

*A Technical Assistance Review  
by a Project Team of the*

**NATIONAL ACADEMY OF  
PUBLIC ADMINISTRATION**

**October 2002**

**A REVIEW OF THE  
JOINT BASE OPERATIONS AND  
SUPPORT CONTRACT**

**KENNEDY SPACE CENTER/45<sup>TH</sup> SPACE WING**



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Robert F. Hale, *Chair*  
Harold B. Finger

### **Project Staff**

William E. Lilly, *Project Director*  
Billie J. McGarvey, *Senior Research Associate*  
Jimmey R. Morrell, *Senior Research Associate*  
Thomas E. Utsman, *Senior Research Associate*  
Barry M. Zilin, *Senior Research Associate*  
Mary Y. Brown, *Project Secretary*

The views expressed in this document are those of the contributors alone. They do not necessarily reflect the views of the Academy as an institution.

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## FOREWORD

The National Academy of Public Administration, at the request of the U.S. Air Force and the National Aeronautics and Space Administration (NASA), studied Joint Base Operations and Support Contract (J-BOSC) performance at the Kennedy Space Center and 45<sup>th</sup> Space Wing. Following a difficult start four years ago, the J-BOSC has since performed in a successful manner. This joint endeavor between the Air Force and NASA has been a positive learning experience for all involved, with even more meaningful outcomes expected. The Academy advisory panel and project team feel that there is a continuing commitment to improvement and efficiency.

I want to thank the advisory panel and staff for their insights and expertise. Also, I extend my appreciation to Air Force and NASA officials and staff for their cooperation and openness during this review.



Robert J. O'Neill, Jr.  
President



## EXECUTIVE SUMMARY

At the request of the Air Force Space Command and the National Aeronautics and Space Administration (NASA), the National Academy of Public Administration (Academy) reviewed contractor performance of the Joint Base Operations and Support Contract (J-BOSC), which carries out base operations and support functions for the Kennedy Space Center (KSC) and the 45<sup>th</sup> Space Wing (45 SW) in Florida.

The Academy was asked to review the success of the J-BOSC contractor in meeting five objectives. The objectives were to:

- Ensure safety for the public and the on-site workforce.
- Enhance customer service to provide quality and responsiveness.
- Reduce the cost of doing business for the Air Force and NASA.
- Provide flexibility to respond to new requirements and unplanned events.
- Provide common support practices and systems.

Several problems arose during the early phases of J-BOSC implementation, largely because inadequate time was spent planning the contract's acquisition strategy. These problems included:

- labor union issues, such as cross-utilization of the workforce which was covered by more than one collective bargaining agreement
- unforeseen performance-based contract impacts, including establishing meaningful and measurable performance metrics



- budgetary issues that arose because contract customers faced “full cost” for services, as opposed to “additive cost” incurred prior to the contract
- difficulties caused by inadequate business systems

Four years after the contract was initiated, the J-BOSC has performed successfully. It has a strong contractor management team that performs excellent technical work. Also, it possesses effective management tools that have been refined.

The Academy project team found that the contractor currently meets every acquisition objective listed above. Reducing cost, one key objective, illustrates this success. The contract is estimated to save approximately \$173 million (13.5 percent) in its first five years of operation, compared to KSC and 45 SW’s previously separate contracts.

The J-BOSC contractor has put in place several significant management improvements. For example, it has installed and activated a computerized maintenance management system and made improvements in the work control systems for facilities operations and maintenance. Paper-based customer satisfaction surveys have been replaced with an e-mail survey sent to customers upon completion of work. Customers grade the work for quality and adverse comments automatically trigger corrective action team investigations for early resolution.

J-BOSC has successfully provided unified operations policies and procedures. A consolidated engineering documentation center was created as a database for all facilities.

An electronics laboratory and single precision measurement equipment laboratory service KSC and the Cape Canaveral Air Force Station (CCAFS).

The joint team that manages J-BOSC is very effective, but one change is needed. A board of directors, which includes KSC and 45 SW senior officials, oversees operations of the Cape Canaveral Spaceport Management Office, which provides day-to-day contract management. The management office staff, composed of quality people from KSC and 45 SW, is fully integrated and works very effectively. However, the Air Force should assign one or two higher-level personnel to the office to correct a grade structure and supervisory position imbalance between the Air Force and NASA.

During this review, several issues arose that should be addressed:

- Performance-based contracting methods must be well understood and workload indicators clearly defined and conveyed.
- A uniform understanding of the work to be performed is essential.
- The government and proposal offerers must be familiar with potential labor relation issues prior to awarding a contract.
- Acquisition objectives should be well defined and include evaluation standards to judge how well they have been attained.

The J-BOSC concept may be applied to other activities, but its current base operations and support successes do not guarantee the same result for other potential applications.

The concept should extend to other activities only after careful analysis of those activities to which it would be applied.

J-BOSC, a joint contract for two operationally and culturally disparate government organizations, experienced significant difficulties in its first two years. However, it has matured into a successful contract operation that produces cost savings for the Air Force and NASA. Performance has improved markedly and customer satisfaction is high. Furthermore, the KSC/45 SW partnership has enabled each organization to better understand the other's mission. With this increased organizational knowledge, the partnership will be better positioned to make business decisions in the future. At the same time, complexities of joining the missions, policies, and procedures of two different agencies require a detailed and time-consuming effort. The J-BOSC is an excellent base support contract, but extending it to other types of work would require considerable study. Lacking such consideration, it would be inappropriate to apply the template to another joint activity.

## **CHAPTER 1 INTRODUCTION**

During the 1950s and early 1960s, the Air Force and NASA developed the capability to test and launch rockets in support of each organization's military and scientific missions. The Air Force capability was based at CCAFS, which NASA had used prior to moving its operations to the KSC on Merritt Island, Florida. The Webb-McNamara Agreement, signed in 1963, provided the basis for a system of cooperation between the Air Force and NASA at CCAFS and KSC. Over the years, joint operating support agreements and joint operating procedures formalized the cooperation for services between 45 SW and the KSC. This led to a 1997 Air Force-NASA decision to pursue consolidating base support functions to gain improved service at lower costs. These functions included facility operations and maintenance, security, fire protection, and medical services.

The J-BOSC provides unified base support services to the KSC, 45 SW, and their customers. It consolidates KSC and 45 SW base operations support contracts into a single unified contract, which was awarded to Space Gateway Support (SGS) in 1998. The contract has a performance-based cost plus award fee. The ten-year contract has a five-year base period, a one-year option, and two two-year options. Chart 1 provides the J-BOSC work breakdown structure.



## CHART 1

### J-BOSC WORK BREAKDOWN STRUCTURE

#### 1.0 PROJECT MANAGEMENT

Management & Control  
Safety & Mission Assurance  
Financial Management

#### 2.0 PUBLIC WORKS

##### 2.1 Engineering Services

Facilities Planning  
Design Specifications  
Energy & Water Conservation

##### 2.2 Infrastructure

Facilities, Systems Equipment  
and Utilities (F/S/E/U)  
Refuse, Pest & Grounds  
Engineering & Construction  
Energy & Water Conservation

#### 3.0 BASE SUPPORT SERVICES

##### 3.1 Protective Services

Fire  
Security  
Emergency Prep

##### 3.2 Logistics

Supply  
Transportation  
Laboratories  
Propellants/Live Support  
Airfield Services  
Hazardous Waste

##### 3.3 Information Technology

Computer Systems  
Communications

##### 3.4 Administrative Services

Publications  
Library  
Mail  
Tech Training

##### 3.5 Medical/Environmental

Medical  
Environmental Health  
Environmental Services

#### 4.0 INSTALLATION IMPROVEMENTS

## **STUDY REQUEST**

The Academy was asked to perform an independent assessment of J-BOSC performance for the 45 SW and KSC. The request was contained in a “Terms of Reference” document signed by the Air Force and NASA. The assessment was intended to clarify the degree of success that the J-BOSC has attained thus far. It was to include how well the J-BOSC met major acquisition objectives; government management structure applicability and performance; lessons learned from the J-BOSC operations, and the “way ahead” with regard to the J-BOSC and KSC/45 SW partnership.

## **STUDY METHODOLOGY**

The Academy convened an advisory panel and project team to conduct the study. The list of panel and team members is in Appendix C. The team, which had extensive experience at KSC and 45 SW, initiated work in August 2002 by reviewing documents provided by the government. Approximately 70 interviews were conducted with key contract managers, J-BOSC managers, major J-BOSC customers (government and contractors), and KSC and 45 SW institutional managers. The Academy team then analyzed information from the documents and interviews and developed preliminary findings and conclusions. The Panel reviewed the information and concurred with the conclusions. The study findings were presented to the KSC Director, the 45 SW Commander, and their staffs, as well as to NASA Headquarters and the Air Force Space Command. On October 8, 2002, a briefing was held for the Partnership Council of the Air Force Space Command, NASA, National Reconnaissance Office, and U.S. Strategic Command. This report was prepared based on these presentations.

## **REPORT ORGANIZATION**

Chapter 2 presents J-BOSC background leading up to its current performance. Chapter 3 discusses J-BOSC performance in meeting the initial major acquisition objectives. Chapter 4 assesses the government contract management structure and its ability to manage the J-BOSC. Chapter 5 provides lessons learned concerning J-BOSC activities. Chapter 6 presents an assessment of the “way ahead” for the J-BOSC. The Appendices contain a table of acronyms, list of interviewees, and biographies of the Academy Advisory Panel and staff.





## **CHAPTER 2 HISTORICAL BACKGROUND OF J-BOSC**

In 1997, the Air Force and NASA decided that the KSC and 45 SW would combine their base support and operations activities into a single, unified contract. The premise was that common functions would produce economies of scale and lower costs without sacrificing the service level provided by existing contracts. It was understood that organizational and cultural differences would generate initial difficulties, but the economies and a positive outlook prevailed and procurement activities proceeded.

A procurement development team, co-chaired by KSC and 45 SW employees, initiated work during the Summer of 1997. Its role was to develop the acquisition strategy for the J-BOSC and gain management approval to initiate source selection activities. The procurement team presented its results, which included the contract type, acquisition objectives, and source selection process, to Air Force and NASA headquarters. In September 1997, it received approval to proceed with the procurement.

A performance-based cost plus award fee (CPAF) contract, with appropriate streamlining tools, was selected. This approach included providing respondents with a one and one half page statement of objectives and 22 pages of technical task descriptors. The latter, including attachments, identified the work to be performed and associated performance standards. A technical library included reference documents and workload indicators that provided offerors with historical information concerning how often the tasks took place, and for how long. Offerors were expected to use the objectives, descriptors, and workload indicators to develop a statement of work that demonstrated their understanding

of the requirements and described their performance-based approach to accomplishing acquisition objectives. This approach was new to KSC and 45 SW in 1997 and had not been used anywhere else for large support services contracts. A CPAF was considered appropriate for this effort given the consolidation of Air Force and NASA requirements, dynamic operational schedules, changing requirements, and labor relations concerns. The procurement development team also supported the award fee as a means of providing needed flexibility and ensuring customer satisfaction at a reasonable cost.

The contract term, which was for ten years, included a five-year basic period and one five-year priced option. The five-year option recently changed to one one-year option and two two-year options. Additional Air Force requirements were to be incorporated over four years. It was envisioned that the desired process improvements and workload consolidation efficiencies would require several years to implement, and the five-year option was seen as an opportunity to realize the full benefits of these efforts. The Service Contract Act was determined to be applicable to this contract given the type of work and services provided. The contract also required that small business perform 36 percent of the total contract value, consistent with NASA policy and discussions with the procurement development team, NASA, 45 SW, and Small Business Administration.

The flow of funds to the J-BOSC was complicated by approximately 150 fund source accounts provided to KSC and 45 SW to pay for base support services. A carrier account was established to simplify the contract structure and facilitate the management of contract line items and accounting classifications. This account is the only accounting

classification noted in the contract, but Air Force and NASA financial management offices are required to account for each fund source citation. To do so, the Air Force Job Order Cost Accounting System and the contractor's Financial Management Reporting System (Monthly 533 report) are used to track actual costs as they are incurred. These systems provide the integrity to ensure that charges are linked to appropriate fund sources, and the visibility to manage the contract funds.

The procurement development team did not attempt to quantify estimated cost savings for individual areas. It was expected that initial savings would come from the benefits of performance-based contracting and the consolidation of such overhead functions as management, finance, human resources, and labor relations. Consolidating facilities maintenance and protective services functions—coupled with commercial standards, practices, and processes—were anticipated to produce savings in the contract's fourth or fifth year. Overall savings were expected to plateau in the fourth year at 20 percent and proceed at that level through the tenth year.

As discussed in Chapter 4, the government's management approach was outlined during development of the acquisition strategy. The J-BOSC would be managed by the Cape Canaveral Spaceport Management Office (CCSMO) which, in turn, would be governed by a Board of Directors. The board, a top-level group that charts CCSMO's course, meets quarterly to discuss J-BOSC performance and policy matters. Its Chairman acts as the fee determination official for the contract's award fee.

## **EARLY PROBLEMS**

The J-BOSC was awarded to SGS in August 1998. Due to the compressed time that the procurement development team had to develop the acquisition strategy, some planning was lacking and some adverse consequences resulted. For example, union labor relations were considered important, but a clear understanding of J-BOSC/labor union dynamics and their potential impact was not developed. Consequently, governmental expectations were not adequately conveyed to the offerors. On the one hand, the J-BOSC contractor could have pursued a harmonious relationship with the existing unions and expected that wages and fringe benefits in collective bargaining agreements would be normalized to the highest level for the same skills. On the other hand, the contractor could have taken actions that led to fewer labor unions and lower wages and fringe benefits, producing labor union strife and potential work stoppages. In the meantime, the government wanted both labor harmony and lower costs from increased efficiencies and cross-utilization of personnel, an unrealistic goal. The J-BOSC contractor opted for labor harmony, resulting in increased wage rates and fringe benefits and partial cross-utilization. The government should have anticipated this outcome, but incomplete planning blurred an accurate forecast of the results and the unrealistic nature of the goal.

The performance-based contract approach led to unexpected results, as well. The statement of objectives, technical task descriptors, and reference library were expected to describe the contract effort sufficiently so that the contractor could provide a complete statement of work. However, this did not happen and the statement was considered to be inadequate. Government provided representative metrics and workload indicators, but it

took two years for the J-BOSC to partner with the government management office and refine acceptable basic metrics. Those interviewed for this review generally agreed that a government-generated statement of work with contractor inputs would have better described J-BOSC work and expectations, and provided a better basis for a government request for proposal. The government also recognized that the lack of metrics at the outset was a major flaw.

Another issue was that budget ramifications were not fully understood. The previous funding arrangement was based on “additive cost” for services provided to other government elements, meaning that some KSC and 45 SW customers received specific services on the basis of a direct cost plus a small portion of indirect cost. Under this arrangement, KSC and 45 SW paid for most of the indirect costs associated with providing services to each other and their customers, and the government decided to equitably distribute overhead and indirect costs to customers. Once the J-BOSC began to provide these services, both organizations paid “full cost” for them. Yet these changes were overlooked and created budget impacts and confusion for partners and other reimbursable customers. These parties were accustomed to the “additive cost” reimbursement method and some attributed the increased cost to the J-BOSC, not the policy change. In the early days of J-BOSC, this led to discontentment and budget impacts that required resolution above customers’ local resources. This was particularly true for the Navy Ordnance Test Unit.

Labor union issues developed soon after the J-BOSC was awarded. As noted above, wage rates and fringe benefits increased for various reasons and scenarios, including different collective bargaining agreements for unions performing similar work. During its negotiations, SGS normalized the wages and fringe benefits in agreements to higher levels for similar employee classifications and job skills. Once these agreements were negotiated, J-BOSC was legally bound by them.

It was expected that overtime savings would be achieved by cross utilizing the workforce, but this did not materialize. The two protective services unions were the only ones to combine into a single bargaining unit. A single collective bargaining agreement was issued that permitted union cross-utilization between KSC and the CCAFS. The unions retained their jurisdictional boundaries in the other agreements, which precluded full cross-utilization except on an emergency basis. The project team did not attempt to quantify the cost of lost cross-utilization, but believes that it would be small based on the nature of the work. However, a full assessment of the associated costs would be needed to answer this question.

The procurement development team anticipated growth in the commercial market for space launches and that the J-BOSC contractor would sell to the commercial entities on a full cost basis, reducing costs to the government. However, commercial market growth did not materialize as expected and opportunities to reduce costs were limited. In addition, the Air Force's base support policy envisioned the J-BOSC contractor selling services to the new Evolved Expendable Launch Vehicle contractors, again reducing

costs to government. These operations have just begun, however, and have not provided a major market for the J-BOSC contractor.

The government expected that the J-BOSC contractor would invest its capital to replace government furnished equipment, make added improvements and recover costs over the life of the contract, or receive enough benefits to justify the investment. This has not occurred since the contractor does not see the economic case for investing without a compensation provision for the residual value present at a contract's termination. The government's concern is that J-BOSC is using government furnished equipment during contract activities, leaving government with "worn out" or obsolete equipment at the end of the contract and a substantial upgrade bill. Without contract changes that would permit the contractor to recover its equipment investment, a J-BOSC capital investment program is unlikely to materialize. Nonetheless, this issue could have significant cost implications if it is not addressed, impacting projected savings at the contract's end.

J-BOSC's technical performance has been regarded as satisfactory. Discussions with the principal customers consistently found that the performance met their expectations. Also, the government management office's performance evaluations noted that performance improved from good at the contract's outset to excellent in the last rating period. In contrast, customers found J-BOSC's business systems to be lacking or deficient in the early stages, leading to dissatisfaction. The intent had been to track costs and relate them to funding sources, but this proved difficult.



Overall, J-BOSC and the government lacked a common understanding of the contract job. This was attributable to the issues discussed above: limited pre-contract planning, the absence of full comprehension of performance-based contracting, and inadequate metrics. Widely understood performance metrics are key, but initial metrics were deemed inadequate and it took two years to develop a basic set of acceptable ones. Further, the contractor did not fully understand the J-BOSC work content. It knew the systems and services to be supplied, but not the extent of its broad work responsibilities. Overtime was used as a result of the J-BOSC contractor's efforts to satisfy customers during management systems development. Contract value<sup>1</sup>, based upon the contractor's best and final cost proposal, quickly began to lag behind contract resources. The contractor believed that the performance-based contract gave it authority to exchange work between years during the five-year performance period so long as it stayed within the total contract value. The rationale was that the contractor could catch up late in the program when its systems were fully in place. However, the difference between contract value and contract costs grew, and it became necessary to reconcile the differences and determine both the amount that required equitable adjustment and the costs that were attributable to contract overrun. Reconciliation began in the contract's third year, resulting in a contract value more in line with available budget resources.

Compounding this challenge was the difficulty in tracing the contractor's best and final offer in its proposal. Neither the contractor nor the government successfully tracked the cost to the offer due to implementation of a revised cost reporting structure upon award

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<sup>1</sup> Contract value is the government and contractor's agreed to cost required to perform the contract work.

of the contract and an inadequate statement of work. This difficulty was addressed in detail while reconciling the contract value with budget resources.

### **J-BOSC TODAY**

When examined after its four years' existence, the J-BOSC has a different picture. It is operating successfully, according to the 70 interviews conducted with key managers and officials, government management team and contractor briefings, customer satisfaction survey reports, and the record of award fees made to date. It has a strong contractor management team, and SGS' current president is regarded to be an excellent manager and leader. A new program support manager is now on board, as well.

As stated earlier, the J-BOSC performs excellent technical work. Management tools have been developed and are under refinement. For example, a new set of quality metrics is in place and working well, and a highly effective computerized management system for facilities operations and maintenance is up and running. Following many months of work, a contract modification was completed in September 2002, and the contract value is in line with the contract budget.

The J-BOSC is well positioned for improved performance given good management tools and a new business system: the Integrated Information Management System which links the financial management system, work control, interface management tools, and budgeting system. Designed to improve the quality of financial information, reports, and processes, it will enhance reporting and correction processes for customer job order

numbers and fiscal year costs and enable migration from several legacy systems. The system has been activated and final “debugging” is underway. Users’ initial reaction is that the system is a powerful tool and should improve overall work. A final verdict should be made following several months of full operation.

### **CHAPTER 3 ACQUISITION OBJECTIVES**

The J-BOSC included eight initial acquisition objectives. The government identified five of them as the primary focus of the Academy's review. The project team examined them based on the contractor's performance to date. They are:

1. Ensure safety for the public and the on-site workforce.
2. Enhance customer service to provide quality and responsiveness.
3. Reduce the cost of doing business for the Air Force and NASA.
4. Provide flexibility to respond to new requirements and unplanned events.
5. Provide common support practices and systems.

The team determined the degree to which J-BOSC met each of these objectives through extensive reviews of pertinent documents, detailed briefings, and meetings with government management officials and their staffs, the J-BOSC contractor and principal staff, and major customers. Individual interviews were conducted, as well.

#### **OBJECTIVE ONE: ENHANCE SAFETY**

The safety objective is being achieved and the performance is deemed to be excellent. The Occupational Safety and Health Administration has designated the J-BOSC contractor as the first Voluntary Protection Program Star Company on CCAFS/KSC to receive such a prestigious designation. This voluntary program recognizes safety awareness and responsibility as being accepted and enforced from the "bottom up" in the

workforce. For example, the J-BOSC contractor partnered with NASA and Air Force construction programs to replace 109 high voltage oil-filled load break switches. It facilitated resource and information sharing across contractors and government agencies, eliminating very significant fire/explosion risks to personnel and such high value space vehicles and equipment as the Space Shuttle in the Vertical Assembly Building.

## **OBJECTIVE TWO: ENHANCE CUSTOMER SERVICE**

Enhancing customer service to provide quality and responsiveness has been achieved with the goal of making even further improvements. Although the J-BOSC experienced numerous start-up problems in its first two years, customer satisfaction was not one of them. For example, the contractor installed and activated a highly effective computerized maintenance management system that integrated best procedures from previous CCAFS and KSC contracts. Significant improvements resulted in the work control systems for facilities operation, maintenance, equipment, and utilities user feedback reports. In addition, customer satisfaction surveys were replaced with an e-mail survey automatically issued upon completion of work. Customers grade the work for quality and importance. Scores that fall below the metric satisfaction level and/or adverse comments trigger a corrective action team investigation for early resolution. This satisfaction survey system embodies excellent metrics for measuring meaningful responsiveness and work quality. The results are used to help evaluate J-BOSC performance and determine award fees. The J-BOSC also combined environmental health and environmental services into one subcontract, enabling cross-utilization of personnel, improved operational efficiencies, and enhanced service quality.

**OBJECTIVE THREE: REDUCE BUSINESS COST**

Reducing the cost of doing business for the Air Force and NASA has been achieved primarily through a workforce reduction of approximately 550 people while maintaining good customer service. Chart 2 depicts the savings by agency resulting from the J-BOSC for the first 5-year base period. The government provided these estimated savings, and the project team thoroughly crosschecked and validated them with the 45 SW Comptroller and the KSC Chief Financial Officer. The savings are based on the first four years of actual experience and the latest estimate for the total base period. Additional cross-comparison of the direct costs and fringe benefits reflecting the workforce reduction is similar to the savings listed in Chart 2—\$173 million or 13.5 percent.

**CHART 2  
J-BOSC SAVINGS (5 YEARS)**

	<b>45 SW</b>	<b>KSC</b>	<b>TOTAL</b>
<b>Pre J-BOSC Budget</b>	\$486 Million	\$801 Million	\$1,287 Million
<b>Estimated at Completion</b>	\$447 Million	\$667 Million	\$1,114 Million
<b>Savings</b>	\$39 Million	\$134 Million	\$173 Million

In addition, doing business for the Air Force and NASA cost less through consolidating overhead functions into the single J-BOSC contract, in contrast to multiple smaller contracts. There have been reductions in the government staffing levels in contract

management and contract surveillance, as well. However, the project team was unable to verify a specific number and associated costs due to shifts of personnel to other priority tasks, buy-outs, and retirements.

The J-BOSC facilitated the consolidation of wastewater treatment into a single facility serving both the CCAFS and KSC, allowing the latter to avoid building a new plant. Meanwhile, consolidating occupational medicine activities permitted the closure of the CCAFS clinic and reduced overall operating costs for that area.

#### **OBJECTIVE FOUR: PROVIDE FLEXIBILITY**

Flexibility to respond to new requirements and unplanned events has been successfully achieved. The contractor's response to the September 11, 2001 terrorist attacks was exceptionally noteworthy. The increased security posture and enhanced response capability were accomplished quickly with trained personnel provided by Wackenhut Services, Inc., a partner in the SGS joint venture. This permitted the KSC and 45 SW to conduct their assigned missions despite the required increased security awareness. Excellent management tools provided the contractor with the ability to adjust priorities and minimize adverse impacts. The computerized maintenance management system for managing and controlling facilities work is an especially good example. The contractor also developed a capacity for rapid biological detection that enhances responsiveness to possible terrorism activities.

Other flexibilities include CCAFS and KSC utilizing uniform standards for safety and maintenance operations, thus enhancing the J-BOSC's capability to meet unplanned and new requirements. For instance, the J-BOSC consolidated heavy equipment and shop equipment resources to meet high priority work. Flexibility also was demonstrated when the J-BOSC contractor, through SGS' commercial services, successfully designed and installed a helium pipeline to meet a new requirement. The 3-inch diameter line provides helium from the converter/compressor station on KSC to Launch Pad 37 on CCAFS. It utilizes excess converter/compressor station capacity to provide service to the new Delta IV Launch Vehicle on Pad 37, approximately nine miles away.

#### **OBJECTIVE FIVE: PROVIDE COMMON SUPPORT PRACTICES**

Providing common support practices was achieved except for one significant element that did not meet the government's expectations: The cross-utilization of union labor has not been fully achieved. It has taken place only in the Fire Departments and Security Forces, made possible by the fact that CCAFS and KSC union employees belong to the same union. Cross-utilization has not been fully realized in facilities operations and maintenance, an especially important area. Collective bargaining agreements for the two major unions involved preclude such joint activities, except in emergencies.

The J-BOSC provides unified command and control for disaster preparedness through the Consolidated Comprehensive Emergency Management Plan and Center. This has resulted in a single integrated fire and security response force. In addition, a Joint Communications Center was developed to replace separate Emergency 911 call centers.



The J-BOSC has been successful in providing unified policies and procedures for facilities operations and maintenance and minor repair functions. An effective and efficient unified work control system was implemented at all locations, as was a consolidated Engineering Documentation Center to provide a database for facilities assigned to J-BOSC for operations and maintenance. A joint Geographic Information System also has been implemented as a planning and management tool for the contractor, government managers, and customers. Infrastructure shops have been consolidated under a single management structure by craft/function to ensure consistent policies, work practices, and efficient operations. A single electronics laboratory provides services to CCAFS and KSC, as does the precision measuring equipment laboratory though two sets of standards dictate different processing operations. NASA uses industry standards while the Air Force uses Air Force Metrology Calibration standards. Neither is willing to adopt the other's. The contractor also operates a consolidated generator/metal shop and has cross-trained Air Force and NASA generator mechanics to provide redundant capability for emergencies.

In summary, J-BOSC began with acquisition objectives and disparate management systems used by the Air Force and NASA. The objectives and management environment were not well understood by those implementing the program. After initial difficulty, however, the contractor and government learned to integrate their processes and begin rebaselining. This has resulted in a contract modification that aligns current program objectives with funding. Acquisition objectives are being achieved except for full

workforce cross-utilization due to union issues. The contract has saved money and the technical work has been performed in an excellent manner.



## **CHAPTER 4 GOVERNMENT MANAGEMENT STRUCTURE**

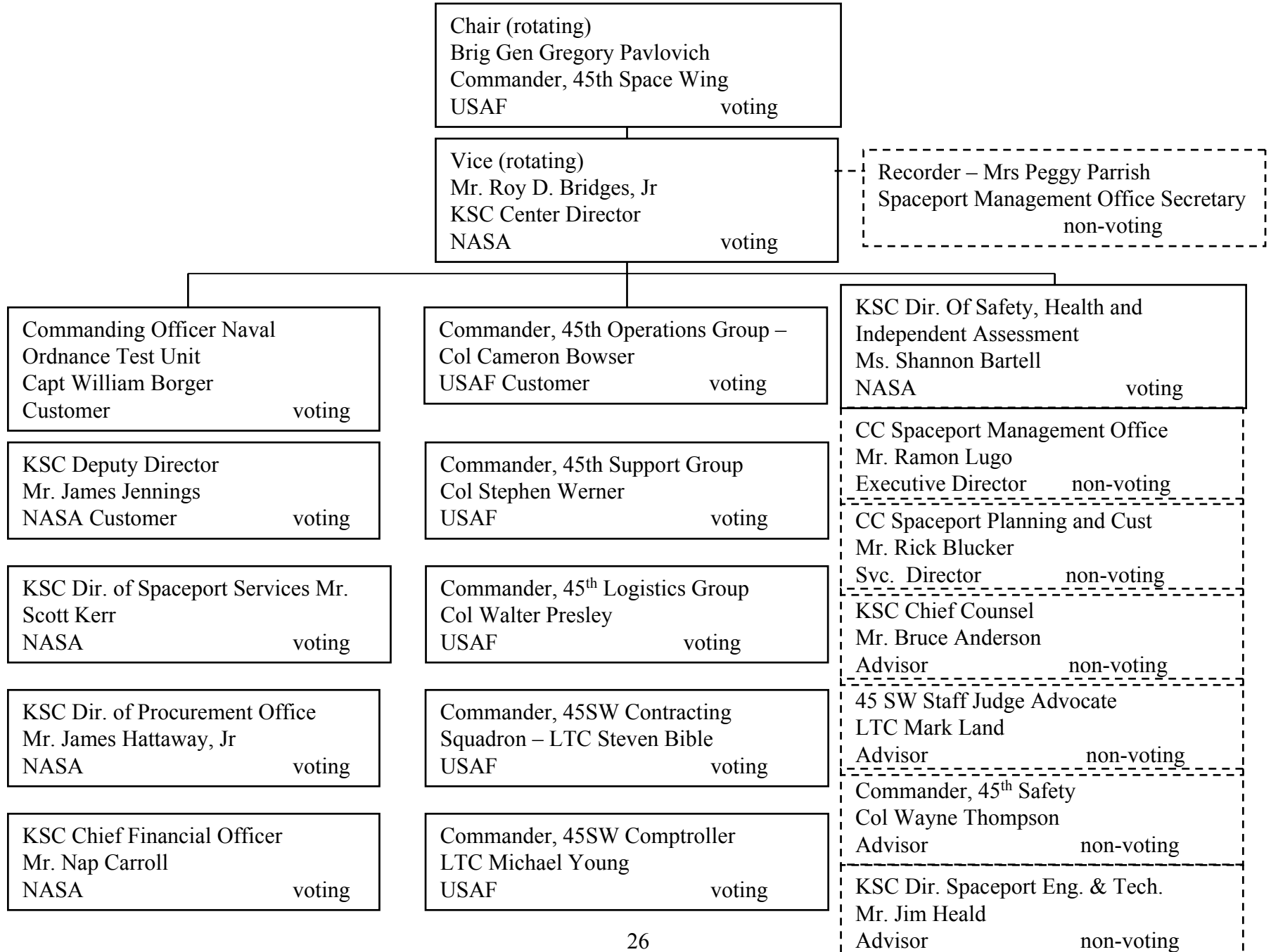
The J-BOSC is an initiative between NASA/KSC and Air Force/45 SW for the “furtherance of cost efficiencies, customer satisfaction, and marketability of joint resources.” A memorandum of agreement, signed by the 45 SW Commander and KSC Director, established a Board of Directors to give strategic vision, goals, and direction to the CCSMO, which provides contract management and surveillance for the J-BOSC. The Board is composed of a Chair and Vice Chair and 11 other voting members. Chart 3 depicts board membership and positions. The Chair and Vice Chair rotate between the 45 SW Commander and the KSC Director every two years. The Chair is the award fee determining official for the J-BOSC.

Government management of the J-BOSC differs from the typical approach for service type contracts. The contract is performance-based with an emphasis on workload indicators, technical task descriptors, and performance metrics. Another significant difference is that the contractor provides direct interface with customers, as opposed to the government management office. The CCSMO utilizes jointly developed metrics, a performance surveillance plan, functional integrated product teams, and customer satisfaction feedback reports to assess contractor performance.

The CCSMO is a fully integrated joint organization with well qualified KSC and 45 SW staff. It is authorized to have approximately 55 positions that include co-located

CHART 3

BOARD OF DIRECTORS



personnel, temporary military reservists, and six vacant positions. The organization structure is depicted in Chart 4. The project team was impressed with the competence and dedication of the entire CCSMO staff, and it was difficult to distinguish NASA from Air Force employees. However, NASA may appear to dominate the CCSMO since its Executive Director and Deputy are NASA employees, as are two major supervisory officials. The Air Force should address its staffing plans for the CCSMO given the grade structure and supervisory position imbalance between it and NASA. Overall, however, the organization performs well and embodies a highly effective team spirit and management approach. Good working relationships have resulted from partnerships with customers, functional/technical experts (the integrated product teams), fund source managers, and the contractor.

The Executive Director is the direct link between the CCSMO and the Board of Directors. His responsibilities include serving as the contracting officer's technical representative to the Board of Directors. Since the CCSMO develops the award fee report and recommended score, he also presents this recommendation to the Board for consideration and fee determination.

**KENNEDY SPACE CENTER**

**Director**

Roy D. Bridges, Jr.

**CHART 4  
CAPE CANAVERAL SPACEPORT  
MANAGEMENT OFFICE**

**45TH SPACE WING**

**Commander**

BGen J. Gregory Pavlovich

**CAPE CANAVERAL SPACEPORT MGMT. OFFICE**

Ray Lugo – Executive Director  
Susan Kroskey – Deputy Director  
LTC Earl Dorris - Special Assistant(reser)\*  
Carol Aiello – Administrative Officer  
Peggy Parrish - Secretary  
Susan Martin – Secretary  
Vacant (Major position)

**CONTRACTING OFFICE  
(Co-Located)**

Laura Rochester (NASA)  
Mike Wheeler (NASA)  
Vicki Wilkinson (AF)  
Ernie Tweedie (AF)  
Richard Quinn (NASA)

**INTEGRATION OFFICE, JP-B**

Miguel Rodriguez - Chief  
Fred Bailey - Deputy Chief  
Nina Keath  
Technical Integration & Admin Services

Barbara Cox  
Infrastructure & Engineering

Charlie Gambaro - Lead  
Clete Leagan  
Jose Lopez  
John Fablinger  
Jose Mojica  
Leisa Norman (Temporary)\*  
Vacant (vice Todd)

Safety, Health, Environmental, Protective Services, and IT

Don Ackerman - Lead  
Jeanne Hawkins  
Ed Hefley  
MSgt Ramon Mejias  
Tamiko Fletcher (ATP)  
Vacant (vice Hawkins)

Logistics

Bill Roy - Lead  
Brian Smith  
1LT Donald Williams (reser)\*  
Vacant (MSgt – PMEL)  
Vacant (vice Newton) (EOD 1/13/03)  
ATP Sasha Rodriguez)

**BUSINESS OFFICE, JP-A**

Bob Zuber – Chief  
Vacant – Lead(vice Zuber)  
Regina Bronson (Prog Mgmt)  
Tom Hull  
Nadine Sluder  
Lisa Parada (MIL LV)  
Kent Hawley (NASA)  
Annette Dittmer (NASA)  
Dick Sylvain (AF)  
Keith Dunn (AF)  
Cathy Bursey (AF)  
Shermane Martino (NASA)  
Maria Bland (NASA)  
Cathy Wager (AF)  
Randy Wasserman (NASA PMI)  
Darren Strickland (NASA PMI)

**STAFF OFFICE, JP-C**

Catherine Alexander - Lead  
Lori Weller  
Wayne Beaulieu  
Vicki Miletello

Air Force (filled)	13
Air Force (VAC's)	4
Air Force (temporary/reservists)	3
NASA (filled)	17
NASA (VAC's)	2
Co-Locates/Matrixed (AF/NASA)	15
Coop/Student/Intern	0

\*Temporary/Reservists

\*\*Coop/Student/Intern

Red = NASA Employee

Blue = USAF Employee

Green = Co-Locates/Matrixed

Mail Code: JP

Start Date: June 7, 1998

Last Update: August 7, 2002

## **CHAPTER 5 LESSONS LEARNED**

Throughout its review, the project team identified lessons learned that could be applied to future work of this nature. This chapter discusses these lessons.

- Adequate government front-end planning and sufficient time to implement it are necessary for complex contracts of this type. Despite extensive efforts, initial planning was inadequate. The procurement development team began work on August 6, 1997 and approved the acquisition strategy less than two months later. The acquisition planning deficiencies discussed earlier were due to the lack of time to do in-depth planning. The schedule was dictated by contract completion dates for pre-J-BOSC contracts and the need to initiate the J-BOSC. Nevertheless, thorough planning is essential for a procurement of this complexity.
  
- Performance-based contracting methods must be well understood and technical task descriptors and workload indicators clearly defined and conveyed. These contracting methods were not understood for this service contract application; at the time, performance-based contracting for complex service contracts was extremely limited or non-existent. Indeed, the project team was unable to find an example of such a contract. Problems stemmed from using a statement of objectives, technical task descriptors, and workload indicators that did not adequately communicate required work. Considerable confusion ensued during the early phases of the contract.



- The government and offerers must have a common understanding of the contract work to be performed. Using the statement of objectives, technical task descriptors, and workload indicators—not a statement of work that accurately describes the work to be done—resulted in an inadequate statement of work. In this instance, communications between the contractor and the government were inadequate.
- To successfully undertake performance-based contracting, offerers must completely comprehend the workload indicators and metrics when preparing their proposals. Here, a major flaw was the lack of appropriate management and workload metrics during the J-BOSC contract solicitation. This deficiency led the contractor to not understand the full extent of the expected work, and the government expected performance that was not communicated sufficiently. As noted earlier, it took two years following contract start-up to establish basic agreed upon metrics.
- Prior to contract award, the government and offerers must have a good understanding of labor relations issues and their implications. In this case, neither the government nor the J-BOSC contractor anticipated the expected outcomes of the labor union agreements. It appears that the agreements between the contractor and the unions were appropriate, but that the results were somewhat unanticipated. For example, the unexpected nature of the final collective

bargaining agreements served to distract the government from the J-BOSC's basic mission.

- Acquisition objectives should be well defined and evaluation standards available to judge how well they have been attained. The original acquisition objectives and standards were not. When the objectives were established, they appeared to refer to the existing contracts, making it difficult to evaluate in the context of the J-BOSC. To be fully useful in the future, acquisition objectives should have evaluation criteria to judge the degree to which they have been achieved. The reality of achieving them also will assist in source selection.
- Joining the missions, policies, and procedures of two different federal agencies present complexities that entail a detailed and time-consuming effort. Without completing those efforts up front, it would be inappropriate to apply the J-BOSC template to another joint activity, either at KSC and 45 SW or for other government activities.



## **CHAPTER 5 THE WAY AHEAD**

In considering J-BOSC's future, the project team examined the data received during the study and used its judgment. As noted, the J-BOSC contractor has a strong management team in place, and new leadership has greatly improved operational effectiveness and the ability to achieve additional efficiencies. The technical work has been performed in an excellent manner, while good management systems enable functional managers to operate more effectively.

The J-BOSC has been a valuable learning experience. Merging the KSC and 45 SW cultures into a single contractual effort required each organization and the government management team to find a common way to execute base support functions. The contractor and government managers have adjusted and matured into an effective team with improved capabilities. The past four years have brought significant management improvements, but there is still more to learn. Discussions with the government and contractor led the project team to conclude that the J-BOSC is positioned for improved performance within a challenging environment.

Any change to the J-BOSC content would require careful planning and adequate time for implementation. Given the government's goals and requirements, the contractor has established a smoothly functioning team to successfully accomplish its work. The interlocking nature of the work and government's small business goals can complicate

any contract changes. As such, changes must consider the impact on the total contract team.

The project team could not identify benefits to be gained from recompeting the current J-BOSC. First, contract technical performance and customer satisfaction ratings are excellent. Second, traditional methods of reducing contract costs are not available since Service Contract Act provisions and collective bargaining agreements control labor wages and fringe benefits; contract rates are normal for base support work. Further, consolidated functions have reduced personnel and attendant costs. Potential areas for cost savings relate to employee reductions. Thus, with strong cost incentives, the government can likely achieve savings without incurring recompetition expense.

The J-BOSC concept has been successful for the KSC and 45 SW, whose base support functions are largely similar and geographically contiguous. However, the concept is not directly transferable to other locations without considerable study since success is predicated on local conditions. In addition, extending the J-BOSC beyond base support functions is not recommended. An excellent base support contract, it is a risk that would require considerable study to include for other types of work. The current contractor team directs its skills toward managing base support functions. Limited experience in managing launch and related activities could lead to unacceptable performance for these different types of contract work.

The KSC/45 SW partnership has significant potential for future operational understanding and better business decisions. It has led both organizations to better understand the other's mission and base support functions. With this increased organizational knowledge, the project team expects that the partnership will be well positioned for the future.

The Air Force should address CCSMO staffing to correct the perception that the office is NASA dominated. To ensure continued high morale and the belief that CCSMO is an integral part of the 45 SW management team, corrective action should be taken.

Now that the J-BOSC has four years' experience and a maturing government management system, it would be appropriate to evaluate contract cost savings incentives. Stronger incentive fee structures need to be evaluated to increase the emphasis on contractor cost savings. With a much better understanding of work and management metrics, it may be appropriate to use a cost plus award fee contract, with additional incentives that would allow the contractor to share savings with the government and invest its share into base infrastructure improvements. Evaluations of increased cost incentive methods would be appropriate for base support contracts that reach this level of maturity.

Finally, the government should carefully consider any proposed changes to the scope and content of the J-BOSC. As noted above, the contract is complex and any alterations could create problems. As an example, removing Patrick Air Force Base and other

remote base support activities from the J-BOSC may be wise from a mission standpoint, but its impact on the minority subcontracting goal and other activities must be considered and addressed. This does not mean that changes should not be made. Rather, care should be taken and thorough study conducted prior to making final decisions.

**APPENDIX A  
TABLE OF ACRONYMS**

CCAFS	Cape Canaveral Air Force Station
CCSMO	Cape Canaveral Spaceport Management Office
CPAF	Performance-Based Cost Plus Award Fee
J-BOSC	Joint Base Operations Support Contract
KSC	Kennedy Space Center
NASA	National Aeronautics and Space Administration
OSHA	Occupational Safety and Health Administration
SGS	Space Gateway Support
45 SW	45 <sup>th</sup> Space Wing





**APPENDIX B**  
**LIST OF INTERVIEWEES**

**National Aeronautics and Space Administration/Kennedy Space Center**

Roy Bridges, Director, KSC, and BOD Vice Chair  
Dave Alonso, PCO, Spaceport Services  
Shannon Bartell, Director, Quality and Mission Assurance  
Nancy Bray, Facilities Maintenance, Spaceport Services, and former Lead, Staff Office, CCSMO, and member of SEB  
Dudley Cannon, Deputy Director, Procurement (former KSC Lawyer & on SEB)  
J. Chris Fairey, Former Director, Spaceport Services, and Co-Chair SEB  
Sam Haddad, KSC Industry Relations Officer  
Jim Hattaway, Director, Procurement Office, KSC  
Eddie Lebron, former Chief, Integration Office, CCSMO, and member of SEB  
Bob Mott, Former Logistics Lead, Integration Office, CCSMO, and member of SEB  
Janice Robertson, KSC CFO Central Budget Office  
Mike Sumner, Chief Operating Officer, Spaceport Services  
Dan Tweed, Lead, Facilities Construction Management, Spaceport Services  
Mike Wetmore, Deputy Director, Shuttle Processing

**45<sup>th</sup> Space Wing**

Brig. Gen. J. Gregory Pavlovich, 45th Space Wing Commander and BOD Chair  
Tom Andler, 45 SW Manpower and Organization Office  
Maria Bechard, Chief Plans and Programs Flight, 45 SW Contracting Squadron, and Member of the SEB  
Rick Blucker, Director, Cape Canaveral Spaceport Planning and Customer Assurance  
Bob Daniels, 45 SW Civilian Personnel  
Lt Col Tom Eye, Commander, Det. 1, 45 SPTG, Cape Canaveral Air Force Station  
Jim Fears, 45 SW Manpower and Org Office  
Jack Gibson, Deputy Commander, 45 SW Civil Engineering Squadron  
Ray Grimm, 45 SW Civil Engineering Squadron, CCAFS  
Diane Holmes, Director of Business Operations, 45 SW Contracting Squadron  
Marty McAlwee, Acquisition Law, 45 SW/JAQ  
Cecil O'Bryan, 45 SW Civil Engineering Squadron, CCAFS  
Ruth Paauwe, SAF/AQCK Asst. Region Administrator, Industrial Labor Relations Office  
Donald P. Pettit, Former 45th Space Wing Commander and BOD Chair  
Col Steve Smith, AFSPC LGC (Chief Contracting Division), formerly Commander, 45 SW Contracting Squadron 45 CONS, Director of Contract Operations  
Dave Stone, Chief Advanced Planning, JX (Cape Canaveral Spaceport Planning and Customer Service Office)  
Robert Van Vonderen, 45 SW Civil Engineering Squadron, CCAFS  
Lt Col Mike Young, Commander, 45 SW Comptroller Squadron

### **Cape Canaveral Spaceport Management Office**

Ray Lugo, Executive Director, CCSMO (NASA)  
Susan Kroskey, Deputy Director, CCSMO (NASA)  
Don Ackerman, Lead, Safety, Health, Environmental and Protective Services, and IT,  
CCSMO (NASA)  
Catherine Alexander, Lead, Staff Office, CCSMO (NASA)  
Fred Bailey, Deputy Chief, Integration Office, CCSMO (AF)  
Regina Bronson, Program Analyst, CCSMO (AF)  
Charlie Gambaro, Lead, Engineering and Infrastructure, CCSMO (NASA)  
Kent Hawley, Program Analysis Officer, CCSMO (NASA)  
Ed Hefley, Protective Services Specialist, CCSMO (AF)  
Tom Hull, Resources Program Specialist, CCSMO (AF)  
Clete Leagan, Project Engineer, CCSMO (NASA)  
Vicki Miletello, Customer Services, CCSMO (NASA)  
Laura Rochester, Contracting Officer, CCSMO (NASA)  
Miguel Rodriguez, Chief, Integration Office, CCSMO (NASA)  
Cecile Saltzman, Intern, CCSMO (NASA)  
Dick Sylvain, Program Analysis Officer, CCSMO (NASA)  
Bob Zuber, Chief, Business Office, CCSMO (NASA)

### **Space Gateway Support**

Mike Butchko, President, Space Gateway Support  
Bill Sample, Deputy Program Manager/Chief of Operations  
Paula Canham, Labs Manager, Wyle Laboratories, Inc.  
Michael Chriswell, Assistant Manager, Work Control  
Bob Cunio, Senior Director, Program Support  
George Hauer, Project Manager, Wyle Laboratories, Inc.  
Rick Kowalchik, Manager, Work Control  
Pam Kruger, Manager, Plans and Programs  
Ken Madyda, Propellants & Life Support Manager, Wyle Laboratories, Inc.  
Gary Merrill, Project Manager, Creative Management Technologies, Inc.  
Dan Nettuno, Director, Human Resources  
Bill Stoeckel, Section Supervisor, Real Property  
John Storm, Director, Facilities Management Services

### **Customers**

Captain W.H. Borger, Commanding Officer, NOTU  
Catherine DeWinter, Financial Manager, NOTU  
Steve Lemmon, Facilities Manager, NOTU  
Ed Gormel, Executive Director, Florida Space Authority, and former Executive Director,  
JP, and co-chair SEB  
A. Laffitte, Lockheed Martin Launch Ops, Atlas Program Director  
Douglas Lebo, Lockheed Martin Launch OPNS Facilities Mgr.  
Norm Yearsley, Senior Manager, Mission Integration, Boeing Launch Operations Delta

## **APPENDIX C ADVISORY PANEL AND PROJECT TEAM**

### **Academy Advisory Panel**

**Robert F. Hale** - Program Director and Senior Fellow, Logistics Management Institute. Former Assistant Secretary of the Air Force for Financial Management and Comptroller; Assistant Director for National Security, Congressional Budget Office; Deputy Assistant Director and Principal Analyst; Analyst and Study Director, Center for Naval Analysis; Officer, U.S. Navy.

**Harold B. Finger** - Former President and Chief Executive Officer, U.S. Council for Energy Awareness; Associate Administrator for Management and Director, Space Power and Nuclear Systems, National Aeronautics and Space Administration.

### **Academy Study Team**

**William E. Lilly** - Project Director. Director, National Aeronautics and Space Administration Programs, National Academy of Public Administration. Former Associate Administrator/Comptroller, National Aeronautics and Space Administration.

**Billie J. McGarvey** – Major General, USAF (Ret.). Team Member. Former Director of Facilities Engineering, National Aeronautics and Space Administration; Deputy Chief of Staff for Civil Engineering, U.S. Air Force. Registered Professional Engineer.

**Jimney R. Morrell** – Major General, USAF (Ret.). Team Member. Former Commander of the 2<sup>nd</sup> Space Wing, 45<sup>th</sup> Space Wing, and 9<sup>th</sup> Space Division; Military Assistant for Space to the Secretary of the Air Force; Senior White House Policy Analyst, Office of Science and Technology Policy.

**Thomas E. Utsman** – Team Member. Former Deputy Associate Administrator, National Aeronautics and Space Administration, Headquarters, Washington, D.C.; Deputy Director, Kennedy Space Center, Florida.

**Barry M. Zilin** – Lt. Col, USAF (Ret.). Team Member. President of a consulting firm specializing in management for the aerospace industry. Former acquisition expert for the Air Force responsible for developing several innovative approaches.



**National Academy of  
Public Administration**

1100 New York Avenue, N.W.  
Suite 1090 East  
Washington, DC 20005  
Tel: (202) 347-3190  
Fax: (202) 393-0993  
Web: [www.napawash.org](http://www.napawash.org)