DEPARTMENT OF COMMERCE

PERSONNEL MANAGEMENT DEMONSTRATION PROJECT EVALUATION

YEAR SIX FINAL REPORT

Washington, DC
April 14, 2006

FINAL REPORT

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EXECUTIVE SUMMARY

This report presents Booz Allen Hamilton Inc.'s (Booz Allen) assessment of Year Six[1] of the Department of Commerce Personnel Management Demonstration Project. This Executive Summary provides a summary of the purpose of the Demonstration Project, the status of the personnel innovations after six years, and recommendations for future actions.

ES.1. The Department of Commerce has completed six years of the Personnel Management Demonstration Project, designed to test and evaluate a series of alternative personnel practices and to determine the generalizability of these interventions elsewhere.

In March 1998, the Department of Commerce (DoC) initiated a five-year Personnel Management Demonstration Project (hereafter referred to as the Demonstration Project) as a means of testing and evaluating a series of personnel interventions. This effort was undertaken to determine whether alternative personnel practices are more successful in helping to achieve agency goals than traditional personnel practices. The success of these interventions during the Demonstration Project would help to determine whether any or all of the interventions can be beneficially implemented elsewhere within DoC as well as government-wide.

In 2003, DoC requested and received permission from the Office of Personnel Management (OPM) to both extend and expand the Demonstration Project (the extension was approved through an administrative letter from OPM, dated February 14, 2003; the expansion was announced in a *Federal Register* notice (see Appendix A-1) dated September 17, 2003). The extension permitted DoC to continue operating the Demonstration Project for an additional five years, ending in March 2008 (Years Six through Ten). The expansion permitted DoC, as of October 5, 2003, to expand the coverage of the Demonstration Project to additional organizations within DoC and to increase the number of participants up to the legal maximum of 5,000 participants.

The Demonstration Project was originally designed to apply some of the human resource interventions from an earlier DoC Demonstration Project at the National Institute of Standards and Technology (NIST). The NIST Project achieved highly successful results and, at its conclusion, the interventions were made permanent. The current project seeks to build on the success of the NIST Project and determine whether or not these interventions can be successfully implemented within DoC to a wider range of occupational areas and within organizations with different missions.

1 *Year Six covers the time period of April 1, 2003 to March 31, 2004.*

ES.1.1. The general objectives of this Demonstration Project emphasize the development of a higher performing workforce, as well as greater efficiency and flexibility of personnel processes.

This Demonstration Project is designed to foster improved organizational and individual performance. This is to be done by recognizing high quality performance and recruiting and retaining high performers. The stated project objectives are:

- Increased quality of new hires
- Improved fit between position requirements and individual qualifications
- Greater likelihood of getting a highly qualified candidate
- Increased recruitment and retention of high performing employees
- Improved individual and/or organizational performance
- More effective human resources management
- More efficient human resources management
- Increased delegation of authority and accountability to managers
- Better human resources systems to facilitate organizational mission and excellence
- Continued support for EEO/diversity goals in recruiting, rewarding, and retaining minorities, women, and veterans
- Continued provision of opportunities for a diverse work force
- Maximization of the contributions of all employees.

ES.1.2. As the evaluators of the Demonstration Project, Booz Allen conducted the Year Six evaluation to determine the impact of the interventions in Year Six and over the six-year period.

All Demonstration Projects under 5 USC 47 must be evaluated, by statute, for the life of the project. OPM clearly defines processes for evaluating Demonstration Projects by an outside evaluator. Following OPM guidelines, evaluators submit formal assessment reports at specified time intervals over the course of a Demonstration Project. As the evaluator of the DoC's Demonstration Project, Booz Allen submitted an Implementation Year Report, Operational Year Report, and Summative Year Report that assessed the implementation and operation of the Demonstration Project during Year One, Year Three, and Year Five, respectively. In addition, Booz Allen submitted reports in Year Two and Year Four that were designed to serve as mid-course checks. During Years Six through Ten, Booz Allen will continue to conduct annual evaluations to monitor and evaluate the effectiveness of these personnel interventions put in place by DoC.

ES.1.3. The Year Six Report focuses exclusively on analyses of objective data. Where appropriate, comparisons are made between the Demonstration and Comparison Groups and across time.

By design, the Year Six Report relies solely on objective data. A main source was the datafiles provided by DoC with data pertaining to performance, compensation, recruitment, and demographics for the time period April 2003 to March 2004 for both the Demonstration Group and the Comparison Group. In addition, we collected and analyzed human resources (HR) summary-level data on recruitment and related activities.

Wherever possible, comparisons were drawn between the Demonstration and Comparison Groups as a means of assessing the degree to which the interventions appear to be having an impact on Demonstration Group participants relative to the experiences of the Comparison Group participants. Similarly, where feasible, analyses were conducted to show the trends that are occurring across time in regards to the impact of the interventions.

ES.2. At the conclusion of the six years, evidence exists that a number of the interventions are having the desired effects.

The Year Six evaluation focused on the strengths and areas for improvement in five key areas: pay and performance, three-year probation, recruitment, retention, and EEO/diversity impact. Many of the findings were consistent with past years, thus demonstrating sustainability of these interventions over longer time intervals.

ES.2.1. As occurred in all previous years, the pay-for-performance system continues to exhibit a positive link between pay and performance.

A series of interventions were implemented during the Demonstration Project to improve the relationship between high performance and financial reward. These interventions include performance-based pay increases, performance bonuses, more flexible pay increases upon promotion, and supervisory performance pay. Year Six analyses highlight the following:

- Demonstration Group participants received larger average performance-based pay increases than did Comparison Group participants (2.81 percent of salary[2] versus 2.64 percent of salary)
- Consistent with Year Five, among Demonstration Group participants, those in the ZA[3] career path received the highest average performance-based pay increases
- Demonstration Group participants received larger performance-based bonuses/awards than did Comparison Group participants (1.76 percent versus 1.59 percent)
- Average performance scores steadily increased from 82.0 in Year One to 86.9 in Year Six
- Based on a regression analysis, performance score (and organization) was a consistent predictor of performance-based pay increase, across all career paths, among all factors considered (including initial salary, pay band, interval, promotion, supervisory status, organization, length of service, age, race, gender, and veteran status); four factors (i.e., interval, supervisory status, promotion, and age) had an influence in two of the four career path
- The flexible pay upon promotion intervention continues to be successful
- The supervisory performance pay intervention continued to reward supervisors who had reached the top of their pay bands (many of whom were performing reasonably well); however, it did not necessarily reward all high performing supervisors.

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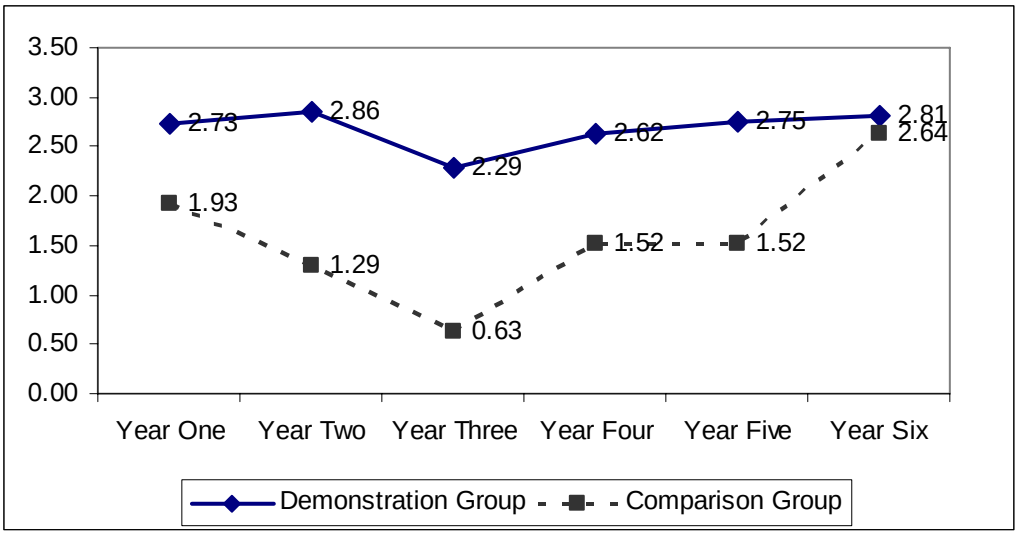
2 *Unless stated otherwise, references in this document to "percent of salary" or "pay increase percentage" pertain to performance-based pay increases from the beginning to the end of Year Six; this concept is not intended to be synonymous with the "percent of percent" concept often discussed in the context of the Demonstration Project.*

3 *Under the Demonstration Project, Demonstration Group occupations are grouped into four broad career paths: ZP – Scientific and Engineering, ZT – Scientific and Engineering Technician, ZA –Administrative, and ZS – Support.*

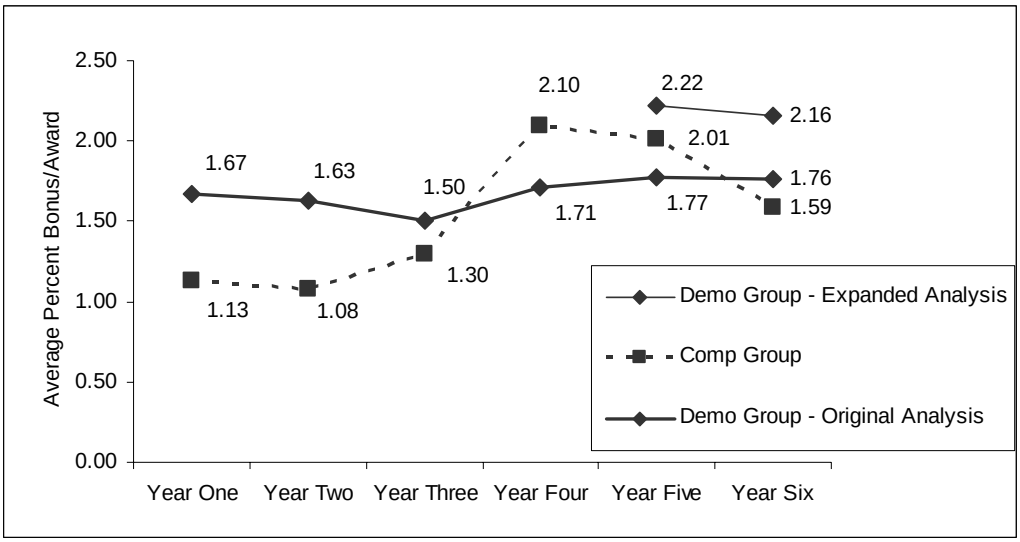
Figure ES-1 displays trends for average performance-based pay increases over Years One through Six of the Demonstration Project. This figure depicts how Demonstration Group average performance-based pay increases have remained reasonably constant over the years (likely a reflection of how the Demonstration Project is budget neutral) and have always been higher than the Comparison Group. In Year Six, the Comparison Group average spiked upward, nearly to the level of the Demonstration Group. Figure ES-2 displays trends for average bonuses/awards over Years One through Six of the Demonstration Project. Over time, average bonus percentages in the Demonstration Group have remained relatively constant, with a slight upward trend in the past few years. Meanwhile, average award percentages in the Comparison Group have fluctuated over the years. Regardless of whether the original or expanded bonus analysis is used as a comparison, the Demonstration Group average bonus percentages were higher in Year Six than the Comparison Group average award percentages.

Figure ES-1. Trend Analysis of Average Percent Salary Increases



Note: The Comparison Group Year Two data point was revised in Year Three to reflect a correction in the formula used to calculate average percent salary increase.

Figure ES-2. Trend Analysis of Average Bonus/Award Percentages



Note: Beginning in Year Five, the analysis of bonus/award data was addressed in two separate ways for the Demonstration Group. The original analysis was based solely on performance-based bonuses, consistent with previous years. The expanded analysis was based on all bonuses/awards received by Demonstration Group participants and allows inclusion of "Special Act" awards and Other Awards, given that these were accounted for in the Comparison Group calculation.

ES.2.2. Most of the Demonstration Group scientists and engineers who had time left in their three-year probationary periods were kept on probation, which allows managers with a longer timeframe in which to evaluate performance.

The three-year probationary period for scientists and engineers intervention was designed to allow supervisors the ability to make permanent hiring decisions for research and development (R&D) positions based on employees' demonstrated capabilities in the full R&D cycle. In Year Six, 145 employees were under the three-year probation, 45 of whom had just started their probation in Year Six. By the end of Year Six, 26 employees who had been under the three-year probation had been made permanent: most of whom were made permanent after completing a full three years on the three-year probation. Few employees were taken off probation (i.e., made permanent) in their first or second year, indicating that managers are making use of this option to allow employees to remain in probationary status for a longer period of time, thus giving employees a longer time horizon in which to demonstrate their skills.

Another useful metric of this intervention is the number of employees on three-year probation who leave while on three-year probation. In Year Six, two employees left, one due to resignation and one due to termination. However, this represents a lower turnover rate than occurred in the Demonstration Group overall, which suggests that managers either do not have the need or are not fully taking advantage of their ability to terminate poor performers during the three year probationary period.

ES.2.3. While many of the recruitment and staffing interventions under the Demonstration Project are no longer unique, many of those that are being applied are showing positive results.

The recruitment and staffing interventions are intended to attract high quality candidates and speed up the recruiting and examining process. In Year Six, evaluation of the interventions showed mostly positive outcomes:

- A total of 330 new hires joined the Demonstration Group
- Newer hires outperformed the more tenured employees, providing some indication of success with improving the quality of new hires
- Recruitment payments were used for more new hires (3 percent) to the Demonstration Group than previous years
- Demonstration Group managers generally used a wider range of salaries for new hires than were used in the Comparison Group
- The Demonstration Group experienced more offer re-negotiations, faster classification activities, and faster times to fill positions
- Acceptance rates were lower among the Demonstration Group than the Comparison Group, which could be either positive or negative depending on the reason for the discrepancy.

ES.2.4. Many of the retention interventions are having the desired effect as employee motivators.

The retention interventions are designed to provide managers with tools to motivate and retain high performing employees. In Year Six, evaluation of the retention interventions showed mostly positive outcomes:

- Turnover is greater among low performers, both when looked at in the aggregate or by career path
- Demonstration Group participants who left received lower performance-based pay increases, bonuses, and total awards than Demonstration Group participants who remained
- Retention payments were used for the first time in the Demonstration Project.

One area in which the evidence is not yet clear is the effectiveness of supervisory performance pay as a retention tool. The findings have been inconsistent from year to year on whether supervisory performance pay helps to retain supervisors; further examination is needed.

ES.2.5. The Demonstration Project interventions continue to reflect a system in which there is no evidence of unfair treatment based on race, gender, or veteran status.

Booz Allen again performed a series of analyses on objective data pertaining to performance, compensation, and demographics of the Demonstration Project participants. Consistent with previous years, these analyses suggest that the Demonstration Project has not been detrimental to the recruitment or compensation of minorities, women, or veterans. Some differences in retention rates were noted based on race/national origin groups, which warrant further study.

ES.3. Recommendations are offered to help focus the Demonstration Project as it moves forward.

The Year Six findings suggest that the Demonstration Project is operating effectively and has experienced success with a number of the interventions such as the ability to link pay and performance, retain high performers and turn over low performers, and use more pay flexibility to attract candidates and promote employees. A series of recommendations are offered to enhance aspects of the Demonstration Project based on Year Six findings as well as trend analyses covering the past six years.

ES.3.1. DoC should continue to communicate the Demonstration Project's successes and lessons learned, as a contribution toward government wide initiatives to expand pay-for-performance.

In the years since the Demonstration Project was enacted, there has been heightened interest across the federal government to implement pay-for-performance systems, such as the one that DoC has included as a key intervention in the Demonstration Project. As such, the Demonstration Project serves as a test bed and role model for how pay-for-performance can be implemented in the government. Consistent with the initial objective to determine the generalizability of these interventions elsewhere, DoC should continue to both communicate the strengths of the program as well as lessons learned, for the benefit of other federal agencies considering moving toward this type of system and for which some apprehension exists. Given that the Year Six findings are solely based on objective data, these results can help to substantiate the positive benefits of a pay-for-performance system based on hard data, thereby helping to negate some of the perceptions and biases that exist against pay-for-performance systems.

Moreover, DoC should (within reason) seek to study issues that may be enlightening not just for the Demonstration Project but for government wide initiatives as well. For example, it may be worth exploring whether there is merit in the often cited recommendation to use a competency-based performance management system within a pay-for-performance system. Also to this end, DoC should seek to continually improve data collection tools and techniques to maximize the quality of data collected about the Demonstration Project. For example, it may be worth reviewing and revising some of the data collection protocols used for the evaluations to include topics that are also salient to the government wide initiative, such as more emphasis on discerning how these types of systems promote better individual and team level performance, create a more motivated workforce, create a more business-oriented workforce, and restructure

processes and instill confidence to help line managers be more effective as they take on increased responsibilities for pay decisions.

ES.3.2. DoC should examine the ZT career path to determine if initiatives need to be taken to enhance their work experiences.

The Year Six data showed that those in the ZT career path, Scientific and Engineering Technicians, had low performance appraisal scores, performance-based pay increases, and performance bonuses relative to other career paths. Those in the Comparison Group who are in positions that are comparable to the ZT career path also had the lowest performance-based pay increases and performance bonuses, relative to other career paths. While this is evidently not an issue specific to the Demonstration Project, it may be worthwhile to study the work experiences of these individuals to determine if strategies need to be implemented that will result in improved performance levels. In turn, increased performance will ideally lead to increased performance-based pay increases and performance bonuses for individuals. The emphasis of this type of study could be in areas such as skills, training opportunities, job satisfaction, and career pathing, to name a few. Moreover, given that this appears to be an issue in the Comparison Group as well, the results of this investigation may have further reaching benefits across the organization.

ES.3.3. Examine the reasons beyond candidates accepting or rejecting job offers into the Demonstration Project.

Over the past several years, the Demonstration Group has experienced a lower acceptance rate on job offers than has the Comparison Group. While potential reasons for this were hypothesized in the report (e.g., more competitive candidates who have other competing offers; more compensation savvy candidates; reticence to join the Demonstration Group), the actual reasons are not known. DoC should examine existing information and/or capture new information (e.g., via interviews/surveys to job applicants) that could shed light on the motives of job applicants to accept or reject job offers. This may provide insights into candidates' perspectives on the job market and perspectives on the Demonstration Project, both of which could lead toward making positive changes.

ES.3.4. Monitor the differential turnover rates, particularly the higher turnover among Black (not of Hispanic origin) employees.

Given the emphasis beginning in Year Six to take a closer look at the differential experiences in the Demonstration Project based on race/national origin group (a finer level of detail than in previous years when all minorities were grouped together), additional findings are emerging. One finding that emerged in Year Six, and to be monitored in subsequent years, is the higher turnover rates among Black (not of Hispanic origin) employees compared to other groups. Assuming that a pattern emerges, DoC may want to study the types of factors leading to departure, and what types of retention strategies could be imposed to reduce unwanted turnover.

Given that exit interview data are known to be a less than accurate source, and given the desire to address the situation *before* high performers depart, a recommended method for studying this issue would be to examine turnover *intentions* among existing staff. Turnover intentions are known to be a reliable indicator of turnover behavior and can be captured via a survey or focus

group methodology. Moreover, in delving into the reasons why individuals in this group may choose to leave, DoC may also wish to explore where high performing employees who depart are going (e.g., private sector, elsewhere in the Federal government, elsewhere in DoC).

ES.3.5. Develop opportunities for capped individuals, particularly those in the ZS career path.

As quantified in this year's report, a number of Demonstration Group participants are at the top of their pay bands and therefore are capped from receiving performance-based pay increases commensurate with their performance scores. Further analysis revealed that of all four career paths, those in the ZS career path are most disproportionately represented among the capped employees relative to their representation among Demonstration Project participants overall (ZS comprised 30 percent of the capped employees but only 11 percent of employees overall). Within ZS, this is most pronounced for Black (not of Hispanic origin) employees followed by White (not of Hispanic origin). Presumably these are individuals who have hit the top of their career ladders. While the Demonstration Project analyses have identified this scenario, the pay banding structure is not necessarily to blame – a similar phenomenon occurs in the GS system when individuals achieve the maximum grade levels for their positions. However, the emphasis on performance management within a pay-for-performance system can serve as the impetus to determine whether strategies can be implemented to ensure that those employees with potential are given opportunities to be successful in their careers. Accordingly, DoC may want to consider different strategies for expanding the options of these individuals, such as training, job redesign, and mentoring programs to help individuals acquire the necessary skills to transition into different positions with greater career growth and pay potential. In fact, one site historian reported that some efforts have been made in the past to help capped ZS employees to acquire training, compete for promotions, and then transition into the ZA career path. More efforts along these lines would be beneficial.

ES.3.6. Continue to dedicate resources toward the management of Demonstration Project data.

Given the increasing complexities of the Demonstration Project data, as a greater number of employees are included and as analyses become increasingly more sophisticated, DoC should continue to dedicate resources to the Demonstration Project data. The accuracy of the analyses is predicated on the quality of the data and therefore data management is paramount. This emphasis on data quality should extend beyond data management at the headquarters level and should also include ensuring that the proper training, tools, and mechanisms are in place to ensure that data are accurately and consistently entered at the participating organization level.

1. INTRODUCTION

This chapter presents a brief background on the Department of Commerce's (DoC) Personnel Management Demonstration Project as well as the purpose and structure of this report.

1.1. The Department of Commerce has completed six years of the Personnel Management Demonstration Project, designed to test and evaluate a series of alternative personnel practices and to determine the generalizability of these interventions elsewhere.

In March 1998, DoC initiated a five-year Personnel Management Demonstration Project (hereafter referred to as the Demonstration Project) as a means of testing and evaluating a series of personnel interventions. This effort was undertaken to determine whether alternative personnel practices are more successful in helping to achieve agency goals than traditional personnel practices. The success of these interventions during the Demonstration Project would help to determine whether any or all of the interventions can be beneficially implemented elsewhere within DoC as well as government-wide.

In 2003, DoC requested and received permission from the Office of Personnel Management (OPM) to both extend and expand the Demonstration Project (the extension was approved through an administrative letter from OPM, dated February 14, 2003; the expansion was announced in a *Federal Register* notice (see Appendix A-1) dated September 17, 2003). The extension permitted DoC to continue operating the Demonstration Project for an additional five years, ending in March 2008 (Years Six thorough Ten). The expansion permitted DoC, as of October 5, 2003, to expand the coverage of the Demonstration Project to additional organizations within DoC and to increase the number of participants up to the legal maximum of 5,000 participants.

The Demonstration Project was originally designed to apply some of the human resource interventions from an earlier DoC Demonstration Project at the National Institute of Standards and Technology (NIST). The NIST Project achieved highly successful results and, at its conclusion, the interventions were made permanent. The current project seeks to build on the success of the NIST Project and determine whether or not these interventions can be successfully implemented within DoC to a wider range of occupational areas and within organizations with different missions.

OPM clearly defines processes for evaluating Demonstration Projects. Following OPM guidelines, evaluators submit formal assessment reports at specified time intervals over the course of a Demonstration Project. As the evaluator of the DoC's Demonstration Project, Booz Allen Hamilton Inc. (Booz Allen) submitted an Implementation Year Report, Operational Year Report, and Summative Year Report that assessed the implementation and operation of the Demonstration Project during Year One, Year Three, and Year Five, respectively. In addition, Booz Allen submitted reports in Year Two and Year Four that were designed to serve as mid-course checks. During Years Six through Ten, Booz Allen will continue to conduct annual

evaluations to monitor and evaluate the effectiveness of these personnel interventions put in place by DoC.

1.2. This report provides an assessment of Year Six of the DoC Personnel Management Demonstration Project.

This Year Six Report is the first report since the Demonstration Project was extended and expanded. This report mirrors the format of the reports from Year Two and Year Four in that it primarily focuses upon analyses of objective data (a full evaluation – including survey, focus groups, and interviews – will be conducted in Year Seven). The intended audience for this report is DoC managers who may benefit from keeping abreast of the current state of the Demonstration Project and who may be interested in tracking trends as the personnel interventions take effect. DoC can also use the report to provide an update to OPM on the impact the Demonstration Project is having on ensuring protection for or adherence to equal employment opportunity, veterans, Merit Systems Principles, and Prohibited Personnel Practices. In addition, as part of the expansion of the Demonstration Project, some new organizations have been added to the Demonstration Project. This change, which included some shifts among employee groups participating in the Demonstration Group versus the Comparison Group, is discussed in more detail in Section 2.1. Throughout this report, Booz Allen presents:

- A brief review of the Demonstration Project
- An analysis of objective data collected during the sixth performance year, including performance scores, pay increases, and bonuses
- Comparisons of Demonstration and Comparison Groups
- Results by protected class, where appropriate
- Usage of recruitment and retention interventions
- Trend data across performance years, where appropriate.

1.3. The structure of this report parallels the previous reports; it evaluates each personnel intervention and recommends actions for continued operation.

This Year Six Report represents the sixth in a series of ten reports that Booz Allen will prepare assessing the Demonstration Project. Each report builds on data and findings from previous reports, thereby permitting trend analyses over the course of the Demonstration Project. To facilitate cross-comparisons of reports by those who are reading the reports annually, this and subsequent reports will follow a similar structure. This report contains the following chapters:

Chapter 2 of this report, titled "DoC Demonstration Project and its Evaluation," begins with a brief description of the Demonstration Project, including the objectives guiding the project, the organizations and types of employees included, and the project interventions. The second half of Chapter 2 describes the Demonstration Project evaluation. The research questions relevant to the project are covered, followed by a discussion of the project evaluation phases.

Chapter 3, "Data Collection and Analyses," contains descriptive information on the objective data collection procedures used during the project evaluation, as well as the analyses conducted.

Chapter 4, "Findings and Conclusions," focuses on the major interventions that are being tested during the Demonstration Project. Each section is dedicated to a set of interventions. Each conclusion is explained and then followed by findings that are supported by objective data analyses and/or summary human resources (HR) data analyses. Data are presented in table format, when appropriate, to facilitate understanding.

Chapter 5, "Recommendations," contains recommendations for the interventions, as appropriate. We also provide general recommendations that may not pertain to a specific intervention, but address organizational issues that affect the Demonstration Project.

A series of appendices accompany this report, providing various reference documents, data from the current and previous years, and statistical analyses of the relationship between pay and performance in greater detail beyond that which is provided in the main text of the report.

Booz Allen wrote this report and the conclusions stated within represent our professional expertise and judgment based on the evidence collected as part of the evaluation.

2. DoC DEMONSTRATION PROJECT AND ITS EVALUATION

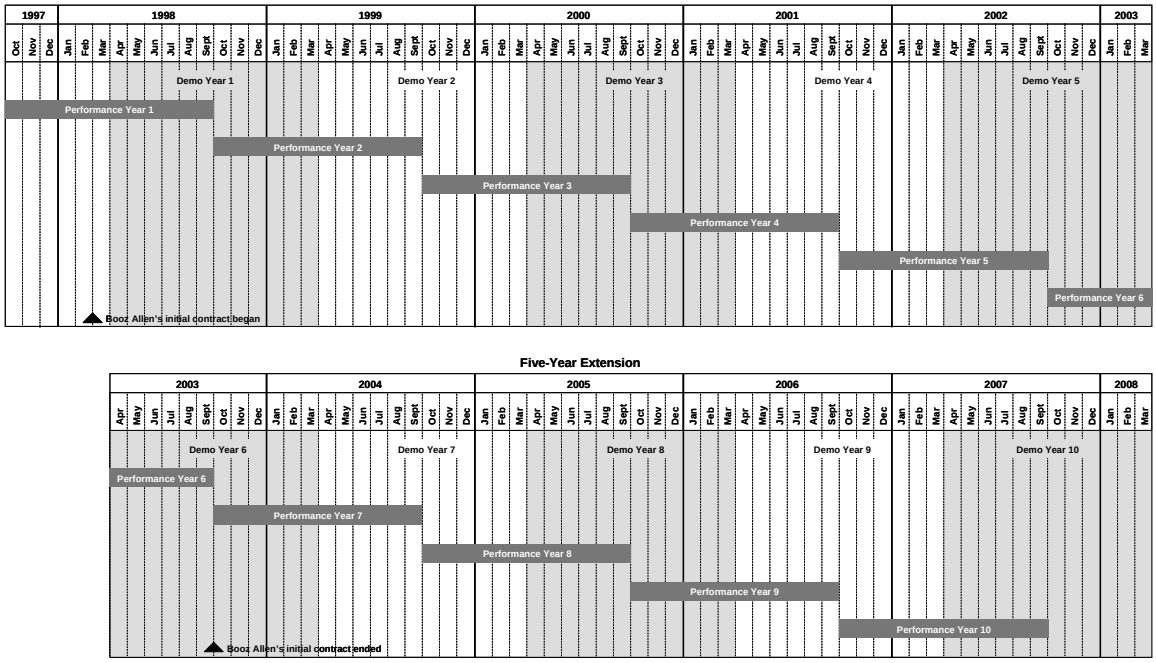
This chapter presents background information concerning the Demonstration Project, including its objectives, the expansion and extension of the Demonstration Project, its scope, and evaluation.

2.1. The Demonstration Project is being conducted to test the effects of innovative human resources practices in different organizations with a variety of occupational groups.

The original DoC Personnel Management Demonstration Project was implemented on March 29, 1998, and was scheduled to last five years (March 2003) as shown in the first half of Figure 2-1. It was designed to apply several of the human resource interventions from an earlier DoC Demonstration Project at the National Institute of Standards and Technology (NIST). The NIST Project achieved highly successful results and, at its conclusion, the interventions were made permanent. The original Demonstration Project sought to build on the success of the NIST Project and determine whether or not these interventions can be successfully implemented within DoC to a wider range of occupational areas and within organizations with different missions. With some exceptions, the interventions that comprised the original Demonstration Project were similar to the interventions made permanent at NIST. Included as part of this Demonstration Project were simplified recruiting, classification, and examining processes, as well as a shift to a pay-for-performance system within a pay-banding framework.

In 2003, the Demonstration Project was extended for an additional five years, through March 2008, to enhance the evaluation of the interventions introduced under the original Demonstration Project. The new timeline for the Demonstration Project can be seen in Figure 2-1. In 2003, it was also decided to expand the Demonstration Project to allow additional organizations to participate. The mission and objectives of Years Six-Ten of the Demonstration Project remain the same as in Years One-Five.

Figure 2-1. DoC Personnel Management Demonstration Project Timeline



2.2. The general objectives of this Demonstration Project emphasize the development of a higher performing workforce, as well as greater efficiency and flexibility of personnel processes.

This Demonstration Project is designed to foster improved organizational and individual performance. This is to be done by recognizing high quality performance and recruiting and retaining high performers. The stated project objectives are:

- Increased quality of new hires
- Improved fit between position requirements and individual qualifications
- Greater likelihood of getting a highly qualified candidate
- Increased recruitment and retention of high performing employees
- Improved individual and/or organizational performance
- More effective human resources management
- More efficient human resources management
- Increased delegation of authority and accountability to managers
- Better human resources systems to facilitate organizational mission and excellence
- Continued support for EEO/diversity goals in recruiting, rewarding, and retaining minorities, women, and veterans
- Continued provision of opportunities for a diverse work force
- Maximization of the contributions of all employees.

2.3. The Demonstration Project includes DoC organizations with a wide range of missions and occupations.

The Demonstration Project is designed to include other organizations within DoC where the personnel interventions adopted at NIST might prove successful. DoC originally selected a number of DoC organizations, with a range of missions and occupational groups, to participate in the current Demonstration Project. Some of these organizations (collectively referred to as the Demonstration Group) received the new personnel interventions. In an effort to determine whether Demonstration Project changes were actually effective, the results obtained from the Demonstration Group are compared with those results from a Comparison Group.

In 2003, DoC extended the Demonstration Project for an additional five years and also expanded it to include additional members, some representing organizations new to the Demonstration Project. As displayed in Figure 2-2, in the initial five years of the Demonstration Project, participants fell into one of two groups: the Demonstration Group (who experienced the tested HR interventions) and the Comparison Group (who did not). With the extension and expansion, there are essentially five subsets to the Demonstration Group and the Comparison Group. The Demonstration Group is comprised of:

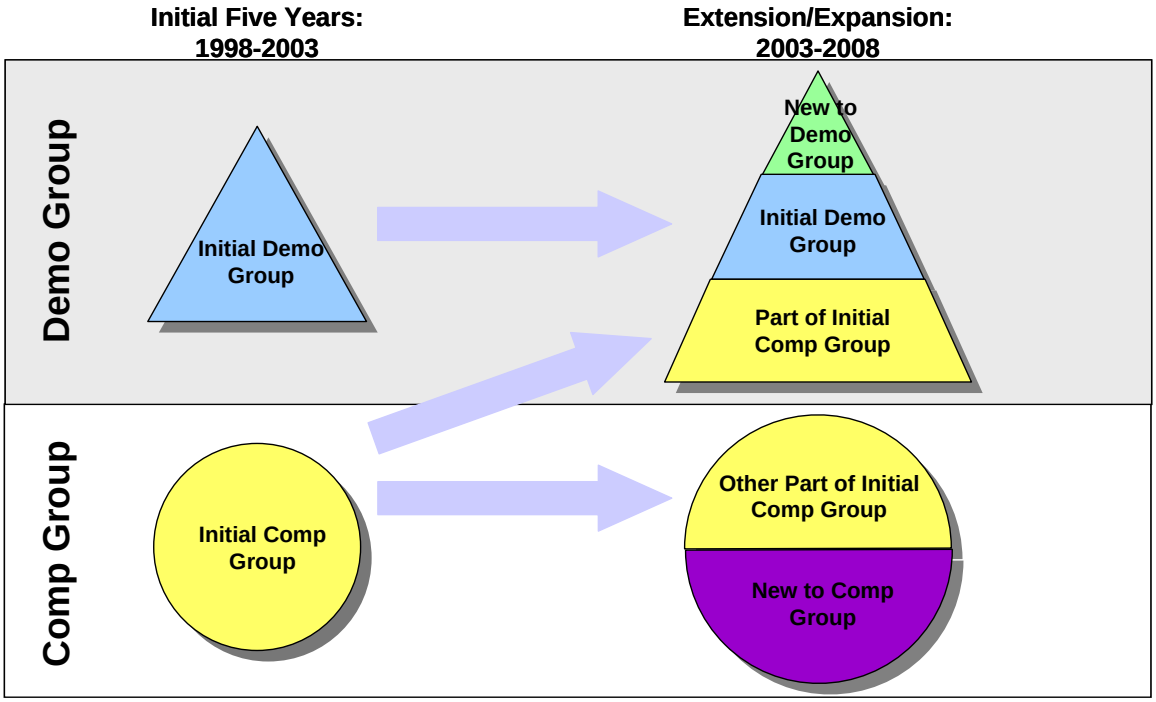
1. Participants who are new to the Demonstration Project in Years Six-Ten and were added to the Demonstration Group (hereafter, referred to as “New Demo,” as needed, and included in “Demo Group Wave 2”)
2. Participants who were in the original Demonstration Group (i.e., Years One-Five) and who remain in the Demonstration Group in Years Six-Ten (hereafter, referred to as “Original Demo,” as needed, and included in “Demo Group Wave 1”)

3. Participants who were in the original Comparison Group in Years One-Five and who were transferred to the Demonstration Group for Years Six-Ten (hereafter, referred to as "Comp to Demo," as needed, and included in "Demo Group Wave 2").

The Comparison Group is comprised of:

4. Participants who were in the original Comparison Group (i.e., Years One-Five) and who remain in the Comparison Group in Years Six-Ten (hereafter, referred to as "Original Comp")
5. Participants who are new to the Demonstration Project in Years Six-Ten and were added to the Comparison Group (hereafter, referred to as "New Comp").

Figure 2-2. Expansion and Extension of the Demonstration Project



Note: graphic is conceptual and therefore does not depict accurate proportionality of groups

The reference to "waves" in these definitions addresses the fact that the expansion changed the composition of the Demonstration Group, to include both individuals who have been in the Demonstration Project for five years (Wave 1) and those who are new to it (Wave 2). Therefore, it is important to consider that they may have different experiences. For this reason, as appropriate, some analyses that are conducted on Demonstration Group data will also be then broken out by Wave 1 and Wave 2. This will provide a means of looking at both the shorter term and longer term impact of the interventions.[4]

[4] *In Year Six, only limited analyses can be conducted by Wave, given that many analyses are based on pay and performance data that was not yet available for the "Wave 2" participants in Year Six. These data were not available because these individuals entered the Demonstration Project midway through the Demonstration Project year.*

2.3.1. The Demonstration Group now consists of nine organizations encompassing occupations in business, management, finance, economics, computer science, statistics, physical science, and natural science.

The original Demonstration Group consisted of seven organizations encompassing a wide range of occupations. With expansion, two new organizations – NOAA's Program Planning and Integration Office and the Office of the Chief Financial Officer and Assistant Secretary for Administration (CFO/ASA) – were added to the Demonstration Group (as well as additional members in some of the original seven organizations). Table 2-1 presents the organizations participating in the Demonstration Group, along with a statement of mission for each. The two organizations that are new to the Demonstration Group are identified as such in the table.

Table 2-2 shows an updated list of the major locations and occupations of the employees now included in the Demonstration Group. Locations that are new to the Demonstration Project are marked with an asterisk (*). Locations that switched from the Comparison Group to the Demonstration Group are marked with two asterisks (**).

Table 2-1. Participating Demonstration Group Organizations and Their Missions

Organization	Mission
Technology Administration (TA)	TA works to maximize technology's contribution to America's economic growth.
• Office of the Under Secretary	The Office of the Under Secretary is responsible for the management of TA agencies.
• Office of Technology Policy (OTP)	OTP is the only office in the federal government with the explicit mission of developing and advocating national policies that use technology to build America's economic strength.
Economics and Statistics Administration (ESA)	Much of the statistical, economic, and demographic information collected by the federal government is made available to the public through the bureaus and offices of ESA.
• Bureau of Economic Analysis (BEA)	BEA is the nation's accountant, integrating and interpreting a tremendous volume of data to draw a complete and consistent picture of the U.S. economy. BEA's economic accounts—national, regional, and international—provide information on such key issues as economic growth, regional development, and the nation's position in the world economy.
National Telecommunications and Information Administration (NTIA)	NTIA is the Executive Branch's principal voice on domestic and international telecommunications and information technology issues. NTIA works to spur innovation, encourage competition, help create jobs, and provide consumers with more choices and better quality telecommunications products and services at lower prices. In fulfilling this responsibility, NTIA is providing greater access for all Americans, championing greater foreign market access, and creating new opportunities with technology.
• Institute for Telecommunication Sciences (ITS)	ITS is the chief research and engineering arm of NTIA. ITS supports such NTIA telecommunications objectives as promotion of advanced telecommunications and information infrastructure development in the U.S., enhancement of domestic competitiveness, improvement of foreign trade opportunities for U.S. telecommunications firms, and facilitation of more efficient and effective use of the radio spectrum.

Organization	Mission
National Oceanic and Atmospheric Administration (NOAA)	NOAA's mission is to describe and predict changes in the earth's environment and to conserve and manage wisely the nation's coastal and marine resources.
• Units of the Office of Oceanic and Atmospheric Research (OAR)	OAR, the primary research arm of NOAA, conducts and directs research in atmospheric, coastal, marine, and space sciences through its own laboratories and programs, and through networks of university-based programs.
• Units of the National Environmental Satellite, Data, and Information Service (NESDIS)	NESDIS operates NOAA's satellites and ground facilities; collects, processes and distributes remotely sensed data; conducts studies, plans new systems, and carries out the engineering required to develop and implement new or modified satellite systems; carries out research and development on satellite products and services; provides ocean data management and services to researchers and other users; and acquires, stores, and disseminates worldwide data related to solid earth geophysics, solar terrestrial physics, and marine geology and geophysics.
• Units of the National Marine Fisheries Service (NMFS)	NMFS administers NOAA's programs, which support the domestic and international conservation and management of living marine resources. NMFS provides services and products to support domestic and international fisheries management operations, fisheries development, trade and industry assistance activities, law enforcement, protected species and habitat conservation operations, and the scientific and technical aspects of NOAA's marine fisheries program.
• Program Planning and Integration Office	The Office of Program Planning and Integration (PPI) is responsible for developing and maintaining NOAA's strategic plan. In addition, PPI manages various programs under a matrix management system and promotes the integration of human capital, resources and capacity across NOAA in support of developing effective programs.
DoC Headquarters • Units of the Office of the Chief Financial Officer and Assistant Secretary for Administration (CFO/ASA)	The Office of the CFO/ASA establishes and monitors DoC policies and procedures for administrative functions, including a range of financial and human resources. This Office is also responsible for coordinating reform initiatives called for by the President's Management Agenda, including improving financial management, strategic management of human capital, competitive sourcing, budget and performance integration, and expanding electronic government. The Office of the CFO/ASA is also charged with managing the DoC's headquarters facilities. Six of the nine offices within the Office of the CFO/ASA are participating in the Demonstration Project: Office of Human Resources Management, Office of Administrative Services, Office of Financial Management, Office of Acquisition Management, Office of Management and Organization, and Office of Security.

Table 2-2. Major Locations and Occupations in the Demonstration Group

Organization	Major Location(s)	Major Occupations
TA • Office of the Under Secretary • Office of Technology Policy (OTP)	Washington, DC	General Administration, Management Analyst, and Technology Policy Analyst
ESA • Bureau of Economic Analysis (BEA)	Washington, DC	Economist, Accountant, Financial Administrator, Computer Specialist, Statistician, and Statistical Assistant

Organization	Major Location(s)	Major Occupations
NTIA		
• Institute for Telecommunication Sciences (ITS)	Boulder, CO	Electronics Engineer, Mathematician, Computer Scientist, and Engineering Technician
NOAA		
• Office of Oceanic and Atmospheric Research (OAR)	Silver Spring, MD Boulder, CO Miami, FL Princeton, NJ**	Meteorologist, Physical Scientist, Physicist, Electronics Engineer, Computer Specialist, Electronics Technician, Physical Science Technician, and Mathematician
• National Environmental Satellite, Data, and Information Service (NESDIS)	Suitland, MD Silver Spring, MD Asheville, NC Boulder, CO Camp Springs, MD Wallops Island, VA**	Physical Scientist, Meteorologist, Computer Specialist, Oceanographer, Physical Science Technician, Electronics Engineer, Engineering Technician, Geophysicist, and Mathematician
• National Marine Fisheries Service (NMFS)	Gloucester, MA Long Beach, CA Juneau, AK Silver Spring, MD Seattle, WA Honolulu, HI* Woods Hole, MA** Narragansett, RI* Milford, CT* Sandy Hook, NJ* Washington, DC* St. Petersburg, FL* Miami, FL** Panama City, FL* Pascagoula, MS* Bay St. Louis, MS* Galveston, TX* La Jolla, CA** Santa Cruz, CA* Pacific Grove, CA* Newport, OR* Hammond, OR* Manchester, WA* Pasco, WA* Mukilteo, WA*	Fish Biologist, Fish Administrator, Biologist, Microbiologist, Biology Technician, Chemist, Oceanographer, Wildlife Biologist, Computer Specialist, and General Business Specialist
• Program Planning and Integration Office	Silver Spring, MD*	Policy and Program Analyst, Oceanographer, Policy Analyst, Secretary, Program Support Specialist, Budget Analyst, Management and Program Analyst, Environmental Protection Specialist
DoC HEADQUARTERS		
• Units of the Office of the Chief Financial Officer and Assistant Secretary for Administration (CFO/ASA)	Washington, DC*	Security Specialist, Human Resources Specialist/Assistant, Program/Management Analyst, Accountant, Budget Analyst Contract/Procurement Specialist

2.3.2. The Comparison Group consists of members of five organizations that are reasonably similar to the organizations in the Demonstration Group.

In order to separate the impacts of the interventions from other influences, DoC identified organizations to be included in the original Demonstration Project as a Comparison Group. The Comparison Group organizations did not receive the interventions implemented in the Demonstration Group and were chosen because of their similarity to the organizations in the Demonstration Group. The purpose of the Comparison Group is to serve as a point of comparison when analyzing the impact of interventions on the Demonstration Group. If differences are seen between Demonstration and Comparison Groups, then the assumption that the interventions have made an impact can be made more confidently.

With expansion of the Demonstration Project, several groups from the original Comparison Group moved into the Demonstration Group, and one organization was added to the Comparison Group (i.e., NOS). Table 2-3 presents the current Comparison Group organizations, along with their major locations and major occupations.

Table 2-3. Major Locations and Occupations in the Comparison Group

Organization	Major Location(s)	Major Occupation(s)
ESA		
• Headquarters	Washington, DC	General Administration
NOAA		
• Office of Oceanic and Atmospheric Research (OAR)	Ann Arbor, MI Seattle, WA	Meteorologist (primary). Physical Scientist, Physicist, Electronics Engineer, Computer Specialist, Electronics Technician, Physical Science Technician, and Mathematician
• National Environmental Satellite, Data, and Information Service (NESDIS)	Wallops Island, VA	Physical Scientist, Meteorologist, Computer Specialist, Oceanographer, Physical Science Technician, Electronics Engineer, Engineering Technician, Geophysicist, and Mathematician
• National Marine Fisheries Service (NMFS)	Miami, FL Seattle, WA	Fish Biologist, Biologist, Microbiologist, and Biology Technician (primary). Chemist, Oceanographer, Wildlife Biologist, Computer Specialist, and General Business Specialist
• National Oceanic Service (NOS)	Silver Spring, MD Seattle, WA Charleston, SC	Cartographer, Geodesist, Physical Scientist, Oceanographer, Cartographic Technician, Physical Science Technician, Geodetic Technician, various administrative positions

2.4. The Demonstration Project encompasses 6,599 employees in both the Demonstration and Comparison Groups.

All positions that would be classified as GS or GM positions are covered under the Demonstration Project. Positions that are classified as Senior Executive Service (SES) or Federal Wage System (FWS) are not covered.

Tables 2-4, 2-5, and 2-6 provide information on the participants in the Demonstration Project in Year Six, including the number of participants and basic demographic data, such as career path, and pay band, race/national origin, veteran status, gender, and supervisory status. One table each is used to characterize the Wave 1 Demonstration Group (Table 2-4), the Wave 2 Demonstration Group (Table 2-5), and the Comparison Group (Table 2-6) (although this detail is provided here, most of the analyses in this report combine Wave 1 and Wave 2).

As this table shows, there were a total of 4,465 Demonstration Group participants (2,898 in the Wave 1 Demonstration Group and 1,567 in the Wave 2 Demonstration Group) and 2,134 Comparison Group participants. These demographic data illustrate the general similarity in the demographic characteristics of participants in the Demonstration and Comparison Groups, which is important for establishing the validity of the Comparison Group used in this evaluation. There are some minor differences between the groups; these will be addressed in the report in any cases where the differences between the Demonstration and Comparison Groups may be impacting how findings are interpreted.

Table 2-4. Characteristics of Demonstration Group Participants by Agency – Original Demo Group Participants

	DEMONSTRATION GROUP – ORIGINAL DEMO													
	ORIGINAL DEMO (groups that started in the Demo Group in March 1998 and remain in the Demo Group)												TOTALS	
	ESA-BEA		NTIA		NOAA-NESDIS		NOAA-NMFS		NOAA-OAR		TA			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
# Participants	421	15%	74	3%	765	26%	960	33%	643	22%	35	1%	2898	100%
Career Path (or the equivalent)														
ZA	77	19%	4	6%	102	6%	235	26%	91	15%	23	74%	532	19%
ZP	287	72%	52	75%	434	59%	551	60%	430	70%	1	3%	1755	63%
ZS	25	6%	7	10%	81	11%	123	13%	64	10%	7	23%	307	11%
ZT	8	2%	6	9%	116	16%	7	1%	33	5%	0	0%	170	6%
Pay Band (or the equivalent)														
1	0	0%	3	4%	1	0%	16	2%	10	2%	0	0%	30	1%
2	37	9%	5	7%	51	7%	139	15%	44	7%	0	0%	276	10%
3	170	43%	23	33%	211	29%	345	38%	148	24%	6	19%	903	33%
4	157	40%	31	45%	375	51%	347	38%	319	52%	12	39%	1241	45%
5	33	8%	7	10%	95	13%	69	8%	97	16%	13	42%	314	11%
Race														
American Indian	0	0%	1	1%	0	0%	7	1%	5	1%	0	0%	13	0%
Asian	31	7%	3	4%	33	4%	33	3%	26	4%	4	11%	130	4%
Black	106	25%	0	0%	131	17%	71	7%	38	6%	8	23%	354	12%
Hispanic	12	3%	3	4%	14	2%	23	2%	32	5%	1	3%	85	3%
White	272	65%	67	91%	587	77%	826	86%	542	84%	22	63%	2316	80%
Veteran														
Yes	37	9%	7	9%	169	22%	94	10%	73	11%	2	6%	382	13%
No	384	91%	67	91%	596	78%	866	90%	570	89%	33	94%	2516	87%
Gender														
Male	226	54%	55	74%	490	64%	515	54%	416	65%	9	26%	1711	59%
Female	195	46%	19	26%	275	36%	445	46%	227	35%	26	74%	1187	41%
Supervisor														
Yes	48	11%	3	4%	84	11%	91	9%	55	9%	3	9%	284	10%
No	373	89%	71	96%	681	89%	869	91%	588	91%	32	91%	2614	90%

Notes:

1. *Career Path and Pay Band data are reported for the 2,764 of the 2,898 participants for whom career path and pay band data were available.*
2. *NA: Data not available*
3. *Percentages may not add to 100 due to rounding*
4. *Source: These figures are based upon the objective data provided by DoC (as of March 31, 2004).*

Table 2-5. Characteristics of Demonstration Group Participants by Agency – New Demo Group Participants

	DEMONSTRATION GROUP – NEW DEMO															
	COMP TO DEMO (groups that started in the Comp Group in March 1998 and transferred to the Demo Group in October 2003)						NEW DEMO (groups that started in the Demo Group in October 2003)						NEW DEMO (individuals hired into Demo Group this year)		TOTALS	
	NOAA-NESDIS		NOAA-NMFS		NOAA- OAR		NOAA-NMFS		NOAA-PPI		OS					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
# Participants	15	1%	772	49%	76	5%	13	1%	5	0%	356	23%	330	21%	1567	100%
Career Path (or the equivalent)																
ZA	1	7%	83	11%	4	5%	2	15%	1	20%	248	70%	28	16%	367	26%
ZP	11	73%	577	75%	53	70%	6	46%	2	40%	28	8%	102	59%	779	55%
ZS	1	7%	63	8%	8	11%	5	38%	2	40%	80	22%	28	16%	187	13%
ZT	2	13%	48	6%	11	14%	0	0%	0	0%	0	0%	16	9%	77	5%
Pay Band (or the equivalent)																
1	0	0%	3	0%	0	0%	2	15%	0	0%	2	1%	27	16%	34	2%
2	0	0%	122	16%	7	9%	2	15%	0	0%	17	5%	49	28%	197	14%
3	7	47%	331	43%	20	26%	0	0%	0	0%	95	27%	52	30%	505	36%
4	6	40%	266	35%	41	54%	4	31%	3	60%	188	53%	34	20%	542	38%
5	2	13%	49	6%	8	11%	5	38%	2	40%	54	15%	12	7%	132	9%
Race																
American Indian	0	0%	3	0%	0	0%	0	0%	0	0%	1	0%	2	1%	6	0%
Asian	0	0%	60	8%	4	5%	1	8%	0	0%	14	4%	26	8%	105	7%
Black	1	7%	28	4%	4	5%	1	8%	1	20%	145	41%	47	14%	227	14%
Hispanic	0	0%	21	3%	1	1%	1	8%	0	0%	9	3%	15	5%	47	3%
White	14	93%	660	85%	67	88%	10	77%	4	80%	187	53%	240	73%	1182	75%
Veteran																
Yes	7	47%	79	10%	6	8%	3	23%	5	100%	59	17%	27	8%	186	12%
No	8	53%	693	90%	70	92%	10	77%	0	0%	297	83%	303	92%	1381	88%
Gender																
Male	14	93%	500	65%	63	83%	5	38%	1	20%	133	37%	162	49%	878	56%
Female	1	7%	272	35%	13	17%	8	62%	4	80%	223	63%	168	51%	689	44%
Supervisor																
Yes	11	73%	144	19%	7	9%	6	46%	0	0%	48	14%	24	7%	240	15%
No	4	27%	617	81%	68	91%	7	54%	5	100%	307	86%	303	93%	1311	85%

Notes:

1. *Career Path and Pay Band data are reported for the 1,410 the 1,567 participants for whom career path and pay band data were available.*
2. *Supervisor data are reported for the 1,551 of the 1,567 participants for whom supervisor data were available.*
3. *NA: Data not available*
4. *Percentages may not add to 100 due to rounding*
5. *Source: These figures are based upon the objective data provided by DoC (as of March 31, 2004).*

Table 2-6. Characteristics of Comparison Group Participants by Agency

	COMPARISON GROUP													
	ORIGINAL COMP (groups that started in March 1998 and remain in the Comp Group)								NEW COMP (groups that started in the Comp Group in October 2003)		NEW COMP (individuals hired into Comp Group this year)		TOTALS	
	HQ ESA		**NOAA-NESDIS**		**NOAA-NMF**		**NOAA-OAR**		**NOAA-NOS**					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
# Participants	39	1.8%	59	2.8%	639	29.9%	126	5.9%	1169	54.8%	102	4.8%	2134	100%
Career Path (or the equivalent)														
ZA	10	26%	1	2%	53	8%	17	13%	295	25%	25	25%	401	19%
ZP	23	59%	14	24%	504	79%	85	67%	651	56%	52	51%	1329	62%
ZS	6	15%	6	10%	35	5%	12	10%	102	9%	14	14%	175	8%
ZT	0	0%	38	64%	47	7%	12	10%	121	10%	11	11%	229	11%
Pay Band (or the equivalent)														
1	0	0%	0	0%	7	1%	2	2%	12	1%	13	13%	34	2%
2	4	10%	2	3%	165	26%	5	4%	127	11%	36	35%	339	16%
3	4	10%	20	34%	334	52%	48	38%	427	37%	34	33%	867	41%
4	17	44%	37	63%	130	20%	49	39%	527	45%	14	14%	774	36%
5	14	36%	0	0%	3	0%	22	17%	76	7%	5	5%	120	6%
Race														
American Indian	0	0%	0	0%	3	0%	1	1%	4	0%	0	0%	8	0%
Asian	3	8%	0	0%	33	5%	7	6%	43	4%	12	12%	98	5%
Black	13	33%	6	10%	14	2%	2	2%	148	13%	5	5%	188	9%
Hispanic	3	8%	1	2%	16	3%	3	2%	12	1%	2	2%	37	2%
White	20	51%	52	88%	573	90%	113	90%	962	82%	83	81%	1803	84%
Veteran														
Yes	1	3%	29	49%	66	10%	16	13%	138	12%	10	10%	260	12%
No	38	97%	30	51%	573	90%	110	87%	1031	88%	92	90%	1874	88%
Gender														
Male	18	46%	51	86%	378	59%	86	68%	708	61%	59	58%	1300	61%
Female	21	54%	8	14%	261	41%	40	32%	461	39%	43	42%	834	39%
Supervisor														
Yes	3	8%	0	0%	2	0%	13	10%	108	9%	2	2%	128	6%
No	36	92%	59	100%	637	100%	113	90%	1061	91%	100	98%	2006	94%

Notes:

1. *Percentages may not add to 100 due to rounding*
2. *Source: These figures are based upon the objective data provided by DoC (as of March 31, 2004).*

2.5. A broad range of interventions has been implemented under the Demonstration Project.

The interventions implemented in the Demonstration Group focus on classification, pay, recruitment, retention, and an expanded probationary period. The fifteen interventions, listed below, are described in the following sections. Appendix A-2 displays the *Federal Register* notice on the Demonstration Project and its interventions (and Appendices A-3 and A-4 display modifications to the *Federal Register* notice).

- Career paths
- Pay bands (Broadbanding), in conjunction with flexible entry salaries
- Performance-based pay increases (pay-for-performance)
- Supervisory performance pay
- More flexible pay increase upon promotion
- Performance bonuses
- Direct examination
- Agency based staffing
- More flexible paid advertising
- Local authority for recruitment payments
- Local authority for retention payments
- Automated broadband classification system
- Delegated classification authority to managers
- Delegated pay authority to managers
- Three-year probationary period for scientists and engineers (ZP employees performing research and development (R&D) activities).

2.5.1. Four career paths have been established that group occupations according to similar career patterns.

Under the Demonstration Project, Demonstration Group occupations have been reclassified into four broad career paths. Each career path consists of occupations that have similar career patterns and therefore can be treated similarly for classification, pay, and other personnel purposes. In contrast, under the GS system, occupations are grouped by similarities in content. The career paths developed for the Demonstration Group are:

- **Scientific and Engineering (ZP)**. Consisting of professional technical positions in the physical, engineering, biological, mathematical, computer, and social science occupations; and student trainee positions in these fields.

- **Scientific and Engineering Technician (ZT)**. Consisting of positions that support scientific and engineering activities through the use of skills in electrical, mechanical, physical science, biological, mathematical, and computer fields; and student trainee positions in these fields.

- **Administrative (ZA)**. Consisting of positions in such fields as finance, procurement, personnel, program and management analysis, public information, and librarianship; and student trainee positions in these fields.

- **Support (ZS)**. Consisting of positions that provide administrative support, through the use of clerical, typing, secretarial, assistant, and other similar skills; and student trainee positions in these fields.

The career paths are intended to make classification simpler, more understandable, and easier to automate.

2.5.2. Pay bands are composed of one or more GS grades and allow for flexibility in pay setting.

The change from the GS system to pay bands (broadbanding) is one of the major Demonstration Project interventions. The pay bands were created by collapsing the traditional GS salary grades (including locality rates) into five broad groups with much larger ranges (i.e., pay bands). Figure 2-3 shows the four career paths, their corresponding pay bands, and GS system equivalents. The maximum rate of a pay band is equivalent to step 10 of the highest GS grade used to create that band. Each career path collapses GS grades into bands differently; therefore, the band ranges differ by career path. Only the ZP and ZA career paths have pay bands that correspond to the full spectrum of GS grades. One to six GS grades are consolidated into any given pay band, depending on the career path and level of the band.

Figure 2-3. Career Paths and Bands for Demonstration Group Participants

CAREER PATHS	BANDS														
Scientific and Engineering (ZP)	I						II				III		IV		V
Scientific and Engineering Technician (ZT)	I				II				III		IV		V		
Administrative (ZA)	I						II				III		IV		V
Support (ZS)	I		II		III		IV		V						
GS Grades	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Source: Federal Register Notice: Personnel Management Demonstration Project; Alternative Personnel Management System for the U.S. Department of Commerce (December 24, 1997).

Pay bands are intended to add flexibility in pay setting for attracting job candidates and rewarding high performing employees. Pay bands were also put in place to provide larger, more flexible classification ranges, aiding in the delegation of classification and pay authority to line managers. Pay bands are also meant to facilitate the provision of performance incentives for employees, in that they give employees the opportunity to receive raises more quickly.

Together, career paths and pay bands are intended to simplify classification and accelerate pay progression, as well as facilitate pay-for-performance.

2.5.3. Pay-for-performance is a system meant to link pay increases directly to performance, resulting in a more competitively paid, higher quality workforce.

Another major intervention is the establishment of a pay-for-performance system. Pay-for-performance links pay raises directly to job performance. Under the Demonstration Project, three components were subsumed by pay-for-performance. The first component is an annual adjustment to basic pay, which includes an annual general increase and a locality pay increase approved by Congress and the President. The second component is an annual performance-based pay increase. Bonuses constitute the third component. Funds that were applied to within-grade increases, quality step increases, and promotions (from one grade to another when those grades are in the same band) are now being applied to performance-based pay increases. In contrast to the GS system, there is no one-to-three year waiting period between pay increases, and the pay increase amounts are potentially higher.

Pay-for-performance is meant to govern employee progression through the pay bands. Pay-for-performance is, of course, meant to tie pay raises to performance, in contrast to the GS system, which ties pay raises mostly to tenure. Its goal is to give higher pay raises to those whose performance is high. Because of the flexibility that the bands allow, the performance-based pay raises can, in theory, be substantial. The pay-for-performance system, along with the pay bands, is meant to improve performance and retain high quality employees.

At the onset, DoC created an automated Performance Payout System (PPS) to manage the performance data. This was later changed from a DOS-based to a web-based system. As of Year Five, there have been many improvements to the PPS. Site historians report that DOC staff, along with contractors, have been making significant strides in improving the software and reports.

Implementation of the pay-for-performance system also included the implementation of a new performance appraisal system. It is important to note that NOAA units outside of the Demonstration Group have also adopted a new performance appraisal system, independent of the Demonstration Project. Table 2-7 outlines some of the major differences between the traditional, the new NOAA, and the Demonstration Project performance appraisal systems.

Table 2-7. Performance Appraisal Systems

TRADITIONAL SYSTEM (Comparison Group)	NEW NOAA SYSTEM (Comparison Group)	DEMO PROJECT SYSTEM (Demonstration Group)
• Individual performance plans	• Individual performance plans	• Individual performance plans
• Performance improvement plans	• Performance improvement plans	• Performance improvement plans
• 500-point system	• Two-tier system	• 100-point, two-tier system
• Critical and non-critical elements included	• Critical elements included; non-critical elements not included	• Critical elements included; non-critical elements not included

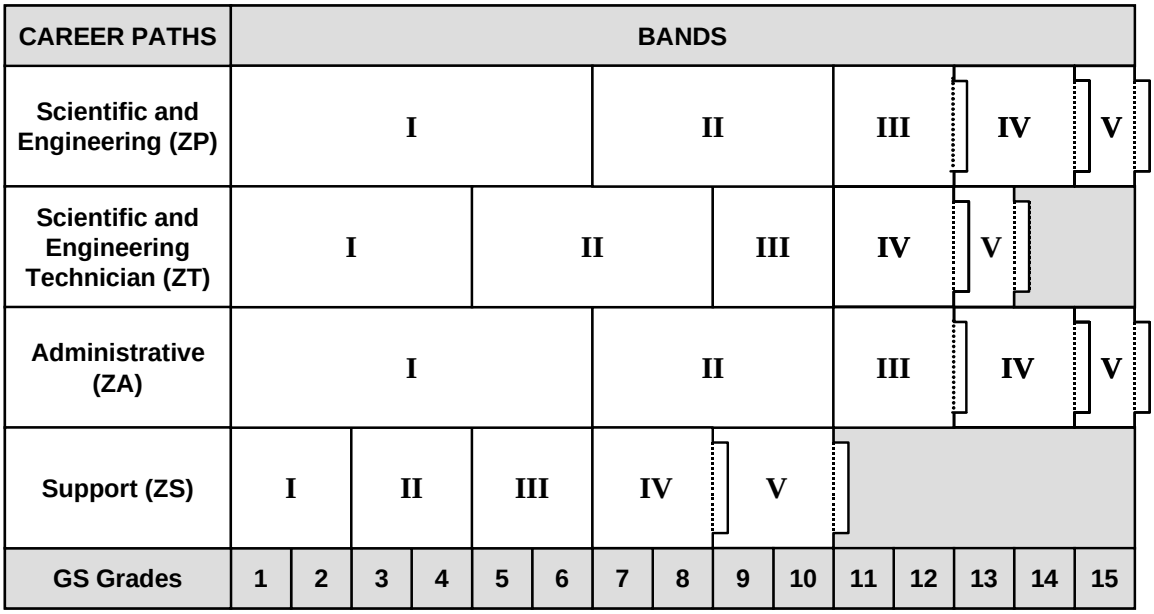
Each employee in the Demonstration Project has an individual performance plan that is composed of several critical performance elements. Under this performance appraisal system, all of the performance elements are critical; if an employee gets an unsatisfactory rating on one element, there is no performance score. These employees must be put on a performance improvement plan and given a chance to improve before a final rating is put on record. Employees who are deemed unsatisfactory are not eligible for pay-for-performance increases, bonuses, or annual adjustments to basic pay. Demonstration Group participants who are not performing unsatisfactorily on any of the performance elements are evaluated using the 100-point scoring system. Supervisors provide recommended scores to the Pay Pool Manager who arrays the data in score order to maintain the linkage between scores and pay actions.

In Year Three, an additional factor that may have impacted pay, but is not directly linked to performance, was a government-wide special pay rate for information technology (IT) workers that has remained in effect ever since. Demonstration Project Site Historians reported that this action took effect on January 1, 2001 and applied to all IT professional in grade 12 and below. In addition to increasing the pay of IT workers in the Demonstration Project, this event may have impacted the recruitment and retention of IT workers in the Demonstration Project, and elsewhere in the government, while in effect.

2.5.4. Supervisory performance pay is meant to help retain supervisors by giving them higher pay potential for high supervisory performance.

Supervisors in all career paths are eligible for supervisory performance pay when their salaries reach the maximum for their pay band. In each pay band that includes supervisory positions (i.e., pay bands III, IV, and V for ZP and ZA and pay bands IV and V for ZT and ZS), there is a corresponding supervisory band (as shown in Figure 2-4). The supervisory bands have the same minimum levels as do the non-supervisory bands. The only difference is that the supervisory bands extend up to 6 percent above the maximum point of the corresponding non-supervisory band. The amount that a supervisor is paid above the maximum rate of his/her pay band constitutes supervisory performance pay. The range constituting supervisory performance pay (up to 6 percent above the maximum) can be reached only through pay-for-performance increases gained through the regular performance appraisal process. Supervisory performance pay is meant to give the ability to raise the pay of high performing supervisors to more competitive levels, thus improving retention.

Figure 2-4. Pay Bands for Supervisory Employees



2.5.5. Flexible pay increases upon promotion are intended to allow supervisors to tie pay to employee performance and to substantially reward excellent performance.

One intervention related to pay bands (broadbanding) and pay-for-performance is flexible pay increases upon promotion. High performing employees now have the potential to receive substantial pay increases when they are promoted. Because of the less restrictive nature of pay bands, an employee's salary, upon promotion, can be set anywhere within a band without being restricted by the small steps characteristic of the GS system. This intervention is meant to

encourage the retention of high performers by making their salaries more competitive with the private sector.

2.5.6. Performance bonuses are payments meant to reward and encourage employee performance and improve retention.

Performance bonuses are cash awards given following a performance appraisal cycle, in conjunction with performance pay decisions. Pay Pool Managers can award a bonus to any employee with an "eligible" performance rating (i.e., individuals who have a performance score of 40 or above). Pay Pool Managers make decisions based on supervisor recommendations and the amount in the bonus pool. The maximum bonus amount that can be given is $10,000 (greater amounts can be granted with the Departmental Personnel Management Board's approval). Bonuses are meant to reward high performers, increasing their retention. Bonuses are also meant to act as a performance incentive to the workforce.

Performance bonuses can also be awarded to DoC employees who entered the Demonstration Project too late to receive a performance rating, but who have received a DoC performance rating of record of at least satisfactory within the previous 13 months. In these situations, bonuses can be used to remove the disincentive of not receiving a pay increase. Performance bonuses can also be used as a tool to reward high performing employees who are pay-capped.

2.5.7. For limited positions, direct examination allows DoC to hire candidates directly without using the OPM job register, thereby decreasing time to hire.

Direct examination, a recruitment intervention, allows DoC to immediately hire candidates who present specific credentials, provided an open announcement exists. Direct examination can be used for shortage categories only. Direct examination gives managers the ability to hire individuals with shortage skills as they find them. Occupations covered by direct examination will usually be filled through direct recruiting by hiring officials. A search of the operating unit applicant supply file is required, and veteran's preference must still be taken into account for these positions.

The Demonstration Project incorporates two direct examination authorities. The first is direct examination for critical shortage occupations and the second is direct examination for critical shortage highly qualified candidates. Direct examination for critical shortage occupations is used for occupations requiring skills in short supply. These include occupations for which there is a special rate under the General Schedule (GS) system and some occupations at band three and above in the ZP career path. Direct examination for critical shortage highly qualified candidates is used for positions where there is a shortage of highly qualified candidates. An example of a critical shortage highly qualified candidate is a person qualified for band one or two of the ZP career path who has:

- A bachelor's degree and at least a 2.9 GPA in a job-related major, or
- A master's degree in a job related field.

Since January 1996, all federal government agencies have had direct examination authority. No critical shortage occupations have been identified under the Demonstration Project.

2.5.8. Agency based staffing, which can be used for positions not covered by direct examination, gives DoC the ability to certify its own candidates; this is expected to decrease time to hire.

Agency based staffing, another recruitment intervention, is used to fill vacancies not covered by direct examination. At a minimum, positions eligible for agency based staffing will be advertised through OPM's automated employment information system. Agency based staffing gives DoC the ability to examine and certify its own candidates instead of having OPM certify them. It allows DoC to create its own candidate registers, and to rate and rank the candidates independent of OPM. Agency based staffing, in conjunction with flexible paid advertising, was meant to be used to help hiring officials focus on more relevant recruiting sources and to accelerate the hiring process.

Since January 1996, all federal government agencies have had agency based staffing authority. It is used in several DoC organizations.

2.5.9. Flexible paid advertising allows DoC to use more specialized advertising sources to attract highly qualified candidates.

Flexible paid advertising is an intervention that allows DoC to utilize paid advertising sources as a first step in recruiting, without having to utilize unpaid sources first. Hiring officials can now use a wider scope of advertising sources, as well as concentrate on more specialized sources. More flexible paid advertising is meant to allow hiring officials to make greater use of alternative recruitment sources.

2.5.10. Local authority for recruitment payments allows DoC to grant payments for the purpose of recruiting high quality candidates.

Local authority for recruitment payments allows operating units to independently grant recruitment payments in an amount not to exceed the greater of $10,000 or 25 percent of base pay. Recruitment payments can only be made to non-federal applicants. Payments are based on market factors such as salary comparability, turnover rate, salary offer issues, relocation issues, programmatic urgency, special qualifications, shortage categories, or scarcity of positions. All scientific, engineering, and hard-to-fill positions are eligible. The main purpose for the recruitment payment is to increase the quality of the workforce by attracting high quality performers.

The current Demonstration Project modeled many of the features of the NIST Demonstration Project, which began in 1988, and thereby adopted "local authority for recruitment payments" as an intervention. However, through the Federal Employees Pay Comparability Act of 1990 (FEPCA), this intervention is also available elsewhere in the federal government. FEPCA allows recruitment bonuses to be paid in a lump-sum up to 25 percent of an employee's base pay, with a one-year service commitment.

2.5.11. Local authority for retention payments allows DoC to grant payments for the purpose of retaining high quality candidates.

Similar to local authority for recruitment payments, local authority for retention payments allows operating units to grant retention payments not to exceed the greater of $10,000 or 25 percent of base pay. Retention payments can only be made to employees who are retiring or going to private industry. These payments also are based on market factors. All scientific, engineering, and hard-to-fill positions are eligible. The main purpose for the retention payments is to increase the quality of the workforce by retaining high quality performers who are retiring or are leaving for a position in private industry.

FEPCA also allows retention payments up to 25 percent of an employee's base pay. Similar to the recruitment payment intervention, while the current Demonstration Project modeled this intervention after the NIST Demonstration Project, retention payments are also available elsewhere in the federal government.

2.5.12. The classification system was automated to make the classification process easier to use and more efficient.

Under the Demonstration Project, the classification system has been automated. Position descriptions can be created, accessed, classified, and altered electronically. A DOS-based software program was originally built for these purposes. In Year Three, efforts were underway to transition to a web-based system that is expected to be a major improvement by making the process far more user-friendly. Specifically, supervisors can use the system to:

- Create a new position description
- Create a new position description based on another
- Delete a position description
- Edit an unofficial position description
- Print a position description
- Review a position description
- Run queries
- Delete, edit, print, or view a position description by action number
- Export a position description
- Maintain the position description system.

The purpose of the automation is to make the classification system easier to use and more expedient. Automation of the system is also meant to minimize the resources needed for operation and to minimize the classification decisions that need to be made.

2.5.13. Delegated classification authority places classification responsibility with the managers.

Delegated classification authority gives line managers the authority to classify positions. Each operating unit's Operating Personnel Management Board has the responsibility for overseeing the delegation of classification authority. Human resources personnel have the responsibility to

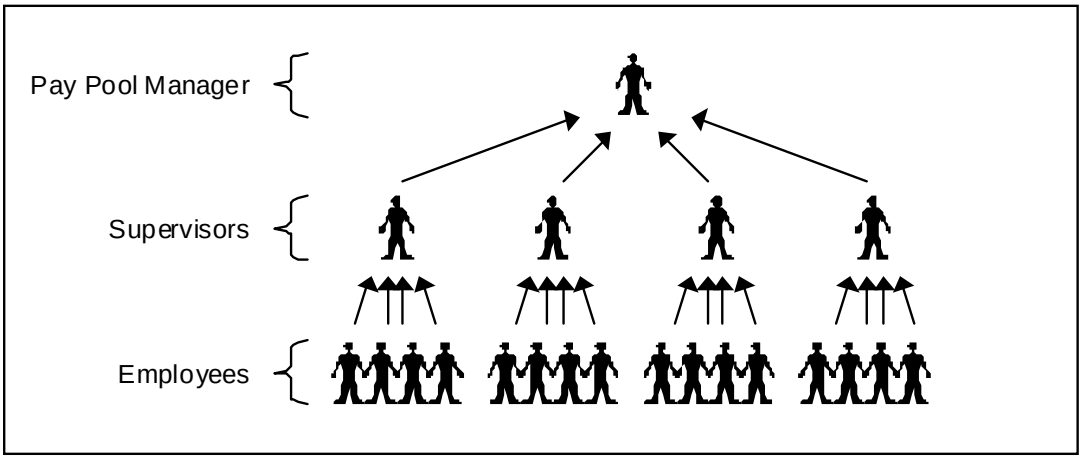
monitor and review classification decisions. Delegated classification authority is meant to give managers more control over classifying the work they supervise. Managers must understand their operating unit's mission and the work they supervise to be effective classifiers.

2.5.14. Delegated pay authority allows line managers to direct and administer pay functions.

Delegated pay authority gives line managers (i.e., supervisors) the authority to direct and administer pay procedures. Under the GS system, federal employees receive increases in salary in accordance with their grade and step. Under the Demonstration Project, supervisors evaluate the performance of their subordinates and communicate their recommendations to the Pay Pool Manager. Supervisors may also make recommendations for performance-based pay increases and/or bonuses. The Pay Pool Manager, however, makes the final decisions regarding the dollar amounts for both performance-based pay increases and bonuses.

The purpose of delegated pay authority is to improve the effectiveness of human resources management by having line managers more involved as managers of the human resources in their units. Managers have a first hand view of employee performance and therefore can make the most effective pay recommendations. Line managers' involvement is increased significantly under the Demonstration Project because they now have responsibility and authority for managing pay and making pay decisions. Figure 2-5 displays the delegated pay authority relationship within the Demonstration Group. These newly delegated authorities are subject to oversight by the Operating Personnel Management Boards at the local level, and by the Departmental Personnel Management Board, which ensures adherence to Departmental policy and procedure.

Figure 2-5. Pay Authority Relationship



2.5.15. The three-year probationary period gives managers more of an opportunity to observe ZP employees performing R&D duties for the full R&D cycle.

Under the three-year probationary period intervention, employees in the scientific and engineering (ZP) career path who perform R&D work are subject to a three-year probationary period. (Other employees within the Demonstration Project serve the same one-year probationary period as employees throughout the government.) Managers have the authority to

end the three-year probationary period of an R&D subordinate at any time after a year. Near the end of the first year of probation, a manager decides whether to 1) change the employee to non-probationary status, 2) remove the employee, or 3) keep the employee on probationary status. If the employee remains on probationary status, then the manager must choose between these three options near the end of the second year. If the employee remains on probation into the third year, then the manager must make a final decision on whether to remove or keep the employee.

2.6. A valid evaluation of the Demonstration Project is critical in determining whether to continue the tested interventions and whether to make them a part of other government organizations.

All Demonstration Projects under 5 USC 47 must be evaluated, by statute, for the life of the project. OPM requires that every Demonstration Project be rigorously evaluated by an outside evaluator. The purpose of the DoC Demonstration Project evaluation is to determine if the Demonstration Project's objectives were met. The evaluation's purpose is also to determine what, if any, mid-course revisions should be made to the Demonstration Project implementation, and whether the project interventions can be applied in other federal government organizations. The Demonstration Project evaluation is driven by a number of research questions.

2.6.1. The research questions for the Demonstration Project were derived from both the OPM Demonstration Projects Evaluation Handbook and the DoC Demonstration Project objectives.

Evaluation of the Demonstration Project interventions seeks ultimately to answer several research questions. The OPM Demonstration Projects Evaluation Handbook (Batten, Goehrig, and Jorgenson, 1998) states that the research questions that must be answered will differ from project to project. However, six general research questions (presented in Table 2-8) must be answered for every Demonstration Project.

Table 2-8. Research Questions from OPM Demonstration Project Handbook

OPM Research Questions	Timing of Answer
1) Did the project accomplish the intended purpose and goals? If not, why not?	Years 3, 5, 7, 9, & 10
2) Was the project implemented and operated appropriately and accurately?	All Years
3) What was the cost of the project?	Year 5 and 10
4) What was the impact on veterans and other EEO groups?	All Years
5) Were Merit Systems Principles adhered to and Prohibited Personnel Practices avoided?	All Years
6) Can the project or portions thereof be generalized to other agencies or government-wide?	Year 5 and 10

In addition, research questions are based on six objectives specific to the DoC Demonstration Project. These objectives stem from major concerns within DoC in regards to hiring restrictions, a complex job classification system, and poor tools for rewarding and motivating employees (*Federal Register* notice, December 1997, displayed in Appendix A-1). The Demonstration Project was implemented to address these types of issues. Accordingly, the evaluation also seeks to address the six additional research questions specified in Table 2-9.

Table 2-9. Research Questions Related to DoC Demonstration Project Objectives

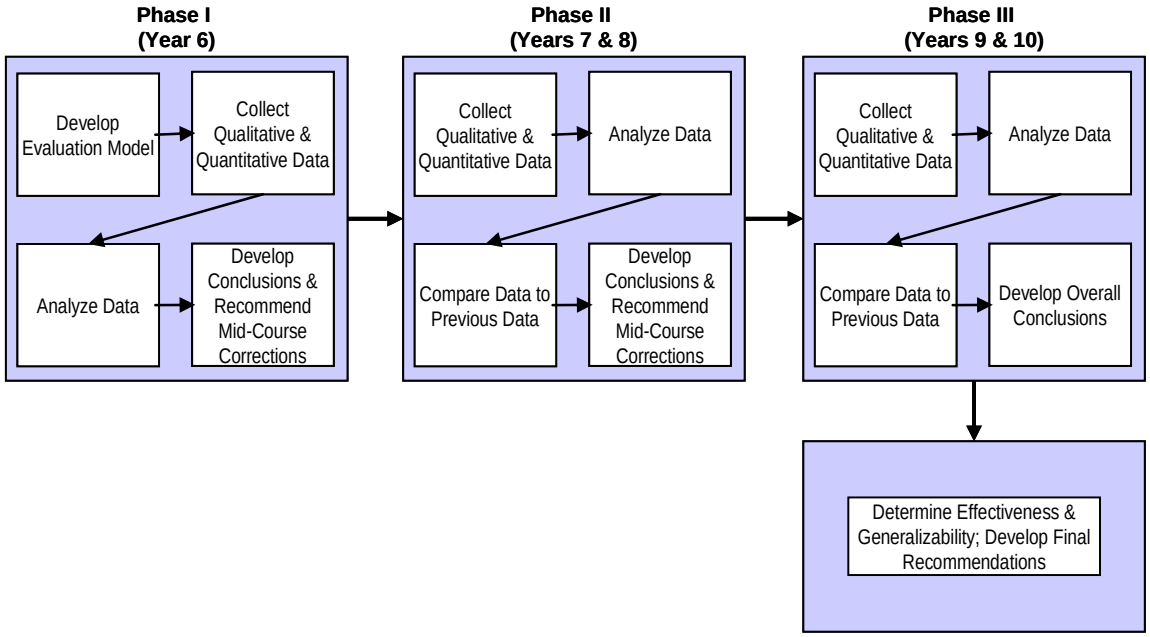
DoC-Specific Research Questions	Timing of Answer
1) Has the quality of new hires increased; has there been an improved fit between position requirements and individual qualifications; has there been a greater likelihood of getting a highly qualified candidate?	Years 3, 5, 7, 9, & 10
2) Has retention of good performers increased?	Years 3, 5, 7, 9, & 10
3) Has individual and organizational performance improved?	Years 3, 5, 7, 9, & 10
4) Is Human Resources management more effective?	Years 3, 5, 7, 9, & 10
5) Is Human Resources management more efficient?	Years 3, 5, 7, 9, & 10
6) Is there improved support for EEO/diversity goals in recruiting, rewarding, paying, and retaining minorities; are opportunities for a diverse workforce being provided; are the contributions of all employees being maximized?	All Years

The 12 research questions above were tracked during all three phases of the Demonstration Project evaluation and are the ultimate questions to be answered by this summative evaluation. Chapter 5 of this report provides a high-level summary addressing these questions based on data available after five years of operation (which are presented throughout Chapter 4).

2.6.2. The Demonstration Project evaluation is being conducted in three phases and compares a Demonstration Group to a Comparison Group, across time.

A non-equivalent comparison group, quasi-experimental research design is being used to evaluate the Demonstration Project. Quasi-experimental design is used when it is not possible to control for all variables, or when it is not possible or practical to randomly assign subjects to equivalent groups. The non-equivalent comparison group design seeks to control for factors that may have an impact by tracking a Comparison Group that is reasonably similar (though not necessarily identical) to the experimental (Demonstration) group. The DoC Demonstration Project evaluation is being conducted in three phases, shown in Figure 2-6, and will compare the Demonstration Group to the Comparison Group across time.

Figure 2-6. DoC Demonstration Project Evaluation Model Phase



In general, the three phases of the evaluation focus on project implementation and project effectiveness, but to different degrees. The evaluation also serves to produce mid-course correction recommendations as the project progresses. The three phases differ slightly in their focus but were designed to complement each other.

This Year Six Report presents the opportunity to compare data across the life of the Demonstration Project. This report presents data on the state of the Demonstration Project in Year Six and also, importantly, provides trend analyses to examine changes that have occurred over time by examining data from Years One through Five.

3. DATA COLLECTION AND ANALYSES

This assessment is based on an analysis of objective data obtained from the National Finance Center (NFC) Payroll/Personnel System and the Demonstration Project's Performance Payout System (PPS), as well as a review of human resources (HR) summary data. Each data collection source is described in detail below.

3.1. Booz Allen used objective personnel data obtained from the National Finance Center (NFC) Payroll/Personnel System and the Demonstration Project's Performance Payout System (PPS) to measure the impact of the Demonstration Project's interventions.

Objective data analyses played a major role in the assessment. To maintain consistency, nearly the same data elements and data analyses were used as in past years.

3.1.1. Personnel data, including performance, compensation, and demographic data, were collected.

For the Year Six Report, Booz Allen collected and analyzed objective data contained in a datafile provided by DoC, which relied upon data from NFC's Payroll/Personnel System. The personnel data pertained to performance, compensation, and demographics for the time period April 2003 to March 2004 for both the Demonstration Group and the Comparison Group. Table 3-1 shows the objective data elements that were included in the analyses.

Table 3-1. Objective Data Elements

Objective Data Elements	
• Social Security Number • Gender • Race • Birth date • Veteran status • Education • Organization/Unit • Pay Schedule (GS/GM) • Hire date (starting date with DoC unit) • Hire code • Date entered Demonstration Project (Demonstration Group) • Career path (equivalent for Comparison Group) • Pay band (equivalent for Comparison Group) • Interval (equivalent for Comparison Group) • Supervisory status (supervisory employee/ non-supervisory employee) • Base pay/Salary as of 10/05/04 (Demonstration Group) • Base pay/Salary as of 3/31/04 (Comparison Group) • Bonus, other • Bonus, other date • Bonus, special • Bonus, special date • Eligibility for performance rating in Year Six (Demonstration Group) • Performance appraisal score • Performance-based pay increase (Demonstration Group) • Performance-based bonus • Performance-based bonus date • Step increase (Comparison Group)	• Intended salary increase • Actual salary increase • Percent received of total possible increase percent • Pay interval maximum • Quality step increase (Comparison Group) • Increase for promotion to grade within band (Comparison Group) • Performance bonus amount • Retention payment amount • Retention allowance date • Recruitment payment amount • Recruitment payment date • Eligibility for 3-year probation • Probation begin date • Probation end date • Hire after 3-year probation • Promotion during Year Six • Promotion date • Pay band after promotion (equivalent for Comparison Group) • Interval after promotion (equivalent for Comparison Group) • Reemployed • Salary increase • Salary increase at promotion • Salary after promotion • Separation date • Type separation • Separation salary • Switched career paths during Year Six • New or original to Demo Project

3.1.2. In the Demonstration Group, 2,756 participants were eligible for performance ratings; some of the analyses were based on this subset of the database.

Where possible (e.g., analysis of turnover data, counts of new hires), the full dataset of 4,465 was used for analyses. However, some analyses require performance data and are therefore based on the 2,756 of the 4,465 Demonstration Group participants who were eligible for a performance rating (all but four of the individuals had performance scores coded in the database). Furthermore, some analyses were limited to the 2,327 Demonstration Group participants for whom career path data and pay increase percent data were also available or the 2,323 Demonstration Group participants for whom career path data and bonus increase percent data were also available. These numbers are sufficiently large to provide for robust analyses.

In Year Six, 1,709 of the 4,465 Demonstration Group participants were ineligible for performance ratings. The majority of these individuals were those who had joined the Demonstration Project as part of the expansion and were not yet eligible to be rated under the Demonstration Project given that they had not yet been in the Demonstration Project for a full performance cycle. The remainder were ineligible for performance ratings for a variety of reasons: people who were recently hired, employees on performance improvement plans, employees who separated from the Demonstration Project during the performance year, and individuals in employment categories not eligible to be rated (e.g., students). Table 3-2 shows a breakdown of the Demonstration Group participants.

Table 3-2. Demonstration Group Participants in the Database

Eligible, with performance scores of 40 or above	2,713
Eligible for performance rating but not for salary increase due to promotion or pay adjustment within past 120 days	39
Eligible but missing performance score in database	4
Total Eligible	**2,756**
Not eligible – individuals who joined the Demonstration Group as part of expansion (directly into the Demonstration Group) and who have not yet received performance ratings and increases under the Demonstration Project	374
Not eligible – individuals who joined the Demonstration Group as part of expansion (transferring from the Comparison Group to the Demonstration Group) and who have not yet received performance ratings and increases under the Demonstration Project	863
Not eligible due to recent new hire*	299
Not eligible due to being on a performance improvement plan	1
Left prior to receiving rating	123
Not eligible due to status as a temporary student / faculty/coop designation	15
None of the above	34
Total Ineligible	**1,709**
Total Demo Group Participants in Database	**4,465**

**This number differs from the number of new hires reported elsewhere because some of the new hires are included in the eligible count because they were hired early enough in the year to receive a rating*

3.1.3. In the Comparison Group, 1,881 participants were eligible for performance ratings; some of the analyses were based on this subset of the database.

In Year Six, 1,881 of the 2,134 Comparison Group participants were eligible for a performance rating. The remainder were ineligible for performance ratings for a variety of reasons: recent promotion, new hire, student/faculty/co-op status, on a performance improvement plan, or left prior to receiving a performance rating. Table 3-3 shows a breakdown of the Comparison Group participants.

Table 3-3. Comparison Group Participants in the Database

Eligible	1,881
Total Eligible (with performance rating)	**1,881**
Ineligible – recently promoted	94
Ineligible – new hire	76
Ineligible – student/faculty/co-op status	14
Ineligible – on a performance improvement plan	0
Ineligible – left prior to receiving rating	69
Total Ineligible	**253**
Total Comp Group Participants in Database	**2,134**

3.1.4. Both descriptive and inferential statistics were used to analyze the Demonstration Project's objective data.

Descriptive and inferential statistics were used to analyze the objective personnel data. Descriptive statistics (e.g., frequencies, means) were used to present information about performance scores, pay increases, and bonuses. Inferential statistics (e.g., t-tests, correlations, regression analyses) were used to test the statistical significance of relationships (e.g., between performance scores and pay increases). Inferential statistics were also used to test differences in mean performance payouts to members of protected classes (minorities, females, and veterans). The specific inferential statistics used were ANOVA (analysis of variance—used to test differences in means) and ANCOVA (analysis of covariance—used to test differences in means while controlling for other factors). Appendix B-1 presents a full description of the ANCOVA process and results as they relate to protected classes.

3.2. Booz Allen collected HR summary data from the participating organizations as an additional means of tracking and analyzing data on the use of the Demonstration Project interventions.

Booz Allen collected summary level HR data from the participating organizations as an additional source of information regarding the use of the Demonstration Project interventions. Each participating organization in the Demonstration Group and the Comparison Group was asked to submit data pertaining to classification actions, performance rating grievances, and hiring methods used.

4. FINDINGS AND CONCLUSIONS

This chapter presents Booz Allen's findings and conclusions regarding the major interventions that are being tested during the Demonstration Project. Each section is dedicated to a set of interventions. Each conclusion is explained and then followed by findings that are supported by the objective data analyses and/or summary HR data analyses.

4.1. As occurred in all previous years, the pay-for-performance system continues to exhibit a positive link between pay and performance.

A series of interventions were implemented during the Demonstration Project to improve the relationship between high performance and financial reward. These interventions include performance-based pay increases, performance bonuses, more flexible pay increases upon promotion, and supervisory performance pay.

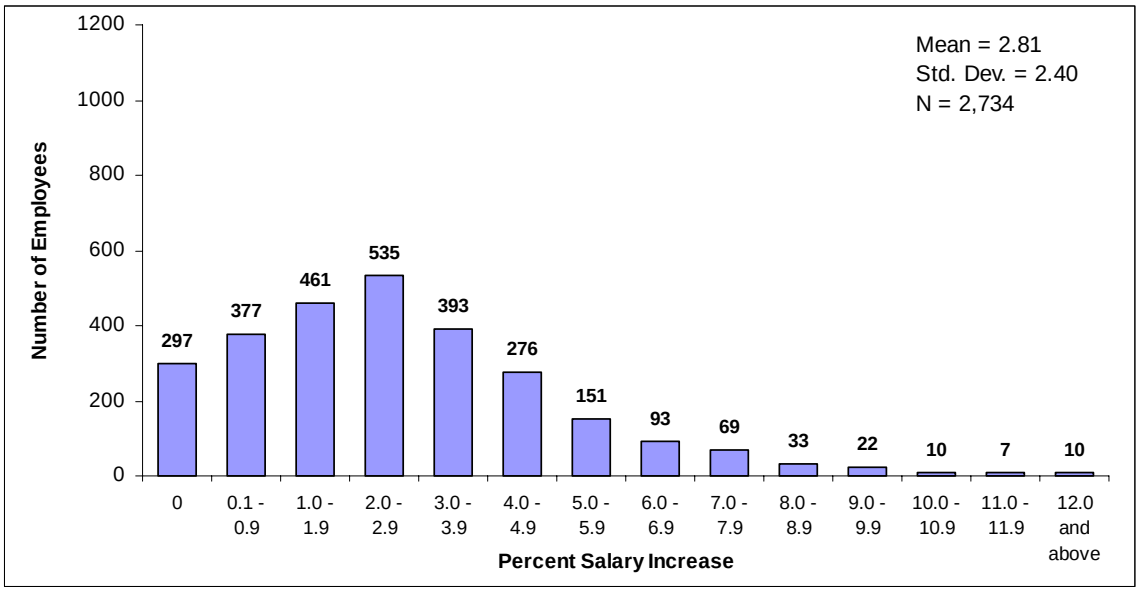
There were many positive results in Year Six. For example, Demonstration Group participants continued to fare better than Comparison Group participants in performance-based pay increases, as they have in all previous years. Demonstration Group participants also fared better overall, when pay increases and bonuses/awards were combined. The link between pay and performance was evident, in regards to both performance-based pay increases and performance bonuses. And, the flexible pay increase upon promotion intervention has been successful in providing managers with greater latitude. One intervention that continues to require monitoring for effectiveness is the supervisory performance pay intervention. The supervisory performance pay intervention continued to reward supervisors who had reached the top of their pay bands (many of whom were performing reasonably well); however, as designed, it did not necessarily reward all high performing supervisors.

4.1.1. The distribution of performance-based pay increases is markedly different in the Demonstration Group from the Comparison Group, with the Demonstration Group demonstrating a greater use of the full range.

Objective data show that Demonstration Group participants received salary increases based on performance ranging from 0 percent to 20.99 percent, with an average performance-based pay of 2.8 percent (shown in Figure 4-1). Similar to Years Two, Three, Four and Five, the majority of employees (75 percent) received increases between 0 percent and 4 percent. At the high end, six percent of Demonstration Group participants received percent salary increases of 6 percent or above, providing some indication that managers are taking advantage of their flexibility to award higher percentage increases to higher performing employees. In future evaluation reports, this type of information will also be broken out separately by Wave 1 and Wave 2 to allow for comparisons.[5]

[5] *Please see section 2.3 of this report for a description of the Waves.*

Figure 4-1. Range of Percent Salary Increases for Demonstration Group Participants



Note: This analysis is based on 2,734 of the 4,465 Demonstration Group participants who had eligible performance ratings and for whom salary data were available.

There are some important differences in how employees in the Demonstration and Comparison Groups are evaluated and rewarded. Employees in the Demonstration Group were evaluated based on a pay-for-performance system; hence, their pay increases were based on performance. In contrast, employees in the Comparison Group are under the traditional federal pay system and are under a 2-level performance appraisal system. For the Comparison Group, we identified the following categories of increases that would be comparable to the performance-based increases in the Demonstration Group:

- Step increase
- Quality step increase
- Increase due to promotion to a grade within the equivalent pay band in the Demonstration Group.

The distribution of percent salary increases for the Comparison Group is shown in Figure 4-2. Similar to the Demonstration Group, employees who were recent hires and therefore not eligible for a step increase during this time period were not included in the analysis.

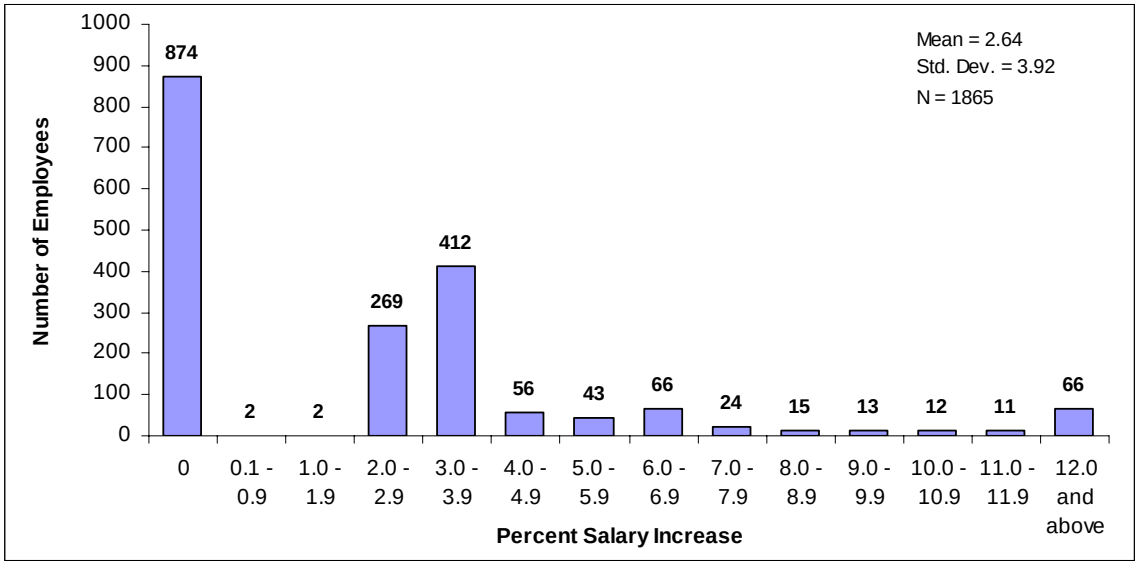
While percent increases in salary in the Comparison Group are not tied to the GS performance rating system, they are presented in this report to establish a pattern for comparison with percent increases in the Demonstration Group. The percent increases ranged from 0.32 percent to 31.71 percent, a broader range than what was evident in the past for the Comparison Group. The average percent increase in the Comparison Group was 2.64 percent.

A relatively large number of individuals received salary increases at the high end of the range, which is surprising given the constraints of the GS system. This is likely a result of how increases due to promotion to a grade within the equivalent pay band in the Demonstration

Group is included in the calculation. In Year Six, all of the Comparison Group participants in the 10.0-10.9, 11.0-11.9, and 12 and above categories, as well as most of the participants in the 9.0-9.9 category, are individuals who received promotions to a grade within the equivalent pay band in the Demonstration Group.

Forty-seven percent of the eligible Comparison Group participants did not receive a salary increase in Year Six, which is likely a function of the GS system wherein employees at the higher steps of a grade wait two to three years between step increases. In comparison, only 11 percent of the eligible Demonstration Group participants did not receive a salary increase in Year Six.

Figure 4-2. Range of Percent Salary Increases for Comparison Group Participants

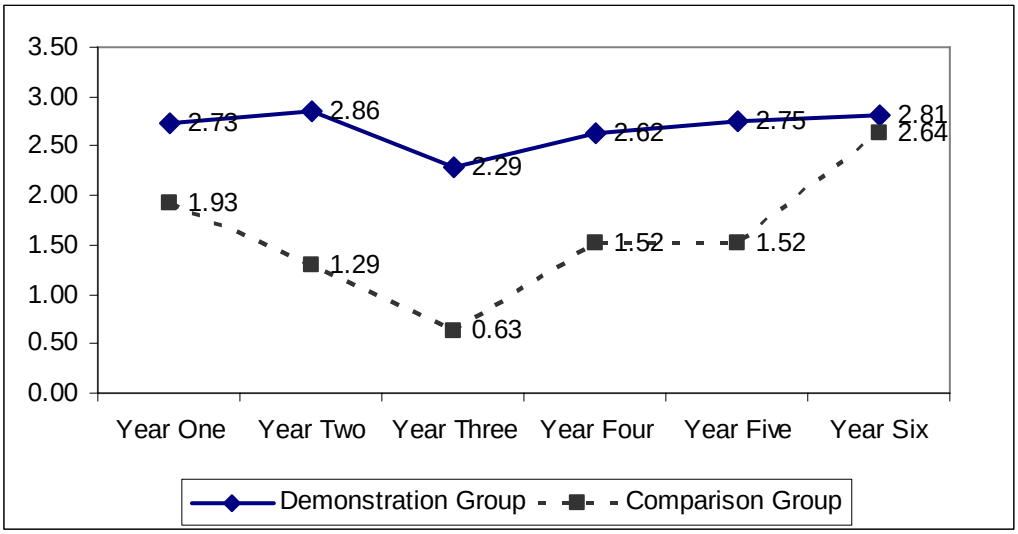


Note: This analysis is based on 1,865 of the 2,134 Comparison Group participants who had eligible performance ratings and for whom salary data were available.

4.1.2. Over the life of the Demonstration Project, salary increases have been consistently higher in the Demonstration Group than the Comparison Group; however, these data points converged in Year Six.

In Year Six, the average percent salary increase for the Demonstration Group was slightly higher than the Comparison Group. Figure 4-3 displays a trend analysis of the average percent salary increases in the Demonstration and Comparison Groups from Year One through Year Six. This figure depicts how Demonstration Group average performance-based pay increases have remained reasonably constant over the years (likely a reflection of how the Demonstration Project is budget neutral) and have always been higher than the Comparison Group. In Year Six, the Comparison Group average spiked upward, nearly to the level of the Demonstration Group. As noted earlier, this is likely the result of the number of individuals in the Comparison Group who received sizable promotions, which gets calculated into the average "performance-based" pay increase for the Comparison Group. To note, when GS employees are promoted in a professional career path, there is a large pay increase between GS-7 to GS-9, GS-9 to GS-11, GS-11 to GS-12, and GS-12 to GS-13.

Figure 4-3. Trend Analysis of Average Percent Salary Increases



Note: The Comparison Group Year Two data point was revised in Year Three to reflect a correction in the formula used to calculate average percent salary increase.

4.1.3. A greater percentage of Demonstration Group participants, compared to Comparison Group participants, received bonuses/awards.

Demonstration Group bonuses and Comparison Group awards were also compared. The original intent of this analysis was to only include, for the Comparison Group, those awards that are performance-driven and are therefore comparable to the performance-based bonuses used in the Demonstration Group. However, two key issues arose in regards to performing this type of analysis because it became evident that an appropriate "match" may not exist.

One issue is that in the NOAA portion of the Comparison Group (which comprises 98.1 percent of the Comparison Group), awards occur throughout the rating period rather than at the end of

the rating period. Thus, Comparison Group participants receive awards for service on specific projects or short periods of performance rather than as recognition for sustained superior performance for an entire rating period. These awards have been coded in the NFC system as "Special Act" awards.

In contrast, "Special Act" awards in the Demonstration Group are supposed to be used for extraordinary service for a specific project and are distinctly different from performance bonuses. "Special Act" awards are intended to recognize unusual circumstances in which an employee went above and beyond assigned duties and responsibilities. As a result, in past evaluations, "Special Act" awards were included in the calculations of average award percentages in the Comparison Group but were not included in the calculations of average bonus percentages in the Demonstration Group.

A second issue is that an additional category of cash awards, "Other Awards," has customarily been treated differently in the two groups. This category includes on-the-spot awards, special Bureau specific awards, and cash-in your account awards. Given that these are not considered performance-driven, they have not been included in the calculation of average bonus percentage for Demonstration Group participants; however, they were included in the calculation of average award percentage for Comparison Group participants.

To address these challenges, in Year Six, we addressed the analysis comparing awards/bonuses in two separate ways. As depicted in Table 4-1, we first performed the analysis as it has been performed in Years One-Five (bonus analysis – original) so as to maintain consistency, have comparable trend data, and be as true as possible to the concept of performance-driven bonuses/awards (i.e., not including them in the Demonstration Group calculations). The results of this analysis are used in other analyses in this evaluation (e.g., progression analysis, turnover analysis). We then analyzed the bonus data for the Demonstration Group again (bonus analysis – expanded), taking into account "Special Act" awards and Other Awards. This analysis presents the overall picture of the bonuses/awards received by Demonstration Group participants and allows inclusion of "Special Act" awards and Other Awards, given that these are being accounted for in the Comparison Group calculation.

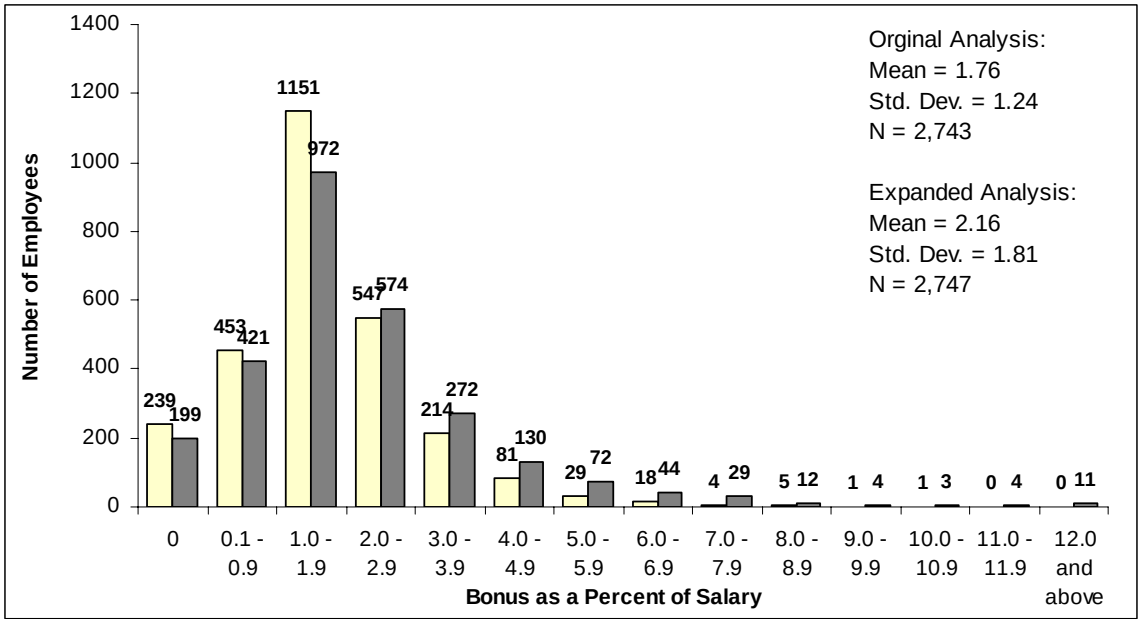
Table 4-1. Bonus Percent Analyses

	BONUS ANALYSIS – ORIGINAL		BONUS ANALYSIS – EXPANDED	
	DEMONSTRATION GROUP	COMPARISON GROUP	DEMONSTRATION GROUP	COMPARISON GROUP
Performance Based Bonuses	Included	N/A	Included	N/A
Special Act Awards	Not Included	Included	Included	Included
Other Awards	Not Included	Included	Included	Included

The results of the original bonus analysis show that, in Year Six, 91 percent of Demonstration Group participants received bonuses (i.e., performance-based bonuses). Bonuses ranged from 0.02 to 10.20 percent of salary for employees receiving bonuses, with an average bonus of 1.76 percent. Figure 4-4 displays these results. These data are based solely on performance-based bonuses.

The results of the expanded bonus analysis show that, in Year Six, 93 percent of Demonstration Group participants received bonuses (i.e., performance-based bonuses, Special Act awards, and/or Other Awards). Bonuses ranged from 0.02 to 17.22 percent of salary for employees receiving bonuses, with an average bonus of 2.16 percent. Figure 4-4 also displays these results. The results of the expanded bonus analysis show that, when these two award categories are included in the Demonstration Group calculations, the average bonus percentage for the Demonstration Group increases from 1.76 percent to 2.16 percent.

Figure 4-4. Range of Bonus Percentages for Demonstration Group Participants

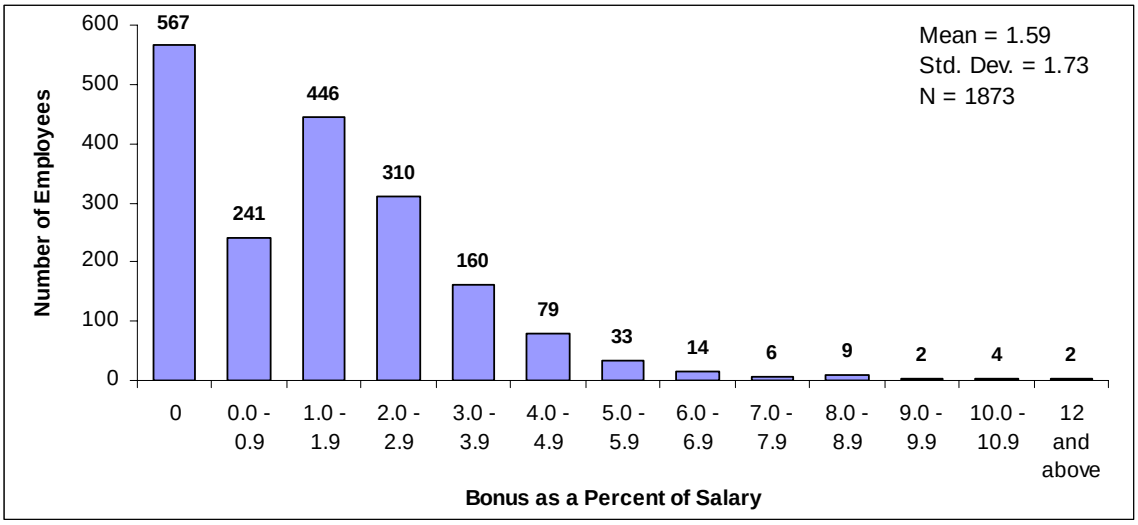


Notes:

1. *This analysis is based on the 2,747 of the 4,465 Demonstration Group participants for whom bonus data were available.*
2. *Average bonus percentages are based on actions effective in November 2003, as reported in the Year Six data file provided by DoC.*
3. *In Years Five and Six, the analysis of bonus/award data was addressed in two separate ways for the Demonstration Group. The original analysis was based solely on performance-based bonuses, consistent with previous years. The expanded analysis was based on all bonuses/awards received by Demonstration Group participants and allows inclusion of "Special Act" awards and Other Awards, given that these were accounted for in the Comparison Group calculation.*

The Comparison Group's awards were considered comparable to the performance bonuses given in the Demonstration Group. The results of the original bonus analysis show that, in Year Six, 61 percent of Comparison Group participants received awards. Among those who received awards, awards ranged from 0.06 percent to 19.33 percent of salary, as shown in Figure 4-5, with an average of 1.59 percent. (These are also the results for the expanded bonus analysis for the Comparison Group.)

Figure 4-5. Range of Award Percentages for Comparison Group Participants



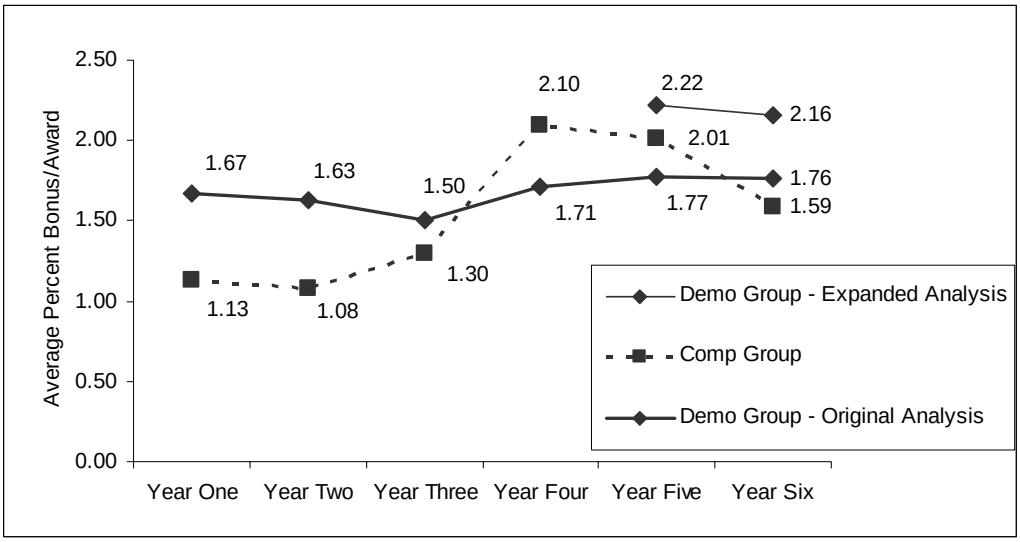
Note: This analysis is based on 1,873 of the 2,134 Comparison Group participants who had eligible performance ratings and for whom award data were available.

4.1.4. Over the life of the Demonstration Project, average bonus percentages have remained relatively constant (with a slight upward trend in the past few years) among the Demonstration Group.

Figure 4-6 displays a trend analysis of the average bonus/award percentages in the Demonstration and Comparison Groups from Year One to Year Six. Over time, average bonus percentages in the Demonstration Group have remained relatively constant, with a slight upward trend in the past few years. This finding is not surprising given that the intent of the intervention is to differentiate and appropriately reward strong versus weak performance, not necessarily to increase the amounts distributed for bonuses. Figure 11 also shows the Year Six data point (2.16) for the expanded bonus analysis, which we began conducting in Year Five.

Meanwhile, average award percentages in the Comparison Group have fluctuated over the years. The average increase peaked in Year Four and then decreased in Years Five and Six. Regardless of whether the original or expanded bonus analysis is used as a comparison, the Demonstration Group average bonus percentages were higher in Year Six than the Comparison Group average award percentages.

Figure 4-6. Trend Analysis of Average Bonus/Award Percentages



4.1.5. Overall, Demonstration Group participants fared better than Comparison Group participants when pay increases and bonuses/awards are combined.

One additional way of examining the impact of a pay-for-performance system is to consider its total impact (pay increases and bonuses) on Demonstration Group participants. As displayed in Table 4-2, Demonstration Group participants received increases and bonuses that were, on average, 4.57 percent of their salary. In comparison, Comparison Group participants received increases and awards that were, on average, 4.23 percent of their salary. These results show that, from a total awards basis, Demonstration Group participants fared better overall than Comparison Group participants.

Table 4-2. Comparison of Total Awards in Year Six

	Demonstration Group	Comparison Group
Average Performance-Based Pay Increase in Year Six	2.81%	2.64%
Average Bonus/Award in Year Six	1.76%	1.59%
Average Total Awards (Average Performance-Based Pay Increase Plus Average Bonus/Award Bonus) in Year Six	4.57%	4.23%

4.1.6. The total awards for Demonstration Group participants may even be an underestimation of what they could be, given that these figures do not include individuals whose pay has been capped.

Employees' performance-based pay increases may be capped if they are at the top of their pay band, regardless of their performance level. In Year Six, approximately 5.5 percent of the Demonstration Group participants who had eligible performance ratings and for whom salary data were available had salaries at the maximums for their pay bands. An additional 13.5 percent of the Demonstration Group participants were somewhat close to the maximums for their pay bands, with "somewhat close" defined as situations where the gap between the employee's initial salary and the pay band maximum was smaller than the average pay increase in Year Six.

As shown in Table 4-3, in Year Six, the distribution of capped employees across the race/national origin groups closely mirrored their representation in the Demonstration Group overall for most race/national origin groups. However, Black (not of Hispanic origin) employees are over-represented among the capped employees. Among the Demonstration Group participants who had salaries at the maximums for their pay bands, 21 percent were Black (not of Hispanic origin); in comparison, this group is 12 percent of the Demonstration Group overall.

Table 4-3. Capped Employees by Race/National Origin

RACE/NATIONAL ORIGIN	REPRESENTATION AMONG CAPPED EMPLOYEES	REPRESENTATION AMONG NEARLY CAPPED EMPLOYEES	OVERALL REPRESENTATION IN THE DEMONSTRATION GROUP
White (not of Hispanic origin)	73%	80%	80%
Black (not of Hispanic origin)	21%	13%	12%
Hispanic	3%	3%	3%
Asian or Pacific Islander	3%	4%	4%
American Indian or Alaskan Native	0%	1%	<1%

Note: This analysis is based on the 150 (and 375) Demonstration Group participants who had eligible performance ratings and for whom salary data were available had salaries at the maximums(near the maximums) for their pay bands

The over-representation of Blacks (not of Hispanic origin) among capped employees is not across the board; it is an issue specific to the ZS career path. Forty-four percent of the Black (not of Hispanic origin) employees in the ZS career path are capped, which is greater than their 36 percent representation in ZS. This suggests that Black (not of Hispanic origin) employees in the ZS career path, more than other race/national origin groups in the ZS career path, have achieved the highest pay available within their career path and pay band. Mobility beyond this point likely requires movement beyond support-related positions (assuming no more upward mobility is available in their current positions). One site historian reported that this has, in fact, been the pattern in the past; capped ZS employees have been trained, competed for promotions, and then were hired into the ZA career path.

4.1.7. ZA and ZP fared better than average for performance-based pay increases and ZS and ZA fared better than average for performance-based bonuses.

One of the features of the DoC Demonstration Project is to determine whether NIST Demonstration Project interventions can be successfully implemented to a wider range of occupational areas. Therefore, the DoC Demonstration Project was designed to include four career paths: ZP (Scientific and Engineering), ZT (Scientific and Engineering Technician), ZA (Administrative), and ZS (Support). While each of these career paths includes a range of occupations, examining the differences across the career paths provides some indication of the impact of interventions on different occupational groupings.

In Year Six, while the results showed that the average performance-based pay increase across the Demonstration Project was 2.81 percent, results vary within each career path. These results are displayed in Table 4-4. These findings show that the largest average performance-based pay increases were experienced by, in descending order, those in the ZA, ZP, ZS, and ZT career paths. This order is nearly consistent with Year Five and the three-year historical pay increase averages obtained prior to the Demonstration Project for individuals in these career paths.

Table 4-4. Average Performance-Based Pay Increase by Career Path

CAREER PATH	NUMBER OF EMPLOYEES	AVERAGE PERFORMANCE-BASED PAY INCREASE
ZP	1758	2.85%
ZT	151	2.12%
ZA	528	3.27%
ZS	297	2.15%
Overall	2,734	2.81%

Notes:
1. Average pay increase by career path were computed for 2,734 of the 4,465 Demonstration Group participants for whom career path and salary data were available.
2. Average overall pay increase represents a non-weighted average across the Demonstration Group.

For average bonus percentage in the Demonstration Group, the results showed that the overall average was 1.76 percent; Table 4-5 displays how the results vary within each career path. These findings show that the largest average bonuses were experienced by, in descending order, those in the ZS, ZA, ZP, and ZT career paths; this is the same order that occurred in Year Five. This order is similar to that found for average performance-based pay increases with one exception: whereas those in the ZS career path received smaller than average performance-based pay increases, they also received larger than average bonuses. This pattern was also found in Year Five. A possible explanation may be that individuals in ZS are more generously awarded with performance-based bonuses to compensate for smaller performance-based pay increases. This explanation fits with an analysis that showed that those in the ZA career path are disproportionately represented in the 5.5 percent of Demonstration Group participants who were at the maximums for their pay bands.

Table 4-5. Average Bonus by Career Path

CAREER PATH	NUMBER OF EMPLOYEES	AVERAGE BONUS
ZP	1763	1.55%
ZT	152	1.39%
ZA	529	2.03%
ZS	299	2.67%
Overall	2743	1.76%

Note: Average bonus by career path was computed for 2,743 of the 4,465 Demonstration Group participants for whom career path and bonus data were available. Average overall bonus represents a non-weighted average across the Demonstration Group.

4.1.8. Performance scores have steadily increased over the life of the Demonstration Project.

Employee performance is measured in the Demonstration Group on a weighted 100-point scoring system. These scores are then used as the basis for performance-related decisions for pay and rewards.

Table 4-6 displays the average performance appraisal scores in the Demonstration Group over the past six years. These data show that the average score has steadily increased. As was reported in Year Five, the increase in average performance scores can be interpreted in at least three ways. One, it may suggest that employee performance has improved over the years. Two, it may be a positive result of the Demonstration Project's success in eliminating poor performers, which can improve average employee performance. And three, it may be indicative of score inflation rather than true performance improvement. In future evaluation reports, this type of information will also be broken out separately by Wave 1 and Wave 2 to allow for comparisons.

Table 4-6. Average Performance Appraisal Scores Across Years

DEMONSTRATION PROJECT YEAR	AVERAGE PERFORMANCE APPRAISAL SCORES
Year One	82.0 points
Year Two	83.4 points
Year Three	84.3 points
Year Four	85.7 points
Year Five	86.5 points
Year Six	86.9 points

Notes:

1. *Average performance appraisal scores are the average number of points received under the 100-point system.*
2. *In Year Six, average performance appraisal score was computed for the 2,752 of the 4,465 Demonstration Group participants for whom performance score data were available.*

4.1.9. ZA and ZP demonstrated performance scores that were at or higher than the overall average.

We also examined average performance appraisal scores in Year Six by career path. As displayed in Table 4-7, these findings show that the highest performance scores were experienced by, in descending order, those in the ZA, ZP, ZT, and ZS career paths; except for the ZT career path, this order parallels that which was found for average performance-based increases. In fact, despite receiving a higher average performance appraisal score than the ZS career path, the ZT career path received, on average, lower pay increases and smaller bonuses than did the ZS career path.

Table 4-7. Average Year Six Performance Score by Career Path

CAREER PATH	NUMBER OF EMPLOYEES	AVERAGE PERFORMANCE APPRAISAL SCORES
ZP	1,763	87.0 points
ZT	152	85.3 points
ZA	529	88.5 points
ZS	299	84.8 points
Overall	2,743	86.9 points

Notes:

1. *Average performance scores by career path were computed for 2,743 of the 4,465 Demonstration Group participants for whom pay band and performance score data were available.*
2. *Average overall performance score was computed for 2,752 of the 4,465 Demonstration Group participants for whom performance score data were available and represents a non-weighted average across the Demonstration Group.*

4.1.10. The link between performance and pay remains evident in the Demonstration Group.

The link between performance and pay is fundamental to the Demonstration Project. As in Years One, Two, Three, Four and Five, objective data indicated that financial rewards are tied to job performance during Year Six. In Years One, Two, and Three, Booz Allen used correlation analysis as a broad measure of the relationship between pay and performance score. While this analysis was one of many analyses conducted to better assess the impact of performance on pay, it did not incorporate other factors that could impact pay progression. For this reason, from Year Four on, Booz Allen conducted a regression analysis to replace the correlation analysis.

The results of the regression analysis (presented in Appendix B-1) show that performance score was the one consistent predictor of performance-based pay increase across all career paths. This provides support for a pay and performance link within the Demonstration Project by demonstrating that performance score is a key factor influencing pay. These results also show that the Demonstration Project is operating as intended because the system is designed to ensure a high degree of linkage between pay and performance.

The results of the regression analysis (presented in Appendix B-1) confirmed that performance score was a consistent predictor of performance-based pay increase across all career paths. This provides support for a pay and performance link within the Demonstration Project by

demonstrating that performance score is a key factor influencing pay. These results also show that the Demonstration Project is operating as intended because the system is designed to ensure a high degree of linkage between pay and performance.

The regression analysis results also showed that organization was a consistent predictor of performance-based pay increase in all four career paths in Year Seven. The differences in pay increases across organizations likely results from the fact that organizations operate under different pay pools that were built from different historical data. No other variables (aside from performance score and organization) were consistent predictors across all four career paths.

Four variables were predictors in two of the four career paths. One, interval is related to pay increase in ZP and ZS, such that higher performance-based pay increases tended to be associated with being at a lower interval, which is consistent with the design of the system in which those in lower intervals within their bands are eligible for greater salary increases. Two, supervisory status is related to pay increase in ZP and ZT, such that higher performance-based pay increases tended to be associated with being a supervisor. Three, promotion in Year Six is related to pay increase in ZP and ZA, such that higher performance-based pay increases tended to be associated with not being promoted; this finding likely reflects how the increase due to promotion is not calculated in the performance-based pay increase and the fact that individuals who received recent promotions were not eligible for performance-based pay increases. And four, age is related to pay increase in ZP and ZT, such that higher performance-based pay increases tended to be associated with being a lower age. This finding is not surprising given that there is a higher correlation between age and being capped in ZP and ZT compared to the other two career paths[6]. As a result, some of the older employees in these career paths are capped and therefore receive small to no performance-based pay increases.

Finally, given the emphasis on examining the impact of the pay-for-performance system on minorities, women, and veterans, we included these demographic variables in the regression analysis. None of these were found to be significant predictors of performance-based pay increase, beyond what was predicted by the variables discussed above.

4.1.11. Demonstration Group participants with higher performance scores received larger pay increases than Demonstration Group participants with lower performance scores, demonstrating the link between pay and performance.

In addition to the regression analysis, a second analysis was performed to examine the relationship between pay and performance. In theory, under a pay-for-performance system, better performers should receive higher percentage pay increases. Conversely, lower performers are more likely to receive a low increase or none at all.

Table 4-8 shows additional support that this is continuing to happen in the Demonstration Group. In Year Six, for the most part, participants with higher performance scores were more likely to

[6] *Among those who have eligible performance scores, the correlation between age and being capped was ZT: $r = .32$,* $p < .001$*; ZP: $r = .31$,* $p < .001$*; ZA: $r = .25$,* $p < .001$*; and ZS: $r = .22$,* $p < .001$.

receive pay increases than were those with lower performance scores. One exception is a minor difference between those in the 90-100 and 80-89 performance score category; however, the lower percentage of employees who received pay increases in the 90-100 performance score category could possibly be explained by two contributing factors. One, employees who have reached the top of their pay bands (an analysis shows that those in the 90-100 performance score category are disproportionately represented in the 5.5 percent of Demonstration Group participants who were at the maximums for their pay bands). And two, employees who did not receive a pay increase due to having received a promotion or pay adjustment (within band) within the previous 120 days. Another exception occurs between the 50-59 and 40-49 performance score categories; however, the very small sample sizes (nine and five, respectively) in these categories suggest the small difference that exists may not be a meaningful one. Overall, participants with higher performance scores received larger pay increases than those with lower performance scores. This finding is consistent with the tenets of a pay-for-performance system.

Table 4-8. Performance Score Category and Performance-Based Pay Increases Among Demonstration Group Participants

PERFORMANCE SCORE CATEGORY	NUMBER AND PERCENTAGE OF EMPLOYEES	PERCENT OF EMPLOYEES RECEIVING PAY INCREASES	AVERAGE PERFORMANCE-BASED PAY INCREASE PERCENTAGE
90-100	1144 (41.8%)	90%	3.19%
80-89	1292 (47.3%)	92%	2.81%
70-79	239 (8.7%)	80%	1.65%
60-69	45 (1.6%)	29%	0.26%
50-59	9 (0.3%)	11%	0.09%
40-49	5 (0.2%)	20%	0.24%

Note:

1. *This analysis is based on the 2,734 employees for whom valid Year Five performance scores and salary data were available.*

4.1.12. The link between performance and pay (as measured by bonuses/awards) remains evident in the Demonstration Group.

As was found for pay increases, objective data indicate that employee bonuses were tied to performance during Year Six. Statistics revealed a positive relationship between job performance (as measured by performance scores) and performance bonuses ($r = .42$, $p < .01$) (Appendix B-1 provides a scatterplot of the data)[7]. This correlation is consistent with all previous years (Year Five: $r = .42$, $p < .01$; Year Four: $r = .37$, $p < .01$; Year Three: $r = .46$, $p < .01$; Year Two: $r = .41$, $p < .01$; and Year One: $r = .46$, $p < .01$.

We also examined the relationship between job performance and bonuses in Year Six by career path. As displayed in Table 4-9, the results suggest that the relationship between performance and bonuses is strongest for, in descending order, those in the ZT, ZS, ZP, and ZA career paths.

Table 4-9. Correlation Between Performance Scores and Bonuses by Career Path

CAREER PATH	NUMBER OF EMPLOYEES	CORRELATION BETWEEN PERFORMANCE SCORE AND BONUS
ZP	1,763	.46
ZT	152	.64
ZA	529	.38
ZS	299	.48

Notes:

1. *All results are significant at the $p \leq .01$ level.*
2. *Correlation by career path was computed for 2,743 of the 4,465 Demonstration Group participants for whom performance score, bonus data, and career path data were available.*

[7] *This analysis is based on the 2,748 of the 4,465 Demonstration Group participants for whom performance score and bonus data were available.*

4.1.13. Evidence suggests that the flexible pay increase upon promotion intervention has been successful in providing managers with greater latitude.

The flexible pay increase upon promotion intervention provides managers with the flexibility to offer substantial pay increases when employees are promoted. Because of the less restrictive nature of pay bands, an employee's salary, upon promotion, can be set anywhere within a band. This intervention is intended to reward high performing employees and encourage their retention by making their salaries more competitive with the public and private sectors.

Table 4-10 suggests that this intervention continues, as in past years, to be effectively utilized. By subtracting the smallest promotion amount from the largest promotion amount, we calculated the size of the range of pay increases upon promotion. Thus, the size of the range is used as an indicator of flexibility in granting pay increases upon promotion, such that larger ranges are equated with having greater flexibility.

At each level of promotion (e.g., from Band 1 to Band 2), managers in the Demonstration Group used a wider range of pay increases upon promotion than did those in the Comparison Group. For each comparison between the Demonstration Group and the Comparison Group, the wider range in pay increases upon promotion appears in bold.

Table 4-10. Range of Pay Increases Upon Promotion

Promotion by Band (or equivalent)	Demonstration Group		Comparison Group	
Band after promotion	Employees	Size of Range of Increase Upon Promotion	Employees	Size of Range of Increase Upon Promotion
Band 2	5	**$4,287**	5	$1,128
Band 3	39	**$17,955**	19	$7,807
Band 4	47	**$12,678**	14	$3,316
Band 5	22	**$26,933**	2	$486

Notes:

1. *Promotions are reported for those cases in which employees were promoted across bands (or the equivalent in the Comparison Group).*
2. *Size of range was computed by subtracting the smallest promotion amount from the largest promotion amount.*

4.1.14. The benefits of a pay-for-performance system over the longer term are evident as high-performing Demonstration Group participants outpace all others over time.

To examine more fully the link between performance and pay, we analyzed the salary progression of a subset of the Demonstration Project participants. Specifically, we examined performance-based pay increases and bonuses/awards over six years (increases due to promotions were not included because insufficient data were available from the earlier years). Employees in the ZP career path, pay band 4, and interval 1 (or the Comparison Group equivalent) in Year One were selected for examination because they are the most populous group in the Demonstration Project's ZP career path. We identified these individuals in the Year One datafile and then tracked the same individuals in the Year Two, Three, Four, Five, and Six datafiles to determine their progression.

We selected this one subset to serve as an example and therefore caution the reader about generalizing findings more broadly. However, given that the same decision rules regarding compensation apply across career paths and pay bands, we would expect that similar outcomes would result if a different subset of the Demonstration Project were selected.

Table 4-11 shows that after six years in the Demonstration Project, high performers in the Demonstration Group in this analysis have experienced, on average, a $26,040 increase, based on pay increases and bonuses. This amount exceeds the dollar increase of others in the Demonstration Group (of the same career path, pay band, and interval). This finding supports the hypothesis that higher performance is paying off, both on a year-over-year basis, as well as over the longer term.

Table 4-11. Progression Analysis – Demonstration Group Participants Who Started in ZP Career Path, Pay Band 4, and Interval 1 in Year One

		YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE	YEAR SIX	AFTER SIX YEARS
Demonstration Group With Performance Scores of 90-100 (High Performers)	Average Performance-Based Pay Increase	$2,757	$2,996	$2,833	$2,949	$2,822	$3,437	$17,794
	Average Bonus Amount	$1,224	$1,252	$1,343	$1,439	$1,468	$1,520	$8,246
	TOTAL	$3,981	$4,248	$4,176	$4,388	$4,290	$4,957	$26,040
Demonstration Group With Performance Scores of 40-89	Average Performance-Based Pay Increase	$1,412	$1,779	$1,674	$1,678	$2,095	$2,057	$10,695
	Average Bonus Amount	$768	$813	$953	$1,041	$1,040	$895	$5,510
	TOTAL	$2,180	$2,592	$2,627	$2,719	$3,135	$2,952	$16,205

Notes:

1. *Demonstration and Comparison Group salary increases are based on valid data for all employees receiving zero or greater salary increases.*
2. *For this analysis, the number of participants in each group in each year ranged from 56 to 154.*
3. *These analyses were done in "then year dollars." We considered normalizing the data to "constant year dollars," but decided that the results would not differ to any significant degree.*
4. *The data reported for Years One, Two, and Three vary slightly from that which was reported in Year Three. This analysis was revised to include only those employees who were in their respective groups for the entire five years and does not include individuals who left and rejoined the organization.*

Similarly, Table 4-12 shows that after six years in the Demonstration Project, Demonstration Group participants in this analysis have experienced greater salary progression compared to their counterparts in the Comparison Group (of the same career path, pay band, and interval). This finding suggests that the Demonstration Project interventions are resulting in greater salary gains for those within the Demonstration Group.

Moreover, the frequency with which participants receive salary increases also affects their progression. Under the GS system, Comparison Group participants do not receive increases every year. Rather, step within grade determines whether they receive increases every year, two years, or three years. In comparison, Demonstration Group participants receive increases every year. This difference in the frequency of increases is accounted for in the analysis because the analysis is based on the average increase in any given year.

Table 4-12. Progression Analysis – Comparison of Demonstration Group and Comparison Group Participants Who Started in ZP Career Path, Pay Band 4, and Interval 1 in Year One (or the equivalent)

		YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE	YEAR SIX	AFTER SIX YEARS
Demonstration Group	Average Performance-Based Pay Increase	$1,771	$2,218	$2,129	$2,243	$2,401	$2,716	$13,478
	Average Bonus Amount	$889	$969	$1,106	$1,218	$1,221	$1,194	$6,597
	TOTAL	$2,660	$3,187	$3,235	$3,461	$3,622	$3,910	$20,075
Comparison Group	Average Performance-Based Pay Increase	$1,186	$1,501	$497	$1,127	$1,007	$1,262	$6,580
	Average Award Amount	$758	$882	$1,017	$1,572	$1,418	$1,739	$7,386
	TOTAL	$1,944	$2,383	$1,514	$2,699	$2,425	$3,001	$13,966

Notes:

1. *Demonstration and Comparison Group salary increases are based on valid data for all employees receiving zero or greater salary increases.*
2. *For this analysis, the number of participants in each group in each year ranged from 46 to 226.*
3. *These analyses were done in "then year dollars." We considered normalizing the data to "constant year dollars," but decided that the results would not differ to any significant degree.*
4. *The data reported for Years One, Two, and Three vary slightly from that which was reported in Year Three. This analysis was revised to include only those employees who were in their respective groups for the entire five years and does not include individuals who left and rejoined the organization.*

4.1.15. The supervisory performance pay intervention continued to reward supervisors who had reached the top of their pay bands (many of whom were performing reasonably well); however, it did not necessarily reward all high performing supervisors.

The supervisory performance pay intervention facilitates paying supervisors at more competitive levels, with the intended outcome of motivating higher performance. As designed, this intervention is used for supervisors who reach the maximum of pay for their pay band and therefore are placed in the pay intervals designated as supervisory performance pay (i.e.,

intervals 4 and 5). Supervisors receive performance scores along with all other employees in the Demonstration Group and are given pay increases appropriate to their scores. Therefore, it is only when the supervisor reaches the top of the pay band that the intervention is enacted.

There were 524 supervisors in the Demonstration Group during Year Six. Of these 524 supervisors, 92 were eligible for supervisory performance pay and 408 supervisors were not (no data were available for the remaining 24 to determine eligibility for supervisory performance pay).[8] In comparison, 89, 50, 41, 44, and 49 supervisors were eligible for supervisory performance pay in Year Five, Year Four, Year Three, Year Two, and Year One, respectively.

Mean scores indicate that, in Year Six, there was a difference in the performance scores between those supervisors who were or were not eligible for supervisory performance pay: Supervisors who were eligible for supervisory performance pay had an average score of 92.0 points (with a range of 83 points to 99 points) while the average among the supervisors known to be ineligible for supervisory performance pay was 89.5 points (with a range of 65 points to 100 points). Both of these average scores are higher than the overall average for the Demonstration Group (86.9 points). These average scores are reasonably similar (within three percentage points) but also represent the largest gap (2.5 percentage points) that has occurred across the years, as depicted in Table 4-13. It is also evident that, across the years, the average scores of both those who are and are not eligible for supervisory performance pay have been increasing, consistent with the increase in the overall average performance scores for the Demonstration Group that was noted earlier.

Table 4-13. Supervisory Performance Pay and Average Performance Scores

	Total Number of Supervisors	Eligible for Supervisory Performance Pay		Not Eligible for Supervisory Performance Pay		Average Performance Score Gap
		Number	Average Performance Score	Number	Average Performance Score	
Year Two	218	44	89.9	174	88.9	1.0
Year Three	222	41	91.1	181	89.2	1.9
Year Four	189	50	91.6	139	89.2	2.4
Year Five	276	89	91.3	187	90.3	1.0
Year Six	524	92	92.0	184	89.5	2.5

Notes:

1. Year One data were not available for this analysis.

2. This analysis is based on the 276 of the 524 supervisors for whom supervisory performance pay data and performance score data were available.

As shown in Table 4-14, among those eligible for supervisory performance pay, 100 percent had performance scores above 80. A wider distribution of performance scores was evident for those supervisors who were not eligible for supervisory performance pay. This shows that those who are eligible for supervisory performance pay are in fact performing reasonably well (i.e., 80 or above).

[8] *Determination of the number of supervisors receiving supervisory performance pay was based on the same analysis as was used in previous years.*

Table 4-14. Supervisory Performance Pay and Distribution of Performance Scores

PERFORMANCE SCORE CATEGORY	Eligible for Supervisory Performance Pay	Not Eligible for Supervisory Performance Pay
90-100	78%	57%
80-89	22%	40%
70-79	0%	3%
60-69	0%	1%
50-59	0%	0%
40-49	0%	0%
TOTAL	100%	100%

Note: This analysis is based on the 276 of the 524 supervisors for whom supervisory performance pay data and performance score data were available.

However, Table 4-15 shows that some of the top performing supervisors are not eligible for supervisory performance pay. Among the highest performing supervisors (those in the 90-100 performance score category), 41 percent were eligible for supervisory pay but 59 percent were not. Similarly, among all the supervisors who were in the 80-89 performance score category, 22 percent were eligible for supervisory pay but 78 percent were not. Thus, supervisory performance pay may be a motivator for supervisors by expanding the future salary growth potential for supervisors (by expanding the pay band maximum by 6 percent), but it does not necessary serve as an immediate reward for current high performance. This occurs because eligibility for supervisory performance pay is primarily driven by salary and secondarily by performance. As such, this intervention rewards the highest paid supervisors – but does not necessarily reward the highest performing supervisors.

Table 4-15. Distribution Across Each Performance Score Category

PERFORMANCE SCORE CATEGORY	Eligible for Supervisory Performance Pay	Not Eligible for Supervisory Performance Pay	Total
90-100	41%	59%	100%
80-89	22%	78%	100%
70-79	0%	100%	100%
60-69	0%	100%	100%
50-59	NA	NA	NA
40-49	NA	NA	NA

Note: This analysis is based on the 276 of the 524 supervisors for whom supervisory performance pay data and performance score data were available.

Finally, among each group (those supervisors who were or were not eligible for supervisory performance pay), a relationship was not evident between performance scores and performance-based pay increases. While supervisors who are eligible for supervisory performance pay had higher average performance scores than those supervisors who were not eligible, the supervisors who were eligible had lower average performance-based pay increases (1.07%) than those supervisors who were not eligible (2.79%)[9]. The average for those who are not eligible for supervisory performance pay is comparable to the average performance-based pay increases of the Demonstration Group overall (2.81%), dispelling the myth that supervisors are getting more than their share of the money. (To note, supervisory performance pay is not factored into the performance-based pay calculations so those who were eligible likely received increases higher than 1.07 percent once their supervisory performance pay was distributed).

4.2. Most of the Demonstration Group scientists and engineers who had time left in their three-year probationary periods were kept on probation, which allows managers with a longer timeframe in which to evaluate performance.

The three-year probationary period for scientists and engineers intervention was designed to allow supervisors the ability to make permanent hiring decisions for research and development (R&D) positions based on employees' demonstrated capabilities in the full R&D cycle. This intervention provides these supervisors with the ability to terminate poor performing employees any time during the three-year period rather than being limited to the typical one-year probationary period.

As displayed in Table 4-16, in Year Six, 145 employees were under the three-year probation, 45 of whom had just started their probation in Year Six. By the end of Year Six, 26 employees who had been under the three-year probation had been made permanent: 24 were employees who were made permanent after completing their three years on the three-year probation, one was an employee who had just completed one year on the three-year probation, and one was an employee who was within the first year of probation. The remaining 119 employees remained on the three-year probation going into Year Seven. The low numbers of individuals taken off probation (i.e., made permanent) in their first or second year indicates that managers are making use of this option to allow employees to remain in probationary status for a longer period of time, thus giving employees a longer time horizon in which to demonstrate their skills.

[9] *This analysis is based on the 276 of the 524 supervisors for whom supervisory performance pay and performance score data were available.*

Table 4-16. Employees on Three-Year Probation

Year Probation Began	Number on Probation in Year Six	Number Made Permanent in Year Six	Number Remaining on Probation at End of Year Six
Demo Project Year Three	24	24	0
Demo Project Year Four	25	0	25
Demo Project Year Five	51	1	50
Demo Project Year Six	45	1	44
TOTAL	145	26	119

Another useful metric of this intervention is the number of employees on three-year probation who leave while on three-year probation. This intervention affords managers with greater flexibility to terminate poor performers as well as for individuals to self-select out if they determine that the position is not appropriate for them. In Year Six, of those currently under the three-year probation, two employees left, one due to resignation and one due to termination. Both of these employees were in the their second year of the three-year probation and neither had been made permanent in Year Six. However, this represents a lower turnover rate than occurred in the Demonstration Group overall, which suggests that managers either do not have the need or are not fully taking advantage of their ability to terminate poor performers during the three year probationary period.

4.3. While many of the recruitment and staffing interventions under the Demonstration Project are no longer unique, many of those that are being applied are showing positive results.

The Demonstration Project implemented a number of interventions aimed to attract high quality candidates and to speed up the recruiting and examining process. These interventions include agency based staffing, local authority for recruitment payments, flexible entry salaries, and flexible paid advertising. Overall, these recruitment and staffing interventions are designed to attract highly qualified candidates and get new hires on board faster. Agency based staffing, supported by flexible paid advertising, will allow hiring officials to focus on more relevant recruiting sources. Local authority for recruitment payments will provide extra incentives for hiring high quality candidates.

It is important to recognize, however, that many of the recruitment and staffing interventions are no longer unique to the Demonstration Project. For example, agency based staffing and merit assignments are recruitment methods that are available elsewhere. Similarly, flexible paid advertising is not unique. Given this reality, we sought to examine whether the interventions appeared to be working effectively in the Demonstration Group and evidence of improvement over time. We also focused on the intervention that is less available elsewhere: flexible entry salaries. The ability to offer flexible entry salaries is a recruiting tool that gives hiring officials greater flexibility to offer starting salaries to highly qualified candidates that are more competitive with public and private industry.

In Year Six, our findings suggest that the Demonstration Project is having success with some of the unique recruitment and staffing interventions. In particular, flexible entry salaries and the

ability to re-negotiate job offers provide managers with the latitude to attract competitive candidates, and faster classification activities and faster times for filling positions reflect process improvements. Acceptance rates are lower, although absent of an explanation, it is unclear whether this is a positive (e.g., more competitive applicants are applying) or negative (e.g., individuals are reticent to join the Demonstration Group). In regards to improving the quality of new hires, there is some indication, albeit small, that newer hires are outperforming the more tenured employees.

4.3.1. Based on objective data, employees hired during the Demonstration Project years have slightly outperformed the more tenured employees, which is some indication that the quality of new hires is improving.

During Year Six, 330 new hires were brought into the Demonstration Group, as identified in the objective datafile (salary data exist in the datafile for 284 of the 330). This represents an increase from Year Five, in which 267[10] new hires were brought into the Demonstration Group. The Comparison Group experienced a drop from 132[11] new hires in Year Five to 102 new hires in Year Six (salary data exist in the datafile for 0 of the 102).

One of the objectives of the Demonstration Project is to attract and hire more qualified candidates. In order to examine the relationship between hiring interventions and the ability to attract high quality candidates, DoC would need to capture objective measures about not just the new hires, but on the quality of applicants. Yet, data on applicant pools is not yet captured in such a way to facilitate analyses.

Given the limitations on assessing the quality of applicants, a new analysis was performed beginning in Year Five to examine, as a proxy, whether new hires to the Demonstration Project outperform those who were hired prior to the Demonstration Project's initiation. Positive results would suggest that, on average, new hires are of a higher quality than "tenured" employees; however, in the absence of comparative information on job applicants, the results would not be able to address how the new hires compared to other applicants who applied for the same positions.

To perform this analysis, all Demonstration Group participants who were hired into DoC in Years One, Two, Three, Four, and Five, and who still remain in the Demonstration Group, were identified. We did not include new hires in Year Six because: one, only a limited number were hired early enough in the performance year to have a performance score, and two, one could argue that new hires experience a learning curve at the beginning of a new job and therefore should be excluded from this type of analysis.

Among the new hires who joined the Demonstration Project during Years One-Five, 946 remained in Year Six. (This analysis did not include as new hires the previously employed

10 *The number of new hires in the Demonstration Group was reported in the Year Five Report as 223, which reflects the number of new hires for whom new hire salary data was provided, but has since been adjusted to 267, which reflects the total number of new hires regardless of whether new hire salary data was or was not provided.*

11 *The number of new hires in the Comparison Group was reported in the Year Five Report as 160 but ha since been adjusted to 132. 28 cases had been inadvertently coded with a new hire salary even though, upon subsequent examination, their hire dates were not within Year Five.*

individuals who joined the Demonstration Project as part of the expansion in Year Six.) The analysis was then based upon the 831 of the 946 employees who had eligible performance ratings and performance scores in Year Six. The results showed that the average performance score for these new hires across the years was 87.3, which was slightly higher than the average performance score for those who were hired prior to the start of the Demonstration Project of 86.8. This difference is in the desired direction to add credence on the quality of new hires improving; however, the difference is so slight that it still remains inconclusive. This analysis will be repeated in future years to discern whether the gap widens.

4.3.2. In Year Six, recruitment payments were used more, and for greater amounts, than previous years.

Based on the objective data file, 11 of the 330 (3 percent) new hires in the Demonstration Group during Year Six received a recruitment payment. These payments ranged from approximately $1,500 to $15,100. This represents an increase in both the use and size of recruitment payments in comparison to Year Five, when not quite 2 percent of the new hires in the Demonstration Group received a recruitment payment, with payments ranging from $1,000 to $5,000.

While recruitment payments are also now available under the GS system, their usage level was lower in the Comparison Group. In Year Six, only 1 of the 102 (1 percent) new hires in the Comparison Group received a recruitment payment.

4.3.3. Demonstration Group supervisors are taking advantage of their ability to offer more flexible entry salaries.

Consistent with previous years, objective data also show that managers in the Demonstration Group generally used a wider range of salaries for new hires than in the Comparison Group, as displayed in Table 4-17. Starting salaries were compared by sorting new hires by path and by band (or their equivalents for Comparison Group members). Out of 12 possible comparisons in starting salaries (categories in which both the Demonstration and Comparison Groups had at least two new hires), the range of salaries was wider in the Demonstration Group in nine of them (or 75 percent), which is reasonably consistent with Year Four (80 percent) and Year Five (82 percent). For each comparison between the Demonstration Group and the Comparison Group, the wider range in starting salaries appears in bold. It should be noted that the locality pay differentials have not been accounted for in calculating these ranges, though they contribute to the size of the ranges in starting salaries.

Table 4-17. Comparison of Starting Salary Ranges Among New Hires in the Demonstration and Comparison Groups

	Demonstration Group		Comparison Group	
	Number of New Hires*	**Size of Range of Starting Salaries**	**Number of New Hires**	**Size of Range of Starting Salaries**
ZA				
Band 1	1	NA	0	NA
Band 2	7	**$20,329**	6	$8,009
Band 3	7	$22,549	16	**$31,444**
Band 4	4	$24,620	3	**$29,173**
Band 5	1	NA	0	NA
ZP				
Band 1	4	**$11,257**	8	$4,787
Band 2	34	**$22,700**	20	$17,138
Band 3	30	**$28,784**	13	$21,234
Band 4	17	$27,857	8	**$28,644**
Band 5	6	**$19,733**	3	$15,455
ZS				
Band 1	5	**$3,718**	3	$2,197
Band 2	1	NA	6	$4,207
Band 3	8	$11,297	1	NA
Band 4	4	**$6,558**	2	$1,486
Band 5	1	NA	2	$5,381
ZT				
Band 1	11	**$11,201**	2	$1,857
Band 2	0	NA	4	$13,945
Band 3	2	**$17,285**	4	$12,415
Band 4	0	NA	1	NA
Band 5	0	NA	0	NA

Notes:

1. *The number of cases used in this analysis is based on the number of new hires for whom starting salary, career path, and pay band data were available (i.e., 143 out of 330 new hires in the Demonstration Group) and all 102 new hires in the Comparison Group.*
2. *Size of range of was computed as by subtracting the smallest starting salary from the largest starting salary.*

4.3.4. The Demonstration Group experienced more offer re-negotiations, faster classification activities, and faster times to fill positions; acceptance rates were lower, although absent of an explanation, it is unclear whether this is a positive or negative.

Based on data provided by the participating organizations on the use of various methods for hiring, the Demonstration Group used agency based staffing for 166 candidates and merit assignment for 179 candidates, indicating a slightly higher use of merit assignment. The Comparison Group used agency based staffing for 39 candidates and merit assignment for 43 candidates, also indicating a slightly higher use of merit assignment (see Table 4-18).

The Demonstration Group had virtually the same level of success with the number of job offers accepted using agency based staffing (91 percent success rate) and merit assignment (90 percent success rate). The Comparison Group also had the same level of success with agency based staffing and merit assignment (100 percent). To note, the Comparison Group had greater success with each method than the Demonstration Group. This is consistent with past years; however, the difference is much more pronounced in Year Six. The reason for the difference is not entirely clear. One possibility is that, given the available flexibilities, this may be attracting to the Demonstration Group a more competitive type of candidate (who may then be choosing among different job offers). Another possibility is that, because salary negotiations are possible in the Demonstration Group, applicants may be more particular about what they will or will not accept. A third possibility is that some candidates may be reticent to accept an offer in the Demonstration Group given the unknowns of being within a pay-for-performance system. The objective data do not offer insights into which of these possibilities, or any others, is accurate; further study of the opinions of job applicants would be required. It is also worth noting that the results differed for those in Wave 1 versus Wave 2. For agency based staffing, the acceptance rate for Wave 1 was 96 percent compared to 31 percent for Wave 2 (albeit this was based on a small number of offers into the Wave 2 organizations). For merit assignment, the acceptance rate for Wave 1 was 90 percent compared to 100 percent for Wave 2.

Unlike past years when there was a more marked difference between the Demonstration Group and the Comparison Group in regards to the percentage of candidates who re-negotiated their offers (with more Demonstration Group candidates re-negotiating), the gap narrowed in Year Six for agency based staffing where the percentage of candidates who re-negotiated offers was similar across the Demonstration Group (11 percent or 18 candidates) and the Comparison Group (10 percent or 4 candidates). However, with merit assignment, the difference is still pronounced: 9 percent of (or 16) Demonstration Group candidates re-negotiated offers compared to 0 percent of Comparison Group candidates. These results show that Demonstration Group managers are using the flexibilities available to them in the hiring process to increase their abilities to obtain competitive candidates; however, the Comparison Group is also sometimes finding ways to apply flexibilities.

The Demonstration Group reported faster times for two classification activities: 1) the average amount of time needed to produce and classify a position and 2) the average amount of time needed to process a classification action. In both cases, the Demonstration Group reported faster times relative to the Comparison Group.

The average number of calendar days required to fill a position (from initial posting of vacancy to selection) was lower for the Demonstration Group (40 days) than the Comparison Group (58 days), a much larger gap than was recorded for Year Five. This quicker time to fill positions for the Demonstration Group is possibly influenced by the improved classification processes. In addition, it is possibly influenced by managers' ability to negotiate starting salaries, thus making positions more attractive to their first-choice (and presumably most qualified) job candidates, thereby increasing the likelihood that candidates will make swift decisions to accept.

Table 4-18. Agency Data Request Results – Recruitment Methods

	DEMONSTRATION GROUP	COMPARISON GROUP
Agency Based Staffing		
Total number of offers made	166	39
Total number of offers accepted	151	39
Total number of offers re-negotiated (per candidate)	18	4
Acceptance rate (offers accepted/offer made)	91%	100%
Merit Assignment		
Total number of offers made	179	43
Total number of offers accepted	161	43
Total number of offers re-negotiated (per candidate)	16	0
Acceptance rate (offers accepted/offer made)	90%	100%
Time to Fill Positions		
Average number of calendar days required to fill a position (from initial posting of vacancy to selection)	40 days	58 days

4.4. Many of the retention interventions are having the desired effect as employee motivators.

The series of retention interventions available to the Demonstration Project have the potential to motivate and retain high performing employees. The interventions that were intended to impact retention include the broadband classification system, performance based pay increases, performance-based bonuses, local authority for retention payments, supervisory performance pay, and more flexible pay increase upon promotion. The intent was that these interventions would offer a structure (i.e., broadbanding) and incentive (e.g., supervisory performance pay) to motivate high performers to stay.

In Year Six, it appears that many of these interventions are having the desired effect. Objective data analyses show that turnover is greater among lower performers, both when looked at in the aggregate or by career path. The results also show that those who turned over received lower performance-based pay increases, bonuses, and total awards than the individuals who remained. In addition, for the first time in the Demonstration Project, retention payments were used. One area in which the evidence is not yet clear is the effectiveness of supervisory performance pay as a retention tool given that the findings have been inconsistent over the years.

4.4.1. The relationship between turnover and performance scores is in the desired direction.

One goal of the Demonstration Project is to retain higher performing employees. Overall, 242 of the 4,465 Demonstration Group participants (5.4 percent) separated in Year Six (aggregate Demonstration Group turnover will be discussed in more detail in the next section). Of the 242, the top three reasons for leaving were retirement (40 percent), resignation (28 percent), and termination (28 percent).

Ultimately, it is hoped that lower performing employees will separate at higher rates than will higher performing employees. As displayed in Table 4-19, dividing Demonstration Group participants into performance score groupings shows clear evidence of the desired relationship in Year Six. By looking at the relative turnover rates across different levels of performance, it is clear that turnover is higher among those with lower scores (e.g., 20 percent of employees with scores in the 40-49 range turned over) and turnover is lower among those with higher scores (e.g., 2.4 percent of employees with scores in the 90-100 range turned over). (The turnover rate was slightly higher for those in the highest performance score category, 90-100, compared to the second highest category, 80-89; however, this difference is so small to not be of concern.) For this analysis, turnover was defined as employees who retired, resigned, terminated, or otherwise separated from the Demonstration Project.

Table 4-19. Demonstration Group Turnover Rates by Level of Performance

PERFORMANCE SCORE CATEGORY	NUMBER OF EMPLOYEES	NUMBER OF SEPARATED EMPLOYEES	TURNOVER RATE
90-100	1,150	28	2.4%
80-89	1,300	29	2.2%
70-79	242	8	3.3%
60-69	46	3	6.5%
50-59	9	0	0.0%
40-49	5	1	20.0%

Notes:

1. *The total number of employees in this analysis is based on the 2,752 employees for whom valid Year Six performance scores were available.*
2. *Overall, 242 employees separated during Year Six. The total number of separated employees in this analysis is based on 69 of the 242 employees who separated in Year Six for whom valid Year Six performance scores were available.*
3. *The overall turnover rate for the Demonstration Group is 5.4 percent, which differs from a weighted average of the rates presented in this table. The reason for this difference is that the overall turnover rate is based on the number of employees who separated during Year Six and the total number of employees in the Demonstration Group, regardless of whether performance scores were available.*

4.4.2. Turnover rates in the Demonstration Group and Comparison Group were reasonably similar and considerably lower than in past years.

Comparing Demonstration Group turnover to Comparison Group turnover can also be used as an indicator of the relative success of retention efforts. However, this analysis has its limitations because, in the Comparison Group, turnover can only be examined in the aggregate and not by performance levels (due to the fact that the majority of the Comparison Group is on a pass/fail performance rating system). Without information about performance levels, turnover rates can be interpreted in different ways. For example, lower turnover rates can be interpreted as a positive because more employees were retained. However, higher turnover rates can also be interpreted as a positive because they may suggest that lower performers are leaving, resulting in a stronger workforce overall. Given these limitations, we compare turnover between the groups but recognize that conclusions are difficult to draw.

Turnover was calculated as the number of employees who retired, resigned, terminated, or otherwise separated from the Demonstration Project, divided by the total number of Demonstration or Comparison Group participants. During Year Six, turnover was 5.4 percent in the Demonstration Group and 5.3 percent in the Comparison Group. Both of these rates are reasonably similar to Year Five and represent a significant drop from Years Two-Four, very likely reflective of continuing labor market conditions including a less than hospitable job market that may have discouraged employees from leaving the safety of employment. (When examined by wave, those in Wave 1 experienced 6.7 percent turnover and those in Wave 2 experienced 3.6 percent turnover. In future years, we will examine whether this differential turnover rate persists and, if so, what the possible causes may be.)

Cumulative turnover rate was calculated as the total number of separations in Years Two through Six divided by the average number of Demonstration (or Comparison) Group participants (the average number across Years Two through Six). (In Year One, data were not available on the number of separations and therefore could not be included in this calculation.) Over Years Two through Six there has been a cumulative turnover rate of 51 percent in the Demonstration Group. In comparison, the cumulative turnover rate in the Comparison Group was 45 percent. Table 4-20 displays these results. The higher cumulative turnover rate in the Demonstration Group may be indicative of progress toward eliminating poor performers, which is supported by the evidence that poor performers are turning over at higher rates than high performers.

Table 4-20. Turnover Rates by Group

GROUP	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE	YEAR SIX	CUMULATIVE OVER YEARS TWO, THREE, FOUR, FIVE, AND SIX
Demonstration Group	13%	16%	15%	5%	5%	51%
Comparison Group	10%	11%	15%	4%	5%	45%

4.4.3. The link between turnover and performance levels is also evident when examined by career path.

Average turnover rates varied somewhat by career paths in Year Six, as displayed in Table 4-21. These results show that turnover is greatest among ZS, which is also one of the career paths with lower average performance scores. These results also show that turnover is lowest among ZA, which is one of the career paths with higher average performance scores. This finding provides further evidence of an appropriate relationship between turnover and performance levels.

Table 4-21. Average Turnover Rate by Career Path

CAREER PATH	NUMBER OF EMPLOYEES	NUMBER OF EMPLOYEES WHO TURNED OVER	AVERAGE TURNOVER RATE	OVERALL AVERAGE PERFORMANCE APPRAISAL SCORE
ZP	1,763	37	2.1%	87.0 points
ZT	152	3	2.0%	85.3 points
ZA	529	10	1.9%	88.5 points
ZS	299	10	3.3%	84.8 points

Notes:

1. *Average turnover rates were computed based on the 2,743 of the 4,465 Demonstration Group participants for whom career path, performance score, and turnover data were available.*
2. *Average performance appraisal scores by career path were computed based on the 2,743 of the 4,465 Demonstration Group participants for whom career path and performance score data were available; these averages are not restricted to the subset of individuals who turned over in Year Six nor to those for whom turnover data were available.*

4.4.4. Individuals who separated had, on average, lower performance-based pay increases, bonuses, and total awards than the individuals who remained.

In the Demonstration Group in Year Six, there was a clear distinction in pay between those who separated and those who remained when total awards are calculated. Those who separated had, on average, lower performance-based pay increases, bonuses, and total awards (performance-based pay increase plus bonus) than those who remained. (The average for leavers is based on those who left *after* receiving an appraisal and an increase.) Average performance-based pay increases, bonuses, and total awards, expressed as a percent of salary, appear in Table 4-22. Dollar figures for average performance-based pay increases and bonuses appear in Table 4-23. These findings provide addition support that the Demonstration Project is turning over lower performers (who presumably received lower increases).

Table 4-22. Stayers Versus Leavers: Percent Increases and Bonuses

Type of Award	Average Award (as a Percentage of Salary)
Performance-Based Pay Increase	
Stayers	2.8%
Leavers	1.7%
Bonus	
Stayers	1.8%
Leavers	1.3%
Total Awards (Performance-Based Pay Increase Plus Bonus)	
Stayers	4.6%
Leavers	3.2%

1. *Average awards were computed for the Demonstration Group participants for whom turnover, salary, and bonus data were available (2,734 for the performance-based pay increase and total awards analysis and 2,748 for the bonus analysis).*
2. *The difference between performance-based pay increases was statistically significant at the $p \leq .01$ level. The difference between bonuses was statistically significant at the $p \leq .05$ level. The difference between total awards was statistically significant at the $p \leq .01$ level.*

Table 4-23. Stayers Versus Leavers: Average Performance-Based Pay Increases and Bonuses

Type of Award	Average Award (in Dollars)
Performance-Based Pay Increase	
Stayers	$1,942
Leavers	$1,089
Bonus	
Stayers	$1,286
Leavers	$997

4.4.5. Year Six was the first year of the Demonstration Project in which retention payments were used.

Retention payments are an intervention that has been proposed as a tool for retaining high performing employees, especially those with expertise in critical skill areas. Based on an analysis of objective data, retention payments were not used in Years One-Five of the Demonstration Project. In Year Six, two Demonstration Group participants received retention payments. Both of these individuals were in the ZP career path and were part of Wave 2. Two Comparison Group participants also received retention payments during Year Six. Both of these individuals were in GS 13 positions.

The use of retention payments in Year Five is promising given that retention payments offer managers an additional option for retaining high performers (albeit this option is now available both within and beyond the Demonstration Project). While some use of retention payments is promising, widespread use of retention payments is not expected to occur given the restrictions on when they can be awarded (i.e., retention payments can only be paid to employees leaving the Federal Government, which occurs infrequently, or for employees who are retiring).

4.4.6. Whether supervisory performance pay is an effective retention tool is still unclear; results have varied across the years.

As shown in Table 4-24, in Year Six, turnover among Demonstration Group supervisors (4.2 percent) was lower than all Demonstration Group participants (5.4 percent) and slightly higher than Comparison Group supervisors (3.9 percent). The turnover rate for Demonstration Group supervisors has fluctuated across the years, starting at 13 percent in both Years One and Two, increasing to 18 percent in Year Three, dropping to 14 percent in Year Four, and dropping even more significantly to 5 percent in Year Five. As discussed in regards to turnover overall, the low turnover rates across the Demonstration Group and Comparison Group, and across employees and supervisors, were likely driven by labor market conditions including a less than hospitable job market.

In theory, the supervisory performance pay intervention facilitates paying high performing supervisors at more competitive levels, which could result in improved retention. In Year Six, as mentioned above, turnover was relatively low among supervisors overall. Turnover was the same for the supervisors who did and the supervisors who did not receive supervisory performance pay (2.2 percent). Thus, there is no evidence that supervisory performance pay acts as a retention tool.

Table 4-24. Turnover Among Supervisors

Group	Total Number	Number Who Separated	Turnover Rate
Demonstration Group			
All Employees*	4,465	242	5.4%
All Supervisors	524	22	4.2%
Supervisors Who Did Not Receive Supervisory Performance Pay	*408*	*9*	*2.2%*
Supervisors Who Did Receive Supervisory Performance Pay	*92*	*2*	*2.2%*
Comparison Group			
All Employees	2,134	114	5.3%
All Supervisors	128	5	3.9%

Notes:

1. *Turnover rate was calculated as the number of individuals who separated divided by the total number of individuals.*
2. *"All Employees" includes supervisory and non-supervisory employees.*
3. *This analysis is based on the 500 of the 524 supervisors for whom supervisory performance pay data were available.*

4.5. The Demonstration Project interventions continue to reflect a system in which there is no evidence of unfair treatment based on race, gender, or veteran status.

Booz Allen again performed a series of analyses on objective data pertaining to performance, compensation, and demographics of the Demonstration Project participants. Consistent with previous years, these analyses suggest that the Demonstration Project has not been detrimental to the recruitment or compensation of minorities, women, or veterans. Some differences in retention rates were noted based on race/national origin groups, which warrant further study.

4.5.1. The Demonstration Project did not negatively impact the hiring of minorities, women, and veterans.

Table 4-25 shows that, in Year Six, the proportion of minority, women, and veteran new hires to the Demonstration Group was nearly consistent with their representation in the employee population overall. This was particularly evident for RNO minorities and women, who had greater representation among new hires than among Demonstration Group participants overall. (Among veterans, the representation among new hires was lower; however, the overall population numbers continue to exceed the baseline numbers established in Year One.) These findings suggest that the Demonstration Project interventions are not harming DoC's ability to diversify its employee population. (Importantly, while this analysis demonstrates that there was sufficient diversity of new hires relative to the Demonstration Group population overall, it cannot address the diversity of the applicant pool from which new hires were drawn and the rates of hire per each group.)

Overall, these data also show that the overall diversity of the Demonstration Project has increased over time. Every race/national origin minority group, as well as women and veterans, were better represented in Year Six than in Year One.

Table 4-25. Diversity of New Hires Compared to the Overall Demonstration Group

Category	New Hires (N=330)	All Demonstration Group participants (N=4,465) in Year Six	All Demonstration Group participants (N=2,697) in Year One
Race/National Origin			
White (not of Hispanic origin)	72.7%	78.3%	80. 8%
Black (not of Hispanic origin)	14.2%	13.0%	12.1%
Hispanic	4.5%	3.0%	2.7%
Asian or Pacific Islander	7.9%	5.3%	4.0%
American Indian or Alaskan Native	0.6%	0.4%	0.3%
Gender			
Women	50.9%	42.0%	39.0%
Men	49.1%	58.0%	61.0%
Veteran Status			
Veteran	8.2%	12.6%	9.2%
Non-Veteran	91.8%	87.4%	90.8%

Note: The number of new hires reported here is the number of new hires reported in the objective datafile.

4.5.2. Consistent with past years, in Year Six, the Demonstration Group's pay-for-performance system did not reward participants differently based on race, gender, or veteran status in terms of average performance-based pay increases or bonuses.

As in previous years, we analyzed objective data on the distribution of performance-based pay increase percentages and bonus percentages by minority status, gender, and veteran status. In regards to minority status, Year Six was the first year in which the analysis was at the level of race/national origin rather than minority/non-minority. This was done to allow for a finer level of detail on the potentially differential experiences of the various minority subgroups that would otherwise be treated as similar in the general "minority" category.

Given the complexities of interpreting results when there are multiple groups rather than a dichotomous minority/non-minority categorization, the analysis was slightly altered in Year Six to improve interpretation. Rather than requiring the reader to infer the linkage between pay and performance based on a side-by-side display of performance scores and average performance-based pay increase percentages and average bonus percentages as was done in the past, we accounted for performance score in the calculation of average performance-based pay increase percentages and performance bonuses to ease readability of the results.

To perform the analysis, we first computed raw averages for the average performance-based pay increase percentages and performance bonus percentages, broken down by minority status, gender, and veteran status. Raw averages do not account for differences in other factors that affect the calculation of averages; therefore, we also computed "adjusted averages," which are adjusted for the impact of other factors (in this case, performance score, career path, length of service, and organization) on the relationship and therefore produce a more useful way of examining the data. (See Appendix B-1 for a more detailed description of the ANCOVA process for computing adjusted averages and interpreting the results).

The rationale for including performance score is that it is feasible that performance scores may differ across demographic subgroups. (Average performance scores for Year Six for the various demographic subgroups are displayed in Table 4-26.) Similarly, we controlled for career path, length of service, and organization because these may also differ across demographic subgroups. In essence, the advantage of examining adjusted averages is that it answers the question: within any career path and any organization, at a given level of length of service, and at a given performance score, is there a difference in performance-based pay increase percentages?

Table 4-26. Average Performance Scores by Group

	Average Performance Score
White (not of Hispanic origin)	87.0 points
Black (not of Hispanic origin)	86.7 points
Hispanic	85.9 points
Asian or Pacific Islander	87.7 points
American Indian or Alaskan Native	84.5 points
Female	87.3 points
Male	86.7 points
Veteran	85.6 points
Non-Veteran	87.1 points

Table 4-27 presents the raw and adjusted averages (the reader is advised to consider the latter as more meaningful) broken out by demographic subgroups. As depicted, the average performance-based pay increase percentages, after controlling for any differences attributable to performance score, career path, time in service, and organization, ranged from 2.6 percent to 2.9 percent for race/national origin, was constant at 2.8 percent for gender, and ranged from 2.6 percent to 2.8 percent for veteran status. Only two differences were statistically significant[12]. Blacks (not of Hispanic origin) received lower increases than Whites (not of Hispanic origin) and veterans received lower increases than non-veterans; however, neither of these differences were large enough to be considered meaningful using standard statistical testing procedures[13] and, in both cases, the gaps were smaller than occurred in the Comparison Group (to be discussed in the next section). No differences existed in average bonus percentages, by race/national origin, gender, or veteran status, after controlling for any differences attributable to performance score, career path, time in service, and organization.

Overall, the results of this analysis show that there were no meaningful differences in how minorities, women, and veterans fared in terms of pay increase percentages and award percentages. In Year Six, the Demonstration Group's pay-for-performance system did not reward participants differently based on race, gender, or veteran status in terms of average performance-based pay increases or bonuses.

12 *Based on statistical significant testing at $p < .05$.*

13 *Based on eta squared values (an estimate of the size of the effect) greater than .05.*

Table 4-27. Average Pay Increase Percentages (Raw and Adjusted) and Bonus Percentages (Raw and Adjusted) for the Demonstration Group

	Average Performance-Based Pay Increase Percentage		Average Bonus Percentage	
	Raw	Adjusted	Raw	Adjusted
White (not of Hispanic origin)	2.9%	2.9%	1.8%	1.8%
Black (not of Hispanic origin)	2.4%	2.6%	1.8%	1.7%
Hispanic	2.7%	2.8%	1.9%	1.9%
Asian or Pacific Islander	2.7%	2.7%	1.6%	1.7%
Female	3.1%	2.8%	2.0%	1.8%
Male	2.6%	2.8%	1.6%	1.8%
Veteran	2.1%	2.6%	1.5%	1.7%
Non-Veteran	2.9%	2.8%	1.8%	1.8%

Notes:

1 *Average performance-based pay increase and bonus percentages are based on appraisals conducted in September 2004 and actions effective in November 2004, as reported in the Year Six data file provided by DoC.*
2. *Adjusted averages were computed by statistically controlling for performance score, career path length of service, and organization.*
3. *Average performance-based pay increase percentages were computed for 2,734 of the 4,465 Demonstration Group participants for whom data were available on pay increases, performance score, career path (or equivalent), length of service, and organization.*
4. *Average bonus percentages were computed for 2,743 of the 4,465 Demonstration Group participants for whom data were available on bonuses/awards, performance score, career path (or equivalent), length of service, and organization.*
5. *Average performance scores were computed for 2,752 of the 4,465 Demonstration Group participants for whom performance score data were available.*
6. *The sample sizes for this analysis ranged from 81 to 2,187.*

4.5.3. Like the Demonstration Group, in the Comparison Group there were no differences in how minorities, women, and veterans fared in terms of pay increase percentages and award percentages.

Booz Allen also examined Comparison Group data on pay increase percentages and award percentages, by demographic subgroups, to evaluate differences between the Demonstration and Comparison Groups during Year Six. Direct comparisons were not possible due to the differences inherent in the different systems. Table 4-28 displays the data sources used from each group for purposes of comparison.

Table 4-28. Data from Demonstration and Comparison Groups Used for Comparisons

Demonstration Group	Comparison Group
Scores on a 100-point performance appraisal system	Scores on a 2-level performance appraisal system
Performance Increase	Step Increase Quality Step Increase Promotion Increase (when the promotion was equivalent to transition within a pay band under the Demonstration Project)
Performance-based Bonuses (associated with the Performance Appraisal Cycle)	Awards (not associated with the Performance Appraisal Cycle)

Table 4-29 presents a comparison of the average pay increase percentages and the average performance bonus/award percentages, broken out by demographic subgroups, across the Demonstration and Comparison Groups. Similar to the analysis of the Demonstration Group, the analysis of the Comparison Group also controls for career path and length of service (thus, this table shows adjusted averages, presented alongside a re-presentation of the Demonstration Group's adjusted averages); however, the analysis cannot control for performance score given that the Comparison Group is under a pass/fail system in which nearly everyone passes.

Overall, the results showed that there was greater consistency in pay increase percentages and average bonus/award percentages across subgroups in the Demonstration Group than in the Comparison Group. For example, average pay increases across the race/national origin groups had a 0.3 percentage point range in the Demonstration Group and a 2.1 percentage point range in the Comparison Group.

The results can also be examined more closely by race/national origin, gender, and veteran status. In regards to race/national origin, the pattern of results differed between the Demonstration Group and the Comparison Group; however nearly every race/national origin group fared better in the Demonstration Group than the Comparison Group (one exception is Hispanics, who fared less well in the Demonstration Group, but who also demonstrated the highest pay increase percentages and average bonus/award percentages of all groups in the Comparison Group). In the Comparison Group, statistically significant differences existed for pay increases between Hispanics and all other race/national origin group. In regards to gender, in the Comparison Group, females received higher pay increase percentages and average bonus/award percentages, on average, compared to males. In regards to veteran status, veterans

received lower pay increase percentages and average bonus/award percentages than non-veterans in the Comparison Group, as in the Demonstration Group; however, the difference was more pronounced in the Comparison Group.

Table 4-29. Comparison of Average Pay Increases and Average Bonuses/Awards Between Demonstration Group and Comparison Group

	Average Pay Increase Percentage		Average Bonus/ Award Percentage	
	Demo Group	Comp Group	Demo Group	Comp Group
White (not of Hispanic origin)	2.9%	2.7%	1.8%	1.6%
Black (not of Hispanic origin)	2.6%	2.2%	1.7%	1.7%
Hispanic	2.8%	4.2%	1.9%	2.2%
Asian or Pacific Islander	2.7%	2.1%	1.7%	1.5%
Female	2.8%	3.0%	1.8%	1.7%
Male	2.8%	2.4%	1.8%	1.5%
Veteran	2.6%	2.0%	1.7%	1.3%
Non-Veteran	2.8%	2.7%	1.8%	1.6%

Notes:

1. *Demonstration Group average performance-based pay increase and bonus percentages are based on appraisals conducted in September 2004 and actions effective in November 2004, as reported in the Year Six data file provided by DoC.*
2. *Average performance-based pay increase and bonus/award percentages are based on actions occurring during the performance evaluation cycle that ended September 30, 2004 and as reported in the Year Six data file provided by DoC.*
3. *Average performance-based pay increase and bonus percentages for the Demonstration Group are based on averages that were computed by statistically controlling for performance score, career path, length of service, organization..*
4. *Average performance-based pay increase percentages were computed for 2,327 of the 4,465 Demonstration Group participants, and the 1,842 of the 2,134 Comparison Group, for whom data were available on pay increases, performance rating, career path (or equivalent), length of service, and organization.*
5. *Average bonus percentages were computed for 2,504 of the 4,465 Demonstration Group participants, and the 1,850 of the 2,134 of the Comparison Group, for whom data were available on bonuses/awards, performance score, career path (or equivalent), length of service, and organization.*
6. *The sample sizes for this analysis ranged from 81 to 2187 for the Demonstration Group and 30 to 1567 for the Comparison Group.*

4.5.4. In the Demonstration Group, there was a small range in turnover rates based on race/national origin groups, with Blacks (not of Hispanic origin) experiencing the highest turnover and Hispanics experiencing the lowest turnover.

In Year Six, overall turnover in the Demonstration Group was 5.4 percent. As depicted in Table 4-30, the turnover rates, by race/national origin groups, ranged from 3.8 percent to 7.1 percent. The separation rate of Blacks (not of Hispanic origin) was 1.7 percentage points higher than the average. Among Blacks (not of Hispanic origin), the most common reason for leaving was retirement (53 percent). The separation rate of Hispanics was 1.6 percentage points lower than the average. Interestingly, the most common reason for leaving among Hispanics was also retirement (60 percent). No other race/national origin groups experienced as high a turnover rate due to retirement as these two groups.

Among high performers (performance scores of 90–100), an even larger gap exists between the separation rate of Blacks (not of Hispanic origin) and the average turnover rate. On average, 2.4 percent of high performers turned over; however, a disproportionate 5.4 percent of high performing Blacks (not of Hispanic origin) turned over. The reason for this difference is not discernable from the data. Further study could explore the turnover drivers for these individuals and the extent to which internal factors (i.e., turnover drivers) versus external factors (e.g., the desirability of these candidates in the job market, as more and more public and private sector organizations understand the value of a diverse workforce) are at play.

Table 4-30. Comparison of Turnover Rates in the Demonstration Group Between All Participants and High Performers

	Demonstration Group All Participants			Demonstration Group High Performers		
Group	**Number**	**Number Separated**	**Percent Separated**	**Number**	**Number Separated**	**Percent Separated**
White (not of Hispanic origin)	3,498	185	5.3%	939	20	2.1%
Black (not of Hispanic origin)	581	41	7.1%	129	7	5.4%
Hispanic	132	5	3.8%	30	0	0.0%
Asian or Pacific Islander	235	10	4.3%	50	1	2.0%
American Indian or Alaskan Native	19	1	5.3%	2	0	0.0%
TOTAL	**4,465**	**242**	**5.4%**	**1,150**	**28**	**2.4%**

Note: "High performers" is defined as performance scores of 90–100.

4.5.5. In comparing the Demonstration Group and the Comparison Group, some differences exist in turnover rates based on race/national origin groups.

The Pass/Fail rating system precludes comparing turnover rates of Demonstration Group and Comparison Group participants with consideration for performance level. A comparison of turnover rates, regardless of performance level, shows that turnover rates were reasonably comparable across the Demonstration Group and Comparison Group for Whites (not of Hispanic origin) and for Asian or Pacific Islanders. Among Blacks (not of Hispanic origin), turnover was greater in the Demonstration Group than the Comparison Group. Among Hispanics, turnover was lower in the Demonstration Group than the Comparison Group. These results are displayed in Table 4-31. As mentioned in the previous section, the explanation for the differential rates of turnover, while not large, should be tracked closely each year to determine if any trends are evident.

Table 4-31. Comparison of Turnover Rates in the Demonstration and Comparison Groups

	Demonstration Group All Participants			Comparison Group All Participants		
Group	**Number**	**Number Separated**	**Percent Separated**	**Number**	**Number Separated**	**Percent Separated**
White (not of Hispanic origin)	3,498	185	5.3%	1,803	97	5.4%
Black (not of Hispanic origin)	581	41	7.1%	188	10	5.3%
Hispanic	132	5	3.8%	37	3	8.1%
Asian or Pacific Islander	235	10	4.3%	98	4	4.1%
American Indian or Alaskan Native	19	1	5.3%	8	0	0.0%
TOTAL	**4,465**	**242**	**5.4%**	**2,134**	**114**	**5.3%**

5. RECOMMENDATIONS

This chapter presents Booz Allen's recommendations as DoC continues to operate the Demonstration Project. These recommendations are intended to enhance aspects of the Demonstration Project based on Year Six findings as well as trend analyses covering the past six years.

5.1. DoC should continue to communicate the Demonstration Project's successes and lessons learned, as a contribution toward government wide initiatives to expand pay-for-performance.

In the years since the Demonstration Project was enacted, there has been heightened interest across the federal government to implement pay-for-performance systems, such as the one that DoC has included as a key intervention in the Demonstration Project. As such, the Demonstration Project serves as a test bed and role model for how pay-for-performance can be implemented in the government. Consistent with the initial objective to determine the generalizability of these interventions elsewhere, DoC should continue to both communicate the strengths of the program as well as lessons learned, for the benefit of other federal agencies considering moving toward this type of system and for which some apprehension exists. Given that the Year Six findings are solely based on objective data, these results can help to substantiate the positive benefits of a pay-for-performance system based on hard data, thereby helping to negate some of the perceptions and biases that exist against pay-for-performance systems.

Moreover, DoC should (within reason) seek to study issues that may be enlightening not just for the Demonstration Project but for government wide initiatives as well. For example, it may be worth exploring whether there is merit in the often cited recommendation to use a competency-based performance management system within a pay-for-performance system. Also to this end, DoC should seek to continually improve data collection tools and techniques to maximize the quality of data collected about the Demonstration Project. For example, it may be worth reviewing and revising some of the data collection protocols used for the evaluations to include topics that are also salient to the government wide initiative, such as more emphasis on discerning how these types of systems promote better individual and team level performance, create a more motivated workforce, create a more business-oriented workforce, and restructure processes and instill confidence to help line managers be more effective as they take on increased responsibilities for pay decisions.

5.2. DoC should examine the ZT career path to determine if initiatives need to be taken to enhance their work experiences.

The Year Six data showed that those in the ZT career path, Scientific and Engineering Technicians, had low performance appraisal scores, performance-based pay increases, and performance bonuses relative to other career paths. Those in the Comparison Group who are in positions that are comparable to the ZT career path also had the lowest performance-based pay increases and performance bonuses, relative to other career paths.

While this is evidently not an issue specific to the Demonstration Project, it may be worthwhile to study the work experiences of these individuals to determine if strategies need to be implemented that will result in improved performance levels. In turn, increased performance will ideally lead to increased performance-based pay increases and performance bonuses for individuals. The emphasis of this type of study could be in areas such as skills, training opportunities, job satisfaction, and career pathing, to name a few[14]. Moreover, given that this appears to be an issue in the Comparison Group as well, the results of this investigation may have further reaching benefits across the organization.

5.3. Examine the reasons beyond candidates accepting or rejecting job offers into the Demonstration Project.

Over the past several years, the Demonstration Group has experienced a lower acceptance rate on job offers than has the Comparison Group. While potential reasons for this were hypothesized in the report (e.g., more competitive candidates who have other competing offers; more compensation savvy candidates; reticence to join the Demonstration Group), the actual reasons are not known. DoC should examine existing information and/or capture new information (e.g., via interviews/surveys to job applicants) that could shed light on the motives of job applicants to accept or reject job offers. This may provide insights into candidates' perspectives on the job market and perspectives on the Demonstration Project, both of which could lead toward making positive changes.

5.4. Monitor the differential turnover rates, particularly the higher turnover among Black (not of Hispanic origin) employees.

Given the emphasis beginning in Year Six to take a closer look at the differential experiences in the Demonstration Project based on race/national origin group (a finer level of detail than in previous years when all minorities were grouped together), additional findings are emerging. One finding that emerged in Year Six, and to be monitored in subsequent years, is the higher turnover rates among Black (not of Hispanic origin) employees compared to other groups. Assuming that a pattern emerges, DoC may want to study the types of factors leading to departure, and what types of retention strategies could be imposed to reduce unwanted turnover.

Given that exit interview data are known to be a less than accurate source, and given the desire to address the situation *before* high performers depart, a recommended method for studying this issue would be to examine turnover *intentions* among existing staff. Turnover intentions are known to be a reliable indicator of turnover behavior and can be captured via a survey or focus group methodology. Moreover, in delving into the reasons why individuals in this group may choose to leave, DoC may also wish to explore where high performing employees who depart are going (e.g., private sector, elsewhere in the Federal government, elsewhere in DoC).

[14] *To note, approximately 25 percent of those in the ZT career paths are NESDIS employees, many of whom are shift workers in satellite controller positions. Some of these individuals are limited in career growth, absent of scientific or engineering training to make them eligible for ZP positions.*

5.5. Develop opportunities for capped individuals, particularly those in the ZS career path.

As quantified in this year's report, a number of Demonstration Group participants are at the top of their pay bands and therefore are capped from receiving performance-based pay increases commensurate with their performance scores. Further analysis revealed that of all four career paths, those in the ZS career path are most disproportionately represented among the capped employees relative to their representation among Demonstration Project participants overall (ZS comprised 30 percent of the capped employees but only 11 percent of employees overall). Within ZS, this is most pronounced for Black (not of Hispanic origin) employees followed by White (not of Hispanic origin). Presumably these are individuals who have hit the top of their career ladders. While the Demonstration Project analyses have identified this scenario, the pay banding structure is not necessarily to blame – a similar phenomenon occurs in the GS system when individuals achieve the maximum grade levels for their positions. However, the emphasis on performance management within a pay-for-performance system can serve as the impetus to determine whether strategies can be implemented to ensure that those employees with potential are given opportunities to be successful in their careers. Accordingly, DoC may want to consider different strategies for expanding the options of these individuals, such as training, job redesign, and mentoring programs to help individuals acquire the necessary skills to transition into different positions with greater career growth and pay potential. In fact, one site historian reported that some efforts have been made in the past to help capped ZS employees to acquire training, compete for promotions, and then transition into the ZA career path. More efforts along these lines would be beneficial.

5.6. Continue to dedicate resources toward the management of Demonstration Project data.

Given the increasing complexities of the Demonstration Project data, as a greater number of employees are included and as analyses become increasingly more sophisticated, DoC should continue to dedicate resources to the Demonstration Project data. The accuracy of the analyses is predicated on the quality of the data and therefore data management is paramount. This emphasis on data quality should extend beyond data management at the headquarters level and should also include ensuring that the proper training, tools, and mechanisms are in place to ensure that data are accurately and consistently entered at the participating organization level.