Mate	0	0	0	11	12	19	18	8	68	3.4	111	61.3
570	Aviation Structural Mechanic	0	0	0	17	16	15	18	8	74	3.6	112	66.1
610	Airman	0	17	30	0	0	0	0	0	47	2.3	71	66.2
790	Marine Science Technician	0	0	0	18	15	18	15	3	69	3.4	97	71.1
840	Musician	0	0	0	0	2	10	11	4	27	1.3	48	56.2
870/880	Dental Technician Hospital Corpsman	0	0	0	19	32	31	21	10	113	5.6	191	59.2
	Column Total	25	74	96	335	350	421	357	365	2023	—	3160	64.0
	Percent of Total	1.2	3.6	4.7	16.6	17.3	20.8	17.6	18.0				

To prepare the obtained data for three-mode factor analysis, questionnaire return data from Table 3 were examined, and some modifications in the number of levels of the three modes were made in order to insure a reliable sample size in each cell of the design. Specifically, pay grades 8 and 9 were combined, and seven job categories (e.g., musicians, photojournalists) were eliminated due to small sample size. The 18 different ratings retained for the three-mode analysis are presented in Table 4. Mean profile scores for each of the 153 job elements for each combination of 18 ratings and 5 ranks (E4, E5, E6, E7, E8, E9) were calculated and used as the data base for the analysis described in the following section of the report.

d. *Results of the Three-Mode Analysis.*

Three-mode factor analysis is a generalization of conventional factor analysis procedures to three-way (or higher order) fully-crossed data sets (Tucker, 1966).

In the current project, the fundamental datum is mean relative time spent, and that datum is observed simultaneously from three different modes: The rating mode (with 18 "viewpoints" see Table 4), the grade mode (with 5 "viewpoints"), and the job element mode (with 153 "viewpoints"). Three-mode analysis begins with separate factor analyses of each mode (summed over the remaining modes), followed by rotation of factors, and finally computation of a "core matrix." The core matrix shows the strength of the relationships among the factors in each of the three modes. It is a powerful and sensitive method, well-suited for analyzing large data sets. Illustrations of the use of three-mode analysis are reported in Inn, Hulin and Tucker (1972) and MacCallum (1974).

Because all variables were measured on the same response scale, sums of squares and cross-products, rather than correlation coefficients, were analyzed. Tucker (1966) recommends this approach since the factoring procedure thus incorporates variance due to mean difference.

1. *The Rating Mode.* The rating mode was analyzed by factoring 765 (5 x 153) observations of 18 variables. Table 5 presents the roots and percent of variance accounted for by each successive factoring of the rating matrix.[3] Five factors seem to account adequately for the variance in the relative time spent measure. The five dimensional solution accounts for 95.81% of the sum of squares of the 765 x 18 array. Table 6 presents a varimax rotation of unit eigenvectors for the five dimensional solution.

---

[3]The large proportion of variance accounted for by the first root is a result of factoring a sum of squares and cross-products (SSCP) matrix rather than a correlation matrix.

Table 4

Names of 18 Job Ratings Retained for the Three-Mode Factor Analysis

1. Boatswain's Mate
2. Quartermaster
3. Radarman
4. Gunner's Mate
5. Machinery Technician
6. Damage Controlman
7. Electronics Technician
8. Electronics Mate
9. Telephone Technician
10. Radioman
11. Yoeman
12. Storekeeper
13. Subsistence Specialist
14. Aviation Machinists Mate
15. Aviation Electronics Technician
16. Aviation Electrician's Mate
17. Aviation Structural Mechanic
18. Hospital Corpsman/Dental Technician

Table 5

Eigenvalues and Variance Accounted for by Successive 18 Factors of the Job Rating Mode Factor Analysis

Dimension	Eigenvalue	Percentage of Variance	Cumulative Percentage
1	50281.87	89.51	89.51
2	1703.16	3.03	92.54
3	685.16	1.22	93.76
4	634.81	1.13	94.89
5	513.81	.92	95.81
6	387.78	.69	96.50
7	313.52	.56	97.05
8	288.96	.51	97.57
9	231.23	.41	97.98
10	201.09	.36	98.34
11	180.48	.32	98.66
12	146.16	.26	98.92
13	128.27	.23	99.15
14	114.47	.20	99.35
15	110.04	.20	99.55
16	90.67	.16	99.71
17	87.89	.16	99.87
18	75.38	.13	100.00

Table 6

Varimax Rotated Eigenvectors for the 5-Dimensional Approximation of the Rating Variance for the Job Rating Mode

	Vectors				
Rating	I	II	III	IV	V
Boatswains Mate	-.02	-.05	-.26	.51	.21
Quartermaster	-.04	.02	-.10	.16	.51
Radarman	-.01	.02	-.02	.11	.49
Gunners Mate	-.04	.08	.03	.32	.12
Machine Technician	.11	-.14	.08	.41	.03
Damage Controlman	.00	.04	.09	.41	-.10
Electronics Technician	.04	.03	.63	-.15	.01
Electricians Mate	.02	-.12	.33	.31	-.03
Telephone Technician	-.03	.04	.57	.08	-.02
Radioman	.10	.20	.12	-.20	.43
Yoeman	-.06	.38	.04	-.08	.24
Storekeeper	-.11	.42	.08	-.01	.12
Subsistence Specialist	-.04	.61	-.10	.29	-.40
Aviation Machinists Mate	.59	.04	-.14	-.01	-.03
Aviation Electronics Technician	.41	.03	.12	-.09	.10
Aviation Electricians Mate	.45	-.04	.05	.02	.02
Aviation Structural Mechanic	.44	-.02	-.04	.11	-.08
Hospital/Dental Corpsman	.19	.45	.05	-.05	-.01

Retention of five vectors followed by varimax rotation yielded a clear and reasonable interpretation. Only the Electricians Mate rating had important loadings on two factors, and even then the pattern of loadings is easily interpreted. Names for the rating mode factors are: I. Aviation; II, Service and Clerical; III, Electronics; IV, Engineering; and V, Deck and Watch. Other numbers of factors were rotated, but the results in Table 5 represent the best approximation to simple structure.

2. *The Grade Mode.* The grade mode was analyzed by factoring 2,754 (18 x 153) observations of five variables. Part A of Table 7 presents the roots and variance accounted for by each of the factors in the grade matrix. Two factors accounted best for the grade variance in relative time spent, accounting for 97.83% of the variance. Part B of Table 7 presents a varimax rotation of the two-dimensional solution.

The two-factor structure for grade variance is particularly interesting. The factors might be labeled Chief Petty Officer and Petty Officer, and the presence of two orthogonal factors show that the two groups have different patterns of duties and activities. The nature of relative time spent on the job elements varies appreciabley depending on one's grade. There are (at least) two clusters of activities, one of which accounts for much variation in the time spent by E4's and E5's and little variation in time spent by E7's E8's and E9's. The second cluster shows the opposite pattern. The E6 group is especially interesting because its variation is moderately related to both clusters--that is, some E6's must be similar (in terms of relative time spent) to E7's and above, while others are more similar to E4's and E5's.

3. *Job Element Mode.* The job element (or item) mode was analyzed by factoring 90 (5 x 18) observations of 153 variables. Table 8 presents the roots and percentage of variance accounted for by the first ten stages in the factoring process. After considering rotations of two through nine factors, a seven factor solution, accounting for 96.33% of the job element variance, was selected as the best approximation to simple structure. A matrix of varimax rotated loadings of the 153 job elements on the 7 factors is attached as Appendix E to this report.

To assist in the interpretation of the results in Appendix E, all items with "loadings" greater than .10 were culled from the matrix, sorted onto their respective factors, and presented listwise in Table 9. Tentative labels for these job element factors are: I, Machine Tending; II, Managing; III, Cooking; IV, Machine Repair; V, Office and Contact with Others; VI, Boating; and VII, Air Crew.

4. *Core Matrix.* The core matrix that interrelates the rotated factor matrices presented in Tables 5, 7, and Appendix E is presented in Table 10. Although the scale is arbitrary, numbers in the core matrix are directly interpretable in terms of relative time spent. In general, large values (40.00 and greater) indicate that persons within the particular combination of modes associated with the large value spend relatively more time in that activity than other members of the sample.

Table 7

A. Eigenvalues and Variance Accounted for by Successive Five Factors of the Job Grade Mode Factor Analysis

Dimension	Eignenvalue	Percentage of Variance	Cumulative Percentage
1	52579.39	93.60	93.60
2	2375.09	4.23	97.83
3	445.95	.79	98.62
4	424.26	.76	99.38
5	350.09	.62	100.00

B. Varimax Rotated Eigenvectors for the 2-Dimensional Approximation of the Grade Mode Variance

	Vectors	
Grade	I	II
E-4	.74	-.11
E-5	.59	.06
E-6	.30	.35
E-7	.01	.64
E-8 & E-9	-.09	.67

Table 8

Eigenvalues and Variance Accounted for by the First 10 Factors of the Job Element Mode Factor Analysis

Dimension	Eigenvalue	Percentage of Variance	Cumulative Percentage
1	48817.57	86.90	86.90
2	2578.41	4.59	91.49
3	936.79	1.67	93.16
4	575.37	1.02	94.19
5	521.59	.93	95.11
6	369.60	.66	95.77
7	312.11	.56	96.33
8	243.01	.43	96.76
9	197.33	.35	97.11
10	143.89	.25	97.36
.	.	.	.
.	.	.	.
.	.	.	.
153	0.0	.00	100.00

Table 9

Marker Items for the Seven Factors
of the Job Element Mode

Factor 1: Machine Tending

Item No.	Item Label
32.	NOTICE DIFFERENT PATTERNS OF SOUND (Morse code, engines not running right)
59.	USE REMOTE CONTROLLED EQUIPMENT
92.	CONTINUALLY WATCH FOR FREQUENT CHANGES IN YOUR JOB SITUATION (rescue traffic, constantly watching gauges and dials that change often)
120.	MONITOR EQUIPMENT

Factor 2: Managing/Supervising

108.	APPROVE REQUESTS AND/OR PROPOSALS FROM OTHERS
110.	SCHEDULE MEETINGS AMONG PEOPLE
111.	ASSESS THE QUALITY OF WORK OF OTHERS
113.	ASSIGN PEOPLE TO TASKS
130.	SUPERVISE OTHERS
142.	ARE ACCOUNTABLE FOR DECISIONS AND ACTIONS OF OTHERS

Factor 3: Cooking

12.	USE ODOR (applies to any odor you need to smell to do your job)
13.	USE TASTE (food preparation)
36.	JUDGE SPEED OF SOME PROCESS (cooking time, developing pictures)
47.	USE TOOLS OR DEVICES FOR THE PURPOSE OF HANDLING THINGS (tongs, ladles)

Factor 4: Machine Repair

40.	CODE AND DECODE (Morse code, computer, languages)

Table 9
continued

48. USE HAND HELD POWERED DEVICES THAT PERFORM VERY PRECISE OR ACCURATE OPERATIONS (soldering irons, welding equipment)

62. TAKE EQUIPMENT APART OR PUT IT BACK TOGETHER

127. REPAIR EQUIPMENT

Factor 5: Clerical

1. USE WRITTEN MATERIALS (tech manuals, notices)

9. USE VERBAL COMMUNICATIONS

26. WORK IN AN AREA OF MODERATE NOISE (office with typewriters)

55. USE KEYBOARD DEVICES (adding machines, typewriters)

97. USE FINGER MOVEMENTS (drawing instruments, keyboard devices)

Factor 6: Boating

8. USE MAN-MADE FEATURES (bridges, dams, docks)

17. WORK OUTDOORS

28. ARE RESPONSIBLE FOR THE SAFETY OF THE GENERAL PUBLIC

30. JUDGE DISTANCES

56. USE SMALL BOATS

78. CONTACT PUBLIC (boating safety, environmental protection, law enforcement)

99. COORDINATE HAND AND/OR FOOT MOVEMENT WITH WHAT YOU SEE (driving a car, steering a boat)

Factor 7: Air Crew

21. ARE SUBJECTED TO VIBRATION

84. TAKE RISKS WHILE SERVING OTHERS (sar teams)

151. SERVE AS AIR CREWMAN

Table 10

Core Matrix

Chief Petty Officer (Grade Factor II)

		Job Element Factors						
	Rating Factors	I Machine Tending	II Managing	III Cooking	IV Machine Repair	V Clerical & Contact	VI Boating	VII Air Crew
I	Aviation	17.49	34.62	11.35	32.36	34.10	8.18	1.24
II	Service, Clerical	25.89	34.38	32.77	42.52	43.10	31.39	19.32
III	Electronics	23.17	57.53	23.60	37.58	50.61	24.01	11.65
IV	Machinery	21.79	18.66	2.20	14.65	43.06	19.31	5.18
V	Deck & Watch	18.30	33.81	2.95	12.30	43.88	15.34	3.05

Petty Officer (Grade Factor I)

		Job Element Factors						
	Rating Factors	I	II	III	IV	V	VI	VII
I	Aviation	29.45	23.57	25.88	42.95	43.00	13.43	28.28
II	Service, Clerical	21.43	51.87	14.35	29.37	49.33	9.40	16.89
III	Electronics	14.54	19.08	26.02	15.78	47.31	10.76	-.33
IV	Machinery	8.43	43.48	15.73	9.45	49.15	8.23	-2.97
V	Deck & Watch	20.31	10.42	12.76	37.14	25.98	6.03	2.89

similar interpretation holds for small values (4.00 and smaller). The mean value in the core matrix is about 22.80, and deviations in either direction correspond to increasing (or decreasing) relative time spent.

Within any row, column, or level of the matrix, time spent may by interpreted either relative to the grand mean or relative to the mean for the row, column, or level in question. Consider the top row of the upper half of the core matrix in Table 10. Chief petty officers in aviation ratings spend very little time performing air crew tasks (Factor VII) and divide most of their time evenly among managing (Factor II), machine repair (Factor III), and clerical and contact with others (Factor V) tasks. Other cells, rows etc., may be interpreted similarly. Examination of the findings shown in Table 10 reveals many easily interpreted findings.

In summary, the three-mode analysis yielded 5 rating factors, 2 grade factors, and 7 job element factors. These factors and the core matrix were the basis for discussions with the Technical Monitor which led to the decision to develop one performance evaluation form for all Chief Petty Officers and separate forms for Petty Officers in each of the five groups of ratings identified by the factor analysis. Job element items clustered by factor analysis served to suggest some of the item content for the various forms, as described in the next section of this report.

IV. Development of Prototype Evaluation Forms.

a. *Overview.*

The results from the three mode factor analysis were used as a guide in determining how many different evaluation forms should be developed. Based on discussions with the technical advisor, a decision was made to develop two different evaluation systems, one system that contained seven forms, and a second system that contained three forms. System A was based on the Three Mode Factor Analysis results and consisted of one form for Chief Petty Officers in all job ratings, one form for non-rated personnel across all job ratings, and five forms for Petty Officers, one for each of the following groups of job ratings: Aviation, Deck/Watch, Electronics, Engineering, and Service. The second system, System B, contained three forms: one for Chief Petty Officers in all ratings (same form as in System A), one for Petty Officers in all job ratings, and one for non-rated personnel (same form as in System A).

Once the number of different forms had been determined, the next step was to decide on a preliminary format and to generate rating items. Two types of items were developed: Trait or "Personal Qualities" items and performance items. The sources for Personal Qualities were previous Coast Guard forms (officer forms and the enlisted form), other armed forces rating forms, lists of performance dimensions from the personnel psychology literature, and discussions with personnel at Coast Guard headquarters. The source for the performance items was the 153 job elements from the job inventory. An attempt was made to identify and include those job element items that distinguished one group from one or more of the remaining job groupings.

Certain other format characteristics of the proposed forms were developed in consultation with personnel at Coast Guard headquarters. Space restrictions (each evaluation form had to be contained on the front and back of one page only) had a severe effect on the format (type or items, response scales, item arrangement) of the final proposed forms. Spacing, blocking, and other general format characteristics were patterned somewhat after the existing officer evaluation forms in an effort to make all Coast Guard evaluation forms similar in appearance. Administrative information such as name, grade, time of report, unit name, etc. was dictated by the needs of the enlisted personnel branch of the Coast Guard. The "Conduct" scale, a separate scale from the performance and personal quality items, was included due to administrative needs. Signature blocks, a comments section, and other characteristics of the forms were proposed and revised on the basis of field conferences (described below). Several scales developed specifically to meet the needs for manpower data outlined in Table 1 (see page 6) were included in early versions of the forms. All but one of these additional scales were later deleted.

Prototype evaluation forms were thus developed and presented at several field conferences attended by personnel representing the various categories and grades of individuals for whom the forms were being developed. The purpose of these conferences was to elicit opinions regarding user acceptability in the Coast Guard. Specifically, opinions were sought with regard to the groupings of job ratings, the number and definitions of personal qualities to be included on the form, and the number and types of performance items to be included. In addition, answers to questions were sought regarding a rater feedback system, the number of scale points on the various graphic scales, suggested system-wide distributions of marks, and procedural issues related to the number of times a year the forms should be filled out and who should fill out the forms.

Table 11 lists the dates, locations, and representatives present at the technical conferences held in June 1977. Data were collected at each conference by having conference participants fill out questionnaires. Each conference lasted one day. The schedule of activities at each conference, as well as copies of the questionnaires used to elicit information at these conferences was included as an attachment to Monthly Progress Report No. 8. Tabulated responses and transcriptions of comments elicited by these questionnaires are available from the contractor but are not included in this final report.

On the basis of information gained during these field conferences several modifications were made in the final forms. These modifications were incorporated in an oral report delivered to Coast Guard personnel in Washington D.C. on July 28, 1977. The contract officer, the technical advisor, and military personnel from the enlisted personnel branch were present. Some final decisions regarding various aspects of the proposed evaluation system were made at that meeting and shortly thereafter. These decisions are reflected in the final evaluation forms described below and included as Appendix F to this report.

b. *Number of Forms.*

Results from the Three Mode Factor Analysis indicated that separate performance appraisal forms should be developed for Chief Petty Officers and Petty Officers. In addition, the results indicated that there were five different factors, or clusters, of Petty Officers. The loadings of the 18 job ratings on the five factors were presented in an earlier section of this report (see Table 6). Using these loadings exclusively would have resulted in the job groupings displayed in Table 12. Factor I in Table 12 is clearly an Aviation factor. That is, regardless of specialty, aviation ratings as a group tend to be more alike than different. Factor II clearly represents a Service dimension. The high loadings of Electronics Technician and Telephone Technician on Factor III indicates an Electronics Factor (Electrician's Mate had approximately equal loadings on Factor III and IV). Factor IV contains deck and engineering/hull ratings, including Boatswain's Mate, Gunner's Mate, Machine Technician, Damage Controlman, and Electrician's Mate. Factor V consists of Quartermaster, Radarman, and Radioman ratings.

Table 11

Dates, Locations, and Representatives to Technical Conferences held in June, 1977

Group	Date	Location	Representatives
1	June 8	Governor's Island	Deck/Watch E4, E5, E6
2	June 9	Governor's Island	E7, E8, E9 (all ratings)
3	June 9	Governor's Island	Electronics E4, E5, E6
4	June 10	Governor's Island	Engineering E4, E5, E6
5	June 10	Governor's Island	Service E4, E5, E6
6	June 15	Elizabeth City	Aviation E4, E5, E6

Table 12

Original Grouping of 18 Enlisted Coast Guard Ratings into Five Categories Based on Results of the Three-Mode Factor Analysis

GROUP I:

AM	Aviation Structural Mechanic
AE	Aviation Electrician's Mate
AD	Aviation Machinists Mate
AT	Aviation Electronics Technician

GROUP II:

HM	Hospital Corpsman
DT	Dental Corpsman
SK	Storekeeper
SS	Subsistence Specialist
YN	Yoeman

GROUP III:

ET	Electronics Technician
TT	Telephone Technician
*EM	Electricians Mate

GROUP IV:

BM	Boatswain's Mate
GM	Gunner's Mate
MK	Machinery Technician
DC	Damage Controlman
*EM	Electricians Mate

GROUP V:

QM	Quartermaster
RD	Radarman
RM	Radioman

*Electricians Mate (EM) had equal loadings on Factor III and IV.

The final decision regarding actual groupings of job ratings for performance appraisal purposes was made on the basis of these statistical results as well as practical considerations regarding anticipated acceptability to the raters in the Coast Guard. In consultation with personnel at Coast Guard headquarters, the following changes in the statistical groupings were made: Boatswain's Mate and Gunner's Mate were moved from Factor IV to Factor V, Radioman was moved to Factor II, and Electrician's Mate was considered a member of Factor IV, instead of both factors III and IV. Factor IV was then labeled an Engineering group and Factor V was labeled a Deck/Watch group.

Prior to the technical conferences in the field, the eight major ratings that had been omitted from the three mode factor analysis (see section IIIc) were logically placed into the various groupings. This procedure placed Musicians and Photojournalists in the Service group, Aviation Survivalmen in the Aviation Group, Electronics Technician Communications personnel and Fire Control Technicians in the Electronics group, and Marine Science Technicians and Sonar Technicians in the Deck/Watch group.

Reactions to these proposed groupings were carefully examined in the field conference sessions. With one exception, there was wide acceptance of these groupings. The universal suggestion from participants in these conferences was to place Sonar Technicians in the Electronics group rather than the Deck/Watch group. There were various other suggestions regarding job groupings but none received any substantial agreement among conference participants.

The final recommended groupings for Petty Officers based on input from the field conference is displayed in Table 13. The groupings displayed in Table 13 represent a compromise between the statistically optimum clusters based on worker-oriented job elements from the job inventory and psychologically optimum clusters based on user acceptance in the field. The decision was made to develop separate Petty Officer evaluation instruments for the five groups of ratings listed in Table 13. In addition, a decision was made to develop separate evaluation instruments for Chief Petty Officers and non-rated personnel. These decisions resulted in a commitment to an evaluation system containing a total of seven evaluation forms. This system of seven evaluation forms (labeled System A) was designed to be as sensitive as possible to the wide range of ratings and grades in the Coast Guard.

In the event that a system of seven forms would be impractical to administer, a second system was developed that contained only three forms. This system, System B,consisted of one form for all Chief Petty Officers (the same form as in System A), one form for all Petty Officers, and one form for non-rated personnel (same form as in System A). Table 14 summarizes the number and types of evaluation forms that make up the two proposed evaluation systems.

Table 13

Final Grouping of 26 Enlisted Coast Guard Ratings into Five Categories Based on Statistical Results and Field Acceptance

GROUP I: AVIATION

AM	Aviation Structural Mechanic
AE	Aviation Electrician's Mate
AD	Aviation Machinists Mate
*ASM	Aviation Survivalman
AT	Aviation Electronics Technician

GROUP II: SERVICE

HM	Hospital Corpsman
DT	Dental Corpsman
*MU	Musician
*PA	Photojournalist
SK	Storekeeper
SS	Subsistence Specialist
YN	Yoeman
**RM	Radioman

GROUP III: ELECTRONICS

ET	Electronics Technician
*ETN	Electronics Technician Communications
*FT	Fire Control Technician
TT	Telephone Technician
*ST	Sonar Technician

GROUP IV: ENGINEERING

DC	Damage Controlman
EM	Electricians Mate
MK	Machinery Technician

GROUP V: DECK/WATCH

**BM	Boatswain's Mate
**GM	Gunner's Mate
*MST	Marine Science Technician
QM	Quartermaster
RD	Radarman

*Represents ratings with too few members in the return sample to be included in the statistical analyses. These ratings were inserted into the groupings after the fact.

**Represents ratings that were moved from original 3-mode factor analysis groupings on the basis of conferences with Coast Guard personnel.

Table 14

Number and Type of Evaluation Forms for
Two Proposed Evaluation Systems

System A: Seven Evaluation Forms

1. Chief Petty Officers (all ratings)
2. Non-Rated personnel (Airmen, Seamen, Firemen)
3. Petty Officers, Electronics Group
4. Petty Officers, Service Group
5. Petty Officers, Engineering Group
6. Petty Officers, Aviation Group
7. Petty Officers, Deck/Watch Group

System B: Three Evaluation Forms

1. Chief Petty Officers (all ratings)
2. Petty Officers (all ratings)
3. Non-Rated personnel (Airmen, Seamen, Firemen)

c. *Type of Rating Items.*

A central issue in the performance appraisal literature has been what type of content should serve as the focus for the measuring instrument. The major controversy has concerned whether or not rating scales should be "job-oriented" or "person-oriented." "Job-oriented" rating items tend to be performance oriented and task specific. "Person-oriented" rating items tend to be personal characteristics and personality traits such as "initiative," "dependable," and "decisive." Historically there has been a tendency to recommend the use of "job-oriented" content in performance appraisal forms rather than the person-oriented content. However, a review of studies comparing these two approaches indicated that claims for greater utility for the job oriented philosophy seem unsubstantiated (Cornelius and Hakel, 1976). A decision was made to include both "person-oriented" or "personal qualities" items as well as performance of duties items on the proposed Coast Guard evaluation forms. Personal qualities items in particular have a rich history of use in the Coast Guard as will as other military services, and their use has achieved a high degree of user acceptability in these settings.

Thus each of the proposed rating forms (see Appendix F) contains two major blocks of rating items: Performance of Duties items and Personal Qualities items. For the most part the Performance of Duties items vary from form to form, reflecting the idiosyncratic performance demands of the various rating categories. The Personal Qualities items, however, remain constant across all the Petty Officer forms. That is, the same personal qualities items apply regardless of which job rating and rank.

d. *Personal Qualities Items.*

Major sources of Personal Qualities items were previous Coast Guard evaluation forms (the officer forms and the enlisted form), other armed forces rating forms, lists of performance dimensions from the personnel psychology literature, and discussions with personnel at Coast Guard headquarters. On the basis of these discussions, a tentative list of nine personal qualities believed to be important to success in the Coast Guard were generated and defined. These trait names were Human Relations, Judgement, Leadership, Motivation, Initiative, Dependability, Communications Skills, Dependence on Others, and Flexibility. Names of these traits and their proposed definitions were shown to all personnel attending the technical field conferences, and suggestions regarding their use were collected and analyzed.

The discussions in these several field sessions resulted in some modifications of the Personal Qualities list. First, the scales Communications Skills, Dependence on Others, and Flexibility were in general not well regarded and were therefore deleted. Secondly, the traits Motivation and Initiative were combined. The conference participants expressed some confusion over distinctions between these two terms for Coast Guard use, and the universal suggestion was to combine these two concepts into a single item. Another popular request from these field

meetings was to include the trait Military Bearing on the list. A final suggestion voiced in these meetings was to make the definitions of these personal quality items as narrow as possible. Some participants reported that the more encompassing and broad the definition of a trait became, the more difficult it was to rate individuals on the trait.

The final proposed list of traits and definitions are presented in Table 15. These traits and definitions represent the best possible list in terms of an analysis of existing traits and an analysis of user acceptance as revealed in the field conference sessions. It was decided that all enlisted evaluation forms for rated personnel (Petty Officers and Chief Petty Officers) should contain this common set of traits, i.e., these traits were believed to be important across all rating specialties and ranks for both Petty Officers and Chief Petty Officers.

Trait names and definitions for non-rated specialties were selected to reflect the difference in responsibility and skill level of personnel in these jobs as opposed to personnel in petty officer jobs. The traits selected for inclusion on the non-rated forms were Dependability, Initiative, Adaptability, Human Relation, and Military Bearing. The definitions of these terms given in Table 15 were judged to be equally appropriate for non-rated personnel.

c. *Development of Performance Items.*

The primary source of performance items for most evaluation forms in both System A (seven forms) and System B (three forms) was the 153 job elements from the Coast Guard job inventory booklet. Unlike the Personal Qualities items, however, an attempt was made to select different sets of performance items to reflect the unique characteristics of each of the job rating clusters. Therefore, performance items varied from form to form. The general procedures for selecting performance rating items for inclusion on the various performance appraisal instruments will be described first for the five Petty Officer forms in System A, then the single Petty Officer form for System B, and finally the Chief Petty Officer form and non-rated personnel form for both System A and System B.

1. *Item selection for Petty Officer forms of System A.* For the five different Petty Officer forms of System A the procedure for item selection was as follows: Questionnaire responses on the 153 items were analyzed for the combined sample of E4 and E5 personnel only. Mean Relative Time Spent ratings were computed for each job rating. An algorithm was then devised to select those performance items for each job rating group that had both high Relative Time Spent ratings (mean greater than 3.0) and at the same time tended to differentiate the job grouping from the average of all other job groupings. Operationally this was accomplished by computing deviations for each rating group mean about the grand mean for each job element. Any positive deviation of .40 or greater from the grand mean was considered to be a deviation

Table 15

Names and Definitions of Personal Qualities Selected for use on the Petty Officer and Chief Petty Officer Evaluation Forms

DEPENDABILITY. Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision

JUDGMENT. Compiles, analyzes, and interprets information and is able to reach reasonable conclusions and make logical decisions

INITIATIVE. Originates actions beyond what is necessarily called for; motivated; self-starting

LEADERSHIP. Ability to influence others; guides a group or an individual toward task accomplishment

ADAPTABILITY. Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies

HUMAN RELATIONS. Gets along with others with shom must live and work; sensitive to equal opportunity policies

MILITARY BEARING. Appearance and manner in keeping with the high standards of military tradition

of practical significance.

A comment should be made regarding the types of items that were selected using this algorithm and the subsequent editing process that occured on the Petty Officer forms. The nature of "worker-oriented" job elements as opposed to "task-oriented"job elements are such that not all items that were effective in discriminating among job groupings in the Three Mode Factor analysis were also effective for use as items on a performance appraisal form. As an example, two items that seemed to discriminate between the job ratings in the Engineering group and job ratings in other groupings were "Work where you easily become dirty" and "Work in an area of loud noise". These items were not seen as particularly appropriate for use on a performance appraisal form designed to identify good and poor performers in the Coast Guard. Another example is the item "Use finger movements". This particular item nicely distinguished between job ratings in the Service grouping and job ratings in most other groupings. However, this particular item would not make a good performance appraisal item. For these reasons a great many of the items from the job element inventory that met the criterion for selection described in the last paragraph could not be used on the final evaluation forms.

Further editing of the performance items was carried out during the field technical conferences. At these meetings a list of proposed performance rating items was circulated. It was soon discovered that due to the wide variety of different jobs within a rating cluster, some performance items that satisfied the criteria for the cluster as a whole would not apply to each and every rating within the cluster. This was particularly true of the Service group, which contained perhaps the most heterogenous group of jobs in terms of task technology. For these reasons, additional job inventory items were deleted from the final forms. Two steps were taken to compensate for this. First, items with high Relative Time Spent ratings across all groupings (regardless of discriminative power) were added to the list if they were endorsed by conference participants. Secondly, two rating items, "Performance of Primary Duties" and "Performance of Collateral Duties" were added in the belief that key elements of some jobs might be left out due to the editing process.

Table 16 lists the recommended Performance of Duties items that appear on each of the five proposed Petty Officer Evaluation forms.

2. *Item selection for the Petty Officer form of System B.* If it were decided by the Coast Guard that a system of five Petty Officer forms would be too unwieldy from an administrative standpoint, a single form for all Petty Officers was designed. Performance of Duties items for this form were selected by taking only those items from the job element inventory with High Relative Time spent ratings across all the job clusters. These items were then examined to determine the relevance as rating items on a performance appraised form. The final list of items is reproduced in Table 17.

Table 16

List of Performance of Duties Items for the Petty Officer Forms of System A

Aviation Grouping

Attention to detail
Repairing equipment
Inspecting material and equipment
Performing in emergency situations
Analyzing problems
Keeping supervisor informed
Performance of primary duties
Performance of collateral duties

Engineering Grouping

Maintaining paperwork records or logs
Obtaining materials and manpower to accomplish work
Trouble shooting and repairing equipment
Coordinating actions with others
Inspection of machinery and equipment
Timely completion of work
Performance of primary duties
Performance of collateral duties

Deck/Watch Grouping

Performing under time pressures and distractions
Performing in emergency situations
Timely completion of work
Analyzing problems
Coordinating actions with others
Keeping supervisor informed
Performance of primary duties
Performance of collateral duties

Service Grouping

Use of equipment
Attention to detail
Analyzing problems
Gathering information
Coordinating actions with others
Working with people outside the military
Timely completion of work
Keeping supervisor informed
Performance of primary duties
Performance of collateral duties

Electronics Grouping

Attention to detail
Use of tools and measurement devises
Identifying causes of equipment problems
Tearing down and reassembling equipment
Testing and adjusting *equipment*
Timely completion of work
Keeping proper work records or logs
Keeping supervisor informed
Performance of primary duties
Performance of collateral duties

Table 17

Performance of Duties Items for the
Petty Officer Form of System B

Timely completion of work
Analyzing problems
Inspecting products, objects, materials, or equipment
Using written materials
Gathering information
Performing in emergency situations
Performing under time pressures and distractions
Keeping supervisor informed
Performance of primary duties
Performance of collateral duties

3. *Item Selection for non-rated personnel.* Items were selected for the non-rated personnel (E1 - E3) form by first inspecting the average Relative Time Spent values on the job inventory items. Job inventory items with high Relative Time Spent ratings were compared for Firemen, Seamen, and Airmen. Again, it was discovered that items that seemed to characterize the kind of work non-rated personnel performed were not appropriate for use on a performance evaluation form. For example, the following items were found to have high Relative Time Spent ratings: "Work outdoors, "Work where you become dirty," "Contact Chief Petty Officers as part of the job," and "Follow Set procedures." These items convey some insight into the kinds of work processes that non-rated personnel engage in, but they are not very useful as items on a performance appraisal form. Some items, such as "Maintain logs," "Notice patterns of sounds," and "Use tools that require precise operations," were potentially usable but did not have consistently high Relative Time Spent ratings across all three groups.

After concluding that the job element inventory items would not be a good source for performance appraisal items, the next step involved inspecting the Coast Guard Qualifications Manual (CG-311) for examples of the kinds of activities, skills, and knowledges that non-rated personnel are required to demonstrate. It was found that many of the knowledges and skills listed in CG-311 were peculiar to each of the three different types of nonrated personnel (Airmen, Seamen, and Firemen) and therefore could not be used on the same form. For that reason, it was decided to include only the three general items of "Knowledge of Job," "Performance of Primary Duties," and "Performance of Collateral Duties." It was felt that these three items would provide a common evaluation base across the three ratings and would be appropriate for the level of personnel involved.

4. *Item Selection for Chief Petty Officers.* The source of rating items and procedures for selection of items to the Chief Petty Officer form was as follows: Those items from the job element inventory that had high grand mean values and were perceived as common across all Chief Petty Officer ratings were considered. In addition, during the field conference sessions with the Chief Petty Officer group, a series of potential items were generated and evaluated. Unlike other technical conference groups, this group engaged in an exercise in which they were asked to generate potentially good rating items, rather than judge the relevance and potential effectiveness of an existing list of items. A third source of rating items was the processes and activities required of Chief Petty Officers in various ratings according to the Coast Guard Manual 311. This manual was analyzed at the E8 and E9 level in an attempt to abstract key behavioral processees that were consistent across all job ratings.

The net result of consulting all these sources was to produce a list of performance rating items that reflected more supervisor and management processes than the items from the Petty Officer forms. The

final proposed rating items are displayed in Table 18, and include such items as training others, counseling, evaluation of personnel, and writing reports.

f. *Response Format Characteristics.*

Several other characteristics of the new forms merit some discussion. These characteristics include the number of rating categories selected for use with the graphic scales, the proposed guideline distribution of responses for each rating scale category, the overall evaluation scales included along with the personal qualities and performance rating items, and the lack of a computer scoring format for the final proposed forms.

A decision was made to use five response categories for the rating scales. This number was independently reached in two ways. First, an extensive review of the literature on the discriminative abilities of humans (Cornelius and Hakel, 1976) indicated that the maximum number of reliable rating categories for most situations was five. In addition, and independently, exercises conducted in the technical field conferences indicated that the preference for users in the field was definitely away from 7- and 9- point scales toward 5- or even 4-point rating scales. All raters felt that they could reliably distinguish among at least three categories of performance for any dimension (roughly corresponding to "average," "below average," and "above average"). Moreover a majority of raters in the system felt comfortable with an additional two rating categories of outliers: extremely poor performers ("unsatisfactory") andextremely good performers ("outstanding"). Thus, the decision to adopt a five point rating scale in the new performance appraisal rating forms was based on statistical findings from research as well as the preference of raters in the field.

The question of how to label these five categories on the form itself was a difficult one. Several suggestions were generated, but no concensus about category labels was achieved. After much discussion in the conferences, it was concluded that most participants agree roughly on the theoretical distribution of talent in the Coast Guard and that regardless of labels that were used to describe the categories, suggested percentages would interpret and give meaning to the rating categories about as well as elaborate descriptions would. For this reason, the five rating categories were labeled as follows. The extremely good category was labeled "outstanding" (5%) and the extremely poor performance category was labeled "unsatisfactory" (5%). The percentage estimates represent the typical suggested values that emerged during the conference sessions. With respect to the middle three response scale categories, most observers felt that an overwhelming majority of Coast Guard personnel were performing their jobs adequately and should be rated as "average", "capable", or "satisfactory" performers. A relatively small percentage of personnel were believed to be performing slightly above and slightly below the "average" person. A decision was made to label all three middle response categories as simply "good"

Table 18

Performance of Duties Items for the
Chief Petty Officer Form

Writing reports
Training others
Coordinating work of subordinates
Handling personnel with special problems
Planning ahead; scheduling
Identifying problem situations
Evaluating personnel
Performing under time pressures and distractions
Performance of primary duties
Performance of collateral duties

V. Development of the Motivational Components of the Evaluation System

a. *Philosophy*.

As outlined in the original proposal (Cornelius and Hakel, 1976), there are three parameters of effective performance ratings in an organizational setting: 1) the quality of the measuring instrument and measuring procedure, 2) the skill of the rater, and 3) the motivation of the rater to rate accurately. A bulk of this project has concentrated on the first parameter. As reviewed earlier it appears that there are three minimum characteristics of performance rating instruments. First, the content of the instrument should reflect as accurately as possible the important aspects of the job as determined through careful job analysis. Secondly, the rating instrument should be sensitive to accomplishing the varied purposes or uses to which the information could be put, and third, the rating forms should be usable and have rater acceptability.

Although the characteristics of the rating instrument are important, a major philosophy of the project has been that a substantially greater percentage of the variance in accurate performance ratings in an organizational setting can be explained in terms of the skill and motivation of the rater, rather than in terms of various aspects of the measuring scales. Given that the minimum characteristics of the measuring instrument have been attained as described above, then the bulk of the activity in any project that attempts to develop a performance appraisal system must be spent in developing the skills and motivations of the raters in the system.

We have adopted the model that rater skill is a function of underlying abilities and specific knowledges. Specific knowledges that have been shown to be related to improved performance ratings include knowledge of the rating instrument, knowledge of rater errors, and knowledge of results (feedback). The only underlying ability that has been demonstrated consistently to be related to improved performance ratings is general intelligence. The research reviewed in the technical proposal (Cornelius and Hakel, 1976) supports the fact that there are individual differences in rater skill, and that rating skill can be improved through training.

Regardless of the technical qualities of the rating instrument, and regardless of the skill of the person doing the rating, if the rater is not motivated to rate accurately, the entire evaluation system will suffer from poor data. A majority of the effort in developing a performance evaluation system should be spent in structuring the organizational enviroment so that the behavior of rating accurately will lead to valued organizational outcomes for the person doing the rating.

Two aspects of the present project were directly related to the motivation question. First of all, a required task of the project was to develop a rater feedback system similar to the existing officer

system. The feedback system would not only work to provide information (knowledge of results) to improve rater skills, but also would help motivate the rater to rate accurately. It is believed that raters will be willing to rate less leniently if they have information that other raters in the system are doing the same. In effect, feedback provides visibility for the system and provides an open and trusting environment.

A second aspect of this project was to develop a concept plan for developing rater training packages. The purpose was not to develop the training packages themselves, but rather to develop an approach to rater training that could be used in the development of training modules. Note that rater training not only could be used to improve rater skills, but also could be used to increase the motivations of raters to rate accurately. It is hoped that the combination of rater training packages and feedback of evaluation to raters system wide will help maintain good psychometric characteristics once the new promotion system is implemented. Each of these components is discussed below.

b. *Rater Feedback and Reporting System.*

The purposes of the feedback system are twofold. At the individual level it will provide information for each ratee regarding his marking tendencies compared to the rest of the raters in the system. This information will be provided in an attempt to improve the individual rater's use of the evaluation marking system. Secondly, the purpose of the feedback system will be to maintain visibility of the evaluation system and to demonstrate the openness of the new system. It is hoped that by so doing the Coast Guard will generate and maintain trust in the operating characteristics of the new system. The concept of a rater feedback system was introduced and discussed in the technical field conferences, and reactions were obtained. Section 1 below characterizes the response in the field to the rater feedback concept. The mechanics of the proposed feedback system are outlined in section 2 below.

1. *User acceptance of the feedback concept.* In general, the concept of a rater feedback system was well received during the technical conferences held at Governor's Island and Elizabeth City during Spring, 1977. There was much group discussion about the system and there were several written comments about the system on the session questionnaires. In terms of overall support of a rater feedback system, 31 or the 44 conference participants who filled out questionnaires favored the concept (70 percent). A sample of transcribed comments from participants who favored the concept is reproduced below:

> I believe that a reporting officer may make a greater effort to be fair to all his personnel if this system developed. Also it would serve to educate him in assigning marks in the future.
>
> It would perhaps show him where he might be making errors in judgement so that they may be reviewed and corrected.

It would show how he is marking compared to the rest of the sevice. After the first report you probably would get more even distribution.

I feel that a good feedback system is mandatory to establish faith in the system, but is worthless unless Coast Guard wide information is available for comparison.

To standardize the system the reporting officer must know how he stands in relation to others in the same position.

It must be a simple system easily understood by all without getting into statistical distraction. The officer form is not easily understood.

In general, those participants who did not favor a feedback system felt that great harm would be done if raters in the field deliberately changed their evaluations for their men to conform to system averages or suggested distributions. A sample of the transcribed comments from participants who did not favor the feedback system follows:

It is felt that feedback could sway a reporting officer into marking into the ideal percentages.

I think it is a good idea, with the exception of the part on ideal percentages. Putting in ideal percentages will result in some commands insisting on meeting them.

It is a good idea if it does not influence the marker to unduly alter his marking to conform to the pattern.

Most reporting people have already made up their mind on how they will mark.

This would give an unrealistic, conscience-oriented stimulus to perhaps mark according to norms rather that to actual performance.

2. *Mechanics of the proposed system.* Several approaches to implementing and maintaining a feedback system were considered during the course of this project. After initial discussions with the technical advisor and other Coast Guard personnel, a computer software system similar to the officer system was deemed impractical. The main obstacle to developing a system similar to the officer system was the large number of enlisted personnel (32,000), and therefore the larger numbers of raters compared to the officer system. This increase in rater data files would place a large demand for computer and other resources nesessary to maintain the system. Since there is no current administrative need for centralized storage of enlisted evaluation data (e.g., there are no centralized enlisted promotion boards), the increased resources

needed to implement and maintain an elaborate centralized system where much more than the current anticipated benefits from such a system.

The decision to reject a centralized computer-oriented storage and reporting system for enlisted personnel evaluations left two alternative approaches to accumulating and disseminating information about the operating characteristics of the proposed evaluation system. One system would involve collecting systematic *samples* of evaluation marks after each reporting period. These forms would be analyzed in a central location. The sample data would then be used to estimate the distribution of marks for the entire system, as well as to estimate distributions of marks broken down by rank, job rating, and other variables of importance. These estimates would be peroidically published and disseminated to raters in the field. Electing this rater feedback system alternative would require some support personnel to supervise the data collection and data analysis on a periodic basis.

The preferred approach would be to have commanding officers responsible for collecting and maintaining information regarding the distribution of marks given within their command. In this system, commanders would periodically forward the tabulated data to a central location. The data from individual commands could then be compiled and tabulated for the system as a whole. These data would then be published. This latter approach to performance evaluation feedback has two advantages over the former approach. First, it would not require massive centralized resources to implement. Secondly, it would provide raters with actual mark distributions rather than sample estimates.

Of course to implement this type of feedback and reporting system would require bookkeeping forms and procedures to be developed and publicized. A suggested administrative form for field commanders to use in collecting and reporting performance evaluation data has been developed and is reproduced in Appendix H. The form is broken down into six major sections. These six sections plus instructions for using the form could be packaged into a compact booklet form for distribution to the field.

The major sections are described below. Section one contains the necessary administrative data needed to organize and compile the Coast Guard wide data. These data include the Opfac unit number and name, the name of the commanding officer, and the name of the reporting period. Section II provides data on the total number of enlisted personnel evaluated at that particular command during the reporting period, broken down by rate and relevant job rating categories (Petty Officers only). These data will be used to check for completeness, and as an aid for double-checking the distribution of marks reported in sections III-V.

Section III of the report calls for the frequency distribution of marks, by rank and job category for the overall Performance of Duties item in block 9 of the performance evaluation forms. Section IV and V of the report ask for the same information with regard to the overall personal attributes and the conduct scores, respectively. The final

section, section VI, provides for an authenticating signature to verify the accuracy of the data.

It is believed that a hand tabulated system with field responsibility for maintenance would best serve the interests of the Coast Guard at this time. Administratively, data for the form can be collected by assigning responsibility to a single person or group of persons within the command. In addition, the responses from all commands can be easily tabulated at a central location (e.g. Coast Guard headquarters) for distribution back to the field. It is recommended that the feedback report to the field follow as close as possible the actual ratings in the field.

c. *Rater Training Concept Plan.*

It has been demonstrated that rater training can improve the skill of the rater and hence lead to more reliable and valid ratings. As early as 1940, Driver suggested that rater training would be an effective means of developing accurate employee performance ratings. Levine and Butler (1952) stated, however, that making information available alone was not an effective training method. These researchers found that lectures had no effect on improving performance while group discussions did. Wexley, Sanders, and Yukl (1973) found that warnings alone were not effective in eliminating rater errors (contrast effects); only workshops with exercises and learning techniques were effective (see also Fallman, Wiley, Geiger, and Laverly, 1974). More recently, Latham, Wexley, and Pursell (1975) found that group discussion reduced errors while workshops essentially eliminated them.

The purpose of developing rater training modules for raters in the Coast Guard would be to improve the skills of the raters, as well as to affect the motivation of raters in the system to rate accurately. These two components of a rater training package are discussed below:

1. *The skill improvement component in rater training.* Several specific types of rater knowledges that are potentially important for good ratings can be proposed, including knowledge of the ratee, knowledge of the rating instrument, knowledge of the job, knowledge of rater errors, and knowledge of results (feedback). It can be assumed that raters in the Coast Guard will have a knowledge of the ratee and a knowledge of the job. Also, knowledge of results will be provided by the rater feedback system described above. Therefore, a Coast Guard training system should concentrate on knowledge of rater errors and knowledge of the rating instrument. These knowledges have been shown in prior research to lead to improved ratings. Wakely (1961) for example, demonstrated that judges benefit from training on the specific instrument that they will be using. A simple training session that gives raters a knowledge of rater errors has also been shown to improve ratings (Borman, 1975).

2. *The motivation component in rater training.* The primary manner in which training sessions can affect motivations of raters to rate

accurately is to present cognitive information regarding the outcomes of good and poor manpower performance data, as well as the relationships between rating accurately and those various outcomes. A cognitive view of motivation (e.g. Vroom, 1964), would suggest that what makes a person decide to rate accurately or rate leniently is an effort to weigh the consequences of rating accurately against the belief that rating accurately will lead to these consequences. A training program, then, could revolve around the desirability (valences) of the outcomes of rating accurately, as well as the beliefs (expectancies) raters have regarding the relationship between rating accurately and various personal and organizational outcomes of importance.

For example, in a recent study Decker (1977) found that raters in a military setting (ROTC) believed that if their subordinates were all rated high that it would be a good reflection on their own leadership abilities in the eyes of their supervisors. The belief system in this instance was that lenient ratings would lead to desirable outcomes. This belief was found to be the single largest determinant of lenient ratings in the military setting. Of course, this belief can be challenged cognitively in a training session. By citing Coast Guard policy and statements from high ranking personnel, trainers could help to develop the notion that high ratings lead to low perceptions of leadership ability. A theme of the training sessions could be that better leaders in the Coast Guard are the ones that accurately evaluate their personnel.

In a similar manner rater workshop discussion sessions could explore the many other personal and organizational outcomes of the rating process, such as the need for accurate information for manpower planning, the importance of accurate data for good morale in the service and the like. The purpose of these discussions would be to develop high desirabilities (valences) for these outcomes. Likewise, the expectancies (beliefs) that rating accurately will lead to some of these outcomes can be stressed and hopefully increased by demonstrating in the training sessions how the new evaluation system can lead to better data if used properly, compared to the existing system.

Before rater workshop sessions can be designed to alter rater beliefs and expectancies, some questionnaire research must be carried out in order to isolate the major beliefs and highly valent outcomes for rating accurately and leniently, according to Coast Guard raters. The rater training program could then be structured around these findings.

3. *Proposed Training Modules.* It is proposed that in conjunction with implementing the new evaluation forms and the rater feedback system that a concerted effort be made Coast Guard wide to train raters in the use of the new system for both skill improvement and motivation reasons. A training workshop for raters in the Coast Guard could be carried out in a single day. The format of the morning session would be primarily lecture/discussion regarding the characteristics of the new form as well as various aspects of the new enlisted evaluation system as a whole. A

thorough knowledge of the new rating instruments and the reasons they were developed will lead to improved ratings in the field. The morning session could end with a discussion of rater errors and their causes. During the process of discussing reasons for the various rater errors, the raters as groups should make suggestions for eliminating errors of leniency and halo. Again, the literature has shown that even short discussion sessions can result in less halo and leniency errors in subsequent data.

The afternoon should be spent in discussions that center about various outcomes and beliefs that workshop participants have regarding rating behavior and its consequences to the individual and the Coast Guard. Most of these exercises should be developed primarily on the basis of findings from questionnaire surveys designed to elicit from existing Coast Guard raters what the valencies and expectancies for various rating behaviors and organizational outcomes are.

VI. A Proposal to Conduct an Experimental Try-out of the Proposed Enlisted Evaluation System.

The purpose of this section of the report is to outline in general terms the experimental design, organizational commitment, and time framework needed for a field try-out of the proposed enlisted personnel evaluation system.

a. *Characteristics of the Proposed Appraisal System.*

There are several components to the proposed enlisted performance appraisal system. Some of these components deal with changes in the characteristics of the enlisted rating forms themselves, and some components deal with organizational requirements for implementation and system maintenance. A major characteristic of the proposed rating instruments themselves are that they are specifically designed to be sensitive to the varied job performance requirements among different job ratings and different ranks of enlisted personnel in the Coast Guard. Instead of one form to be used for all types of enlisted personnel there are now seven proposed forms: one form for non-rated personnel, one form for Chief Petty Officers in all ratings, and five different forms for Petty Officers (one for each of the following major rating groupings: Deck/Watch, Machinery, Electronics, Service, and Aviation).

Another major characteristic of the new forms is that they contain a more detailed specification and delineation of performance duties and personal qualities that are to be evaluated. That is, the rater is asked to make several specific judgments about the person being rated before making an overall judgment of the individual effectiveness of the ratee. A final major characteristic of the new forms is that they contain suggested quidelines for percentages of Coast Guard personnel that should be marked in various performance categories.

With respect to the organizational requirements for implementing the new forms and maintaining a useful data base, the proposed enlisted evaluation system contains a feedback component and a rater-training component. Feedback regarding system-wide distribution of marks in the Coast Guard will be regularly given to commanding officers to insure trust in the operating characteristics of the system. In addition, a concept plan for rater training modules has been developed to aid in improving the ability and motivation of raters to use the proposed system accurately.

b. *Characteristics of the Proposed System that will be Tested.*

The effect of the entire evaluations system (improved evaluation forms, rater feedback, and rater training) should be to produce more accurate performance appraisal data that can be used for rational manpower planning and manpower development in the Coast Guard. Specifically, the net effect of these changes should reduce leniency, or

the tendency of raters to inflate marks. There should also be less of a grade effect, that is, the tendency to mark high ranking NCO's higher than low ranking NCO's. In addition, there should be less of a job group effect, e.g., the tendency to rate aviation personnel higher than others. The marks from the proposed system should be more sensitive to personnel action needs. Confidence in the evaluation system should also improve.

The purpose of the field try-out will be to determine if these proposed effects actually will occur. However, it will not be possible to test all components of the proposed performance appraisal system. A major component of the proposed system, rater feedback, cannot be instituted since it requires an ongoing evaluation system. Therefore, a bulk of the experimental try-out will revolve around what effect the changes in the rating instruments themselves will have on leniency, rank effects, rating effects, and rater confidence.

c. *Purposes of the experimental try-out.*

Four major purposes of the proposed field try-out of the new enlisted evaluation forms are listed below:

1. *Calibrate the new performance appraisal instruments.* A major purpose of the field experiment will be to establish normative data to aid in determining critical cut-off scores for various personnel actions such as promotion, discharge, and transfer. In addition, equations will be developed to transform marks from the new system into scores in the existing system and vice versa.

2. *Compare the proposed system with the existing system on various psychometric and psychological measures.* Actual marks from a sample of individuals rated with the new forms will be compared to marks from similar individuals rated on the existing forms. The marks from the two systems will be examined for susceptibility to leniency, rank effects, grade effects, and other possible contaminants. Also, psychological attributes such as perceived ease of use, confidence in use, and acceptability to the Coast Guard will be compared.

3. *Solicit attitudes and opinions system-wide.* Overall comments, suggestions for alteration, suggestions for implementation, as well as preference for use of the new forms over the old forms will be sought from commanders throughout the Coast Guard. These data will be summarized and analyzed.

4. *Make revisions in the proposed system.* A major purpose of the experimental try-out will be to identify unanticipated problem areas and to gain knowledge about the psychometric and psychological characteristics of the proposed system in order to make revisions that will improve the system before it is implemented.

d. *Design Overview.*

Performance evaluation marks from a sample of enlisted personnel

equally drawn from all ranks and job ratings in the Coast Guard will be obtained using the new forms during a regularly scheduled performance review period. This sample will be designated *Experimental Sample I*. Evaluation marks from a comparable sample of enlisted personnel will be obtained using the existing performance appraisal forms. This sample will be designated the *Control Sample*.

An additional smaller sample of enlisted personnel will be rated on both the existing forms and the new forms. Order of use of the form will be counterbalanced across the sample, and the latency between ratings will range between 4 and 8 weeks. This sample will be designated the *Calibration Sample*.

A final experimental sample of enlisted personnel will be rated using the new forms. These individuals will be personnel whose commanders and supervisors have attended one-day training seminars on the use of the new appraisal system. This sample will be designated *Experimental Sample II*.

All raters in all samples will fill out attitude questionnaires designed to measure psychological aspects of the existing and proposed systems. In addition, questionnaires and sample forms will be sent to various selected commands for comment and review.

e. *Sample Requirements*.

Experimental Sample I will consist of 2800 Coast Guard enlisted personnel selected at random from all ranks and ratings. One-hundred individuals from ranks E4 through E7 will be selected from each of the five major job ratings (Service, Deck/Watch, Machinery, Electronics, and Aviation). A combined sample of 100 E8's and E9's will be obtained from each of the five major ratings. In addition, a sample of 300 non-rated personnel (E2's and E3's) will be selected proportionately among firemen, seamen, and airmen. This sample will be given the new enlisted rating forms to use during a regularly scheduled performance review period. Ratings from these 2800 Coast Guard personnel will be compared with ratings from a matched sample of 2800 personnel using the existing performance appraisal form. Both samples of data will be obtained under "for keeps" conditions, i.e., raters will be told that the performance data will be used for normal personnel purposes. The sampling design for both the Control Sample and Experimental Sample I is schematized below:

	E4	E5	E6	E7	E8/E9	Totals
Deck/Watch	100	100	100	100	100	500
Machinery	100	100	100	100	100	500
Electronics	100	100	100	100	100	500
Service	100	100	100	100	100	500
Aviation	100	100	100	100	100	500
Totals	500	500	500	500	500	2500

E2/E3 = 300

A Calibration Sample of 500 enlisted personnel will be given both the new and the existing forms to rate. Order of presentation of the forms will be counterbalanced. Latency between ratings will range from four to eight weeks. The procedure for selecting this sample should approximate the sampling scheme of the Experimental and Control sample as described above. Non-rated personnel will not be used in this Calibration Sample.

An additional experimental sample containing a minimum of 200 performance ratings is needed to test the effect of especially designed training sessions on the marking characteristics of the new forms. Because of the logistics involved in training schedules and travel, this sample (Experimental Sample II) cannot be a random sample of Coast Guard personnel as in the previous samples. This experimental sample will most likely be selected from existing intact commands for ease of rater training. Corrections for any potential contaminating effects of the selected commands (e.g., biases due to locations, specialties, and ranks) will be made on the basis of normative data collected in Experimental Sample I.

f. *Statistical Analyses.*

Evaluation marks from Experimental Sample I and the Control Sample will be examined for leniency effects by converting scale scores from the two systems to a "Percent of Maximum Possible" Score. Percent of Maximum Possible Scores are computed as follows:

$$\text{Percent of Maximum} = \frac{\text{Raw scale score - Minimum possible score}}{\text{Maximum possible score - Minimum possible score}} \times 100$$

This particular transformation converts raw scores onto a scale from 0 to 100 where "100" represents the maximum possible scale score and "0" represents the minimum possible scale score. These scores can be directly interpreted as percents and therefore can be used to compare values from one system to another despite differences in ranges, number of items, etc. Percent Maximum Possible scores will be calculated for Leadership, Proficiency, Conduct, and overall total for ratees evaluated by the existing system; and for the Personal Qualities, Performance, Conduct, Promotability, and overall total for ratees evaluated by the proposed system. T-tests and percent overlaps will be calculated for differences between the experimental and control group on total scores, Conduct, Proficiency versus Performance, and Leadership versus Personal Qualities scales.

Separate variance analyses by grade and rank will be performed on the Experimental and Control sample scores (subscores as well as overall or total scores). Mean squares for each source of variance will be used to estimate universe components of variance for grade, rank, grade X rank, and residual sources of variance. Intraclass correlation coefficients will then be computed so that the percentage

of variance attributable to these various sources may be compared directly for the experimental and control groups.

User responses to attitude questions dealing with ease of use of the forms, confidence in results, acceptability to the Coast Guard, etc., will be compared through the use of a discriminant function analysis. The independent variable will be group membership (Experimental versus Control), and the dependent variables will consist of the several attitude questions. The practical significance of the statistical functions will be assessed by performing a maximum likelihood classification analysis on the discriminant scores.

Regression equations will be developed from the responses in the calibration sample. Equations predicting scores in the existing system from knowledge of the scores in the proposed system will be developed. Linear as well as higher polynomial fits to the data will be sought. Additionally, critical cutoff scores for personnel actions in the existing system will be used to derive comparable cutoff scores in the new system.

Psychometric properties of evaluation marks in Experimental Group II will be compared with the marks from Experimental Group I to estimate what if any effect one day rater training modules have on the evaluation system. Attitude Questionnaire responses from the two groups will be compared with a discriminant function analysis.

Comments and questionnaire responses from various selected commands that were invited to review the proposed system will be transcribed and tabulated. Descriptive statistics characterizing the responses will be computed and displayed.

g. *Time framework.*

The research outlined above should be accomplished within a nine-month framework. It is estimated that six months will be needed to select the samples, print and distribute the forms and instructions for administration, and to conduct the training workshops. Three months will be needed to process and analyze the collected data.

VII. References

Ash, R.A., and Edgel, S.L. A note on the readability of the position analysis questionnaire (PAQ). Journal of applied psychology, 1975. 60, 6, 765-766.

Borman, W.C. Effects of instructions to avoid halo error on reliability and validity of performance evaluation ratings. Journal of applied psychology, 1975, 50, 5, 555-560.

Christal, R.E. U.S.A.F. Occupational research project. AFHRL-TR-73-75, January, 1974.

Cornelius, E.T. and Hakel, M.D. A proposal to develop an improved performance evaluation system for enlisted personnel in the United States Coast Guard. A technical proposal submitted to the Commandant, U.S. Coast Guard, May, 1976.

Decker, P.J. The effect on leniency of justifying performance ratings to a supervisor. Unpublished Master's Thesis, The Ohio State University, December, 1977.

Fallman, J., Wiley, R., Geiger, G., and Laverly, C. Effects of halo-effect instructions on level of ratings and intercorrelations. Psychological reports, 1974, 35, 392.

Inn, A., Hulin, C.L., and Tucker, L. Three sources of criterion variance: static dimensionality, dynamic dimensionality, and individual dimensionality. Organizational behavior and human performance, 1972, 8, 58-83.

Latham, G.P., Wexley, K.N., Pursell, E.D. Training managers to minimize rating errors in the observation of behavior. Journal of applied psychology, 1975, 60, 5, 550-555.

Levine, J., and Butler, J. Lecture versus group discussion in changing behavior. Journal of applied psychology, 1952, 36, 29-33.

Stumpff, J.F., and Chevalier, R.D. An analysis and proposal for revision of the coast guard enlisted performance evaluation system. Thesis submitted to the Naval Post Graduate School, Monterey, California, December, 1976.

Tucker, L.R. Some mathematical notes on three-mode factor analysis. Psychometrika, 1966, 31, 279-311.

Wakely, J.H. The effect of specific training on accuracy in judging others. Unpublished dissertation, Michigan State University, 1961.

Wexley, K.N., Sanders, R.E., and Yukl, G.A. Training interviewers to eliminate contrast effects in employment interviews. Journal of applied psychology, 1973, 57, 233-236.

Vroom, V.H. Work and motivation. New York: Wiley, 1964.

Appendix A

Existing Enlisted Performance Appraisal Form

DEPARTMENT OF TRANSPORTATION U. S. COAST GUARD CG-3788 (Rev. 9-74)	**ENLISTED PERFORMANCE EVALUATION WORKSHEET**		
NAME (*Last, First, Middle*)	SERVICE NUMBER	RATE ABB.	UNIT OR DIVISION

INSTRUCTIONS

1. Complete the information required in the spaces for each man evaluated. Mark Proficiency and Leadership in spaces provided and Conduct on reverse.
2. For each trait, evaluate the man on his actual performance.
3. Consider the requirements of his rate, the performance of others in his rate and his ability in duties outside his rate.
4. If the major portion of his work has been outside his rating or pay grade during this reporting period, evaluate him on what he did, as compared to what a man of his rate would normally be expected to do. Describe what he did in the "Comments" section.
5. Pick the phrase which best fits the man in each trait and check the box beside it. The top box is always a little better than the next lower one. Be impartial. Avoid personal likes and dislikes. Be firm. Make your marks reflect how the man has actually performed. Do not guess. Do not form your opinions from isolated incidents. Do not be influenced by rumors. *Your duty requires that you evaluate each man as accurately as possible.*
6. Note that some of the boxes on the extreme top and bottom of the form are starred and require that a mark in any of these boxes must be explained. The explanations should give examples in the "Comments" section, good or bad, to show why the mark was assigned.

PROFICIENCY		LEADERSHIP	
(His skill, efficiency, and knowledge of his specialty. His demonstrated ability to perform effectively.)		*(His ability to plan and assign work to others, and to effectively direct their activities and his ability to maintain proper military relationships with other service personnel.) Ability to recognize and carry out his civil rights/human relations responsibilities.*	
For his pay grade, he is ***IDEAL.*** Little room for improvement. Maximum professional knowledge. Exceptional skill and judgment. Requires no supervision and minimum guidance.	*	*	***For his pay grade,*** he is ***IDEAL.*** Inspires highest confidence and morale. Outstanding skill in directing others. Uniform immaculate. Fine military bearing. Outstanding initiative.
For his pay grade, he is ***OUTSTANDING*** in professional knowledge, skill, and judgment. Needs no supervision for routine matters and minimum supervision for new situations.			***For his pay grade,*** he is ***OUTSTANDING.*** Inspires high morale and confidence. Very effective in difficult circumstances. Outstanding petty officer material. Great pride in uniform. Excellent military bearing. Excellent initiative.
For his pay grade, he is ***EXCELLENT.*** Has very effective knowledge, skill, and judgment. Needs no supervision for routine matters but moderate supervision for new situations. Does well on his own. Very well qualified for advancement.			***For his pay grade,*** he is ***EXCELLENT.*** Promotes morale and confidence. Effective at most times. Gives orders well. Excellent petty officer material. Pride in uniform. Military bearing. Strong initiative.
For his pay grade, he is ***ABOVE AVERAGE.*** Good knowledge of rate. Skilled. Needs minimum supervision for routine matters. Works well on his own for limited periods and details. Well qualified for advancement.			***For his pay grade,*** he is ***ABOVE AVERAGE.*** Develops good cooperation and teamwork. Maintains good morale and respect. Makes orders effective. Very good petty officer material. Military and wears uniform well. Good initiative.
For his pay grade, he is ***AVERAGE.*** Knows rate satisfactorily. Needs minimum supervision for routine work assignments. Qualified for advancement.			***For his pay grade,*** he is ***AVERAGE.*** Maintains morale and respect. Gets adequate results from his men. Good petty officer material. Presents good bearing and appearance. Has initiative.
For his pay grade, he is ***SLIGHTLY BELOW AVERAGE*** in knowledge and effectiveness. Normal supervision needed in almost all assignments. Additional training and/or experience will qualify him for advancement.			***For his pay grade,*** he is ***SLIGHTLY BELOW AVERAGE.*** Maintains own morale. Achieves fair results. Fair petty officer material. Good appearance most of the time.
For his pay grade, he is ***BELOW AVERAGE*** in proficiency, effectiveness, and skill. Does well when supervised but is somewhat inadequate unless guided. Promotion material only after additional training and experience.			***For his pay grade,*** he is ***BELOW AVERAGE.*** Usually maintains morale. Potential petty officer material. Gets fair results at times. Fair appearance. Below average initiative.
For his pay grade, he is ***WELL BELOW AVERAGE*** in effectiveness, proficiency and skill. Barely satisfactory. Close supervision required. Good work offset by frequent poor performance.			***For his pay grade,*** he is ***WELL BELOW AVERAGE.*** Morale falls off. No initiative. Seldom gets good results. Possible petty officer material with hard work. Poor appearance on many occasions.
For his pay grade, he is ***UNSATISFACTORY.*** Poor in skill and effectiveness. Competency questionable. Needs constant supervision. Candidate for disrating unless improvement is shown.	*	*	***For his pay grade,*** he is ***INADEQUATE.*** Poor morale. No initiative or interest in improvement. Often in trouble. Very poor petty officer material. Evades responsibility. Non-regulation. Wears uniform improperly.
For his pay grade, he is ***GROSSLY INADEQUATE.*** Incompetent in simplest tasks. Disrating or separation action in order or being taken.	*	*	***For his pay grade,*** he is ***GROSSLY INADEQUATE.*** Negative morale and initiative. May be "ringleader" when in trouble. Constant source of irritation. No petty officer potential. Sloppy appearance.

PREVIOUS EDITION MAY BE USED

(73)

CONDUCT (Check in space below applicable block)			
Conduct good. Conforms to military standards and regulations. No court-martial convictions, non-judicial punishment or minor civil convictions.	Conduct satisfactory but occasionally lax. No court-martial convictions. Not more than one non-judicial punishment or minor civil conviction.	Meets minimum standards of conduct, or not more than one summary court-martial conviction, or not more than 2 minor offenses (NJP or civil) during the period.	Conduct unsatisfactory. Repeatedly commits minor military and/or civil offenses or convicted by special or general court-martial.

COMMENTS *(If additional space is needed, use another sheet and number it page 2)*

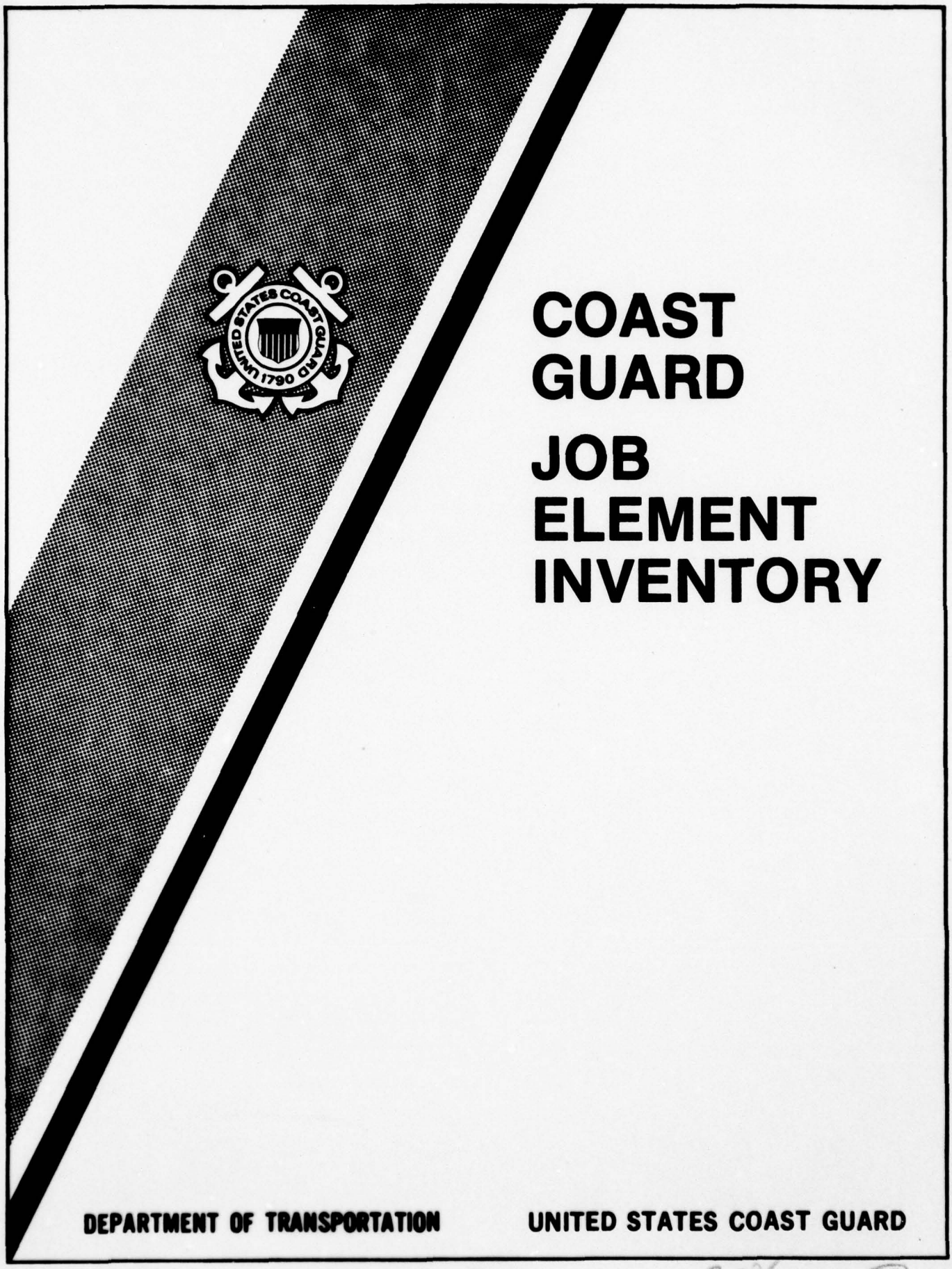
REASON FOR REPORTING	DATE	SIGNATURE OF REPORTING SUPERIOR
☐ SEMIANNUAL ☐ OTHER *(Specify)* ☐ TRANSFER		

RETAIN COMPLETED FORM AT THE UNIT FOR 30 DAYS AFTER THE DATE OF ENTRY OF THE MARKS IN THE SERVICE RECORD; THEN DESTROY. DO NOT FILE FORM IN THE SERVICE RECORD.

GPO 956-309

Appendix B

Coast Guard Job Element Inventory Booklet



COAST GUARD

JOB ELEMENT INVENTORY

DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

97%

(77)

UNITED STATES COAST GUARD ENLISTED PERSONNEL JOB ELEMENT INVENTORY

Introduction

The Coast Guard needs accurate information about the work that enlisted personnel are performing in their jobs. The information is to be used in a study being undertaken to improve the enlisted performance evaluation system. You have been selected as part of a sample of 4000 enlisted personnel from all specialties and grade levels to help supply this information by filling out the enclosed job element inventory. This is <u>not</u> a test, and the results will not be used to evaluate you, your supervisor, or your unit.

Before beginning to fill out this questionnaire, please print your Social Security Number (SSN) and your last name in the numbered boxes below.

EXAMPLE: If your Social Security Number (SSN) were 987-65-4321, you would enter this number in the following manner:

	SOCIAL SECURITY NUMBER								
CC	1	2	3	4	5	6	7	8	9
SSN	9	8	7	6	5	4	3	2	1

If your name were Wayne G. Gretencord, you would enter your last name in the following manner:

	LAST NAME											
CC	10	11	12	13	14							
LAST NAME	G	R	E	T	E	N	C	O	R	D		

Now fill in your Social Security Number (SSN) and last name in the boxes provided below:

	SOCIAL SECURITY NUMBER								
CC	1	2	3	4	5	6	7	8	9
SSN									

	LAST NAME											
CC	10	11	12	13	14							
SSN												

78

GENERAL DIRECTIONS

1. You are going to be asked to describe your present duty in terms of job elements. Do not report job elements performed by other persons working with you unless you also do them as part of your regular job. If you are exposed to additional job elements for a few days while someone is away, you do not report this work.

2. Work that is not part of your present job will be left out, no matter how often you did it in the past. For example, if your present job is "out of rating," indicate the work you do now.

3. In describing your present job, go back as far in time as necessary to get a true picture. You will probably need to go back not less than one month nor more than one year.

DIRECTIONS FOR RATING THE JOB ELEMENTS

On the following pages are a list of job elements that may be part of your work. Read each job element and decide if your job (all of your duties) applies to the element. If it does not, make no mark in your booklet for that item and go on to the next job element. If it does, fill in the space provided to the right of the job element with a number from the rating scale at the top of each page.

In using the rating scale, you are to select a number between 1 and 5 that best describes the relative time you spend on each job element (compared to the typical task that you do). Relative time spent means the time you spend doing the task compared with the time required by the most typical task you perform. Tasks that take relatively little time should be rated low on the scale, and tasks that take a relatively long time should be rated high on the following scale:

RATING SCALE: Relative Time Spent

1 = Very Little

2 = Below average

3 = Average

4 = Above average

5 = Very much

Select only one response for each job element that is appropriate to you. It is important to the objective of this study that you respond only to job elements that are a part of your work and that you respond to all of the job elements that are a part of your work.

REMEMBER:

Read each job element carefully

(1) Decide whether or not you do it.

(2) Rate the time you spend on it.

If you need any help filling out this survey, please see your immediate supervisor.

PRIVACY ACT STATEMENT

A. AUTHORITY: 5 USC 301; 14 USC 632; Executive Order 9397.

B. PURPOSE/ROUTINE USE: The information requested in this document is to be used in research designed to improve personnel management procedures. The information will not be used to evaluate you as an individual. The information will not be put in your personnel file.

C. DISCLOSURE AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION: Participation is voluntary. Providing the information requested will make the survey results more meaningful.

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

U.S. COAST GUARD ENLISTED PERSONNEL JOB ELEMENT INVENTORY

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

1. USE WRITTEN MATERIALS (tech manuals, notices) _____(15)
2. USE QUANTITATIVE MATERIALS (graphs, tables of numbers) _____(16)
3. USE PICTURES OR PICTURE-LIKE MATERIALS (blueprints, maps) _____(17)
4. USE PATTERN DEVICES (templates, stencils, radio codes) _____(18)
5. USE VISUAL DISPLAYS (gauges, radarscope) _____(19)
6. USE PHYSICAL MEASUREMENT DEVICES (rulers, pressure gauges) _____(20)
7. USE FEATURES OF NATURE (cloud formations, stars, ocean disturbance) _____(21)
8. USE MAN-MADE FEATURES (bridges, dams, docks) _____(22)
9. USE VERBAL COMMUNICATIONS _____(23)
10. USE SOUNDS (engine sounds, sonar) _____(24)
11. USE TOUCH _____(25)
12. USE ODOR (applies to any odor you need to smell to do your job) _____(26)
13. USE TASTE (food preparation) _____(27)
14. PERFORM TASKS THAT REQUIRE YOU TO SEE EXTREME DETAIL OF OBJECTS (reading small print, setting ignition points) _____(28)
15. PERFORM TASKS THAT REQUIRE YOU TO SEE MODERATE DETAILS OF OBJECTS (hammering nails, reading gauges) _____(29)
16. PERFORM TASKS THAT REQUIRE TREATMENT OF SICK OR INJURED _____(30)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

17. WORK OUTDOORS _____(31)

18. WORK IN AN ENCLOSED AREA THAT IS HOT _____(32)

19. WORK IN AN ENCLOSED AREA THAT IS COLD _____(33)

20. WORK IN POLLUTED AIR (dust, toxic fumes) _____(34)

21. ARE SUBJECTED TO VIBRATION _____(35)

22. WORK UNDER IMPROPER LIGHTING CONDITIONS (too dark, too glaring) _____(36)

23. WORK WHERE YOU EASILY BECOME DIRTY _____(37)

24. WORK IN A CRAMPED OR UNCOMFORTABLE SPACE _____(38)

25. WORK IN A QUIET AREA _____(39)

26. WORK IN AN AREA OF MODERATE NOISE (office with typewriters) _____(40)

27. WORK IN AN AREA OF LOUD NOISE _____(41)

28. ARE RESPONSIBLE FOR THE SAFETY OF THE GENERAL PUBLIC _____(42)

29. ARE RESPONSIBLE FOR THE SAFETY OF MEMBERS OF THE COAST GUARD _____(43)

30. JUDGE DISTANCES _____(44)

31. TELL THE DIFFERENCE IN COLORS _____(45)

32. NOTICE DIFFERENT PATTERNS OF SOUND (Morse code, engines not running right) _____(46)

33. NOTICE DIFFERENCES OR CHANGES IN SOUND THROUGH LOUDNESS, PITCH OR TONE QUALITY _____(47)

34. SENSE BODY POSITION AND BALANCE (walking on I beams, walking on deck) _____(48)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

35. JUDGE SPEED OF MOVING OBJECTS _____(49)

36. JUDGE SPEED OF SOME PROCESS (cooking time, developing pictures) _____(50)

37. INSPECT PRODUCTS, OBJECTS, MATERIALS OR EQUIPMENT _____(51)

38. JUDGE SIZE OR WEIGHT OF OBJECTS WITHOUT DIRECT MEASUREMENT _____(52)

39. GATHER OR ARRANGE INFORMATION INTO A MEANINGFUL ORDER _____(53)

40. CODE AND DECODE (Morse code, computer languages) _____(54)

41. MAINTAIN LOGS _____(55)

42. SUBTRACT, MULTIPLY, AND DIVIDE NUMBERS _____(56)

43. WORK WITH PERCENTAGES, FRACTIONS, AND DECIMALS _____(57)

44. USE ALGEBRAIC, GEOMETRIC, TRIGONOMETRIC, AND STATISTICAL METHODS _____(58)

45. USE TOOLS THAT PERFORM PRECISE OPERATIONS _____(59)

46. USE TOOLS WITH LONG HANDLES (brooms, shovels) _____(60)

47. USE TOOLS OR DEVICES FOR THE PURPOSE OF HANDLING THINGS (tongs, ladles) _____(61)

48. USE HAND HELD POWERED DEVICES THAT PERFORM VERY PRECISE OR ACCURATE OPERATIONS (soldering irons, welding equipment) _____(62)

49. USE HAND HELD POWERED DEVICES LIKE POWER SAWS AND DRILLS _____(63)

50. USE DEVICES THAT YOU DRAW OR WRITE WITH _____(64)

51. USE DEVICES THAT APPLY SOMETHING (brushes, paint rollers) _____(65)

52. USE MOORING OR TOWING LINES _____(66)

53. USE STATIONARY MACHINES OR EQUIPMENT THAT YOU CONTROL _____(67)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you....

CC

54. USE DEVICES THAT HAVE FIXED OR VARIABLE SETTINGS (TV selector switch, room thermostat) _____(68)

55. USE KEYBOARD DEVICES (adding machines, typewriters) _____(69)

56. USE SMALL BOATS _____(70)

57. DRIVE CARS OR TRUCKS _____(71)

58. USE WHEELBARROWS AND LAWN MOWERS _____(72)

59. USE REMOTE CONTROLLED EQUIPMENT _____(73)

60. SET UP OR ADJUST MACHINES OR EQUIPMENT _____(74)

61. USE HANDS DIRECTLY TO FORM OR CHANGE MATERIALS _____(75)

62. TAKE EQUIPMENT APART OR PUT IT BACK TOGETHER _____(76)

63. ARRANGE OR PACK OBJECTS OR MATERIALS _____(77)

_____(78)

_____(79)

_____(80)

64. PERFORM TASKS THAT REQUIRE HIGHLY SKILLED BODY COORDINATION _____(1)

65. PRESENT INFORMATION TO PUBLIC GROUPS _____(2)

66. PERFORM TO ENTERTAIN (band) _____(3)

67. ATTENDING TO OTHERS' NEEDS (waiting on tables, cutting hair) _____(4)

68. CONTACT FLAG OFFICERS, AND OTHER HIGH OFFICIALS AS PART OF MY JOB _____(5)

69. CONTACT OFFICERS IN GRADE OF LCDR, CDR, CAPT AS PART OF MY JOB _____(6)

(84)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

70. CONTACT OFFICERS LT AND BELOW (including warrant officers) _____(7)

71. CONTACT CHIEF PETTY OFFICERS AS PART OF MY JOB _____(8)

72. CONTACT CIVILIAN PROFESSIONALS AS PART OF MY JOB (doctors, lawyers, professors, engineers) _____(9)

73. CONTACT CIVILIAN SPECIALISTS (draftsmen, designers, photographers, law enforcers, meteorologists) _____(10)

74. CONTACT MERCHANT MARINE AND OTHER INDUSTRY PERSONNEL _____(11)

75. CONTACT OTHER SERVICE PERSONNEL (Army, Navy, AF) _____(12)

76. CONTACT CIVILIAN SALESMEN AND SUPPLIERS _____(13)

77. CONTACT FOREIGN NATIONALS _____(14)

78. CONTACT PUBLIC (boating safety, environmental protection, law enforcement) _____(15)

79. CONTACT CIVILIAN STUDENTS _____(16)

80. CONTACT SPECIAL INTEREST GROUPS (property owners, boating clubs, local governments) _____(17)

81. SUPERVISE NON-COAST GUARD PERSONNEL _____(18)

82. OPERATE IN EMERGENCY SITUATIONS _____(19)

83. DEAL WITH PEOPLE IN DIFFICULT SITUATIONS (EEO and drug problems, law enforcers) _____(20)

84. TAKE RISKS WHILE SERVING OTHERS (SAR teams) _____(21)

85. PERFORM IN DANGEROUS SITUATIONS _____(22)

86. PERFORM THE SAME PHYSICAL TASK OVER AND OVER _____(23)

87. PERFORM THE SAME MENTAL TASK OVER AND OVER _____(24)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

88. WORK ON A SCHEDULE THAT ALLOWS YOU SOME FREEDOM AS LONG AS YOU FINISH YOUR JOB _____(25)

89. FOLLOW CERTAIN SET PROCEDURES ON YOUR JOB (like following a check-out list to inspect equipment) _____(26)

90. PERFORM UNDER TIME PRESSURES _____(27)

91. CONTINUALLY WATCH FOR EVENTS THAT HAPPEN RARELY IN YOUR JOB BUT ARE IMPORTANT OR CRITICAL _____(28)

92. CONTINUALLY WATCH FOR FREQUENT CHANGES IN YOUR JOB SITUATION (rescue traffic, constantly watching gauges and dials that change often) _____(29)

93. WORK UNDER DISTRACTIONS _____(30)

94. MOVE LIGHT OBJECTS ON OCCASION _____(31)

95. MAKE EFFORTS ABOUT EQUAL TO LIFTING 25 TO 50 POUNDS _____(32)

96. MAKE EFFORTS ABOUT EQUAL TO LIFTING 50 TO 100 POUNDS _____(33)

97. USE FINGER MOVEMENTS (drawing instruments, keyboard devices) _____(34)

98. PERFORM TASKS THAT REQUIRE A STEADY HAND AND ARM _____(35)

99. COORDINATE HAND AND/OR FOOT MOVEMENT WITH WHAT YOU SEE (driving a car, steering a boat) _____(36)

100. COORDINATE YOUR HAND MOVEMENTS WITH WHAT YOU HEAR _____(37)

101. ADVISE PEOPLE IN RESOLVING THEIR PROBLEMS _____(38)

102. PERSUADE OTHERS TOWARD SOME ACTION OR OPINION _____(39)

103. INSTRUCT OTHERS, FORMALLY OR INFORMALLY, IN SOME SKILL OR KNOWLEDGE _____(40)

RATING SCALE: Relative Time Spent				
1	2	3	4	5
Very Little	Below Average	Average	Above Average	Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you.... CC

104. ANALYZE PROBLEMS _____(41)

105. ANSWER QUESTIONS FROM OTHERS _____(42)

106. ANTICIPATE THE NEED FOR MATERIALS TO ACCOMPLISH WORK _____(43)

107. ANTICIPATE THE NEED FOR MANPOWER TO ACCOMPLISH WORK _____(44)

108. APPROVE REQUESTS AND/OR PROPOSALS FROM OTHERS _____(45)

109. SETTLE DISPUTES AMONG OTHERS _____(46)

110. SCHEDULE MEETINGS AMONG PEOPLE _____(47)

111. ASSESS THE QUALITY OF WORK OF OTHERS _____(48)

112. ASSIGN PRIORITIES TO TASKS _____(49)

113. ASSIGN PEOPLE TO TASKS _____(50)

114. GIVE FORMAL BRIEFINGS TO OTHERS _____(51)

115. CLARIFY GOALS AND TASKS FOR OTHERS _____(52)

116. COMPILE DATA FOR DECISIONS _____(53)

117. DEMONSTRATE TECHNIQUES AND PROCEDURES _____(54)

118. MODIFY EQUIPMENT _____(55)

119. MODIFY IDEAS, DECISIONS, OR PROCEDURES _____(56)

120. MONITOR EQUIPMENT _____(57)

121. MOVE EQUIPMENT AND SUPPLIES _____(58)

122. PREDICT FUTURE EVENTS _____(59)

123. PREPARE PLANS AND SCHEDULES _____(60)

RATING SCALE: Relative Time Spent				
1 Very Little	2 Below Average	3 Average	4 Above Average	5 Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you....

CC

124.	PRESIDE OVER MEETINGS	____(61)
125.	RECOMMEND PROCEDURES AND COURSES OF ACTION	____(62)
126.	RESOLVE CONFLICTING FINDINGS	____(63)
127.	REPAIR EQUIPMENT	____(64)
128.	REQUISITION EQUIPMENT	____(65)
129.	SELECT APPROPRIATE EQUIPMENT AND MATERIALS	____(66)
130.	SUPERVISE OTHERS	____(67)
131.	DISCUSS ISSUES AND PROBLEMS WITH OTHERS	____(68)
132.	DISSEMINATE INFORMATION TO OTHERS	____(69)
133.	DISTRIBUTE EQUIPMENT AND SUPPLIES	____(70)
134.	DRAFT WRITTEN MATERIALS	____(71)
135.	DRAW UP PLANS OF ACTION	____(72)
136.	ENCOURAGE THE EFFORTS OF OTHERS	____(73)
137.	ENFORCE DIRECTIVES	____(74)
138.	ESTIMATE TIME, COST AND OTHER NEEDS FOR PROJECTS	____(75)
139.	FORMULATE POLICIES	____(76)
140.	IDENTIFY CAUSES OF EQUIPMENT PROBLEMS	____(77)
		4 (78)
		0 (79)
		2 (80)

(88)

RATING SCALE: Relative Time Spent				
1 Very Little	2 Below Average	3 Average	4 Above Average	5 Very Much

If the job element is not appropriate, LEAVE IT BLANK.

In doing your job, you....

CC

141.	IDENTIFY CAUSES OF PERSONNEL PROBLEMS	_____(1)
142.	ARE ACCOUNTABLE FOR DECISIONS AND ACTIONS OF OTHERS	_____(2)
143.	SUPERVISE THE OPERATION OF EQUIPMENT	_____(3)
144.	TEST EQUIPMENT	_____(4)
145.	PROVIDE FIRST AID	_____(5)
146.	DISPENSE MEDICATION	_____(6)
147.	STAND WATCHES	_____(7)
148.	CONSIDER IDEAS AND SUGGESTIONS OF SUBORDINATES	_____(8)
149.	ADJUST TO NEW SITUATIONS	_____(9)
150.	KEEP SUPERVISOR INFORMED	_____(10)
151.	SERVE AS AIR CREWMAN	_____(11)
152.	CARRY FIREARMS	_____(12)
153.	MAINTAIN RECORDS	_____(13)
		B (14-78
		_____(79)
		3 (80)

When you have finished responding to all the job elements, put the completed survey in the attached envelop and mail it to: U. S. Coast Guard Task Inventory Project
The Ohio State University
404C West 17th Avenue
Columbus, Ohio 43210

(89)
90X

Appendix C

Cross-Tabulation of Job Rating by Grade
of U.S. Coast Guard Enlisted Personnel

U.S. Coast Guard Enlisted Personnel

Cross-Tabulation Of Job Rating By Grade

N = 31,188

Code	Rating	Enlisted Member Grade E1	E2	E3	E4	E5	E6	E7	E8	E9	Row Total	% Of Total
100	Boatswain's Mate	0	5	21	834	658	896	577	89	75	3155	10.1
110	Quartermaster	0	18	61	292	197	149	139	31	13	900	2.9
130	Radarman	0	2	23	144	66	59	40	10	4	348	1.1
140	Sonar Technician	0	0	21	59	22	27	22	3	2	156	0.5
150	Seaman	1316	3637	3203	0	0	0	0	0	0	8156	26.2
170	Gunner's Mate	0	2	26	116	70	97	34	6	5	356	1.1
180	Fire Control Technician	0	0	3	28	12	20	12	4	1	80	0.3
200	Machinery Technician	0	77	284	1405	527	852	421	72	52	3690	11.8
210	Damage Controlman	0	11	41	291	152	173	73	14	5	760	2.4
240	Electronics Technician	0	6	103	586	328	294	178	29	16	1540	4.9
250	Electronics Technician Communications	0	0	0	45	35	22	0	0	0	102	0.3
270	Electronics Mate	0	8	53	323	151	141	91	30	13	810	2.6
280	Telephone Technician	0	1	6	92	47	56	23	7	4	236	0.8

C1

(43)

Code	Rating	E1	E2	E3	E4	E5	E6	E7	E8	E9	Row Total	% Of Total
320	Fireman	0	1074	832	0	0	0	0	0	0	1906	6.1
330	Electronics Technician Watch Stander	0	5	6	0	0	0	0	0	0	11	0.0
340	Photojournalist	0	0	0	16	20	26	15	3	1	81	0.3
350	Radioman	0	7	84	480	342	311	129	31	19	1403	4.5
360	Yeoman	0	15	70	530	340	373	173	35	25	1561	5.0
420	Storekeeper	0	15	84	333	303	270	95	23	12	1135	3.6
500	Subsistence Specialist	0	14	126	375	380	387	119	20	17	1438	4.6
510	Officer Candidate	0	0	0	0	65	0	0	0	0	65	0.2
520	Aviation Machinist's Mate	0	9	20	210	198	148	50	25	13	673	2.2
530	Aviation Survivalman	0	2	6	54	32	36	15	2	2	149	0.5
550	Aviation Electronics Technician	0	0	33	168	160	131	50	16	5	563	1.8
560	Aviation Electronics Mate	0	7	34	105	109	80	26	8	4	373	1.2
570	Aviation Structural Mechanic	0	16	32	166	123	99	32	8	5	481	1.5
610	Airman	0	21	54	0	0	0	0	0	0	75	0.2
620	Aviation Pilot	0	0	0	0	0	0	0	0	1	1	0.0

Code	Rating	E1	E2	E3	E4	E5	E6	E7	E8	E9	Row Total	% Of Total
790	Marine Science Technician	0	0	8	70	29	25	19	5	1	157	0.5
840	Musician	0	0	0	0	7	22	16	5	0	50	0.2
870	Hospital Corpsman	0	6	42	260	110	127	69	9	4	627	2.0
880	Dental Technician	0	0	5	69	32	35	7	0	2	150	0.5
	Column Totals	1316	4958	5281	7051	4515	4856	2425	485	301	31188	
	%	4.2	15.9	16.9	22.6	14.5	15.6	7.8	1.6	1.0	100.0	

Appendix D

Cross-Tabulation by Job Rating and Grade of Job Element Inventory Sample

U.S. Coast Guard Enlisted Personnel
Job Element Inventory Sample
Cross-tabulation of Job Rating by Grade
(N = 3,235)

Code	Rating	E1	E2	E3	E4	E5	E6	E7	E8	E9	Row Totals	% Of Total
100	Boatswain's Mate	0	0	0	25	25	25	25	25	25	150	4.6
110	Quartermaster	0	0	0	25	25	25	25	25	13	138	4.3
130	Radarman	0	0	0	25	25	25	25	10	4	114	3.5
140	Sonar Technician	0	0	0	25	22	25	22	3	2	99	3.1
150	Seaman	50	50	50	0	0	0	0	0	0	150	4.6
170	Gunner's Mate	0	0	0	25	25	25	25	6	5	111	3.4
180	Fire Control Technician	0	0	0	25	12	20	12	4	1	74	2.3
200	Machinery Technician	0	0	0	25	25	25	25	25	25	150	4.6
210	Damage Controlman	0	0	0	25	25	25	25	14	5	119	3.7
240	Electronics Technician	0	0	0	25	25	25	25	25	16	141	4.4
270	Electronics Mate	0	0	0	25	25	25	25	25	13	138	4.3
280	Telephone Technician	0	0	0	25	25	25	23	7	4	109	3.4
320	Fireman	0	50	50	0	0	0	0	0	0	100	3.1
340	Photojournalist	0	0	0	16	20	25	15	3	1	80	2.5
350	Radioman	0	0	0	25	25	25	25	25	19	144	4.5

(49)

Code	Rating	E1	E2	E3	E4	E5	E6	E7	E8	E9	Row Total	% Of Total
360	Yeoman	0	0	0	25	25	25	25	25	25	150	4.6
420	Storekeeper	0	0	0	25	25	25	25	23	12	135	4.2
500	Subsistence Specialist	0	0	0	25	25	25	25	20	17	137	4.2
520	Aviation Machinist's Mate	0	0	0	25	25	25	25	25	13	138	4.3
530	Aviation Survivalman	0	0	0	25	25	25	15	2	2	94	2.9
550	Aviation Electronics Technician	0	0	0	25	25	25	25	16	5	121	3.7
560	Aviation Electronics Mate	0	0	0	25	25	25	25	8	4	112	3.5
570	Aviation Structural Mechanic	0	0	0	25	25	25	25	8	5	113	3.5
610	Airman	0	21	50	0	0	0	0	0	0	71	2.2
790	Marine Science Technician	0	0	0	25	25	25	19	5	1	100	3.1
840	Musician	0	0	0	0	7	22	16	5	0	50	1.5
870	Hospital Corpsman	0	0	0	25	25	25	25	9	4	113	3.5
880	Dental Technician	0	0	0	25	25	25	7	0	2	84	2.6
Column Totals		50	121	150	591	586	592	554	343	223	3235	
Percent of Total		1.5	3.7	4.6	18.3	18.1	18.3	17.1	10.6	6.9		100.0

100

Appendix E

Varimax Rotated Loadings of 153 Job Elements
on Seven Factors of the Job Element Mode
Factor Analysis

Varimax Rotated Loadings of 153 Job Elements
on 7 Factors of the Job Element Mode
Factor Analysis

Item Number	Factor I	II	III	IV	V	VI	VII
1	01	02	-04	07	21	-05	00
2	-02	02	-04	05	10	01	05
3	-02	01	17	18	05	12	08
4	09	-01	08	02	04	07	02
5	11	-00	-14	14	02	02	06
6	-04	02	-03	13	02	09	10
7	03	-02	-08	-03	02	18	05
8	-00	-02	-04	00	-01	22	01
9	04	00	-02	01	23	01	02
10	21	04	-00	03	-07	-00	02
11	11	-04	17	01	05	-03	-02
12	02	03	25	-01	-04	-02	04
13	-02	03	29	-09	-02	-03	-07
14	01	-03	-08	18	09	-06	01
15	00	-02	-00	18	03	03	07
16	-07	-03	07	-03	09	-04	07
17	-09	-00	-00	14	-02	24	13
18	12	02	20	-03	-02	00	-02
19	06	-02	06	02	04	02	02
20	00	00	04	04	-01	06	12
21	05	00	04	01	-00	-04	23
22	05	01	01	04	01	04	09
23	00	02	17	11	-08	09	12
24	08	-00	10	05	-02	-02	07
25	-06	-02	03	05	08	10	-03
26	-09	-04	-02	04	24	-01	-09
27	18	03	09	00	-02	-08	18
28	09	-02	03	-08	02	21	08
29	05	12	11	-03	-02	08	14
30	-08	-04	-07	04	06	21	19
31	-09	-02	01	18	04	08	05
32	28	03	-01	01	-06	-04	07
33	21	02	-01	04	-04	-05	04
34	02	01	04	04	-05	17	06
35	01	-01	-08	-03	03	18	16
36	-03	-00	24	-06	02	-03	-00
37	01	05	19	08	01	-01	06
38	-05	01	20	-01	-02	12	01
39	-01	04	-04	-01	17	05	00
40	20	-03	-07	-06	04	01	-07
41	18	-01	05	-05	11	10	-05
42	-11	02	12	08	12	05	-08

Item Number	Factor I	II	III	IV	V	VI	VII
43	-10	01	10	10	08	01	-05
44	-02	-02	-11	13	05	03	-04
45	02	-03	01	16	05	-05	04
46	-01	-08	10	06	02	08	03
47	-05	-02	28	01	00	-04	-03
48	-03	-01	-03	31	-02	-11	-00
49	-01	02	04	19	-09	09	00
50	02	-03	-05	02	20	06	02
51	-02	-05	07	03	00	14	05
52	00	02	02	-02	-05	18	04
53	18	-05	08	-02	09	03	-09
54	20	-06	-04	10	06	-03	-07
55	06	-06	03	-04	26	-03	-26
56	05	03	01	-02	-08	22	-02
57	-03	00	08	10	-00	17	-07
58	00	00	02	01	-03	08	-01
59	26	-00	-06	02	-02	-02	-12
60	17	-04	-02	18	02	-07	-08
61	04	-02	16	03	-01	-01	01
62	06	00	05	26	-05	-09	01
63	-02	-04	15	04	05	-01	-02
64	-04	-03	04	09	02	-00	06
65	-01	01	-01	-04	05	10	01
66	-00	-00	02	-01	00	00	00
67	-03	-01	18	-06	03	-04	-01
68	-01	01	01	-04	06	02	-00
69	-05	07	-01	-07	19	-09	08
70	-02	07	00	01	18	-02	-00
71	02	01	03	02	18	-05	05
72	-03	03	-02	03	06	10	-09
73	00	04	-05	03	02	11	-06
74	07	01	-04	-04	-01	17	-03
75	-01	02	03	-07	11	-02	02
76	-02	10	16	06	-05	04	-17
77	02	-00	-01	-01	01	05	-01
78	07	-00	-03	-08	00	23	00
79	-01	01	01	-02	01	05	-00
80	01	02	-04	-03	00	13	-01
81	-03	03	02	-01	-01	08	-02
82	08	-01	01	-05	04	10	12
83	01	02	-02	-06	05	06	03
84	-02	-01	-01	-03	05	-02	33
85	-01	-01	-01	04	01	05	19
86	05	-06	13	-01	07	10	02
87	05	-05	06	-05	18	08	-03
88	-03	00	07	02	15	03	-02

Item Number	Factor I	II	III	IV	V	VI	VII
89	13	-02	07	02	10	00	04
90	04	-00	05	-00	14	-06	06
91	14	01	03	-07	08	02	12
92	26	01	-01	-09	00	03	10
93	08	-01	-01	-02	14	-04	08
94	02	-06	10	09	09	-00	04
95	-00	-03	14	10	02	01	03
96	-02	-02	10	09	-00	03	03
97	08	11	-06	00	26	03	-19
98	-02	06	02	17	07	02	-00
99	-04	00	01	10	00	22	-02
100	14	-01	-00	-00	-00	08	00
101	-06	14	-02	-02	08	01	-01
102	-01	10	-04	-03	09	03	03
103	01	12	04	00	09	00	01
104	-03	07	-04	14	12	-05	-00
105	-02	07	02	02	19	00	00
106	-03	07	09	09	07	02	-03
107	00	15	04	04	-01	02	05
108	00	23	-01	-01	-02	-02	-01
109	00	16	-00	-03	00	-01	02
110	-05	13	-02	-02	02	00	-02
111	02	22	-01	00	-01	-04	01
112	-01	18	-01	00	04	-04	01
113	02	22	02	-02	-02	00	04
114	-03	14	-02	-00	-00	03	02
115	-02	18	-01	01	-01	-02	00
116	01	11	-09	04	05	02	-03
117	03	11	05	01	02	-01	03
118	02	05	-02	17	-06	-03	-04
119	00	11	-01	04	00	01	-02
120	24	01	-04	04	-02	-02	01
121	00	-03	14	07	02	01	-01
122	02	07	00	01	00	03	-02
123	-05	17	03	01	01	05	-07
124	-02	12	-01	-00	-02	-01	-00
125	-02	16	-06	02	03	02	-01
126	-03	12	-04	01	01	-00	02
127	06	-00	02	27	-06	-06	-01
128	-09	10	03	12	01	-02	-00
129	-01	07	08	11	-02	05	-02
130	06	22	05	-03	-00	-00	02
131	-02	13	01	02	08	-01	-01
132	01	15	-08	00	09	-02	-02
133	-02	09	07	03	-02	04	-04
134	00	10	-08	-01	07	03	-07

Item Number	Factor I	II	III	IV	V	VI	VII
135	-01	13	-05	01	-01	06	-04
136	04	17	00	-02	03	-00	01
137	03	19	-02	-04	02	-01	00
138	-03	15	03	08	-06	06	-06
139	-02	14	-01	-01	-01	-01	-02
140	15	05	-00	20	-06	-10	-05
141	-02	16	00	-03	02	-04	00
142	06	21	-02	-03	-01	01	00
143	18	14	05	00	-09	01	01
144	11	02	-03	23	-06	-03	-06
145	-04	01	10	-02	03	01	04
146	-06	-02	06	-02	05	-02	01
147	20	-08	04	-05	10	07	03
148	04	19	02	-02	-01	00	-01
149	06	10	02	-02	06	03	03
150	00	05	06	02	14	05	-00
151	-08	-03	-03	-02	13	-29	47
152	-02	00	00	-00	00	07	00
153	02	06	08	-04	18	-02	-06

Appendix F

Proposed Enlisted Performance Evaluation Forms

DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD CGHQ-5153-2(TEST)	NON-RATED PERSONNEL PERFORMANCE EVALUATION

1. NAME (Last, first, middle)	2. RATE (check one) ☐ 1 ☐ 2 ☐ 3	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC NO.		5. PERIOD OF REPORT FROM: TO:

6. TYPE OF REPORT (check one)
☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (SPECIFY):

7. PERFORMANCE: In comparison with other personnel with the same grade, evaluate on the following:

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. KNOWLEDGE OF JOB						
B. PERFORMANCE OF PRIMARY DUTIES						
C. PERFORMANCE OF COLLATERAL DUTIES						
D. OVERALL EVALUATION		1	2	3	4	5

8. PERSONAL QUALITIES: In comparison with other personnel with the same grade, evaluate on the following:

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. DEPENDABILITY: Consistently performs duties or tasks without the need of close supervision						
B. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
C. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.						
D. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies						
E. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations						
F. OVERALL EVALUATION		1	2	3	4	5

9. CONDUCT (check one)

☐ CONFORMS TO MILITARY STANDARDS AND REGULATIONS (80%)

☐ CONDUCT SATISFACTORY BUT OCCASIONALLY LAX (15%)

☐ CONTINUALLY DEFICIENT CONDUCT SUCH AS WOULD QUALIFY FOR A GENERAL DISCHARGE (4%)

☐ CONDUCT UNACCEPTABLE. MAJOR DEFICIENCIES AS EVIDENCED BY MILITARY/CIVILIAN OFFENSES (1%)

Reverse of CGHQ-5153-2(TEST)

10. ADVANCEMENT POTENTIAL (check one)

- ☐ SHOWS GREAT PROMISE OF BEING OUTSTANDING PETTY OFFICER MATERIAL
- ☐ SHOWS MORE PETTY OFFICER POTENTIAL THAN MOST
- ☐ SHOWS AS MUCH PETTY OFFICER POTENTIAL AS MOST
- ☐ DOES NOT SHOW PETTY OFFICER POTENTIAL AT THIS TIME

11. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
12. PREPARING					
13. REPORTING					

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
CGHQ-5153-4(TEST)

PETTY OFFICER PERFORMANCE EVALUATION
(Including non-rated personnel with assigned designator)

AVIATION

AM, AE, AD, ASM, AT

1. NAME (last, first, middle)

2. RATE (check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

3. SOCIAL SECURITY NO.

4. UNIT NAME AND OPFAC NO.

5. PERIOD OF REPORT
FROM: TO:

6. TYPE OF REPORT (check one)
☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (Specify)

7. BILLET LEVEL

8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)

9. PERFORMANCE: In comparison with other petty officers in the Aviation Group with the same grade, evaluate on the following performance factors.

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. ATTENTION TO DETAIL						
B. REPAIRING EQUIPMENT						
C. INSPECTING MATERIAL AND EQUIPMENT						
D. ANALYZING PROBLEMS						
E. PERFORMING IN EMERGENCY SITUATIONS						
F. KEEPING SUPERVISOR INFORMED						
G. PERFORMANCE OF PRIMARY DUTIES						
H. PERFORMANCE OF COLLATERAL DUTIES						
		1	2	3	4	5
I. OVERALL EVALUATION						

10. PERSONAL QUALITIES: In comparison with other petty officers of the same grade, to what degree has individual exhibited the following qualities

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision						
B. JUDGMENT: Compiles, analyzes and interprets information and is able to reach reasonable conclusions and make logical decisions						
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment						

97% (111)

	NO	5%	10%	70%	10%	5%
E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.						
F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies						
G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations						
H OVERALL EVALUATION		1	2	3	4	5

11. CONDUCT (check one)

- ☐ Conforms to military standards and regulations (90%)
- ☐ Conduct satisfactory but occasionally lax (5%)
- ☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)
- ☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD CGHQ-5153-5(TEST)	PETTY OFFICER PERFORMANCE EVALUATION (Including non-rated personnel with assigned designator)	DECK/WATCH BM, GM, MST, QM, RD

1. NAME (Last, first, middle)	2. RATE (check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC NO.		5. PERIOD OF REPORT FROM: TO:
6. TYPE OF REPORT (check one) ☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (Specify)		7. BILLET LEVEL
8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO		IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)

9. PERFORMANCE: In comparison with other petty officers in the Deck/Watch Group with the same grade, evaluate on the following performance factors

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. PERFORMING UNDER TIME PRESSURES AND DISTRACTIONS						
B. PERFORMING IN EMERGENCY SITUATIONS						
C. TIMELY COMPLETION OF WORK						
D. KEEPING SUPERVISOR INFORMED						
E. COORDINATING ACTIONS WITH OTHERS						
F. ANALYZING PROBLEMS						
G. PERFORMANCE OF PRIMARY DUTIES						
H. PERFORMANCE OF COLLATERAL DUTIES						
I. OVERALL EVALUATION		1	2	3	4	5

10. PERSONAL QUALITIES: In comparison with other petty officers of the same grade, to what degree has individual exhibited the following qualities

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision						
B. JUDGMENT: Compiles, analyzes, and interprets information and is able to reach reasonable conclusions and make logical decisions						
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment						

E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.

F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies

G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations

H OVERALL EVALUATION

NO	5%	10%	70%	10%	5%
	1	2	3	4	5

11. CONDUCT (check one)

☐ Conforms to military standards and regulations (90%)

☐ Conduct satisfactory but occasionally lax (5%)

☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)

☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

97% (114)

DEPARTMENT OF TRANSPORTATION U. S. COAST GUARD CGHQ-5153-6(TEST)	PETTY OFFICER PERFORMANCE EVALUATION (Including non-rated personnel with assigned designator)	ELECTRONICS ET, ETN, FT, TT, ST

1. NAME (last, first, middle)	2. RATE (check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC NO.	5. PERIOD OF REPORT FROM: TO:	
6. TYPE OF REPORT (Check one) ☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (Specify)		7. BILLET LEVEL
8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO	IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)	

9. PERFORMANCE: In comparison with other petty officers in the Electronics Group with the same grade, evaluate on the following performance factors.

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%		GOOD 10%	70%	10%	OUTSTANDING 5%
A. ATTENTION TO DETAIL							
B. USE OF TOOLS AND EQUIPMENT							
C. IDENTIFYING CAUSE OF EQUIPMENT PROBLEMS							
D. TEARING DOWN AND ASSEMBLING EQUIPMENT							
E. TESTING AND ADJUSTING EQUIPMENT							
F. TIMELY COMPLETION OF WORK							
G. KEEPING PROPER WORK RECORDS OR LOGS							
H. KEEPING SUPERVISOR INFORMED							
I. PERFORMANCE OF PRIMARY DUTIES							
J. PERFORMANCE OF COLLATERAL DUTIES							
		1		2	3	4	5
K. OVERALL EVALUATION							

10. PERSONAL QUALITIES: In comparison with other petty officers of the same grade, to what degree has individual exhibited the following qualities

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%	10%	GOOD 70%	10%	OUTSTANDING 5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision						
B. JUDGMENT: Compiles, analyzes and interprets information and is able to reach reasonable conclusions and make logical decisions						
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment						

E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.

F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies

G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations

H OVERALL EVALUATION

NO	5%	10%	70%	10%	5%
	1	2	3	4	5

11. CONDUCT (check one)

☐ Conforms to military standards and regulations (90%)

☐ Conduct satisfactory but occasionally lax (5%)

☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)

☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

97% (116)

DEPARTMENT OF TRANSPORTATION U. S. COAST GUARD CGHQ-5153-7(TEST)	PETTY OFFICER PERFORMANCE EVALUATION (Including non-rated personnel with assigned designator)	ENGINEERING DC, EM, MK

1. NAME (Last, first, middle)	2. RATE (Check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC NO.		5. PERIOD OF REPORT FROM: TO:
6. TYPE OF REPORT (Check one) ☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (SPECIFY):		7. BILLET LEVEL
8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO		IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)

9. PERFORMANCE: In comparison with other petty officers in the Engineering Group with the same grade, evaluate on the following performance factors.

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%	10%	GOOD 70%	10%	OUTSTANDING 5%
A. INSPECTING MACHINERY AND EQUIPMENT						
B. TROUBLE SHOOTING AND REPAIRING EQUIPMENT						
C. OBTAINING MATERIALS AND MANPOWER TO ACCOMPLISH WORK						
D. TIMELY COMPLETION OF WORK						
E. KEEPING PROPER WORK RECORDS OR LOGS						
F. COORDINATING ACTIONS WITH OTHERS						
G. PERFORMANCE OF PRIMARY DUTIES						
H. PERFORMANCE OF COLLATERAL DUTIES						
		1	2	3	4	5
I. OVERALL EVALUATION						

10. PERSONAL QUALITIES: In comparison with other petty officers of the same grade, to what degree has individual exhibited the following qualities

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%	10%	GOOD 70%	10%	OUTSTANDING 5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision						
B. JUDGMENT: Compiles, analyzes and interprets information and is able to reach reasonable conclusions and make logical decisions						
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment						

	NO	5%	10%	70%	10%	5%
		1	2	3	4	5

E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.

F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies

G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations

H OVERALL EVALUATION

11. CONDUCT (check one)

☐ Conforms to military standards and regulations (90%)

☐ Conduct satisfactory but occasionally lax (5%)

☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)

☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

97% (118)

DEPARTMENT OF TRANSPORTATION U. S. COAST GUARD CGHQ-5153-3(TEST)	PETTY OFFICER PERFORMANCE EVALUATION (Including non-rated personnel with assigned designator)	SERVICE YN, RM, HM, DT, MU, PA, SK, SS

1. NAME (Last, first, middle)	2. RATE (Check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC NO.		5. PERIOD OF REPORT FROM: TO:
6. TYPE OF REPORT (Check one) ☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (SPECIFY):		7. BILLET LEVEL
8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO		IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION(BLOCK 12)

9. PERFORMANCE: In comparison with other petty officers in the Service Group with the same grade, evaluate on the following performance factors.

	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. GATHERING INFORMATION	☐	☐	☐	☐	☐	☐
B. USE OF EQUIPMENT	☐	☐	☐	☐	☐	☐
C. ATTENTION TO DETAIL	☐	☐	☐	☐	☐	☐
D. WORKING WITH PEOPLE OUTSIDE THE MILITARY	☐	☐	☐	☐	☐	☐
E. ANALYZING PROBLEMS	☐	☐	☐	☐	☐	☐
F. TIMELY COMPLETION OF WORK	☐	☐	☐	☐	☐	☐
G. KEEPING SUPERVISOR INFORMED	☐	☐	☐	☐	☐	☐
H. COORDINATING ACTIONS WITH OTHERS	☐	☐	☐	☐	☐	☐
I. PERFORMANCE OF PRIMARY DUTIES	☐	☐	☐	☐	☐	☐
J. PERFORMANCE OF COLLATERAL DUTIES	☐	☐	☐	☐	☐	☐
		1	2	3	4	5
K. OVERALL EVALUATION						

10. PERSONAL QUALITIES: In comparison with other petty officers in the Service Group with the same grade, to what degree has this individual exhibited the following qualities:

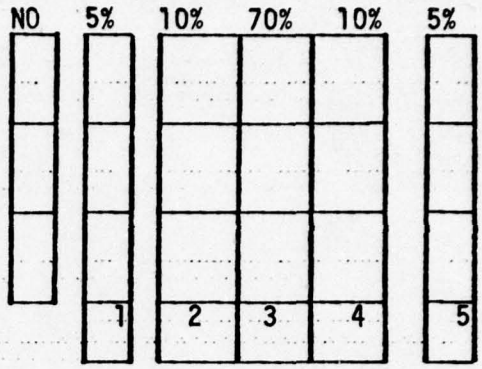
	NOT OBSERVED	UNSATIS-FACTORY		GOOD		OUT-STANDING
GUIDELINE DISTRIBUTION OF MARKS		5%	10%	70%	10%	5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision	☐	☐	☐	☐	☐	☐
B. JUDGMENT: Compiles, analyzes, and interprets information and is able to reach reasonable conclusions	☐	☐	☐	☐	☐	☐
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting	☐	☐	☐	☐	☐	☐
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment	☐	☐	☐	☐	☐	☐

E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.

F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies

G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations

H OVERALL EVALUATION



11. CONDUCT (check one)

☐ Conforms to military standards and regulations (90%)

☐ Conduct satisfactory but occasionally lax (5%)

☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)

☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

97% (120)

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
CGHQ-5153(TEST)

CHIEF PETTY OFFICER PERFORMANCE EVALUATION

1. NAME (Last, first, middle)	2. RATE (Check one) ☐ 7 ☐ 8 ☐ 9	3. SOCIAL SECURITY NO.
4. UNIT NAME AND OPFAC	5. PERIOD OF REPORT FROM: TO:	
6. TYPE OF REPORT (Check one) ☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (Specify):		7. BILLET LEVEL

8. IS THIS CHIEF PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING? ☐ YES ☐ NO IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)

9. PERFORMANCE: In comparison with other Chief Petty Officers with the same grade, evaluate on the following performance factors.

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 1%		GOOD 14%	50%	20%	OUTSTANDING 15%
A. WRITING REPORTS							
B. TRAINING OTHERS							
C. COORDINATING WORK OF SUBORDINATES							
D. HANDLING PERSONNEL WITH SPECIAL PROBLEMS							
E. PLANNING AHEAD							
F. IDENTIFYING PROBLEM SITUATIONS							
G. EVALUATING PERSONNEL							
H. PERFORMING UNDER TIME PRESSURES AND DISTRACTIONS							
I. PERFORMANCE OF PRIMARY DUTIES							
J. PERFORMANCE OF COLLATERAL DUTIES							
		1		2	3	4	5
K. OVERALL EVALUATION							

10. PERSONAL QUALITIES: In comparison with other Chief Petty Officers with the same grade, to what degree has individual exhibited the following qualities:

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 1%		GOOD 14%	50%	20%	OUTSTANDING 15%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision.							
B. JUDGMENT: Compiles, analyzes, and interprets information and is able to reach reasonable conclusions							
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting							
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment							

	NO	1%	14%	50%	20%	15%
E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.						
F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies						
G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations						
H OVERALL EVALUATION		1	2	3	4	5

11. CONDUCT (check one)

- ☐ Conforms to military standards and regulations (97%)
- ☐ Conduct satisfactory but occasionally lax (1%)
- ☐ Continually deficient. Conduct such as would qualify for a General Discharge (1%)
- ☐ Conduct unacceptable. Major deficiences as evidenced by military/civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
CGHQ-5153-1(TEST)

PETTY OFFICER PERFORMANCE EVALUATION
(Including non-rated personnel with assigned designator)

1. NAME (Last, first, middle

2. RATE (check one) ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

3. SOCIAL SECURITY NO.

4. UNIT NAME AND OPFAC NO.

5. PERIOD OF REPORT
FROM: TO:

6. TYPE OF REPORT (check one)
☐ SEMIANNUAL ☐ TRANSFER ☐ OTHER (SPECIFY)

7. BILLET LEVEL

8. IS THIS PETTY OFFICER PERFORMING DUTIES OUTSIDE HIS RATING ☐ YES ☐ NO IF YES, DESCRIBE MAJOR DUTIES IN THE COMMENTS SECTION (BLOCK 12)

9. PERFORMANCE: In comparison with other petty officers with the same grade, evaluate on the following performance factors.

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%	10%	GOOD 70%	10%	OUTSTANDING 5%
A. TIMELY COMPLETION OF WORK						
B. ANALYZING PROBLEMS						
C. INSPECTING PRODUCTS, OBJECTS, MATERIALS, OR EQUIPMENT						
D. USING WRITTEN MATERIALS						
E. GATHERING INFORMATION						
F. PERFORMING IN EMERGENCY SITUATIONS						
G. PERFORMING UNDER TIME PRESSURES AND DISTRACTIONS						
H. KEEPING SUPERVISOR INFORMED						
I. PERFORMANCE OF PRIMARY DUTIES						
J. PERFORMANCE OF COLLATERAL DUTIES						
K. OVERALL EVALUATION		1	2	3	4	5

10. PERSONAL QUALITIES: In comparison with other petty officers of the same grade, to what degree has individual exhibited the following qualities

GUIDELINE DISTRIBUTION OF MARKS

	NOT OBSERVED	UNSATISFACTORY 5%	10%	GOOD 70%	10%	OUTSTANDING 5%
A. DEPENDABILITY: Consistently performs duties or tasks in a reliable and timely fashion without the need of close supervision.						
B. JUDGMENT: Compiles, analyzes and interprets information and is able to reach reasonable conclusions and make logical decisions.						
C. INITIATIVE: Originates actions beyond what is necessarily called for; motivated; self-starting						
D. LEADERSHIP: Ability to influence others; guides a group or an individual toward task accomplishment						

(123)

E. ADAPTABILITY: Adjusts to new situations in an effective manner; changes approach or way of handling a problem as the situation varies.

F. HUMAN RELATIONS: Gets along with others with whom must live and work; sensitive to equal opportunity policies

G. MILITARY BEARING: Appearance and manner in keeping with current standards and regulations

H OVERALL EVALUATION

NO	5%	10%	70%	10%	5%
	1	2	3	4	5

11. CONDUCT (check one)

☐ Conforms to military standards and regulations (90%)

☐ Conduct satisfactory but occasionally lax (5%)

☐ Continually deficient. Conduct such as would qualify for a General Discharge (4%)

☐ Conduct unacceptable. Major deficiences as evidenced by military/ civilian offenses (1%)

12. COMMENTS

OFFICER	DATE	SIGNATURE	GRADE	SOCIAL SECURITY NO.	TITLE OR POSIT.
13. PREPARING					
14. REPORTING					

97% (124)

Appendix G

Schedule of Activities of Technical Conferences

Conference Schedule

Time	Activity
8:00	Introduction of Coast Guard and Ohio State Personnel Review of schedule for the day
8:15	Review of the project Problems in current enlisted performance evaluation system Desirable features of an enlisted performance evaluation system Project history -- tasks completed, tasks to be done
9:00	Questionnaire on form content Individual written work to define personal qualities and performance of duties items Individual written work to define scale anchoring points (outstanding, excellenct, etc.)
10:00	Group discussion of form content, personal qualities, performance of duties, and scale anchors
12:00	Lunch break
1:00	Questionnaire on groups of ratings (Aviation, Service, Electronics, Deck, Machinery), number of separate forms and use of a common form
1:30	Group discussion on distinct forms vs. a common form
3:00	Questionnaire on evaluation practices (preparing, reporting and reviewing the report; development of a feedback system; experience distribution of marks; diversity of duties performed by E-6s)
3:30	Group discussion on evaluation practices and open discussion
5:00	Adjourn

Appendix H

Proposed Report of Enlisted Evaluation Marks

Report of Enlisted Evaluation Marks

1. *Administrative Data*

   A. OPFAC Unit: _____

   B. Commanding Officer: _____

   C. Reporting Period: From _____ To _____

2. *Breakdown of Total Enlisted Personnel Evaluated During this Reporting Period*

   A. Total number of non-rated personnel

E1	
E2	
E3	

   B. Total number of Petty Officers

	Job Rating Category					
	I Aviation	II Electronics	III Engineering	IV Service	V Deck/ Watch	Total
E4						
E5						
E6						

   C. Total number of Chief Petty Officers

E7	
E8	
E9	

3. *Distribution of Marks: Overall Performance of Duties*

	Rating Category					
	1 Unsuccessful	2	3 Good	4	5 Outstanding	Total
	5%	10%	70%	10%	5%	
A. E1						
B. E2						
C. E3						

	Rating Category					
	1 Unsuccessful 5%	2	3 Good	4	5 Outstanding 5%	Total
		10%	70%	10%		
D. E4						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						
E. E5						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						
F. E6						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						

	Rating Category					
	1 Unsuccessful 5%	2 10%	3 Good 70%	4 10%	5 Outstanding 5%	Total
G. E7						
H. E8						
I. E9						

4. *Distribution of Marks: Overall Personal Qualities*

	Rating Category					
	1 Unsuccessful	2	3 Good	4	5 Outstanding	Total
	5%	10%	70%	10%	5%	
A. E1						
B. E2						
C. E3						
D. E4						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						
E. E5						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						

	Rating Category					
	1 Unsuccessful	2	3 Good	4	5 Outstanding	Total
	5%	10%	70%	10%	5%	
F. E6						
I. Aviation						
II. Electronics						
III. Engineering						
IV. Service						
V. Deck/ Watch						
G. E7						
H. E8						
I. E9						

5. *Distribution of Marks: Conduct Scores*

	I	II	III	IV	Total
A. E1					
B. E2					
C. E3					
D. E4					
E. E5					
F. E6					
G. E7					
H. E8					
I. E9					

6. *Authorized Signature*

_____	_____
(name)	(title)
_____	_____
(date)	(signature)

(136) all