

AN IDENTIFICATION AND DESCRIPTION OF THE  
“DIRECTOR OF SAFETY” POSITION THAT  
IS REQUIRED BY TITLE 14 CODE OF  
FEDERAL REGULATIONS PART  
119.65 FOR DOMESTIC AND  
FLAG AIR CARRIERS

By

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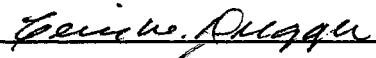

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## CHAPTER I

### INTRODUCTION

#### Background of the Study

*The superior man, when resting in safety, does not forget that danger may come. When in a state of security he does not forget the possibility of ruin. When all is orderly, he does not forget that disorder may come. Thus his person is not endangered, and his states and all their clans are preserved.*

Confucius

The safety of the commercial aviation industry has always been a paramount concern for the airlines and the flying public. In the last decade the commercial aviation industry has seen an incredible growth in major and commuter airlines, and also in freight air carriers. The future demands that will be placed on the commercial aviation industry will challenge their management in many ways. The implementation of a Director of Safety into management is a positive step forward in assuring that future safety challenges will be met by the commercial aviation industry.

The background of this study found its origins with the Federal Aviation Administration (FAA), when in 1995, in response to a National Transportation Safety Board (NTSB) recommendation (A-94-201) they issued the "Commuter Rule." The main thrust of the Commuter Rule was to bring Title 14 Code of Federal Regulations (CFR) Part 135, commuter and on-demand operators, more in-line with their larger

counterparts Title 14 CFR Part 121, domestic and flag air carriers. One of the added requirements for Title 14 CFR Part 121 operators under this rule was the addition of a full-time Director of Safety (DOS) position. This addition amended Title 14 CFR Part 119.65, which referenced management personnel required for operations conducted under Title 14 CFR Part 121 (Blattner, 2000).

Although the NTSB believed the Commuter Rule to be a move in the right direction they cited several shortcomings in the FAA's actions. One of these shortcomings formed the basis for this study and was as follows: the NTSB believed the FAA should ensure the effectiveness of an air carrier's safety program not only by establishing a Director of Safety position, but also by establishing management qualifications, functions, and independence of the position. In other words, the FAA, in requiring the Director of Safety position for Title 14 CFR Part 121 operators did not spell out specific job requirements for the position, (Blattner, 2000).

The NTSB further stated their recent experience has been most Title 14 CFR Part 121 operators have filled a Director of Safety position but there was wide variability in this position's functions and responsibilities. The NTSB stated they appreciated the FAA's establishment of a Director of Safety as a required management position, but requested the FAA reconsider additional regulatory action on the form, structure and function of an air carrier safety department (Blattner, 2000).

After several years of recommendations and reviews by the NTSB, FAA and input from industry, the FAA on November 30, 1999, issued the Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAAT 99-19 and HBAW

99-19, for Title 14 CFR Part 121 and 135 Air Carrier Safety Departments, Programs and a Directors of Safety. This bulletin provided guidance for FAA Principal Inspectors (PI) and Title 14 CFR Parts 121 and 135 air carriers, on the development of a comprehensive safety department. The bulletin also provided guidance on the suggested functions, qualifications and responsibilities for a Director of Safety position (Blattner, 2000).

The Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAT 99-19 and HBAW 99-19, addressed and defined the Director of Safety position through three main categories; functions, qualifications (training, experience, expertise, and knowledge), and responsibilities (Federal Aviation Administration, 1999). This background documentation on a Director of Safety position has laid the foundation for the formation of the nature of the problem.

#### Nature of the Problem

The nature of the problem is based on the previously mentioned Title 14 CFR Part 119.65, which called out five management positions that must be in place for an air carrier to operate under Title 14 CFR Part 121. These positions are as follows: Director of Safety, Director of Operations, Chief Pilot, Director of Maintenance, and Chief Inspector, (Federal Aviation Administration, 1999).

The initial problem as stated earlier in this chapter was that Part 119.67 defined the job requirements for all the above management positions except for a Director of Safety and as the NTSB stated, the air carriers that had filled a Director of Safety position

showed little standardization in the Director of Safety position's functions, qualifications and responsibilities (Blattner, 2000).

So, the FAA in conjunction with the NTSB and industry, published The Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAT 99-19 and HBAW 99-19, which was designed to give guidelines on the Director of Safety position, functions, qualification, and responsibilities to FAA Principal Inspector's and Title 14 CFR Part 121 and 135 air carrier operators, (Federal Aviation Administration, 1999).

The nature of the problem for this study is based on the following statements: first, the Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAT 99-19 and HBAW 99-19, was not binding by regulation and was designed as recommended guidelines only, second, concerned by the NTSB over the variability of the Director of Safety's functions, qualifications and responsibilities, for Director of Safety positions currently in place, and third, recent journal publications which addressed variances in the individuals currently holding the Director of Safety positions (Blattner, 2000; Miller, 1996). The above issues and concerns were utilized to form the statement of the problem.

#### Statement of the Problem

Utilizing the information derived in the nature of the problem, the statement of the problem was formulated to identify and describe the current similarities and differences

in functions, qualifications and responsibilities of a Director of Safety position as required by Title 14 CFR Part 119.65 for domestic and flag air carriers.

### Purpose of the Study

The purpose of the study was to assess, at a particular point in time, the current functions, qualifications, and responsibilities for subject Director of Safety positions. To do this, the study utilized an established job description survey referred to as the Professional Managerial Position Questionnaire (PMPQ) to establish the current similarities and differences between Director of Safety positions. The PMPQ showed similarities and differences in the following ten PMPQ categories: 1) Personal Job Requirements, 2) Planning/Decision Making, 3) Complex Analysis, 4) Technical Activities, 5) Processing of Information/Ideas, 6) Relevant Experience, 7) Interpersonal Activities, 8) Special Training, 9) Communication/Instruction, and 10) Language/Concept Interpretation (McPhail, Mitchell, Jeanneret, Mechum, 2000). Utilization of this established job description survey set a baseline for a Director of Safety position on which further research and job descriptions can be based. The PMPQ categories from the individual surveys are presented in numeric and graphic formats to show the similarities or differences from the individually surveyed Director of Safety positions.

### Limitations of the Study

This study has been developed to collect data on the status of individuals currently holding a Director of Safety position for United States air carriers as required by Title 14

CFR Part 119.65. The study is limited to those air carriers who were listed in the “A1” category of the World Aviation Directory (Winter 2000). The World Aviation Directory defined their “A1” category as “airlines providing scheduled passenger and cargo service that are designated flag (international) carriers.”

The material presented here was of a narrow focus and was limited to the PMPQ items. The PMPQ as stated by McPhail, Mitchell, Jeanneret, Mechum, (1990), is a “structured job analysis questionnaire for professional, managerial, and related positions such as those held by executives, supervisors, engineers, technicians, teachers, and other professionals.”

The number of Director of Safety positions that elected to respond to the PMPQ will limit this study, and their responses may not have reflect the entire population of Director of Safety positions for major and national air carriers.

### Assumptions

The following assumptions were conceded during the research conducted for this study:

1. The surveyed Directors of Safety were honest and complete in their responses.
2. The questionnaire covered the necessary topics.
3. The questionnaire was properly worded for easy understanding by the Directors of Safety.
4. The persons who filled out the questionnaire accurately represented the nature of a Director of Safety position.

5. The effects the length of the survey may have had on the response rate.

### Definitions

In order to understand the terms used in this study, the following acronyms are provided:

AC	Advisory Circular
ALPA	Air Line Pilots Association
A&P	Airframe and Powerplant Mechanic
ATP	Airline Transport Pilot
CFR	Code of Federal Regulations
CSO	Chief Safety Officer
DOS	Director of Safety
DOT	Department of Transportation
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FPMR	Federal Property Management Regulations
HBAT	Handbook Bulletin for Air Transportation
HBAW	Handbook Bulletin for Airworthiness
NPRM	Notice for Proposed Rule Making
NTSB	National Transportation Safety Board
PAQ	Position Analysis Questionnaire
PI	Principal Inspector

PMI	Principal Maintenance Inspector
PMPQ	Professional and Managerial Position Questionnaire
POI	Principal Operations Inspector
TSI	Transportation Safety Institute



## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

This chapter included a review of selected sources of information giving an overview and history of a Director of Safety position as required by Title 14 CFR Part 119.65. The review of these selected sources are presented as background and to give the reader a foundation on which to have the appropriate insight into the problem of the study and its analysis.

#### Review of Related Literature

The history of aviation safety and management positions was addressed by Wells (1997). He related:

Effective accident prevention can be linked inalterably to effective airline management. This precept is found in the earliest safety textbooks developed in the industrial safety field. It also can be found in the attitudes and practices of some airlines as early as the late 1930s.

Some of the earliest teachings in accident investigation at the University of Southern California in the 1950s concentrated on man, machine, and environmental factors, with some discussion of safety programs. The next decade saw the initial development of what was called “Advanced Safety Management” and “Command”

courses, first from the U.S. Air Force, then the U.S. Navy, and later adopted by all U. S. military services. These courses were significant because they were comprised of higher-ranking officers than those safety officers who implemented safety programs at the working level. These ranking officers then had access to very senior commanding officers. These new safety programs were also significant because they forced those who taught the courses to approach accident prevention more from management's point of view (Wells, 1997).

In the previous description of management's role of accident prevention or investigation notwithstanding, Wells (1997) asked why haven't we seen more formal recognition of safety and accident-prevention management in the airlines until recently? It has been suggested that perhaps not enough airline executives have had the benefit of command or advanced safety-management training. Until the early 1990s, following several USAir crashes and, particularly, the Valuejet crash in the Everglades, only about 50 percent of U.S. airlines had identifiable safety departments (Wells, 1997).

This emerging role of management in aviation safety was further addressed by Weiner, Nagel (1988), who stated,

Traditional man-machine-medium (environment) factors for either accident causation or prevention in a framework of system safety principles identified in the very definition of the term, namely, the influence of the mission and the overall role of management in system safety.

These early references of management being recognized as an integral part aviation safety programs were certainly the beginning building blocks for the Director of Safety position, but still individuals charged with monitoring aviation safety found themselves spending about a third of our time encouraging people to be safe, another

third wandering around with a clipboard trying to catch them not being safe, and the other third investigating accidents. Eventually, they realized safety was very much a function of management (Wood, 1997).

Further confirming management's inclusive role with the responsibility for aviation safety, Ferry (1988) stated:

In the investigation of any mishap, there can always be found some degree of management involvement or activity that might in some way have prevented the mishap. Therefore, it is arbitrarily assumed that management will be responsible for the causes of every mishap, and the existence of every hazard.

Wood (1997) concurred by stating, "current thinking holds that accidents are indications of a failure somewhere in the management system."

Management and safety are not just an aviation issue as addressed by Grimaldi and Simonds (1989) who stated:

Safety management is differentiated from simply the efficient conduct of safety programs. Programming for safety entails a variety of considerations and details that indeed require an orderly and informed approach to their fulfillment. However, even when carried out conscientiously, normal safety programs may not produce the wanted results. The application of persuasive means such as are found in the practice of competent management is frequently lacking. Persuasiveness is essential for achieving objectives when the concerted participation of others is required, as indeed is the case where safety is sought. The safety person, whether called safety engineer, safety specialist, or safety director, and so on, is merely management's representative. The chief operating executive is responsible for the safety conduct of the organization. The safety specialist (or the department) only develops the information needed, as a staff member or advisor, which enables the line to exercise its authority effectively on behalf of safety. In other words, executives and managers will be causal or efficient in their attitudes toward safety, according to the posture exhibited by their superior executives, who in turn are influenced by the information at hand about safety.

Wood (1997) concurred with Grimaldi and Simonds (1989) reasoning:

If you agree that accident prevention requires change, and then you must agree that the key player is not the aviation safety manager. It is some other manager

with the power and authority to direct change. This is absolutely true and it puts the burden of accident prevention right where it belongs; in the line manager's office; not the safety office. Once we get by that hurdle, it is easy to see that safety programs can be managed just like any other program. Basic management principles work just fine.

Special care must be taken in implementing any new program to avoid disrupting traditional line and staff, balance within the organization. This issue is frequently misunderstood when new safety programs are being implemented. Any sizable company will have people who function as decision-makers and others who serve in an advisory role. Unfortunately, because the tasks of decision-makers and advisors frequently overlap, an incorrect assumption can arise when a safety office appears. The tendency is for groups to assume that the new office is now "responsible" for safety. One thing remains essential at every level of organizational complexity; the vital, personal participation of the top management, whether a CEO of a mega billion-dollar corporation or the chief pilot/general manager of a small Title 14CFR Part 135 operation. Without top management's personal knowledge of modern air safety methods (including system-safety concepts), the program will flounder at best (Miller, 1996).

In summary, the review of the related literature has shown that safety, and more specifically aviation safety, has always been directly affected by management's role, and it has only been in the last decade that many companies have recognized this fact. The above literature suggests a call-to-arms for executives and management of air carriers to give safety and the associated programs full support and to assure the appointment of a Director of Safety. This review has also established the foundation for possible variances in functions, qualifications, and responsibilities for future Director of Safety positions.

## Literature Establishing the Problem

The literature establishing the problem began with the regulatory history and evolution of a Director of Safety. The first inklings referring to the creation of a Director of Safety were found in a recommendation from the NTSB who said the CFR's should be amended by the FAA so a qualified individual was delegated to each commuter air carrier (Title 14 CFR Part 135) to act in the capacity of safety officer and to monitor all safety aspects of the overall flight and maintenance operations. The FAA said current management requirements for Title 14 CFR Part 135 precluded the need for a safety officer (Blattner, 2000).

In 1990, the NTSB submitted a safety recommendation to initiate a joint airline industry task force to develop the structure, functions and responsibilities of airline flight safety programs, leaning toward advisory and regulatory provisions for such programs at all Title 14 CFR Part 121 airlines. The FAA agreed with this NTSB safety recommendation (Blattner, 2000).

Then in 1992, Advisory Circular (AC) 120-59 *Air Carrier Voluntary Disclosure Program* was issued, outlining voluntary means for airlines operating under Title 14 CFR Part 121 and Part 135 to monitor the safety and regulatory compliance of their operations on a continual basis through a process of internal audits and inspections. In developing the program, the FAA encouraged air carriers to establish an independent evaluation process that reports directly to senior management, to conduct internal surveillance on a regularly scheduled basis and to share the findings of the internal evaluation with FAA

Principal Inspectors. The NTSB did not think this circular went far enough. (Blattner, 2000; U. S. Department of Transportation, 2000).

The NTSB then issued a recommendation regarding commuter airline safety. The NTSB said that although AC 120-59 recommended that internal evaluation programs include an independent safety function with direct access to the highest level of management, no such function was required. The NTSB said, “a mandatory airline safety program would greatly enhance a commuter air carrier’s ability to identify and correct safety problems before they lead to an accident” (Blattner, 2000).

Then in March 1996, the NTSB was told that the FAA had published the commuter rule to bring scheduled passenger operations in airplanes of 10 or more passenger seats and all turbojets under the requirements of Title 14 CFR Part 121. The final rule amended Title 14 CFR Part 119.65 to require Title 14 CFR Part 121 certificate holders to have a full-time safety-officer position (Blattner, 2000).

In July of 1996, the NTSB said, although the commuter rule, requires Title 14 CFR Part 121 air carriers to staff a full-time Director of Safety position, the FAA did not mandate the establishment of a comprehensive, effective safety function. The NTSB believed the FAA should ensure the effectiveness of an air carrier safety program not only by establishing the requirement for a Director of Safety position, but also by establishing safety-department-management qualifications, independence and functions. The NTSB’s recent experience has been that most air carriers have filled the Director of Safety position, but there is wide variability in this position’s functions and responsibilities. While the NTSB appreciates the FAA’s establishment of the Director of

Safety as a required management position, the NTSB requests that the FAA reconsider additional regulatory action on the form, structure and function of an air carrier safety department (Blattner, 2000).

Then in December 1996, the FAA said it reviewed its position with respect to this issue and has decided additional regulatory action is not the best approach at this time. Variances in the size, scope, complexity and type of air carrier operations define the corresponding safety function. The FAA said it was satisfied with industry's response to incorporating a safety officer function in response to the Aviation Safety Summit recommendations. The FAA also stated it was currently working with industry to evaluate best practices, as well as safety officer and department functions and design, and plans on issuing guidance material, which defines the roll and responsibilities of the safety officer and the safety department (Blattner, 2000).

In March 1998, the FAA agreed additional guidance material is warranted to define the role and responsibilities of a safety officer and the safety department, but believed this can best be accomplished in an Advisory Circular. The FAA worked with the National Air Carrier Association, the Air Transportation Association, the Air Transportation Association of America, and the Regional Airline Association to evaluate best practices related to a safety officer and the functions of the safety department. The work also included a review of the position description and actual qualifications of current directors of safety at member airlines of these organizations (Blattner, 2000).

Then in August 1999, the FAA worked with the National Air Carrier Association, the Air Transportation Association, the Air Transportation Association of America and

the Regional Airline Association to evaluate best practices related to a safety officer and the functions of the safety department. While these groups agreed that it is important to designate a safety officer, they did not believe that the FAA should specify exact duties and responsibilities for this position. The FAA was continued to develop guidance material concerning the qualifications, duties and responsibilities of the safety officer. The FAA did decide to publish this guidance material in the form of a handbook bulletin to Principal Operations Inspectors for dissemination to the carriers (Blattner, 2000).

And then, in December 1999, the FAA issued Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAAT 99-19 and HBAW 99-19, *14 CFR Part 121 and 135 Air Carrier Safety Departments, Programs and the Director of Safety*. The bulletin provided guidance for Principal Inspectors and Title 14 CFR Parts 121 and 135 air carriers for the development of a comprehensive safety department. The bulletin also provided guidance on the suggested functions, qualifications and responsibilities for the Director of Safety position (Blattner, 2000).

With the regulatory history and evolution of the Director of Safety position having been reviewed, the author then focused more closely on the regulations directly related to this study and the statement of the problem.

The first regulation, Title 14 CFR Part 119.65, Code of Federal regulations, (1996), which cited the requirements for the Director of Safety and stated:

Management personnel required for operations conducted under Title 14 CFR Part 121 of this chapter and is as follows: Each certificate holder must have sufficient qualified management and technical personnel to ensure the highest degree of safety in its operations. The certificate holder must have qualified personnel serving full-time in the following or



equivalent positions: (1) Director of Safety. (2) Director of Operations. (3) Chief Pilot. (4) Director of Maintenance. (5) Chief Inspector.

In reference to the five job descriptions, Title 14 CFR 119.65, Code of Federal regulations (1996), further stated:

The individuals who serve in the positions required or anyone in a position to exercise control over operations conducted under the operating certificate must (1) Be qualified through training, experience, and expertise, (2) To the extent of their responsibilities, have a full understanding of the following materials with respect to the certificate holder's operation, aviation safety standards and safe operating practices; Title 14 CFR Chapter I (Federal Aviation Regulations), the certificate holders operations specifications, all appropriate maintenance and airworthiness requirements of this chapter.

The second, regulation Title 14 CFR Part 119.67, Code of Federal regulations, (1996), which called out the qualifications for four of the five management positions cited in Title 14 CFR Part 119.65. These qualifications have been abbreviated from the original regulation and do not include the requirements for being newly hired into the job, or requirements for individuals with past experience. These required positions were stated as follows:

1. For one to serve as "Director of Operations" under Part 119.65 a person must hold an airline transport certificate, have at least three years of supervisory or managerial experience within the last six years, which was in a position that exercised operational control over any operations conducted with large airplanes under part 121 or part 135.
2. For one to serve as "Chief Pilot" under Part 119.65 a person must hold an airline transport pilot certificate with appropriate ratings for at least one of the airplanes used in the certificate holder's operation.

3. For one to serve as “Director of Maintenance” under Part 119.65 a person must hold a mechanic certificate with airframe and powerplant ratings, have one year experience in a position responsible for returning airplanes to service, have at least one year experience in a supervisory capacity in the same category and class of airplane as the certificate holder uses, and have three years experience within the past six years in maintaining large airplanes with ten or more passenger seats, including at the time of appointment as Director of Maintenance, experience in maintaining the same category and class of airplane as the certificate holder uses.
4. For one to serve as “Chief Inspector” under Part 119.65 a person must hold a mechanic certificate with both airframe and powerplant ratings, and have held these ratings for at least three years, have at least three years of maintenance experience on different types of large airplanes with ten or more passenger seats with an air carrier or certificated repair station, one year of which must have been as maintenance inspector; and have at least one year experience in a supervisory capacity maintaining the same category and class aircraft as the certificate holder uses.

In summary, in Title 14 CFR Part 119.65 and 119.67, it was clear the regulations required a Director of Safety position for air carriers operating under Title 14 CFR Part 121. Also as stated in Title 14 CFR Part 119.67, no defined job requirements for the Director of Safety position were addressed. But as was revealed in the history of a Director of Safety, government and industry collaborated to produce “The Joint Flight

Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAT 99-19 and HBAW 99-19” to assist in defining the Director of Safety’s role.

The “Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness (HBAT) 99-19 and HBAW 99-19” is as follows: The purpose of this bulletin was to provide a guidance for FAA Principal Inspectors and Title 14 CFR Part 121 and 135 air carriers for the development of a comprehensive and effective safety department. Also, guidance is provided on the suggested functions, qualifications, and responsibilities of a Director of Safety position (Federal Aviation Administration, 1999). Since the focus of this paper was on a Director of Safety position the author will only address that section specifically.

The recommended “Functions” of a Director of Safety (Federal Aviation Administration, 1999) were as follows:

- (1) The Director of Safety is to develop and implement a comprehensive safety program. This safety program would include a safety structure and staff that is appropriate to the size of the operator, the kind and scope of operations, and the type and number of aircraft used in its operations. In all cases, it is important for the safety program to emphasize operational safety, including all aspects of flight and ground operations, maintenance programs and passenger safety.
- (2) The Director of Safety should ensure that the necessary safety program elements have been developed, properly integrated, and coordinated throughout the air carrier. These elements include: a safety incident/accident reporting system, accident/incident investigation, safety audits and inspections, internal evaluation program, operational risk assessment program, open reporting systems, routine monitoring and trend analysis programs, review of external evaluation programs, safety committee(s).
- (3) The Director of Safety should ensure that the safety program has been disseminated to all appropriate personnel and a detailed description of the safety program is incorporated in the appropriate manuals.
- (4) The Director of Safety should ensure that adequate safety program management is maintained.
- (5) The Director of Safety should to the greatest extent possible be autonomous and separate from other departments and report directly to the chief executive.
- (6) The

Director of Safety should have direct access to the appropriate level of senior management and to all managers/supervisors on safety issues.

(7) The Director of Safety should provide safety concerns and findings to appropriate senior operations managers for appropriate corrective actions.

(8) The Director of Safety should be a primary participant in the development of an internal evaluation program and the resultant safety audit procedures. (9) For Part 121 operations and requirements, the Director of Safety position was established as a full time position responsible for keeping the highest management officials of the certificate holder fully informed about flight, maintenance, and ground safety practices, procedures, and programs of the certificate holder's entire operation. (10) Although Part 135 does not establish a requirement for a Director of Safety position, these operators are still encouraged to designate a company management official or manager to monitor and evaluate flight, maintenance, and ground safety practices, procedures, and programs.

The recommended "Qualifications" of a Director of Safety (Federal Aviation Administration, 1999) were as follows:

(1) Training, it was highly desirable that the Director of Safety completes an aviation safety education program consistent with the position's responsibilities. If an individual has not completed such a program prior to appointment, the Director of Safety should attend one to supplement his/her experience. Participation in industry safety meetings, conferences or schools is considered an essential part of the continuing education of the Director of Safety. Training should also include such subject areas as, corporate safety culture, the role of the safety director as advisor to senior management officials, safety philosophy, safety data collection and analysis programs, risk management, incident/accident prevention and investigation, human factors. (2) Experience, the person assigned as the Director of Safety should have extensive operational experience and professional qualifications in aviation. This would include the knowledge and understanding of the following, aviation safety programs, aviation safety standards, and safe aviation operating practices. (3) Expertise, the person assigned as the Director of Safety should have established professional qualifications. These qualifications may be any of the following: an FAA commercial pilot or airline transport pilot certificate, an FAA mechanics certificate, an FAA aircraft dispatcher certificate, three years experience in a supervisory position with a part 121 or a scheduled part 135 air carrier, three years experience in a position comparable to U.S. military aviation operations, three years experience in a supervisory position with a U.S. Government department, board, or agency that deals

directly with aviation matters. (4) Knowledge, the person assigned as the Director of Safety should have a full understanding of the following materials with respect to the certificate holder's operation, the certificate holder's operations specifications.

The recommended "Responsibilities" of a Director of Safety (Federal Aviation Administration, 1999) may include, but not be limited to, the following:

Monitor and report to senior management on all air carrier activities that may have an impact on safety, establish a reporting system, which provides for a timely and free flow of safety-related information, develop and maintain a database of incident/accident information to monitor and analyze trends, monitor and evaluate the various safety and malfunction reporting systems to ensure appropriate integration and evaluation of data, investigate and report on incidents/accidents and make recommendations to preclude a recurrence, conduct safety audits and inspections, solicit and process safety improvement suggestions, develop and maintain a safety awareness program, review and evaluate the adequacy of the emergency response plan, monitor industry safety concerns that may have an impact on operations, maintain close liaison with the FAA, NTSB and industry safety organizations and associations, discharge their duties to meet applicable legal requirements and to maintain safe operations in accordance with section 119.65.

Other agencies have also adopted similar recommendations as stated in Title 14 CFR Part 119.67, to their operations, as a result of the HBAAT 99-19 and HBAW 9919. The Transportation Safety Institute's, Air Safety Officer Training Manual (1999), addressed the Federal Property Management Regulations (FPMR) Part 1203 Aviation Safety Manager Qualifications, which states:

These positions may be full or part time, the manager should; (1) be knowledgeable in agency aviation program activities, (2) have experience as a pilot, crew member, or in aviation operations management, (3) be a graduate of a recognized aviation safety officer or accident prevention course, or qualified within 1 year through attendance at formal courses of instruction, (4) these standards should be used as a guide, they do not supersede those job classifications prescribed by the Office of Personnel Management.

The FPMR Part 1204, Air Safety Officer Training Manual (1999), also addresses the Program Responsibilities by stating:

Agencies will ensure that policies, objectives, and standards are established and clearly defined to support an effective aviation accident prevention effort. And finally, the FPMR Part 1205 addresses the Program elements, by stating; aviation safety program elements should include; (1) aviation safety council, (2) inspections and evaluations, (3) hazard reporting, (4) aircraft accident and incident investigation, (5) education and training, (6) aviation protective equipment, (7) aviation qualification and certification, and, (8) awards program.

So far, the review of literature establishing the problem has shown the regulatory history and evolution of the Director of Safety position. It has documented the concerns from government to industry on the need for regulation and the resulting amendments to those regulations requiring a Director of Safety position. It also addressed the concerns on variances of functions, qualifications, and requirements for individuals who would hold the Director of Safety position.

Although the review of literature establishing the problem has shown that there has been great progress made in the last few years to implement and define the Director of Safety position, there are several references, which address continued variances in functions, qualifications, and requirements for individuals who hold the Director of Safety position. The following supports this issue.

The Air Line Pilots Association (ALPA) staff designed a survey and sent it to the 48 airlines ALPA then represented. The survey was primarily directed at assessing what response the airlines had made to the FAA's safety director mandate. Among other things, the survey looked at the experience and qualifications of those selected for this post. The survey findings illuminate gray areas in current Director of Safety positions and

outline each airline's aviation safety environment. One major carrier said, "The Director of Safety holds an FAA airman certification of some type and has extensive aviation background. He has participated in a variety of industry safety forums." A second major airline reported, "The Director of Safety is a qualified line pilot, but does not maintain currency on any equipment type. No other qualifications were reported." And a third major airline said, "The Director of Safety is a line captain and A&P mechanic with no other identified training or experience." ALPA said their survey showed a lack of direction, some airlines have the spirit, while others are just mimicking the effort. The only way to have effective safety departments is through standardization, which has always been the method of achieving a safe and efficient operating environment in aviation (Blattner, 1999).

The CFR's mandate no specific minimum requirement for what type of qualifications a Director of Safety must have. This lack of definition has opened the door to a wide variety of qualifications for those the airlines appointed or hired for this sensitive and necessary position. The airlines' compliance with Title 14 CFR Part 119.65 has ranged from fully integrating a safety program to making no response at all. Some airlines hired a Director of Safety who had extensive operational knowledge while others employed one who had no previous airline experience. The FAA's lack of definition for the position has greatly diluted a positive effort to enhance aviation safety (Blattner, 1999).

## Summary

In summary, the review of literature has shown the historical evolution of the Director of Safety position in the private sector as well as the government or regulatory sector. The review has also shown that aviation safety is inevitably the responsibility of management. The literature establishing the problem for this study showed the regulatory call for a Director of Safety; however, the literature did not address the experience and requirements for the position. This lack of job description set the foundation for the title of this paper, “An Identification and Description of the Director of Safety Position that is required by Title 14 CFR Part 119.65 for Domestic and Flag Carriers.”

The literature review established the problem and also included the release of the Federal Aviation Administration document, “Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness HBAAT 99-19 and HBAW 99-19,” which does address recommended experience and requirements for the Director of Safety position. However, this document is not included in Title 14 Code of Federal Regulations.

And finally, there were several articles written in the last two years expressing concern in the variability of the individuals currently holding the Director of Safety position. Because of these articles that the basis for the research question was established: “To identify and describe the current similarities and differences in functions and responsibilities of the Director of Safety position that is required by Title 14 CFR Part 119.65 for domestic and flag air carriers.”



## CHAPTER III

### METHODOLOGY

#### Statement of the Problem

As stated in the review of literature, the Title 14 CFR Part 119.65 calls for five positions to be in place for an air carrier to operate under Title 14 CFR Part 121. These positions are as follows: Director of Safety, Director of Operations, Chief Pilot, Director of Maintenance, and Chief Inspector. Under Title 14 CFR Part 119.67, the requirements for all the positions are specifically defined except for the Director of Safety (Code of Federal Regulations, 1996).

The position of Director of Safety has been required by regulation since March 1996 to be in place for domestic and flag air carriers. Since then there has only been one document published to help define the position. This document was released through an FAA Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness (HBAT) 99-19 and HBAW 99-19, which outlines safety functions, qualifications, and responsibilities for the subject position. This bulletin is designed to provide guidance for FAA Principal Inspectors for the development of a comprehensive and effective safety department for the air carriers (Federal Aviation Administration, 1999). According to the publishing office FAA AFS-300, (personal communication, March 5, 2001) the document

(HBAT 99-19) was constructed in part, from interviews with Principal Maintenance Inspector's (PMI) who oversee air carrier operations.

There are, however several references: which address continued variances in functions, qualifications, and requirements for individuals who hold the Director of Safety position. The above references address concerns not only from industry, but also continued concerns from government (Blattner, 1999; Blattner, 2000). For this reasons this study addresses the question, what are the current similarities and differences in functions and responsibilities for the Director of Safety position required by Title 14 CFR Part 119.65 for domestic and flag air carriers?

### Subjects

The purpose of this study was to identify and describe the current similarities and differences in functions and responsibilities of the Director of Safety position for domestic air carriers. The first information gathered was a current list of domestic air carriers. The list of air carriers was obtained from the World Aviation Directory (Winter 2000). The World Aviation Directory listed 29 air carriers in their "Section A1" category, which represented the population for the study. The World Aviation Directory, (2000) defined their "A1" category as "airlines providing scheduled passenger and cargo service that are designated flag (international) carriers."

The next information-gathering task determined what individual at each identified air carrier held the position of Director of Safety or who was responsible for that position under Title 14 CFR Part 119.65.

The author then established a pre-survey relationship by telephone with the intent of improving response rate. Information was then gathered by telephoning each air carrier and inquiring who was responsible for the required Director of Safety position. Once identified, a telephone meeting date and time were set up. The telephone meeting with each Director of Safety interviewee covered the following items: 1) Introduced the researcher and the reasons for the call, 2) Explained the questionnaire to be completed and the restrictions set forth by the Oklahoma State University Internal Review Board [IRB], 3) Addressed any concerns the interviewee may have, and 4) Established logistics for mailing, completing, and returning the questionnaire.

### Instruments

The primary operational task was centered on selecting the proper instrument to glean the information required from the acting Director of Safety of the identified air carriers. Since the focus of this research was to establish an identification and description by analyzing current similarities and differences in functions and responsibilities of the Director of Safety, a job description analysis standard was chosen, the Professional and Managerial Position Questionnaire (PMPQ). This is one of several available job analysis tools, for gathering information on job content and/or worker characteristics that are common to jobs across a wide spectrum. It describes how the incumbent does his or her job, the behaviors required for the job, and activities performed (Pynes, 1997).

The PMPQ established a job description for the Director of Safety position in standardized terms. The PMPQ, as opposed to the widely used Position Analysis

Questionnaire (PAQ), focuses more on the analysis of management and professional positions rather than more definable work processes (McPhail et al., 1990).

The PMPQ, as stated by McPhail et al. (1990), is

A structured job analysis questionnaire for professional, managerial, and related positions such as those held by executives, supervisors, engineers, technicians, teachers, and other professionals. It consists of 108 items. Ninety-eight of these items are organized into the following three broad areas. 1) Job Functions: planning and scheduling, processing of information and ideas, exercising judgment, communication, interpersonal activities and relationships, and technical activities. 2) Personal Requirements: education, training, and experience. 3) Other Information: number of personnel supervised, amount of monitoring, and dollar amount of resources managed.

This paper, utilized the PMPQ research instrument, to assess information about activities, contacts, scope, decision-making context, competencies, and reporting relationships of managerial positions (Gael, 1988). In doing so, the PMPQ produced analysis of data through standard scores and percentiles, which were utilized to show similarities and differences between the surveyed sampled population.

The analysis of data was conducted by PAQ Services, Inc. The analysis included an inter-correlation matrix of standard score and percentile information for each incumbent (Director of Safety) in the ten PMPQ Dimension categories: 1) Personal Job Requirements, 2) Planning/Decision Making, 3) Complex Analysis, 4) Technical Activities, 5) Processing of Information/Ideas, 6) Relevant Experience, 7) Interpersonal Activities, 8) Special Training, 9) Communication/Instruction, 10) Language/Concept Interpretation (McPhail et al., 1990). These ten PMPQ Dimensions represent the research questions for this study.

The inter-correlation matrix is variation of factor analysis, which is a statistical method for the comparisons and relationships between numbers. Factor analysis as defined by Isaac and Michael (1995),

Is a technique for analyzing patterns of inter-correlation among many variables, isolating the dimensions to account for these patterns of correlation and, in a well-designed study, to allow inferences concerning the psychological nature of the construct represented by the dimension.

McPhail, Mitchell, Jeanneret, and Mechum (1998) further defines inter-correlation matrix as,

A inter-correlation matrix of all variables was developed, the matrix was submitted to a principal components analysis to identify the basic components or dimensions relevant to higher-level positions. A major advantage of principal components analysis is that it is not dependent on specific criteria such as salary.

Mechum (personal communication, February 13, 2001), in the following statement, further addresses the inter-correlation matrix process:

Since the instrument (PMPQ) is utilized for a diverse sampling of jobs; the responses to each of the "PMPQ Items" are correlated with responses to every other item. These PMPQ Items are then correlated and produce a correlation matrix. The matrix was then subjected to factor analysis, which identifies clusters of items that are correlated with each other, but not with other items. These factors were labeled on the basis of the content of the PMPQ Items that comprised the factor, and these factors are called job dimensions.

The scores and percentages produced by PAQ Services, Inc., for each of the surveyed incumbents are based on the master database at PAQ Services, Inc. (Mechum personal communication, February 13, 2001).

## Research Design

The research design utilized for this study was a Descriptive Research called “Self-Report” research. Self-Report research requires the collection of standardized, quantifiable information from all members of a population or sample. In other words, in order to obtain comparable data from all subjects, the same questions must be asked. The descriptive research involved collecting data in order to answer questions concerning the current status of the subject of the study. This descriptive study determined and reported the way things are. Descriptive data were collected through a questionnaire survey (Gay, 1996).

## Research Questions

The first research question was, “What are the similarities and differences in the Personal Job Requirements of the Director of Safety?” This question was based on the PMPQ Dimension “Personal Job Requirements” which was described by McPhail et al. (2000) as an “inter-correlation matrix.” The following items represented this matrix:

1. Required Personal Characteristics - Referred to the job requiring some special personal trait or characteristic on the part of the incumbent in order for him or her to perform the job adequately.
2. Adaptability Required - Referred to the job imposing a requirement to be able to change between roles, modes of operation, or styles of behavior frequently and rapidly to meet new requirements or challenges.

3. Complexity of Personal Characteristics - Referred to the breadth of personal characteristics and the need to be able to change roles or display different aspects of those characteristics from time to time.
4. Exercising Judgments - Involves evaluating the necessity for many managerial positions to judge the quality of actions or decisions proposed or taken by others.
5. Impact of Communicating - Referred to communication that is focused clearly on a job-relevant exchange of information.
6. Judgments Involving People - This addressed that the supervisory or managerial relationship is very salient for most jobs rated on the PMPQ, and much of the discussion regarding judgments involving people will reflect supervisory activities.
7. Processing of Information and Ideas - Referred to various kinds of information and idea processing, such activities may include counting, compiling, computing, classifying, categorizing, coding, interpreting, interpolating, analyzing, or synthesizing.
8. Representing and Negotiating - Referred to presenting oneself to others to represent the services, products, or point of view of a company, organization, country, or other special interest group.
9. Interpersonal Activities - Referred to six categories of interpersonal activities: supervising and directing, instructing, coordinating, interviewing, advising, and representing and negotiating. These

relationships should reflect job-related interactions and involve purposeful relationships with others as part of job accomplishment.

The above nine items define the PMPQ Dimension “Personal Job Requirements” inter-correlation matrix and the first research question.

The second research question was, “What are the similarities and differences in the Planning and Decision Making of the Director of Safety?” This question was based on the PMPQ Dimension “Planning and Decision Making” and was described by McPhail et al. (2000) as an “inter-correlation matrix.” The following items represented this matrix:

1. Planning and Scheduling - Referred to four specific planning and scheduling functions, including work scheduling, budgeting, operations planning, and future development planning.
2. Complexity of Operations Planning - referred to medium-range planning or scheduling, up to, but not exceeding one business cycle. It also includes the planning associated with the maintenance of on-going systems.
3. Complexity of Budgeting - Referred to the planning or estimating of future expenses, and also includes overseeing and maintaining existing budgets. The complexity is related to the amount of flexibility or change authority allowed to the incumbent.
4. Complexity of Planning for Future Development - Referred to longer-term planning, usually longer than two years. It most often deals with the development of new programs or facilities and strategic planning.



5. Complexity of Supervising and Directing - Referred to one taking into account not only the numbers of people whose activities are directed, but also the complexity of the tasks, which they are performing.
6. Total Number of Personnel - Referred to the official organizational structure reflects defined reporting relationships, usually refers to nonexempt personnel.
7. Complexity of Coordinating - Included both the number of people whose activities must be coordinated and the number of variables, or the complexity of the activities in which they are engaged.
8. Exercising Judgment - Involved evaluating the necessity for many managerial positions to judge the quality of actions or decisions proposed or taken by others.

The above eight items define the PMPQ Dimension “Planning and Decision Making” inter-correlation matrix and the second research question.

The third research question was, “What are the similarities and differences in the Complex Analysis of the Director of Safety?” This question was based on the PMPQ Dimension “Complex Analysis” and was described by McPhail et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Required Education - These are qualifications or requirements that may be expected or required of any person in order to perform the position adequately.

2. Complexity of Language in Written Communications – Involved such activities as creative writing, formal letters, proposals, plans, and policies. The emphasis is on the creation, not on the rote production of written materials. The complexity should reflect the actual language used.
3. Complexity of Interviewing - Which must be differentiated from simple oral communication. It refers to a conversation held for a specific purpose on a defined topic.
4. Complexity of Advising - Referred to activity, which does not include conveying common sense or general knowledge, nor is it a reflection of the provision of information only. Rather, it refers to expertise, usually of a professional and highly specific nature. The complexity is a function largely of the size, diversity, and degrees of freedom associated with the problem about which advice is being sought.
5. Analyzing and Synthesizing Information and Ideas - Referred to identifying problems, determining underlying principles or facts, interpreting the results of analyses, and combining, synthesizing, or integrating this analysis of information to establish new facts, hypotheses, or theories.
6. Number of Non-Supervisory Personnel Supervised - Referred to the official organizational structure, which reflects defined reporting relationships, usually refers to nonexempt personnel.

The above six items define the PMPQ Dimension “Complex Analysis” inter-correlation matrix and the third research question.

The fourth research question was, “What are the similarities and differences in the Technical Activities of the Director of Safety?” This question was based on the PMPQ Dimension “Technical Activities” and was described by McPhail et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Complexity of Using Equipment and Devices - This was somewhat self-explanatory, however, despite the growing availability of computers and other equipment in the work environment, it is in fact true that the use of equipment and devices is frequently inversely related to organizational level.
2. Technical Activities - This addressed that, more common than ever for jobs, including those in professional and managerial ranks, to require the use of technology involving equipment or technical procedures.
3. Using Procedures, Techniques, and Processes - This involved any activity where the use of equipment or devices is incidental to a verbal, mathematical, or other systematic approach to a problem or action.

The above three items define the PMPQ Dimension “Technical Activities” inter-correlation matrix and the fourth research question.

The fifth research question was, “What are the similarities and differences in the Processing of Information and Ideas of the Director of Safety?” This question was based on the PMPQ Dimension “Processing of Information and Ideas” and was described by

McPhail et al. (2000), as an “inter-correlation matrix.’ The following items represented this matrix:

1. Quantitative Processing of Information and Data, this refers to working with numbers, and especially with physical quantities and making calculations. They include measuring, estimating, and comparing numbers as part of the definition of quantitative activities.
2. Processing of Information and Ideas, this refers to various kinds of information and idea processing, such activities may include counting, compiling, computing, classifying, categorizing, coding, interpreting, interpolating, analyzing, or synthesizing.
3. Complexity of Quantitative Methods Used, this refers to activities that are performed with the involvement or use of a computer or calculator, but the emphasis of this item is on the understanding of the underlying quantitative operations.

The above three items define the PMPQ Dimension “Processing of Information and Ideas” inter-correlation matrix and the fifth research question.

The sixth research question was, “What are the similarities and differences in the Relevant Experience of the Director of Safety?” This question was based on the PMPQ Dimension “Relevant Experience” and was described by McPhail et al. (2000), as an “inter-correlation matrix.’ The following items represented this matrix:

1. Use of Experience - Referred to, as the amount of experience required by the job increases, the incumbent will be more likely to depend more heavily on that experience.
2. Required Relevant Experience - This should have reflected the time spent in previous related work experiences necessary to learn to make good judgments in the target position.
3. Complexity of Experience - This reflected the breadth and depth of experiential requirements.

The above three items define the PMPQ Dimension “Relevant Experience” inter-correlation matrix and the sixth research question.

The seventh research question was, “What are the similarities and differences in the Interpersonal Activities of the Director of Safety?” This question was based on the PMPQ Dimension “Interpersonal Activities” and was described by McPhail et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Interpersonal Activities - Which pertained to six categories of interpersonal activities: supervising and directing, instructing, coordinating, interviewing, advising, and representing and negotiating. These relationships should reflect job-related interactions and involve purposeful relationships with others as part of job accomplishment.
2. Complexity of Interpersonal Activities - This item covered the complexities of; supervising and directing, instructing, coordinating,

interviewing, advising, and representing and negotiating, which have been defined in this chapter under other headings.

3. Judgments Involving People - This referred to the fact that supervisory or managerial relationship is very salient for most jobs rated on the PMPQ, much of the discussion regarding judgments involving people will reflect supervisory activities.

The above three items define the PMPQ Dimension “Interpersonal Activities” inter-correlation matrix and the seventh research question.

The eighth research question was, “What are the similarities and differences in the Special Training of the Director of Safety?” This question was based on the PMPQ Dimension “Special Training” and was described by McPhail et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Use of Training - Reflected that which is needed to learn the job, excluding that of formal education.
2. Complexity of Training - This was rated in terms of breadth of topics covered and to the extent to which the training involves highly technical components.

The above two items define the PMPQ Dimension “Special Training” inter-correlation matrix and the eighth research question.

The ninth research question was, “What are the similarities and differences in the Communications and Instruction of the Director of Safety?” This question was based on the PMPQ Dimension “Communications and Instruction” and was described by McPhail

et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Communicating - This referred to that communication that is focused clearly on a job-relevant exchange of information.
2. Instructing - Referred to the delivery of information in the form of teaching, training, or instructing.
3. Written Communications - Which involved such activities as creative writing, formal letters, proposals, plans, and policies. The emphasis is on the creation, not on the rote production of written materials. The complexity should reflect the actual language used.
4. Interpersonal Activities - Which pertained to six categories of interpersonal activities: supervising and directing, instructing, coordinating, interviewing, advising, and representing and negotiating. These relationships should reflect job-related interactions and involve purposeful relationships with others as part of job accomplishment.

The above four items define the PMPQ Dimension “Communication and Instruction” inter-correlation matrix and the ninth research question.

The tenth research question was, “What are the similarities and differences in the Language and Concept Interpretation of the Director of Safety?” This question was based on the PMPQ Dimension “Language and Concept Interpretation” and was described by McPhail et al. (2000), as an “inter-correlation matrix.” The following items represented this matrix:

1. Complexity of Use of Other Language - This referred to when another language or possible more than one is required, these items serve to distinguish the unique requirements of the position.
2. Use of Other Language - Referred to the use of another language other than one's native tongue and must be required as part of the job.

The above two items define the PMPQ Dimension "Language and Concept Interpretation" inter-correlation matrix and the ninth research question.

These research questions satisfied the descriptive research question; "What are the current similarities and differences in functions and responsibilities for the Director of Safety position required by Title 14 CFR Part 119.65 for domestic and flag air carriers?"

The findings from the PMPQ questionnaire compiled a comprehensive description of the content of the job analyzed in standardized terms, which will permit it to be compared with other jobs. The summation of the data collected was then used to form a basis for conclusions.



## CHAPTER IV

### FINDINGS AND DISCUSSION

#### Introduction

The first three chapters of this study covered the introduction to the study, a review of related literature, and a discussion of the design of the study. The information in this chapter presented the findings generated through the completion of the Professional Managerial Position Questionnaire (PMPQ) by the incumbent Directors of Safety at the participating air carriers.

The findings from the PMPQ were computer generated by PAQ Services, Inc., and the results of the analysis were presented in “standard scores” and “percentiles” for each incumbent. These scores and percentiles for each incumbent represented the ten PMPQ Dimension categories; 1) Personal Job Requirements, 2) Planning/Decision Making, 3) Complex Analysis, 4) Technical Activities, 5) Processing of Information/Ideas, 6) Relevant Experience, 7) Interpersonal Activities, 8) Special Training, 9) Communication/Instruction, and 10) Language/Concept Interpretation (McPhail et al., 2000).

The PMPQ Dimension category scores, according to McPhail et al. (1990),

Were derived from an inter-correlation matrix statistical process that is reported in terms of standard scores with a mean of 0.0 and a standard

deviation of 1.0. The scores were also reported in terms of percentiles and a standard score of zero is at the 50<sup>th</sup> percentile. Negative scores will have values below the 50<sup>th</sup> percentile.

There were 29 PMPQ questionnaires mailed out, and of that 29, a total of eight were returned and completed, which represented our sample of 27.5 percent of the population. This sample percentage was low but was considered acceptable for surveys utilizing a mail service (Bourque, & Fielder, 1995; Turley, 1999).

According to Mechum (personal communication, March 14, 2001), the computer-generated data would be received in table form from PAQ Services, Inc. It showed how all the responding incumbents scored in standard scores and percentiles on the 10 PMPQ Dimensions categories as compared to PAQ Services, Inc. master database.

#### Statement of the Problem

The statement of the problem was to identify and describe the current similarities and differences in functions and responsibilities of the Director of Safety position required by Title 14 CFR Part 119.65 for domestic and flag air carriers. This was carried out through administering the PMPQ to a sample population of Directors of Safety, which allowed us to answer the previously addressed ten research questions.

#### Findings

The findings from the administered PMPQ showed differences and similarities between the surveyed incumbents (Directors of Safety). This data was compiled into a bar chart with all eight incumbents percentiles represented in graphic form for each PMPQ

Dimension. In presenting the data in such a manner, a numeric and visual representation was given which compared each incumbent with other incumbents on a particular PMPQ Dimension or research question topic.

### Research Questions

The first research question was, “What are the similarities and differences in the Personal Job Requirements of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Personal Job Requirements” as defined in Chapter III. In Figure 1, the responses to the first research question were represented in percentiles for each incumbent.

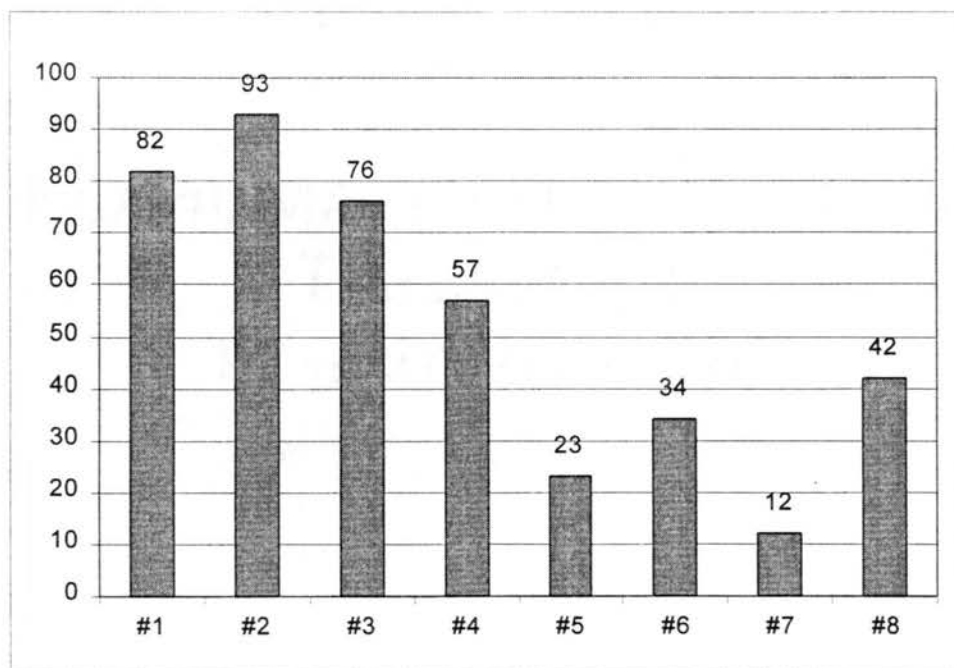


Figure 1. PMPQ Dimension “Personal Job Requirements” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 1, represented the PMPQ Dimension “Personal Job Requirements,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Personal Job Requirements.” Incumbent #1 had a standard score of .88, representing the 82<sup>nd</sup> percentile; incumbent #2 had a standard score of 1.46, representing the 93<sup>rd</sup> percentile; incumbent #3 had a standard score of .70, representing the 76<sup>th</sup> percentile; incumbent #4 had a standard score of .16, representing the 57<sup>th</sup> percentile; incumbent #5 had a standard score of -.80, representing the 23<sup>rd</sup> percentile; incumbent #6 had a standard score of -.47, representing the 34<sup>th</sup> percentile; incumbent #7 had a standard score of -1.27, representing the 12<sup>th</sup> percentile; and incumbent #8 had a standard score of -.25, representing the 42<sup>nd</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Personal Job Requirements, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed 25 percent of the incumbents scored in group #1 (0-25 percentile range), 25 percent of the incumbents scored in group #2 (26-50 percentile range), 12.5 percent of the incumbents scored in group #3 (51-75 percentile range), and 37.5 percent of the incumbents scored in group #4 (76-100 percentile range).

There was no majority represented in any of the four percentile range groupings, indicating different and varied responses by the incumbents to the items in the Personal Job Requirements dimension on the PMPQ.

The second research question was, “What are the similarities and differences in the Planning and Decision Making of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Planning and Decision Making” as defined in Chapter III. In Figure 2, the responses to the second research question were represented in percentiles for each incumbent.

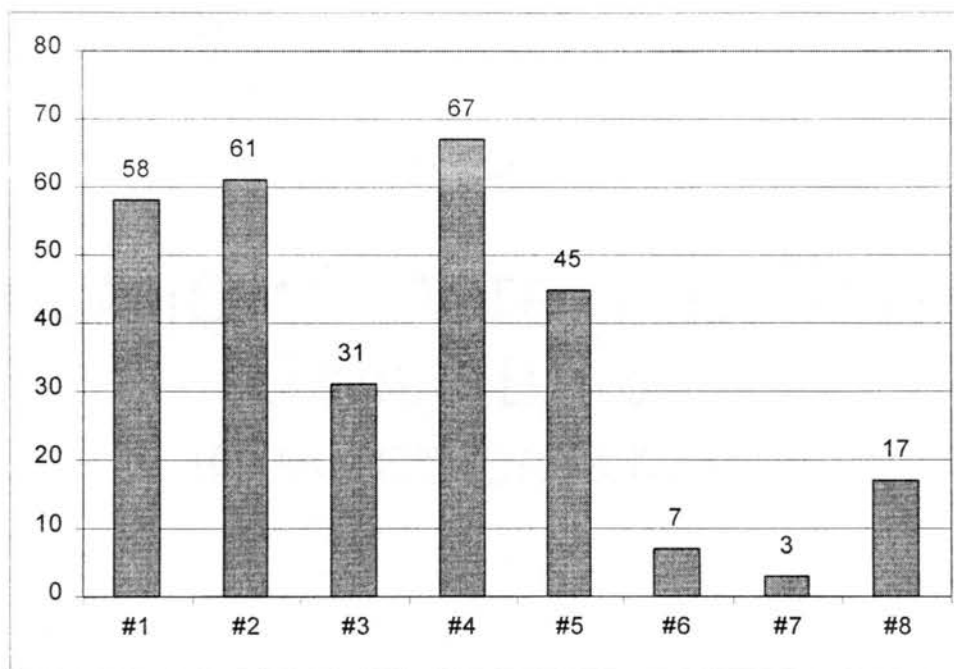


Figure 2. PMPQ Dimension “Planning and Decision Making” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 2, represented the PMPQ Dimension “Planning and Decision Making,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Planning and Decision Making.” Incumbent #1 had a standard score of .19, representing the 58<sup>th</sup> percentile; incumbent #2 had a standard score of .26, representing the 61<sup>st</sup> percentile; incumbent #3 had a standard score of -.55, representing the 31<sup>st</sup> percentile; incumbent #4 had a standard score of .42, representing the 67<sup>th</sup> percentile; incumbent #5 had a standard score of -.17, representing the 45<sup>th</sup> percentile; incumbent #6 had a standard score of -1.56, representing the 7<sup>th</sup> percentile; incumbent #7 had a standard score of -2.17, representing the 3<sup>rd</sup> percentile; and incumbent #8 had a standard score of -1.02, representing the 17<sup>th</sup> percentile.

The incumbent’s percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Planning and Decision Making, the incumbent’s percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed 37.5 percent of the incumbents scored in group #1 (0-25 percentile range), 25 percent of the incumbents scored in group #2 (26-50 percentile range), 37.5 percent of the incumbents scored in group #3 (51-75 percentile range), and zero percent of the incumbents scored in group #4 (76-100 percentile range).

There was no majority represented in any of the 4 percentile range groupings, indicating different and varied responses by the incumbents to the items in the Planning and Decision Making dimension on the PMPQ.

The third research question was, “What are the similarities and differences in the Complex Analysis of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Complex Analysis” as defined in Chapter III. In Figure 3, the responses to the third research question were represented in percentiles for each incumbent.

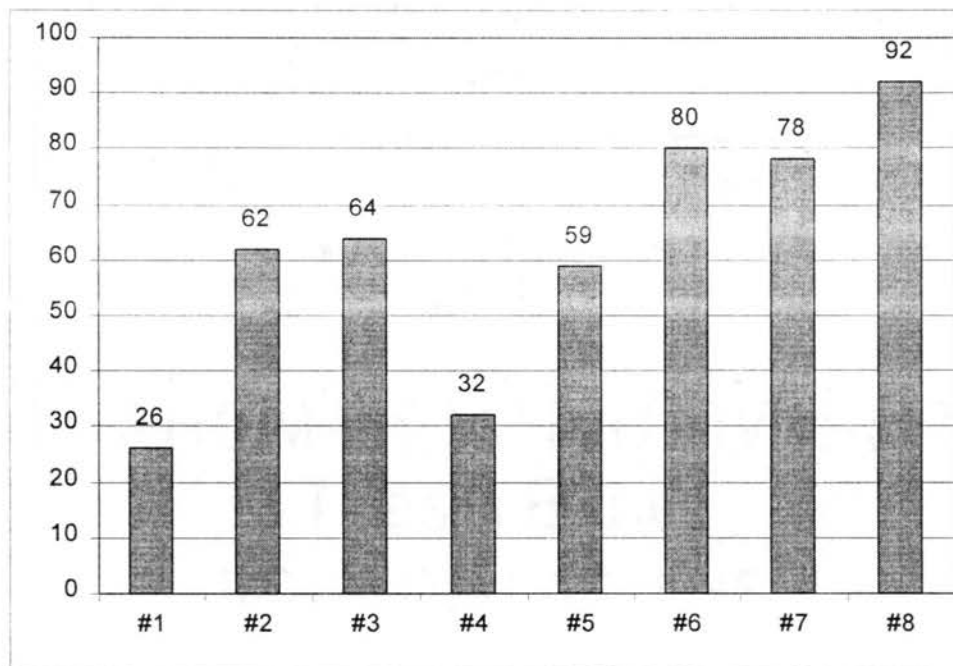


Figure 3. PMPQ Dimension “Complex Analysis” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 3, represented the PMPQ Dimension “Complex Analysis,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Complex Analysis.” Incumbent #1 had a standard score of -.69, representing the 26<sup>th</sup> percentile; incumbent #2 had a standard score of .30, representing the 62<sup>nd</sup> percentile; incumbent #3 had a standard score of .34, representing the 64<sup>th</sup> percentile; incumbent #4 had a standard score of -.50, representing the 32<sup>nd</sup> percentile; incumbent #5 had a standard score of .22, representing the 59<sup>th</sup> percentile; incumbent #6 had a standard score of .84, representing the 80<sup>th</sup> percentile; incumbent #7 had a standard score of .77, representing the 78<sup>th</sup> percentile; and incumbent #8 had a standard score of 1.35, representing the 92<sup>nd</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Complex Analysis, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 25 percent of the incumbents scored in group #2 (26-50 percentile range), 37.5 percent of the incumbents scored in group #3 (51-75 percentile range), and 37.5 percent of the incumbents scored in group #4 (76-100 percentile range).



There was no majority represented in any of the four percentile range groupings, indicating different and varied responses by the incumbents to the items in the Complex Analysis dimension on the PMPQ.

The fourth research question was, “What are the similarities and differences in the Technical Activities of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Technical Activities” as defined in Chapter III. In Figure 4, the responses to the fourth research question were represented in percentiles for each incumbent.

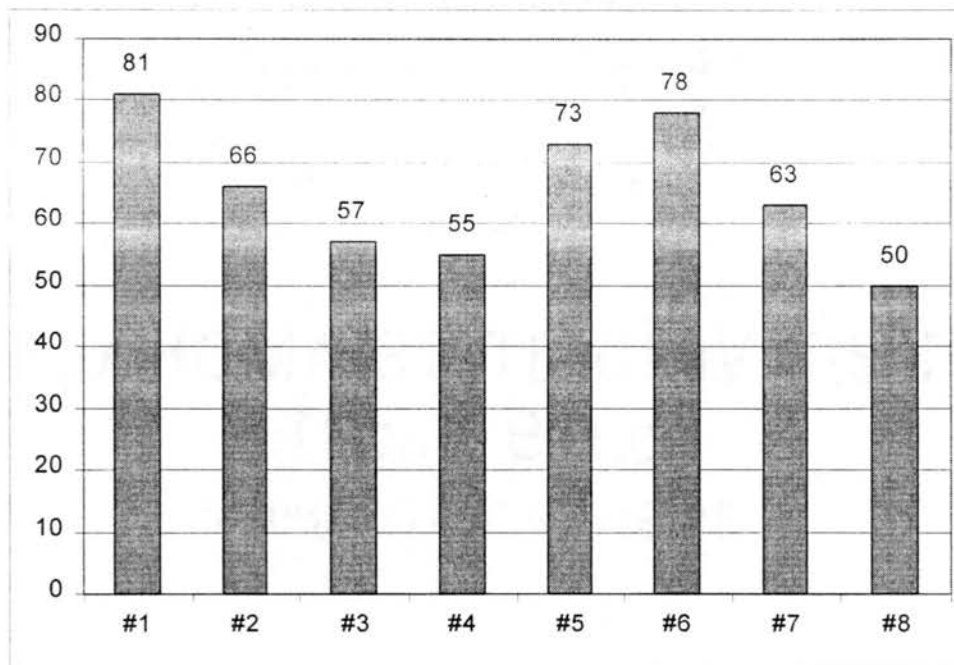


Figure 4. PMPQ Dimension “Technical Activities” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 4, represented the PMPQ Dimension “Technical Activities,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Technical Activities.” Incumbent #1 had a standard score of .87, representing the 81<sup>st</sup> percentile; incumbent #2 had a standard score of .40, representing the 66<sup>th</sup> percentile; incumbent #3 had a standard score of .17, representing the 57<sup>th</sup> percentile; incumbent #4 had a standard score of .12, representing the 55<sup>th</sup> percentile; incumbent #5 had a standard score of .59, representing the 73<sup>rd</sup> percentile; incumbent #6 had a standard score of .75, representing the 78<sup>th</sup> percentile; incumbent #7 had a standard score of .32, representing the 63<sup>rd</sup> percentile; and incumbent #8 had a standard score of -.03, representing the 50<sup>th</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Technical Activities, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 12.5 percent of the incumbents scored in group #2 (26-50 percentile range), 62.5 percent of the incumbents scored in group #3 (51-75 percentile range), and 25 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, and that was in the 51-75-percentile range, where 62.5 percent of the incumbents scored indicating similarities on the responded items in the Technical Activities dimension on the PMPQ. This indicates that 62.5 percent of the incumbents consider Technical activities important to their jobs.

The fifth research question was, “What are the similarities and differences in the Processing of Information and Ideas of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Processing of Information and Ideas” as defined in Chapter III. In Figure 5, the responses to the fifth research question were represented in percentiles for each incumbent.

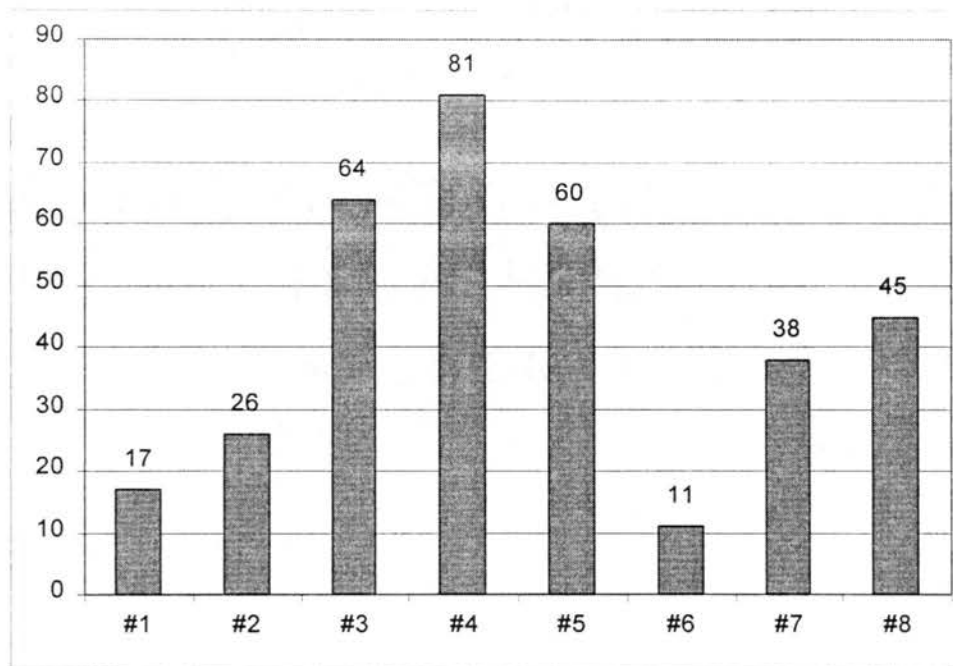


Figure 5. PMPQ Dimension “Processing of Information and Ideas”  
Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 5, represented the PMPQ Dimension “Processing of Information and Ideas,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Processing of Information and Ideas.” Incumbent #1 had a standard score of -1.01, representing the 17<sup>th</sup> percentile; incumbent #2 had a standard score of -.68, representing the 26<sup>th</sup> percentile; incumbent #3 had a standard score of .33, representing the 64<sup>th</sup> percentile; incumbent #4 had a standard score of .86, representing the 81<sup>st</sup> percentile; incumbent #5 had a standard score of .24, representing the 60<sup>th</sup> percentile; incumbent #6 had a standard score of -1.28, representing the 11<sup>th</sup> percentile; incumbent #7 had a standard score of -.35, representing the 38<sup>th</sup> percentile; and incumbent #8 had a standard score of -.16, representing the 45<sup>th</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Processing of Information and Ideas, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed 25 percent of the incumbents scored in group #1 (0-25 percentile range), 37.5 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 12.5 percent of the incumbents scored in group #4 (76-100 percentile range).

There was no majority represented in any of the four percentile range groupings, indicating different and varied responses by the incumbents to the items in the Processing of Information and Ideas dimension on the PMPQ.

The sixth research question was, “What are the similarities and differences in the Relevant Experience of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Relevant Experience” as defined in Chapter III. In Figure 6, the responses to the sixth research question were represented in percentiles for each incumbent.

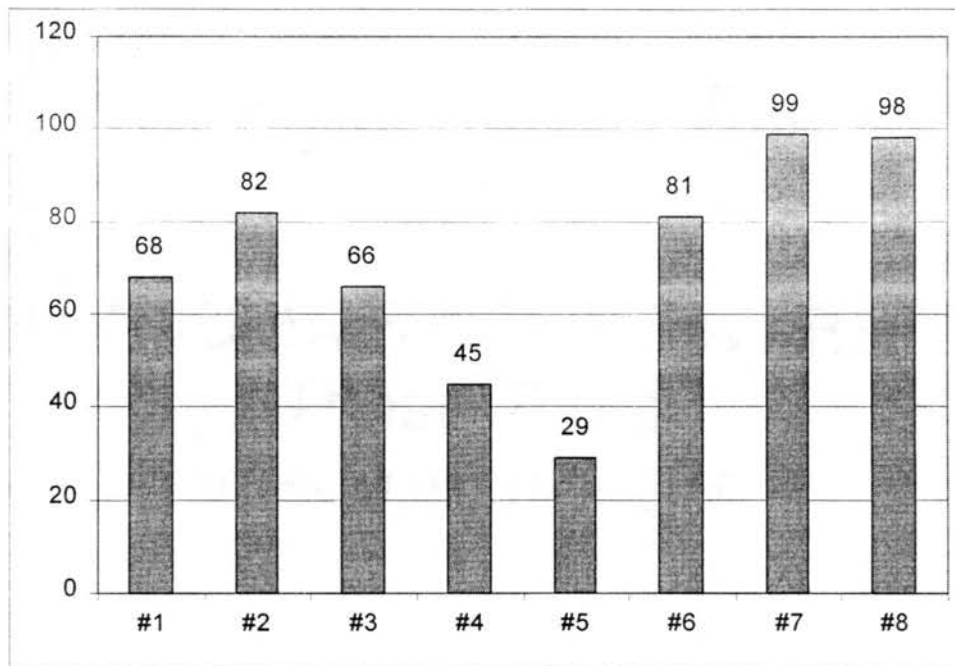


Figure 6. PMPQ Dimension “Relevant Experience” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 6, represented the PMPQ Dimension “Relevant Experience,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Relevant Experience.” Incumbent #1 had a standard score of .44, representing the 68<sup>th</sup> percentile; incumbent #2 had a standard score of .88, representing the 82<sup>nd</sup> percentile; incumbent #3 had a standard score of .40 representing the 66<sup>th</sup> percentile; incumbent #4 had a standard score of -.16, representing the 45<sup>th</sup> percentile; incumbent #5 had a standard score of -.59, representing the 29<sup>th</sup> percentile; incumbent #6 had a standard score of .86, representing the 81<sup>st</sup> percentile; incumbent #7 had a standard score of 2.16, representing the 99<sup>th</sup> percentile; and incumbent #8 had a standard score of 2.03, representing the 98<sup>th</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Relevant Experience, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 25 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 50 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, and that was in the 76-100-percentile range, where 50 percent of the incumbents scored, which indicated similarities on the responded items in the Relevant Experiences dimension on the PMPQ. This indicates that 50 percent of the incumbents consider Relevant Experiences as very important to their jobs.

The seventh research question was, “What are the similarities and differences in the Interpersonal Activities of the Director of Safety?” The responses to this question are based on the PMPQ Dimension “Interpersonal Activities” as defined in Chapter III. In Figure 7, the responses to the seventh research question were represented in percentiles for each incumbent.

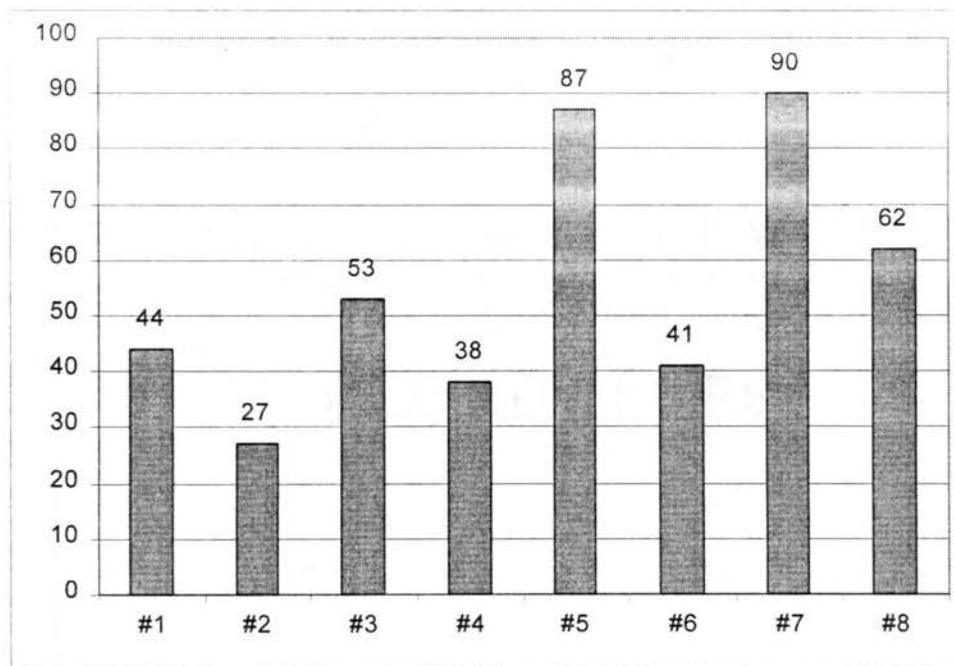


Figure 7. PMPQ Dimension “Interpersonal Activities” Comparing Percentiles for Responding Incumbents.

The results displayed in Figure 7, represented the PMPQ Dimension “Interpersonal Activities,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents scored as follows on the PMPQ Dimension “Interpersonal Activities.” Incumbent #1 had a standard score of  $-.20$ , representing the 44<sup>th</sup> percentile; incumbent #2 had a standard score of  $-.65$ , representing the 27<sup>th</sup> percentile; incumbent #3 had a standard score of  $.07$ , representing the 53<sup>rd</sup> percentile; incumbent #4 had a standard score of  $-.35$ , representing the 38<sup>th</sup> percentile; incumbent #5 had a standard score of  $1.10$ , representing the 87<sup>th</sup> percentile; incumbent #6 had a standard score of  $-.27$ , representing the 41<sup>st</sup> percentile; incumbent #7 had a standard score of  $1.28$ , representing the 90<sup>th</sup> percentile; and incumbent #8 had a standard score of  $.29$ , representing the 62<sup>nd</sup> percentile.

The incumbents’ percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Interpersonal Activities, the incumbents’ percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 50 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 25 percent of the incumbents scored in group #4 (76-100 percentile range).



the 53<sup>rd</sup> percentile; incumbent #4 had a standard score of -.35, representing the 38<sup>th</sup> percentile; incumbent #5 had a standard score of 1.10, representing the 87<sup>th</sup> percentile; incumbent #6 had a standard score of -.27, representing the 41<sup>st</sup> percentile; incumbent #7 had a standard score of 1.28, representing the 90<sup>th</sup> percentile; and incumbent #8 had a standard score of .29, representing the 62<sup>nd</sup> percentile.

The incumbents' percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Interpersonal Activities, the incumbents' percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 50 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 25 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, and that was in the 26-50-percentile range, where 50 percent of the incumbents scored, which indicated similarities on the responded items in the Interpersonal Activities dimension on the PMPQ. This indicates that 50 percent of the incumbents consider Interpersonal Activities somewhat important to their jobs.

The eighth research question was, "What are the similarities and differences in the Special Training of the Director of Safety?" The responses to this question are based on the PMPQ Dimension "Special Training" as defined in Chapter III. In Figure 8, the

responses to the eighth research question were represented in percentiles for each incumbent.

The results displayed in Figure 8, represented the PMPQ Dimension “Special Training,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Special Training.” Incumbent #1 had a standard score of  $-.54$ , representing the 31<sup>st</sup> percentile; incumbent #2 had a standard score of  $.38$ , representing the 65<sup>th</sup> percentile; incumbent #3 had a standard score of  $-.64$ , representing the 28<sup>th</sup> percentile; incumbent #4

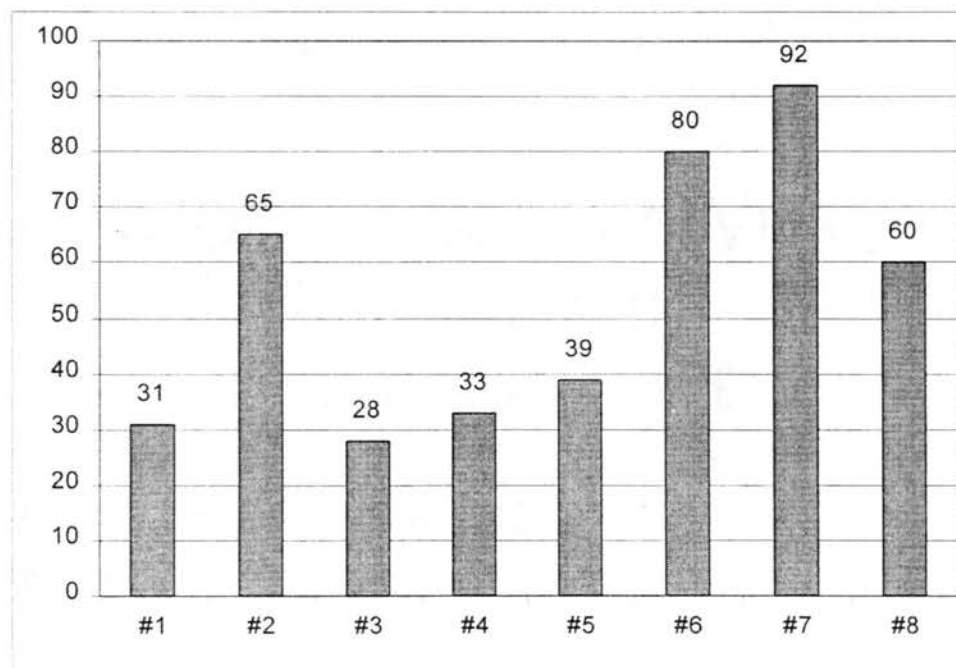


Figure 8. PMPQ Dimension “Special Training” Comparing Percentiles for Responding Incumbents.

had a standard score of -.48, representing the 33<sup>rd</sup> percentile; incumbent #5 had a standard score of -.31, representing the 39<sup>th</sup> percentile; incumbent #6 had a standard score of .81, representing the 80<sup>th</sup> percentile; incumbent #7 had a standard score of 1.38, representing the 92<sup>nd</sup> percentile; and incumbent #8 had a standard score of .25, representing the 60<sup>th</sup> percentile.

The incumbents' percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Special Training, the incumbents' percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 50 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 25 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, and that was in the 26-50-percentile range, where 50 percent of the incumbents scored, which indicated similarities on the responded items in the Special Training dimension on the PMPQ. This indicates that 50 percent of the incumbents consider Special Training activities somewhat important to their jobs.

The ninth research question was, "What are the similarities and differences in the Communication and Instruction of the Director of Safety?" The responses to this question are based on the PMPQ Dimension "Communication and Instruction" as defined in

Chapter III. In Figure 9, the responses to the ninth research question were represented in percentiles for each incumbent.

The results displayed in Figure 9, represented the PMPQ Dimension “Communications and Instruction,” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents scored as follows on the PMPQ Dimension “Communications and Instruction.” Incumbent #1 had a standard score of -1.33, representing the 11<sup>th</sup> percentile; incumbent #2 had a standard score of .01, representing the 51<sup>st</sup> percentile; incumbent #3 had a standard score of .01, representing the 51<sup>st</sup> percentile; incumbent #3 had a standard score

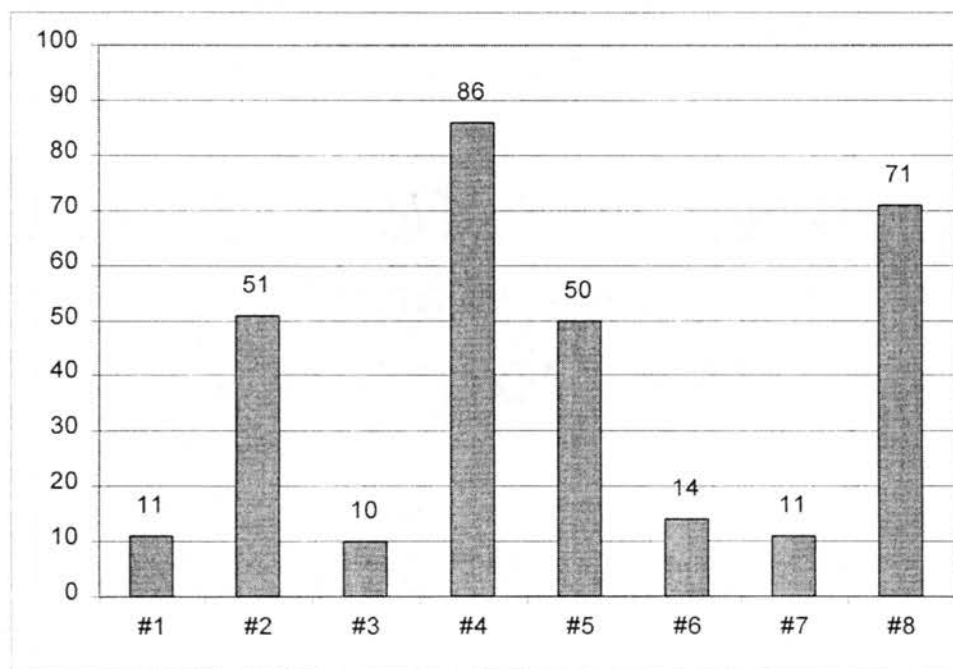


Figure 9. PMPQ Dimension “Communication and Instruction” Comparing Percentiles for Responding Incumbents.

of -1.39, representing the 10<sup>th</sup> percentile; incumbent #4 had a standard score of 1.04, representing the 86<sup>th</sup> percentile; incumbent #5 had a standard score of -.03, representing the 50<sup>th</sup> percentile; incumbent #6 had a standard score of -1.14, representing the 14<sup>th</sup> percentile; incumbent #7 had a standard score of -1.30, representing the 11<sup>th</sup> percentile; and incumbent #8 had a standard score of .53, representing the 71<sup>st</sup> percentile.

The incumbents' percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Communications and Instruction, the incumbents' percentile scores were categorized into four percentile range groupings, 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed 50 percent of the incumbents scored in group #1 (0-25 percentile range), 12.5 percent of the incumbents scored in group #2 (26-50 percentile range), 25 percent of the incumbents scored in group #3 (51-75 percentile range), and 12.5 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, and that was in the 0-25-percentile range, where 50 percent of the incumbents scored, showing similarities on the responded items in the Communications and Instruction dimension on the PMPQ. This indicates that 50 percent of the incumbents consider Communication and Instruction activities as not very important to their jobs.

The tenth research question was, "What are the similarities and differences in the Language and Concept Interpretation of the Director of Safety?" The responses to this question are based on the PMPQ Dimension "Language and Concept Interpretation" as

defined in Chapter III. In Figure 10, the responses to the tenth research question were represented in percentiles for each incumbent.

The results displayed in Figure 10, represented the PMPQ Dimension “Language and Concept Interpretation” and were presented comparing percentiles derived from the PAQ Services, Inc. inter-correlation matrix process. The percentiles represent the incumbents’ Likert Scale type inputs on the PMPQ indicating their level of involvement and perceived complexity on each given item. The eight incumbents’ scored as follows on the PMPQ Dimension “Language and Concept Interpretation.” Incumbent #1 had a standard score of  $-.13$ , representing the 47<sup>th</sup> percentile; incumbent #2 had a standard score of  $.48$ , representing the 69<sup>th</sup> percentile; incumbent #3 had a standard score of  $.20$ ,

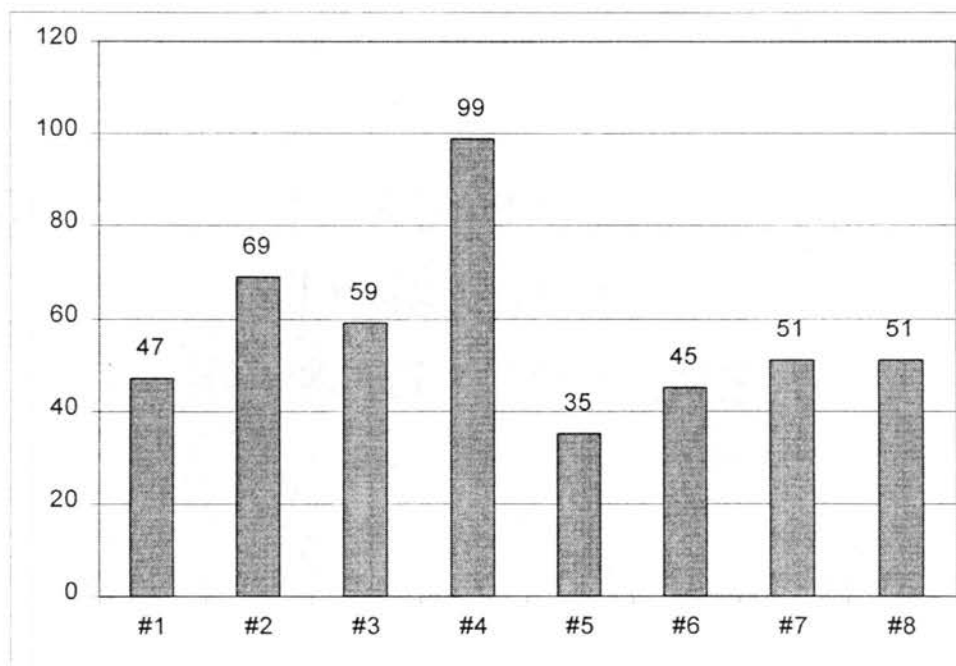


Figure 10. PMPQ Dimension “Language and Concept Interpretation” Comparing Percentiles for Responding Incumbents.

representing the 59<sup>th</sup> percentile; incumbent #4 had a standard score of 4.06, representing the 99<sup>th</sup> percentile; incumbent #5 had a standard score of -.42, representing the 35<sup>th</sup> percentile; incumbent #6 had a standard score of -.17, representing the 45<sup>th</sup> percentile; incumbent #7 had a standard score of .01, representing the 51<sup>st</sup> percentile; and incumbent #8 had a standard score of .02, representing the 51<sup>st</sup> percentile.

The incumbents' percentiles represented to what extent they consider the given PMPQ Dimension to be a part of their job. To illustrate the similarities and differences in the Language and Concept Interpretation, the incumbents' percentile scores were categorized into four percentile range groupings, 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. The results showed zero percent of the incumbents scored in group #1 (0-25 percentile range), 37.5 percent of the incumbents scored in group #2 (26-50 percentile range), 50 percent of the incumbents scored in group #3 (51-75 percentile range), and 12.5 percent of the incumbents scored in group #4 (76-100 percentile range).

There was one majority represented out of the four percentile range groupings, which was in the 51-75-percentile range, where 50 percent of the incumbents scored, indicating similarities on the responded items in the Language and Concept Interpretation dimension on the PMPQ. This indicates that 50 percent of the incumbents consider Language and Concept Interpretation activities important to their jobs.

## Summary

This chapter has consisted of a presentation of the findings from the PMPQ and the associated research questions, which were chosen as a result of review of literature. Data from the PMPQ have been discussed and analyzed. The data have been presented in three formats.

The first format was in numerical (percentiles) and graphical (bar chart), which visually depicted the similarities and differences between the incumbents on the responses to the PMPQ Dimensions.

The second format was a narrative, which included the specific standard scores and percentiles from each incumbent that were utilized to construct the bar charts.

And third, to further illustrate the similarities and differences in the incumbents' percentile scores, scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. This allowed us to analyze the percentage of responses in each percentile range group.

The following chapter, Chapter V, will present the conclusions and recommendations, which resulted from the research that was conducted on the Directors of Safety from the responding sample population, utilizing the PMPQ.



## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

This study identified and described the current status of the Director of Safety position that is required by Title 14 CFR Part 119.65 for domestic and flag air carriers. The study focused on the current similarities and differences in job functions and responsibilities of the Director of Safety position.

The problem on which this study is based was found in Title 14 CFR Part 119.65, which calls out five positions that must be in place for an air carrier to operate under Title 14 CFR Part 121. These positions are as follows: Director of Safety, Director of Operations, Chief Pilot, Director of Maintenance, and Chief Inspector. The problem was that Title 14 CFR Part 119.67 defines the job requirements for all the above positions except for the “Director of Safety.” It was because of this that the FAA published The Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAW 99-19 and HBAW 99-19, which is designed to assist and give guidelines on the Director of Safety position to FAA principle inspectors and Title 14 CFR Parts 121 and 135 air carrier operators. Since the nature of the problem as discovered in the review of literature was the concern over the variability of the Director of Safety’s functions and

responsibilities, this study continued with that issue simply by virtue that the non-binding HBAT 99-19 and HBAW 99-19 may or may not have changed the variability of Director of Safety's functions and responsibilities.

The research into the problem was carried out through administering an established job description survey instrument, the Professional and Managerial Position Questionnaire (PMPQ). The PMPQ is a structured job analysis questionnaire for professional, managerial, and related positions such as those held by executives, supervisors, engineers, technicians, teachers, and other professionals. It utilized an inter-correlation matrix to produce standard score and percentile information for each incumbent in the ten PMPQ Dimension categories; 1) Personal Job Requirements, 2) Planning/Decision Making, 3) Complex Analysis, 4) Technical Activities, 5) Processing of Information/Ideas, 6) Relevant Experience, 7) Interpersonal Activities, 8) Special Training, 9) Communication/Instruction, 10) Language/Concept Interpretation. These ten PMPQ Dimensions represented the basis for the research questions in this study. The results of the PMPQ analysis of data gave standard scores and percentiles showing similarities and differences between the surveyed sample population (McPhail et al., 2000).

The PMPQ was sent to a population of air carriers. The list of air carriers was obtained from the World Aviation Directory. The World Aviation Directory listed 29 air carriers in their "Section A1" category, which represented the population size for the study. The World Aviation Directory defined their "A1" category as "airlines providing scheduled passenger and cargo service that are designated flag (international) carriers."

Out of that 29, a total of eight was returned and completed which represented our sample of 27.5 percent of the population. This sample percentage was low but was considered acceptable for surveys utilizing a mail service (Bourque & Fielder, 1995; Turley, 1999).

The returned and completed PMPQ answer sheets were then sent to PAQ Services, Inc. for computer processing. The computer analysis, referred to as an inter-correlation matrix, rendered standard scores and percentiles for each responding incumbent in the aforementioned PMPQ Dimension categories. This study utilized the percentile numbers only, for incumbent comparison. To illustrate the similarities and differences in the PMPQ Dimensions, the incumbents' percentile scores were categorized into four percentile range groupings; 1) 0-25 percentile range, 2) 26-50 percentile range, 3) 51-75 percentile range, and 4) 76-100 percentile range. This process was designed to identify majority responses in any of the four percentile range groupings.

### Conclusions

Based on the findings of the study, evidence supports the following conclusions in respect the current status of the Director of Safety position as required by Title 14 CFR Part 119.65 for domestic and flag air carriers. The study's conclusions focused on the current similarities and differences in job functions and responsibilities.

1. The PMPQ Dimension category, Personal Job Requirements, which incorporated such items as required personal characteristics, adaptability, exercising judgments, and negotiating, was found to have no majority

represented in any of the four percentile range groupings. This indicated different and varied responses by the incumbents to this item.

2. The PMPQ Dimension category, Planning and Decision Making, which incorporated such items as scheduling, operations, budgeting, future development, supervising, and coordinating, was found to have no majority represented in any of the four percentile range groupings. This indicated different and varied responses by the incumbents to this item.
3. The PMPQ Dimension category, Complex Analysis, which incorporated such items as required education, written communication, interviewing, advising, analyzing, and number of personnel supervised, was found to have no majority represented in any of the four percentile range groupings. This indicated different and varied responses by the incumbents to this item.
4. The PMPQ Dimension, Technical Activities, which incorporated such items as use of equipment and devices, technical activities, use of procedures, techniques, and processes, showed one majority represented out of the four percentile range groupings. The 51-75-percentile range showed the incumbents scoring 62.5 percent indicating similarities on the responded items. This indicates that 62.5 percent of the incumbents consider Technical activities important to their jobs.
5. The PMPQ Dimension category, Processing of Information and Ideas, which incorporated such items as quantitative processing of data,

- processing of ideas, and quantitative methods, was found to have no majority represented in any of the four percentile range groupings. This indicated different and varied responses by the incumbents to this item.
6. The PMPQ Dimension, Relevant Experiences, which incorporated such items as use of experience, required relevant experience, and complexity of experience, showed one majority represented out of the four percentile range groupings. The 76-100-percentile range showed the incumbents scoring 50 percent indicating similarities on the responded items. This indicates that 50 percent of the incumbents consider Relevant Experiences very important to their jobs.
  7. The PMPQ Dimension, Interpersonal Activities, which incorporated such items as complexity of interpersonal activities and judgments involving people, showed one majority represented out of the four percentile range groupings. The 26-50-percentile range showed the incumbents scoring 50 percent indicating similarities on the responded items. This indicates that 50 percent of the incumbents consider Interpersonal Activities somewhat important to their jobs.
  8. The PMPQ Dimension, Special Training, which incorporated such items as use of training and complexity of training, showed one majority represented out of the four percentile range groupings. The 26-50-percentile range showed the incumbents scoring 50 percent indicating

similarities on the responded items. This indicates that 50 percent of the incumbents consider Special Training somewhat important to their jobs.

9. The PMPQ Dimension, Communication and Instruction, which incorporated such items as communicating, instructing, and written communications, showed one majority represented out of the four percentile range groupings. The 0-25-percentile range showed the incumbents scoring 50 percent indicating similarities on the responded items. This indicates that 50 percent of the incumbents consider Communication and Instruction not very important to their jobs.
10. The PMPQ Dimension, Language and Concept Interpretation, which incorporated such items as complexity of language use and use of other languages, showed one majority represented out of the four percentile range groupings. The 51-75-percentile range showed the incumbents scoring 50 percent indicating similarities on the responded items. This indicates that 50 percent of the incumbents consider Language and Concept Interpretation important to their jobs.

In summary, the incumbents showed different and varied responses to 4 of the PMPQ Dimensions: Personal Job Requirements, Planning and Decision Making, Complex Analysis, and Processing Information and Ideas. On those dimensions that showed a majority responding in a particular percentile range, the most important was Relevant Experience. Other important dimensions were Technical Activities and Language and Concept Interpretation. Areas that the incumbents agreed in majority were

less important to their position included the dimensions Interpersonal Activities and Special Training. And finally, the least important dimension agreed upon by the incumbents was Communication and Instruction.

### Recommendations

Whereas this study has set a new direction for research on defining the job description for the Director of Safety position as required by Title 14 CFR Part 119.65 for domestic and flag air carriers, it is the recommendation of this paper that research should be continued and expanded in the future. The following are recommended topics of future research:

1. The Professional and Managerial Position Questionnaire (PMPQ) should be administered to the Director of Safety who served only on domestic air carriers operating under Title 14 CFR Part 121. This would represent a larger population on which to sample.
2. A comparison research utilizing the Professional and Managerial Position Questionnaire (PMPQ) should be administered to the Director of Safety for domestic and flag air carriers operating under Title 14 CFR Part 121, who, for the most part, only transport freight, and compare the results to PMPQ results for domestic and flag air carriers who, for the most part only transport people.
3. An independent survey should be administered to the Director of Safety for domestic and flag air carriers operating under Title 14 CFR Part 121,

to ascertain the acceptance of the recommendations set forth on the Joint Flight Standards Handbook Bulletin for Air Transportation and Airworthiness, HBAT 99-19 and HBAW 99-19.

4. An independent survey should be administered to the Director of Safety for domestic and flag air carriers operating under Title 14 CFR Part 121, to their levels of managerial experience as opposed to their operational experience. This would help define how much weight the air carriers put on management experience or on operational experience (pilot, maintenance, etc.).
5. An independent survey should be administered to the Director of Safety for domestic and flag air carriers operating under Title 14 CFR Part 121, on the extent to which their safety duties reach. Areas of Director of Safety involvement to research could include flight line only; flight line and maintenance only; flight line, maintenance; and engineering only; flight line, maintenance, engineering and Occupational Health and Safety Administration (OHSA) requirements; and so on.

A final comment: As this study has shown, the implementation of a Director of Safety into management is a positive step forward in assuring that the future safety challenges of the commercial aviation industry will be met. However, this study has shown that the surveyed persons holding the Director of Safety positions have different and varied perceptions of their job duties. If the commercial aviation industry is to move forward in the area of safety it must address these different and varied job perceptions.



And, if management is to lead the way to aviation safety, then it must work to assure the Directors of Safety are consistent in their duties so they may show the way (Air Safety Officer Training Manual, 1999).

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## APPENDIXES

APPENDIX A

SURVEY INTRODUCTION LETTER

TO DIRECTORS OF SAFETY

Date

Director of Safety  
Air Carrier  
Address  
City, State, Zip

Dear Director of Safety,

I work as a Senior Air Safety Investigator for a major General Aviation manufacturing firm in Wichita, Kansas, and am working towards a Doctor of Education degree (Ed.D) under the Aviation and Space Education Department at Oklahoma State University, Stillwater, Oklahoma.

As part of my dissertation requirements I am researching the identification and description of the "Director of Safety" position that is required by Title 14 Code of Federal Regulation (CFR) Part 119.65 for domestic and flag air carriers.

Please find enclosed with this letter a survey to be completed by you, or the acting Director of Safety. Please fill out the attached consent form and the survey and return it (no cost to you) via the pre-paid self-addressed stamp envelope. If you choose not to participate in the survey, you can have your HR department complete it on your behalf or, just send the survey back blank.

The anonymity of the person and company filling out the survey will be maintained throughout the study and the publication of the paper. Please complete the survey within two weeks of the receipt of this letter. And for filling out the survey you will receive a copy of the dissertation upon its completion.

Thank you in advance for your time and efforts in completing this survey. If you have any questions or concerns you may reach me at my office (316) 946-1809, Mobile: (316) 207-7249 or you may e-mail me at [wwelch@cessna.textron.com](mailto:wwelch@cessna.textron.com).

Sincerely,

William B. (Buck) Welch

APPENDIX B

INSTITUTIONAL REVIEW BOARD

APPROVAL FORM

**Oklahoma State University  
Institutional Review Board**

Protocol Expires: 4/13/01

Date : Thursday, September 21, 2000

IRB Application No : ED00192

Proposal Title: AN IDENTIFICATION AND DESCRIPTION OF THE "DIRECTOR SAFETY" POSITION  
THAT IS REQUIRED BY TITLE 14 CODE OF FEDERAL REGULATION (CFR) PART  
119.65 FOR DOMESTIC AND FLAG AIR CARRIERS

Principal  
Investigator(s) :

William Welch  
309 Cordell North  
Stillwater, OK 74078

Steven Marks  
308 Cordell North  
Stillwater, OK 74078

Reviewed and  
Processed as: Exempt

Approval Status Recommended by Reviewer(s) : Approved

**Modification**

Please note that the protocol expires on the following date which is one year from the date of the approval of the original protocol:

Protocol Expires: 4/13/01

Signature :

  
\_\_\_\_\_  
Carol Olson, Director of University Research Compliance

Thursday, September 21, 2000  
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.



APPENDIX C

AUTHORIZATION LETTER

# PAQ

SERVICES, INC.

1625 North 1000 East  
N. Logan, UT 84341  
USA

tel: 435-752-5698  
fax: 435-752-5712  
e-mail: info@paq.com

April 12, 2001

William B. Welch  
Air Safety Investigator  
Cessna Aircraft Incorporated  
1780 Airport Road  
Wichita, KS 67209

Dear Mr. Welch:

This letter authorizes the inclusion of the copyrighted material described below in the appendix of your dissertation.

*Professional and Managerial Position Questionnaire (PMPQ)*

©1980, 1990  
Purdue Research Foundation  
West Lafayette, IN 47907

PAQ Services, Inc. has authorization from Purdue Research Foundation (the copyright holder) to give permission for use of the material for academic purposes.

Sincerely,



Connie Mecham  
Director

The Standard in Job Analysis

APPENDIX D

QUESTIONNAIRE

# PROFESSIONAL AND MANAGERIAL POSITION QUESTIONNAIRE

J. L. Mitchell, Ph.D.

E. J. McCormick, Ph.D.

## Introduction

The *Professional and Managerial Position Questionnaire* (PMPQ®) is a structured job analysis questionnaire for professional, managerial, and related positions such as those held by executives, supervisors, engineers, technicians, teachers, and other professionals. The questionnaire is presented in the three divisions listed below:

- Job Functions
- Personal Requirements
- Other Information

The first two divisions are divided into subsections composed of items relevant to a particular facet of the job. The third division lists various items related to job requirements, qualifications, and responsibilities.

## Response Scales for the Items

A number of different 10-point response scales are used to rate items throughout the Questionnaire. The response scale to be used to rate an item or group of items is clearly indicated in this booklet. A sample response scale is shown below:

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

*When responding to items, make sure to use the appropriate rating scale, which will be clearly indicated in the booklet. The scale descriptions are shown on page 2.*

**PAQ Services, Inc.**

Copyright 1980, 1990 by Purdue Research Foundation (form B, 1990), West Lafayette, Indiana 47907. PMPQ is a registered trademark of Purdue Research Foundation. Published by PAQ Services, Inc., 1625 North 1000 East, North Logan, UT 84341 Telephone (435) 752-5698, Fax (435) 752-5712

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## Scale Descriptions for Use with PMPQ Items

**Part of the Job** (illustrated on previous page)

The extent to which the item is a "part of the job" in a descriptive sense, considering the amount of time spent, the effort required, the importance of the item as related to the objectives of the job, and so on.

### Complexity

The "complexity" of the item, such as its difficulty, intricacy, comprehensiveness, and degree of complication.

### Impact

The impact of inadequate performance of an activity or of failure to fulfill relevant personal requirements

- 0 Does not apply
- 1 Only minor effects (some inconvenience of people, very little impact on the organization or on society in general)
- 2 ...
- 3 Minor effects (some adverse impact on co-workers or on the public; minor deficit in efficiency of the organization; minor impact on society)
- 4 ...
- 5 Moderate effects (moderate adverse impact on co-workers or the public; impairment of efficiency or loss of business; a problem for society)
- 6 ...
- 7 Substantial effects (hazards or major problems for people; substantial impairment or impediment of efficiency for the organization)
- 8 ...
- 9 Extremely serious effects (life or death of people; major scandal or failure of the organization; major disruption or adverse impact on society)

### Responsibility

The extent to which the incumbent is responsible for performing certain job functions.

### Note Regarding Certain Scales

Although most of the scales in the PMPQ are 10-point scales (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) there are certain scales for which the 2, 4, 6, and 8 scale positions do not have any "descriptive" information (such as an adjective, title, or examples). These scale positions should be interpreted as representing values mid-way between the values just above and below that value.

If an item does apply to the job, and if ratings are to be made on two rating scales (such as "Part of the Job" and "Complexity"), complete the ratings on both of these scales before going on to the next item.

---

## Instructions for Job Analysts

The person who serves as the job analyst should first familiarize him or herself with the PMPQ test booklet and the PMPQ *Job Analysis Manual*. A job analysis with the PMPQ is typically accomplished by interviewing job incumbents and sometimes by observing their work performance and talking with their supervisors to gain as much relevant information as possible. *Remember that under no circumstances is the PMPQ to be used as a rating for an incumbent's performance.*

When analyzing a position, the job analyst should first carefully consider the concept of the item as it applies to the job being rated; then, the job analyst should select the response scale value that most closely reflects the extent to which it is applicable. When an item is clearly not relevant to the job in question, the analyst should simply fill in the "0" circle on the answer sheet for "Does not apply."

Under some circumstances, the person who serves as the job analyst is the incumbent, who uses the PMPQ to analyze his or her own position. In these cases the incumbent should be sure to exercise as much objectivity as possible in assigning ratings.

---

## The PMPQ Answer Sheet

Responses are to be entered on the PMPQ computer-scorable answer sheet. The answer sheet is a two-sided computer-scorable answer sheet designed for optical scanning. The first side is for administrative use and should be filled out by the job analyst, simply coding in the information requested and providing in the upper left corner a brief job description of the job being analyzed. The second side is reserved for item responses. Use only a No. 2 pencil for marking responses, filling in response circles completely and erasing carefully any changed responses and/or stray marks. Please do not fold or staple the answer sheet.

When entering responses to PMPQ items, make sure to use the response scale that is clearly indicated in the question booklet. After deciding which is the most appropriate response, darken the corresponding response circle for the item on the answer sheet. Once you have completed the questionnaire, please review the answer sheet to ensure that all information entered is complete and accurate.

---

## A. Job Functions

In this division are items relevant to types of functions typical of professional, managerial, and related types of jobs. The types of functions are grouped in six categories:

- A1—Planning & Scheduling
- A2—Processing Information & Ideas
- A3—Exercising Judgment
- A4—Communicating
- A5—Interpersonal Activities & Relationships
- A6—Technical Activities

Items in this division are to be rated using one of two scales: (1) Part of the Job and (2) Complexity. Use the "Part of the Job" scale printed in the left margin of each page to respond to all *odd-numbered* items in this division. These items and the corresponding response scale are printed in blue for easy identification. The "Complexity" scale is to be used with all *even-numbered* items and appears below each of these items. Note that the Complexity scale values are accompanied by examples that serve as points of reference for making comparisons of complexity levels for various jobs. The examples were selected by a panel of judges and represent differing levels of activity along the complexity dimension. Keep in mind that the examples are intended only as helpful illustrations for the rating process. At the end of Division A, additional ratings are to be made using the Impact and Responsibility scales.

## A1. Planning & Scheduling

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

Some jobs involve planning and scheduling the work activities of a unit, company, organization, or enterprise. These might include planning, programming, budgeting, and organizing one's own activities or those of others.

### 1. Work Scheduling

Indicate the degree to which work scheduling is a part of the position, for example, developing schedules or work plans, assigning tasks to others, and specifying goals and completion times.

### 2. Complexity of Work Scheduling

Use the response scale below to indicate the complexity of the work scheduling activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., planning one's own work schedule
- 2 ...
- 3 Uncomplicated  
E.g., scheduling part-time manual, service, or office workers
- 4 ...
- 5 Moderately complex  
E.g., dispatching taxis in a medium-sized city
- 6 ...
- 7 Very complex  
E.g., coordinating all telephone installations of a large city
- 8 ...
- 9 Extremely complex  
E.g., programming all personnel assignments for a large company or governmental agency

### 3. Budgeting

Indicate the degree to which developing plans for future expenses is a part of this position. Include phasing of costs and setting priorities for allocation of funds.

### 4. Complexity of Budgeting

Use the response scale below to indicate the complexity of the budgeting activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., estimating costs of weekly office supplies
- 2 ...
- 3 Uncomplicated  
E.g., budgeting for a small business such as a service station or lawn mower repair service
- 4 ...
- 5 Moderately complex  
E.g., financial planning for a small rural school district
- 6 ...
- 7 Very complex  
E.g., planning the operating costs for a major office building
- 8 ...
- 9 Extremely complex  
E.g., financial planning for a large state or a major corporation

## A1. Planning & Scheduling

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 5. Operations Planning

Indicate the degree to which planning for the ongoing operation of some program or activity is a part of this position.

### 6. Complexity of Operations Planning

Use the scale below to indicate the complexity of the operations planning typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., planning a filing system, such as that done by employment administrators or interviewers for their own use
- 2 ...
- 3 Uncomplicated  
E.g., planning the ongoing operation of a small appliance store
- 4 ...
- 5 Moderately complex  
E.g., planning the operation of a state crime laboratory
- 6 ...
- 7 Very complex  
E.g., planning air traffic control for a major airport
- 8 ...
- 9 Extremely complex  
E.g., integrating the input to an auto assembly line, including the manufacture and transportation of component parts

### 7. Future Developmental Planning

Indicate the degree to which the planning of the future development of a program, activity, unit, or organization is a part of this job.

### 8. Complexity of Future Developmental Planning

Use the response scale below to indicate the complexity of the future developmental planning typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., arranging for the procurement of janitorial services for a small building or office
- 2 ...
- 3 Uncomplicated  
E.g., planning for the establishment of a new service station
- 4 ...
- 5 Moderately complex  
E.g., developing a contingency plan for fighting fires in a national forest
- 6 ...
- 7 Very complex  
E.g., planning for the development of a new refinery
- 8 ...
- 9 Extremely complex  
E.g., planning for the construction of a major system, such as a metropolitan transit system



## A2. Processing Information & Ideas

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

Some jobs involve various kinds of information and idea processing. Such activities might include counting, compiling, computing, classifying, categorizing, coding, interpreting, interpolating, analyzing, or synthesizing. All of these processes are accomplished in the context of the job and are related to the achievement of job objectives.

### 9. Transcribing, Compiling, and/or Coding Information

Indicate the degree to which transcribing, compiling, preparing, and/or coding are a part of the job.

### 10. Complexity of Transcribing, Compiling, and/or Coding Information

Use the scale below to indicate the relative complexity of the transcribing, compiling, preparing, and/or coding activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., reading meters or copying parts numbers on order forms
- 2 ...
- 3 Uncomplicated  
E.g., tabulating correspondence or market research data by content category
- 4 ...
- 5 Moderately complex  
E.g., preparing a census report for a small city
- 6 ...
- 7 Very complex  
E.g., preparing a computer program to summarize and display inventory data
- 8 ...
- 9 Extremely complex  
E.g., encoding a new inventory control system, such as for a large national retail organization

### 11. Quantitative Processing of Information or Data

Indicate the degree to which data or information processing with some type of quantitative method (such as addition, subtraction, division, or multivariate analysis) is a part of the position.

### 12. Complexity of Quantitative Processing of Information or Data

Use the response scale below to indicate the relative complexity of the quantitative processing typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., using addition or subtraction
- 2 ...
- 3 Uncomplicated  
E.g., using fractions or percentages
- 4 ...
- 5 Moderately complex  
E.g., using correlational statistics
- 6 ...
- 7 Very complex  
E.g., using multivariate analysis
- 8 ...
- 9 Extremely complex  
E.g., using advanced mathematical modeling

## A2. Processing Information & Ideas

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 13. Analyzing and Synthesizing Information and Ideas

Indicate the degree to which analyzing and/or integrating ideas or information is a part of the job. This may involve identifying underlying principles or facts, interpreting results, and combining or integrating information or data to establish new facts, hypotheses, or theories.

### 14. Complexity of Analyzing and Synthesizing Information and Ideas

Use the response scale below to indicate the complexity of the analyzing and synthesizing activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., monitoring two laboratory gauges
- 2 ...
- 3 Uncomplicated  
E.g., analyzing reports of theft, such as that done by a security supervisor
- 4 ...
- 5 Moderately complex  
E.g., evaluating stock investments for a client
- 6 ...
- 7 Very complex  
E.g., predicting future economic trends
- 8 ...
- 9 Extremely complex  
E.g., developing a new biological theory

## A3. Exercising Judgment

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

Exercising judgment on various levels is another requirement in most jobs. This involves the use of background and experience in decision making, problem solving, and evaluation. When exercising judgment, the individual must bring to bear relevant information to arrive at an appropriate course of action.

### 15. Judgments Involving People

Indicate the degree to which making judgments involving people is typically a part of this job.

### 16. Complexity of Judgments Involving People

Use the response scale below to indicate the relative complexity of the judgment involving people that is typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., allocating tasks to workers at a service station
- 2 ...
- 3 Uncomplicated  
E.g., hiring sales clerks in a department store
- 4 ...
- 5 Moderately complex  
E.g., dealing with an employee accused of petty theft or evaluating the performance of college students
- 6 ...
- 7 Very complex  
E.g., selecting a president for a subsidiary firm of a major corporation or recommending major surgery to a cardiac patient
- 8 ...
- 9 Extremely complex  
E.g., assessing the performance of a team of neurosurgeons

### A3. Exercising Judgment

#### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

#### 17. Judgments Involving Operations and Objectives

Indicate the degree to which making judgments involving operations and/or objectives is typically a part of this job. Examples include decisions or assessments about programs, about the operation of a business or an organization, or about facilities or equipment. Do not include judgments that involve decisions about people.

#### 18. Complexity of Judgments Involving Operations and Objectives

Use the response scale below to indicate the relative complexity of judgments involving operations and objectives that is typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., selecting parts in a routine assembly line operation
- 2 ...
- 3 Uncomplicated  
E.g., choosing the appropriate materials for repairing an automobile engine
- 4 ...
- 5 Moderately complex  
E.g., determining the appropriate diagnostic tests for a patient
- 6 ...
- 7 Very complex  
E.g., selecting a computer system for a company or university
- 8 ...
- 9 Extremely complex  
E.g., making judgments about the construction and location of a nuclear power plant

#### 19. Judgments Involving Fiscal Resources

Indicate the degree to which making decisions, solving problems, or evaluating the use of money or capital is typically a part of this job.

#### 20. Complexity of Judgments Involving Fiscal Resources

Use the response scale below to indicate the relative complexity of the judgments involving fiscal resources that are typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., ordering the weekly supplies needed for a small business office
- 2 ...
- 3 Uncomplicated  
E.g., approving a moderate-sized loan for a small business
- 4 ...
- 5 Moderately complex  
E.g., selecting which crops to plant, the equipment needed, and the planting time for a year's crop on a medium-sized farm
- 6 ...
- 7 Very complex  
E.g., approving an investment in production equipment and facilities for a new product line to be introduced in a major company
- 8 ...
- 9 Extremely complex  
E.g., allocating fixed funding among competing programs in a major federal department or agency

## A4. Communicating

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

This function involves the extent to which an individual must communicate, either in speech or in writing, with others involved in the work activities. The purpose of this communication is to convey information and ideas, decisions, and judgments.

### 21. Oral Communication

Indicate the degree to which talking to others to communicate work-related information is a part of this job.

### 22. Complexity of Oral Communication

Use the response scale below to indicate the relative complexity of the language used to communicate with others as typically required in this position.

- 0 Does not apply
- 1 Very basic  
E.g., the language used with workers who have minimal education
- 2 ...
- 3 Basic  
E.g., the language used in giving directions to a word processing pool
- 4 ...
- 5 Moderately complex  
E.g., the language used by a life insurance representative explaining a policy to a client
- 6 ...
- 7 Very complex  
E.g., the language used by a corporation lawyer or a nuclear engineer
- 8 ...
- 9 Extremely complex  
E.g., the language used by a supreme court justice or a theoretical physicist

### 23. Written Communication

Indicate the degree to which the communication of work-related information through use of written materials created by the incumbent is a part of this job.

### 24. Complexity of Written Communication

Use the scale below to indicate the relative complexity of the written language typically required in this position.

- 0 Does not apply
- 1 Very basic  
E.g., the language used in an auto repair form
- 2 ...
- 3 Basic  
E.g., the language used in a census form or an accident report for an insurance claim
- 4 ...
- 5 Moderately complex  
E.g., the language used in a standard business letter of agreement for professional services
- 6 ...
- 7 Very complex and technical  
E.g., the language used in a medical consultant report or in a report on economic trends for the next decade
- 8 ...
- 9 Extremely complex and technical  
E.g., the language used in a nuclear physics text or in a specialized mathematical monograph

## A4. Communicating

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

## A5. Interpersonal Activities & Relationships

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 25. Use of Languages

Indicate the degree to which the use of a second or third language is required as a part of this job.

### 26. Complexity of Use of Languages

Use the scale below to indicate the level of fluency that is required in a second or third language to perform adequately in this job.

- 0 Does not apply
- 1 Only a very rare need to comprehend vocabulary in a second or third language
- 2 ...
- 3 An occasional need to read and speak in a second or third language
- 4 ...
- 5 A routine need to read and speak in a second or third language
- 6 ...
- 7 A frequent need to read, speak, and write in a second or third language
- 8 ...
- 9 A very frequent need to communicate fluently in a second or third language

Another job function involves establishing and sustaining both individual and group relationships. These relationships are purposeful, job-related interactions that involve exchanging information with others as well as directing, supervising, and coordinating work activities.

### 27. Supervising and Directing

Indicate the degree to which supervising and directing the work of others is a part of the job. This includes the delineation of subordinates' responsibilities and the preparation of work reviews.

### 28. Complexity of Supervising and Directing

Use the scale below to indicate the complexity of the supervising and directing activities typically required of this job.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., giving routine direction to a single trusted assistant, as in the case of a physician and nurse, an engineer and assistant, or a manager and secretary
- 2 ...
- 3 Uncomplicated  
E.g., giving routine supervision to a small group engaged in relatively structured tasks, as in supervising clerks in a small store or a group of word processors
- 4 ...
- 5 Moderately complex  
E.g., supervising a diverse group involved in moderately unstructured tasks, as in supervising a medical research team or those assigned to an advertising project
- 6 ...
- 7 Very complex  
E.g., supervising a diverse group in unstructured situations and whose tasks have important consequences, such as a physician directing an emergency department in a large urban hospital or an executive supervising a team negotiating a merger
- 8 ...
- 9 Extremely complex  
E.g., directing a diverse group in important tasks in highly unstructured situations, such as an executive leading a team negotiating a multimillion dollar foreign sales contract or a battalion commander leading troops in an actual combat situation

## A5. Interpersonal Activities & Relationships

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 29. Instructing

Indicate the degree to which instructing others is a part of this job. This includes teaching, lecturing, public speaking, and group training.

### 30. Complexity of Instructing

Use the scale below to indicate the relative complexity of instruction to others typically required of the position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., giving on-the-job training to a new service station attendant
- 2 ...
- 3 Uncomplicated  
E.g., giving company orientation or basic first aid classes
- 4 ...
- 5 Moderately complex  
E.g., conducting a short technical course for industry workers on technical procedures
- 6 ...
- 7 Very complex  
E.g., teaching a college course in calculus or leading a technical seminar
- 8 ...
- 9 Extremely complex  
E.g., presenting an advanced seminar on new techniques in cancer treatment

### 31. Coordinating

Indicate the degree to which coordinating the work of others is a part of this job. This includes establishing and sustaining relationships and conveying information to facilitate the achievement of job objectives.

### 32. Complexity of Coordinating

Use the scale below to indicate the relative complexity of the coordinating activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., coordinating the activities in a small dental office
- 2 ...
- 3 Uncomplicated  
E.g., coordinating the work done on an assembly line by assembly line workers
- 4 ...
- 5 Moderately complex  
E.g., coordinating such as that done by a public relations director of a major city
- 6 ...
- 7 Very complex  
E.g., coordinating such as that done by an editor of a major city newspaper
- 8 ...
- 9 Extremely complex  
E.g., coordinating such as that done by a director of an air traffic control center in a large metropolitan area

## A5. Interpersonal Activities & Relationships

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 33. Interviewing

Indicate the degree to which interviewing is a part of this job. This involves interacting with others in order to exchange or gather information for a particular purpose.

### 34. Complexity of Interviewing

Use the scale below to indicate the complexity of the interviewing activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., routine interviewing such as that done by a census taker
- 2 ...
- 3 Uncomplicated  
E.g., interviewing such as that done by a social worker meeting with a welfare applicant
- 4 ...
- 5 Moderately complex  
E.g., interviewing such as that done by a reporter meeting with a congressional candidate
- 6 ...
- 7 Very complex  
E.g., interviewing such as that done by a college department head screening potential faculty members
- 8 ...
- 9 Extremely complex  
E.g., interviewing such as that done by a criminal lawyer cross-examining a key witness during a murder trial

### 35. Advising

Indicate the degree to which advising is a part of this job. This involves giving counsel based on professional background or experience, as in legal advising and pastoral counseling.

### 36. Complexity of Advising

Use the scale below to indicate the relative complexity of the advising activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., advising applicants about a hiring procedure
- 2 ...
- 3 Uncomplicated  
E.g., advising such as that done by a health inspector informing a restaurant owner of regulatory problems and corrections required
- 4 ...
- 5 Moderately complex  
E.g., advising such as that done by an engineer consulting with a contractor on specifications
- 6 ...
- 7 Very complex  
E.g., advising such as that done by a comptroller consulting with executives on equipment investments
- 8 ...
- 9 Extremely complex  
E.g., advising such as that done by an economist working with high government officials on monetary policy

## A5. Interpersonal Activities & Relationships

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 37. Representing and Negotiating

Indicate the degree to which representing and negotiating are a part of this job. This involves presenting oneself to others to represent the services, products, or point of view of a company, organization, country, or other special interest group.

### 38. Complexity of Representing and Negotiating

Use the scale below to indicate the relative complexity of the representing and negotiating activities typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., that done by a receptionist at a local welfare office
- 2 ...
- 3 Uncomplicated  
E.g., that done by a sales representative of household appliances at a large department store
- 4 ...
- 5 Moderately complex  
E.g., that done by a life insurance sales representative or a public relations officer for an international oil company
- 6 ...
- 7 Very complex  
E.g., that done by a district attorney in a large city
- 8 ...
- 9 Extremely complex  
E.g., that done by a government envoy for diplomatic or commercial affairs

## A6. Technical Activities

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

Many jobs require the use of technology, that is, equipment, devices, or technical procedures, techniques, or processes, to attain specific job objectives. Examples range from a bank loan officer operating an accounting machine or computer, to an airline pilot operating a multiengine, multimillion-dollar aircraft on an international flight, to a scientist using advanced, highly technical equipment.

### 39. Using Equipment and Devices

Indicate the degree to which the use of some type of equipment or device is a part of the job. This includes mechanical or electronic equipment or any physical device.

### 40. Complexity of Using Equipment or Devices

Use the scale below to indicate the relative complexity involved in using the equipment or devices typically required in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., making a simple computer terminal entry
- 2 ...
- 3 Uncomplicated  
E.g., using a power saw or micrometer
- 4 ...
- 5 Moderately complex  
E.g., using X-ray equipment or a personal computer (PC)
- 6 ...
- 7 Very complex  
E.g., operating a single-engine aircraft
- 8 ...
- 9 Extremely complex  
E.g., operating a new advanced-generation computer or supersonic aircraft



## A6. Technical Activities

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

### 41. Using Procedures, Techniques, or Processes

Indicate the degree to which procedures, techniques, or processes are used as part of the job. This involves any activity where the use of equipment or devices is incidental to a verbal, mathematical, or other systematic approach to a problem or action. Examples range from simple procedures (such as completing a standard purchase order) to the use of psychoanalytic techniques in therapy or the use of a mathematical algorithm with research data.

### 42. Complexity of Using Procedures, Techniques, or Processes

Use the scale below to indicate the relative complexity of the procedures, techniques, and processes required for the activities typical in this position.

- 0 Does not apply
- 1 Very uncomplicated  
E.g., determining the mailing cost of a package
- 2 ...
- 3 Uncomplicated  
E.g., processing job applications
- 4 ...
- 5 Moderately complex  
E.g., team teaching in an elementary school
- 6 ...
- 7 Very complex  
E.g., pathological testing of human tissue for toxins or peer reviewing a scientific manuscript
- 8 ...
- 9 Extremely complex  
E.g., negotiating a new weapons treaty or developing data to formulate a new theory in physics

## Summary Ratings of Job Functions

### Part of the Job

- 0 Does not apply
- 1 A very limited part of the job
- 2 A limited part of the job
- 3 Some part of the job
- 4 A moderate part of the job
- 5 A considerable part of the job
- 6 A large part of the job
- 7 A very large part of the job
- 8 An extremely large part of the job
- 9 A major focus of the job

Now that you have completed rating the job activities of this position, you have no doubt developed a comprehensive picture of the job. In the following section, you are to rate the more general set of job functions on *several sets of scales*. Please use your best judgment and rate them without referring back to the more specific ratings that you have already made.

Using the response scale at the left, indicate the degree to which the following job functions are a part of the job.

- 43. **Planning and Scheduling**  
E.g., work scheduling, operations planning, and budgeting
- 44. **Processing Information and Ideas**  
E.g., compiling, computing, and analyzing
- 45. **Exercising Judgment**  
E.g., decision making, problem solving, and evaluating
- 46. **Communicating**  
E.g., job-oriented speaking, discussions, or writing
- 47. **Interpersonal Activities and/or Relationships**  
E.g., supervising, coordinating, advising, and representing
- 48. **Technical Activities**  
E.g., using equipment, devices, techniques, or procedures

---

## Complexity

- 0 Does not apply
- 1 Very uncomplicated
- 2 ...
- 3 Uncomplicated
- 4 ...
- 5 Moderately complex
- 6 ...
- 7 Very complex
- 8 ...
- 9 Extremely complex

Using the response scale at the left, indicate the relative complexity of each of the job functions listed below and described above.

- 49. Planning and Scheduling
- 50. Processing Information and Ideas
- 51. Exercising Judgment
- 52. Communicating
- 53. Interpersonal Activities and/or Relationships
- 54. Technical Activities

---

## Impact of Inadequate Performance

- 0 Does not apply
- 1 Only very minor effects
- 2 ...
- 3 Minor adverse effects
- 4 ...
- 5 Moderate adverse effects
- 6 ...
- 7 Substantial effects
- 8 ...
- 9 Extremely serious effects

Using the response scale at the left, indicate the relative impact of inadequate performance of each of the job functions listed below and described above: What would be the degree of adverse impact on the work itself, on other individuals, or on the organization? Consider the duration of these consequences, whether immediate or long-term, their seriousness, and the extent to which they have restricted or widespread effects.

- 55. Planning and Scheduling
- 56. Processing Information and Ideas
- 57. Exercising Judgment
- 58. Communicating
- 59. Interpersonal Activities and/or Relationships
- 60. Technical Activities

---

## Responsibility

- 0 Does not apply
- 1 Only very minor responsibility
- 2 ...
- 3 Minor responsibility
- 4 ...
- 5 Moderate responsibility
- 6 ...
- 7 Substantial responsibility
- 8 ...
- 9 Extreme responsibility

Using the response scale at the left, indicate the degree to which the incumbent is responsible for performing each of the job functions listed below. Consider the relative importance of the work as it relates to him or herself, to other people, to the organization, or to society at large.

- 61. Planning and Scheduling
- 62. Processing Information and Ideas
- 63. Exercising Judgment
- 64. Communicating
- 65. Interpersonal Activities and/or Relationships
- 66. Technical Activities

## B. Personal Requirements

In this division are items regarding qualifications required for adequate performance in this position. One group of items focuses on personal development variables, such as education, training, and experience. The second group pertains to personal qualities. The appropriate rating scale for each item appears below that item.

### B1. Personal Development

What kinds of background or experience are typically required of individuals to perform adequately in this position?

#### 67. Formal Education Required

Use the scale below to indicate the level of formal education normally required as preparation for this position.

- |   |  |
|---|--|
| 0 Does not apply  | 5 Four-year bachelor degree (e.g. B.A., B.S., B.B.A., or B.F.A.)               |
| 1 Some formal education required, but less than a high school diploma | 6 Five-year bachelor degree (as in certain specialized areas)                  |
| 2 High school diploma or equivalent, such as a G.E.D. certificate     | 7 Master's degree (e.g. M.A., M.S., M.B.A., M.P.A., or M.F.A.)                 |
| 3 Some college education, but less than a 2-year associate degree     | 8 Specialized doctoral degree (e.g., J.D., D.D.S., or D.V.M.)                  |
| 4 Associate degree, or between 2 and 4 years of college               | 9 Research-oriented and medical doctoral degree (e.g., Ph.D., D.Sci., or M.D.) |

#### 68. Use of Education

Indicate the degree to which the required education is a part of the job; that is, to what extent is the education made use of in performing the activities of the position?

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 0 Does not apply                 | 5 A considerable part of the job     |
| 1 A very limited part of the job | 6 A large part of the job            |
| 2 A limited part of the job      | 7 A very large part of the job       |
| 3 Some part of the job           | 8 An extremely large part of the job |
| 4 A moderate part of the job     | 9 A major focus of the job           |

#### 69. Complexity of Education

Education programs, even those with the same degree name, can vary markedly as to their difficulty and complexity. Indicate the complexity of the specific educational background that is required for this position.

- |                      |                      |
|----------------------|----------------------|
| 0 Does not apply     | 5 Moderately complex |
| 1 Very uncomplicated | 6 ...                |
| 2 ...                | 7 Very complex       |
| 3 Uncomplicated      | 8 ...                |
| 4 ...                | 9 Extremely complex  |

## B1. Personal Development

### 70. Impact of Education

What are the probable adverse consequences to be expected if a person without the required education were to attempt to perform the activities required in this position? Consider the negative impact this would have on job performance, on other people, and on the organization.

- |   |                         |   |                           |
|---|-------------------------|---|---------------------------|
| 0 | Does not apply          | 5 | Moderate adverse effects  |
| 1 | Only very minor effects | 6 | ...                       |
| 2 | ...                     | 7 | Substantial effects       |
| 3 | Minor adverse effects   | 8 | ...                       |
| 4 | ...                     | 9 | Extremely serious effects |

### 71. Special Training Required

Use the scale below to indicate the level of special training needed to perform adequately on the job. Do *not* include formal education, but do include classroom training, on-the-job training, company workshops, military orientation programs, formal management training programs, or a physician's residency specialization which includes professional seminars.

- |   |   |   |  |
|---|---|---|--|
| 0 | None (does not apply)                             | 5 | More than 6 months up through 1 year of training |
| 1 | Very limited (no more than 1 day of orientation)  | 6 | More than 1 year up through 2 years of training  |
| 2 | More than 1 day up through 1 week of training     | 7 | More than 2 years up through 3 years of training |
| 3 | More than 1 week up through 1 month of training   | 8 | More than 3 years up through 5 years of training |
| 4 | More than 1 month up through 6 months of training | 9 | More than 5 years of training                    |

### 72. Use of Training

Indicate the degree to which the required training is a part of the job; that is, to what extent is the training made use of in performing the activities of the position?

- |   |                                |   |                                    |
|---|--------------------------------|---|------------------------------------|
| 0 | Does not apply                 | 5 | A considerable part of the job     |
| 1 | A very limited part of the job | 6 | A large part of the job            |
| 2 | A limited part of the job      | 7 | A very large part of the job       |
| 3 | Some part of the job           | 8 | An extremely large part of the job |
| 4 | A moderate part of the job     | 9 | A major focus of the job           |

### 73. Complexity of Training

Indicate the relative difficulty and complexity of the specific training required for an individual to be able to perform adequately in this position.

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| 0 | Does not apply     | 5 | Moderately complex |
| 1 | Very uncomplicated | 6 | ...                |
| 2 | ...                | 7 | Very complex       |
| 3 | Uncomplicated      | 8 | ...                |
| 4 | ...                | 9 | Extremely complex  |

## B1. Personal Development

### 74. Impact of Training

What are the probable adverse consequences to be expected if a person without the required training were to attempt to perform the activities required in this position? Consider the negative impact this would have on the job, on other people, and on the organization.

0	Does not apply	5	Moderate adverse effects
1	Only very minor effects	6	...
2	...	7	Substantial effects
3	Minor adverse effects	8	...
4	...	9	Extremely serious effects

### 75. Required Relevant Experience

Some positions require that the individual have relevant previous job experience; this may be supervised experience, such as an internship, or experience in related, lower-level jobs, as is the case of many managerial and professional promotions. Use the scale below to indicate the typical amount of supervised experience or the amount of time in previous, lower-level jobs which would be expected of a person being considered for this position.

0	None (does not apply)	5	More than 2 years up through 5 years
1	Less than 1 month of experience	6	More than 5 years up through 10 years
2	More than 1 month up through 6 months	7	More than 10 years up through 15 years
3	More than 6 months up through 1 year	8	More than 15 years up through 20 years
4	More than 1 year up through 2 years	9	More than 20 years experience

### 76. Use of Experience

Indicate the degree to which the required experience is a part of the job; that is, to what degree is the experience made use of in performing the activities of the position?

0	Does not apply	5	A considerable part of the job
1	A very limited part of the job	6	A large part of the job
2	A limited part of the job	7	A very large part of the job
3	Some part of the job	8	An extremely large part of the job
4	A moderate part of the job	9	A major focus of the job

### 77. Complexity of Experience

Indicate the complexity of the required experience a person would typically need to adequately perform this job.

0	Does not apply	5	Moderately complex
1	Very uncomplicated	6	...
2	...	7	Very complex
3	Uncomplicated	8	...
4	...	9	Extremely complex

---

## B1. Personal Development

### 78. Impact of Experience

What are the probable adverse consequences to be expected if a person without the required experience were to be placed in this position? Consider the negative impact this would have on the job, on other people, and on the organization.

- |   |                         |   |                           |
|---|-------------------------|---|---------------------------|
| 0 | Does not apply          | 5 | Moderate adverse effects  |
| 1 | Only very minor effects | 6 | ...                       |
| 2 | ...                     | 7 | Substantial effects       |
| 3 | Minor adverse effects   | 8 | ...                       |
| 4 | ...                     | 9 | Extremely serious effects |

---

## B2. Personal Qualities

Some positions do not require that an individual have any particular trait or characteristic relevant to performing the job; in other positions, there are expectations that the individual will have a particular characteristic. For example, a pediatrician is normally expected to be gentle and compassionate with children; an insurance sales representative is typically expected to be aggressive and also sociable; a diplomat is expected to be calm and collected under pressure.

### 79. Required Personal Characteristics

Use the scale below to indicate the degree to which any kind of special personal trait or characteristic is required to adequately perform the activities associated with the position.

- |   |                             |   |   |
|---|-----------------------------|---|---|
| 0 | Does not apply              | 5 | To a considerable degree                        |
| 1 | Only to a very minor degree | 6 | ...   |
| 2 | ...                         | 7 | To a very considerable degree                   |
| 3 | To a moderate degree        | 8 | ...   |
| 4 | ...                         | 9 | Extremely essential to adequate job performance |

### 80. Use of Personal Characteristics

Indicate the degree to which special traits or characteristics are a part of the job; that is, to what degree do any personal characteristics or traits affect adequate job performance?

- |   |                                |   |                                    |
|---|--------------------------------|---|------------------------------------|
| 0 | Does not apply                 | 5 | A considerable part of the job     |
| 1 | A very limited part of the job | 6 | A large part of the job            |
| 2 | A limited part of the job      | 7 | A very large part of the job       |
| 3 | Some part of the job           | 8 | An extremely large part of the job |
| 4 | A moderate part of the job     | 9 | A major focus of the job           |

### 81. Complexity of Personal Characteristics

Indicate the relative complexity of the special traits or characteristics needed for adequate job performance. For example, a used car salesperson needs to be persuasive; a law enforcement officer must be firm, quick to respond to emergencies, yet patient and compassionate with lost children; a psychiatrist must display various characteristics at different times depending on the patient, the problem, and the situation.

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| 0 | Does not apply     | 5 | Moderately complex |
| 1 | Very uncomplicated | 6 | ...                |
| 2 | ...                | 7 | Very complex       |
| 3 | Uncomplicated      | 8 | ...                |
| 4 | ...                | 9 | Extremely complex  |

## B2. Personal Qualities

### 82. Impact of Personal Characteristics

What are the probable adverse consequences to be expected if a person without the relevant personal characteristics were to be placed on this job?

- |   |                         |   |                           |
|---|-------------------------|---|---------------------------|
| 0 | Does not apply          | 5 | Moderate adverse effects  |
| 1 | Only very minor effects | 6 | ...                       |
| 2 | ...                     | 7 | Substantial effects       |
| 3 | Minor adverse effects   | 8 | ...                       |
| 4 | ...                     | 9 | Extremely serious effects |

### 83. Adaptability Required

Many jobs require individuals to be adaptable, that is, able to change to meet new conditions or situations. Use the scale below to indicate the degree to which adaptability and flexibility are required for adequate job performance.

- |   |   |   |   |
|---|---|---|---|
| 0 | None (Does not apply)                       | 5 | Routinely; moderate adaptability is required          |
| 1 | Rarely; minor adaptability is required      | 6 | ...   |
| 2 | ...   | 7 | Frequently; very substantial adaptability is required |
| 3 | Occasionally; some adaptability is required | 8 | ...   |
| 4 | ...   | 9 | Almost continually; extreme adaptability is required  |

### 84. Use of Adaptability

Indicate the degree to which the ability to be adaptable is a part of the job; that is, to what degree does the achievement of job objectives depend on such flexibility?

- |   |                                |   |                                    |
|---|--------------------------------|---|------------------------------------|
| 0 | Does not apply                 | 5 | A considerable part of the job     |
| 1 | A very limited part of the job | 6 | A large part of the job            |
| 2 | A limited part of the job      | 7 | A very large part of the job       |
| 3 | Some part of the job           | 8 | An extremely large part of the job |
| 4 | A moderate part of the job     | 9 | A major focus of the job           |

### 85. Complexity of Adaptability

Indicate the complexity of the adaptability required in this position. For example, the emergencies encountered by an elementary school teacher are relatively simple and straightforward; those of a police officer are more complicated and diverse; those of an emergency department physician in an urban hospital are extremely heterogeneous and critical.

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| 0 | Does not apply     | 5 | Moderately complex |
| 1 | Very uncomplicated | 6 | ...                |
| 2 | ...                | 7 | Very complex       |
| 3 | Uncomplicated      | 8 | ...                |
| 4 | ...                | 9 | Extremely complex  |

### 86. Impact of Adaptability

What are the probable adverse consequences to be expected if a person did not have the adaptability needed to perform the job adequately?

- |   |                         |   |                           |
|---|-------------------------|---|---------------------------|
| 0 | Does not apply          | 5 | Moderate adverse effects  |
| 1 | Only very minor effects | 6 | ...                       |
| 2 | ...                     | 7 | Substantial effects       |
| 3 | Minor adverse effects   | 8 | ...                       |
| 4 | ...                     | 9 | Extremely serious effects |

## C. Other Information

This division presents questions relevant to responsibilities for supervision and resources, and other related demands.

### 87. Number of Nonsupervisory Personnel Supervised

Use the scale below to indicate the number of nonsupervisory personnel who report to an individual in this position. This number should exclude professional personnel; it usually includes, among others, most office, technical, and hourly paid personnel.

0	None	5	8 to 10
1	1	6	11 to 20
2	2 to 3	7	21 to 30
3	4 to 5	8	31 to 45
4	6 to 7	9	More than 45

### 88. Number of Supervisory and Professional Personnel Supervised

Use the scale below to indicate the number of supervisors and professional personnel who report directly to the individual who holds this position.

0	None	5	9 to 12
1	1	6	13 to 15
2	2	7	16 to 20
3	3 to 4	8	21 to 30
4	5 to 8	9	More than 30

### 89. Total Number of Personnel

Use the scale below to indicate the total number of people for whom the person in this position is directly or indirectly responsible. Include all personnel in the organizational unit for which the person is responsible.

0	None	5	51 to 100
1	1 to 2	6	101 to 500
2	3 to 10	7	501 to 1,500
3	11 to 25	8	1,501 to 5,000
4	26 to 50	9	More than 5,000

### 90. Resources Responsibility

Use the scale below to indicate the approximate dollar value of the organizational resources, such as personnel salaries and operating budget, for which the person in this position is responsible on an annual basis.

0	None	5	\$500,000 up to \$1 million
1	Less than \$10,000 per year	6	\$1 million up to \$10 million
2	\$10,000 up to \$50,000	7	\$10 million up to \$50 million
3	\$50,000 up to \$100,000	8	\$50 million up to \$100 million
4	\$100,000 up to \$500,000	9	\$100 million or more



**91. Average Work Week**

Use the scale below to indicate the approximate number of hours the person in this position spends in an average week on the job and in other work-related activities, including required social activities, work taken home, and overtime.

- |   |                             |   |                        |
|---|-----------------------------|---|------------------------|
| 0 | Does not apply              | 5 | 41 to 45 hours         |
| 1 | Less than 20 hours per week | 6 | 46 to 50 hours         |
| 2 | 20 to 29 hours              | 7 | 51 to 60 hours         |
| 3 | 30 to 39 hours              | 8 | 61 to 70 hours         |
| 4 | 40 hours per week           | 9 | Over 70 hours per week |

**Part of the Job**

- 
- 0 Does not apply
  - 1 A very limited part of the job
  - 2 A limited part of the job
  - 3 Some part of the job
  - 4 A moderate part of the job
  - 5 A considerable part of the job
  - 6 A large part of the job
  - 7 A very large part of the job
  - 8 An extremely large part of the job
  - 9 A major focus of the job

Use the response scale at the left to answer items 92 through 95.

**92. Creativity Required**

Indicate the degree to which originality and creativity are requirements of this position such as involved in certain professions (e.g., artist, author, and architect) or in some technical positions (e.g., research and development, systems design, or other areas).

**93. Personal Counseling**

Indicate the degree to which the person in this position is required to counsel employees, clients, students, or others about career plans, personal problems, or other matters.

**94. Monitoring**

Indicate the degree to which the person in this position must review the activities of others or review organizational activities. This may not involve actual supervision or final decision-making authority.

**95. Marketing**

Indicate the degree to which the person in this position must influence others toward some action or point of view, as is involved in the selling of some product or service.

**96. Professional Group Membership**

Is the person in this position typically required or expected to be a member of (a) a professional group, such as the American Medical Association, American Bar Association, American Psychological Association, or Society for American Archaeology, or (b) a union, such as the National Education Association or International Brotherhood of Teamsters?

- 0 None required; no relevant group
- 1 Optional membership
- 2 Membership required

**97. Licensing and Certification**

Does this position require licensure or certification by a state or local government?

- 0 None required
- 1 Optional
- 2 Required

**98. Basis of Employment**

Indicate which of the following employment categories reflects the basis of employment for this position.

- |   |  |   |  |
|---|--|---|--|
| 0 | Self-employment  | 4 | Private school (privately owned school, college, or university)  |
| 1 | Private industry   | 5 | Public school (school, college, or university operated by counties, municipalities, states, or other government organizations) |
| 2 | Government (federal, state, or local)                          |   |  |
| 3 | Nonprofit organization (foundations or nonprofit corporations) |   |  |

**Extra Items**  
(Items 99 through 108)

There is a provision on the item-rating side of the Answer Sheet for 10 "extra" items (Items 99–108) below the "Responsibility" box (Items 61–66). The "Extra Items" box is turned on its side to differentiate it further from the standard items. These extra items are for special use by an organization that wants to add any additional items of its own choosing.

These items are provided with 10-point rating scales as follows:

0 1 2 3 4 5 6 7 8 9

The organization can use any number of rating-scale points it considers appropriate for the extra items (e.g., 0, 1, 2, 3, 4, and 5). In recording responses to such items, simply mark the response in question in the same manner as used in marking the regular PMPQ items.

**Salary Information (confidential)**

This section is used to gain salary information about the position. Such information may be used for compensation research purposes when combined with information from other analyses, or it may be used by organizational personnel for administrative purposes.

*All salary information in the PMPQ database is considered confidential and will be used only in aggregate form across the various job categories studied (unless written permission is granted to do otherwise).*

To calculate Monthly Median Compensation, use the directions below and the "Calculation of Median Monthly Compensation" Box on the answer sheet (in the upper right corner of the back page). Once the Median Monthly Compensation has been calculated, the information may be entered in box 14 on the answer sheet (in the lower right corner of the front page). For uniformity in reporting data, please follow these steps:

1. Note the value of compensation from all organizational sources including:

- Base Salary/Wage
- Supplemental Income (incentive pay, commissions, tips, etc.)
- Miscellaneous Compensation (stock, bonuses, living allowances, etc.)
- Self-Employed Earnings
- Other Compensation

2. Convert the base compensation rate for the position to an average monthly base by using the "Calculation of Median Monthly Compensation" Box on the answer sheet or by using the table below:

Yearly rate	x	1/12	=	monthly rate
Monthly rate	x	1	=	monthly rate
Weekly rate	x	4.333	=	monthly rate
Hourly rate	x	173	=	monthly rate

3. Similarly, convert all other sources of income (including: supplemental income, miscellaneous compensation, self-employed earnings) to an average monthly base.

MEDIAN MONTHLY COMPENSATION (\$, ETC.)					
10000's	1000's	100's	10's	1's	10's
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

4. Sum the value received from all forms of compensation to yield the Average Total Monthly Compensation.
5. Enter your responses by first filling in the appropriate field in the boxes on the answer sheet and then marking in the amount in the response circles as shown in the example to the left.

*Note:* If this analysis is for a single incumbent position, report this value in Block 14 of the answer sheet or in the appropriate field in the computer record. If necessary, code zero(s) in the top boxes so that the number completely fills the spaces provided. (See the example to the left on this page.)

If for a multiple incumbent job, report the median value for all positions within the job in Block 14. If the largest values to be reported for the organization exceed the six spaces provided, round the values to be reported to the same digit for each analysis before entering.

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## VITA

William Bucklin Welch

Candidate for the Degree of

Doctor of Education

Thesis: AN IDENTIFICATION AND DESCRIPTION OF THE "DIRECTOR OF SAFETY" POSITION THAT IS REQUIRED BY TITLE 14 CODE OF FEDERAL REGULATION PART 119.65 FOR DOMESTIC AND FLAG AIR CARRIERS

Major Field: Applied Educational Studies

### Biographical:

Personal Data: Born in Louisville, Kentucky, June 6, 1955, the son of Frederic B. and Patricia B. Welch.

Education: Graduated from Indian Hill High School, Cincinnati, Ohio, in June 1974; received Bachelor of Administration degree in Aviation Administration from Embry-Riddle Aeronautical University, Daytona Beach, Florida, in December 1985; received Master of Arts degree in Business Management from Webster University, Wichita, Kansas, in March 1988. Completed requirements for the Doctor of Education degree with a major in Applied Educational Studies at Oklahoma State University, Stillwater, Oklahoma, in May 2001.

Professional Experience: Senior Air Safety Investigator, Cessna Aircraft Company, 1988 to present. Adjunct Instructor III, Embry-Riddle Aeronautical University, 1993 to present. Aircraft Sales Specialist, Cessna Aircraft Company, 1986 to 1988.

Professional Organizations: International Society of Air Safety Investigators, Investigator Training and Education working group, General Aviation Manufacturers Association, General Aviation Air Safety Investigators committee.