AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRA[illegible]D CODE	PAGE OF PAGES
	1 of 6 w/attach

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
436	See Block 16c		

6. ISSUED BY CODE OPOS

John F. Kennedy Space Center, NASA
Procurement Office
Kennedy Space Center, FL 32899

7. ADMINISTERED BY (If other than Item 6) CODE

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State, and Zip Code)

Space Gateway Support
2411 Dulles Corner Park, Suite 500
Herndon, VA 20171-3430

ORIGINAL

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MODIFICATION OF CONTRACT/ORDER NO.
NAS10-99001

10B. DATED (SEE ITEM 13)
August 21, 1998

CODE | FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[ ] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended, [ ] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning ____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Contracting Officer for current Accounting & Appropriation Data

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
XX	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: *FAR 52.243-2 Changes – Cost Reimbursement (AUG 1987) Alt II (APR 1984)*
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [X] is required to sign this document and return 3 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

The purpose of this modification is to incorporate the changes to Launch Readiness Requirements as outlined in Contract Change Request 06-12. The period of performance is 1 May 2005 through 30 Sep 2008.

As a result of this modification the following contract attachments, Technical Exhibits and DRD's have been revised and are attached: Attachment J-1, Statement of Work; Attachment J-4, Compliance Documents; Attachment J-5, Technical Exhibits; Attachment J-9, Glossary, Acronyms and Abbreviations; Technical Exhibit 2.1.2-003, MEE Non-Critical Systems for FY07 Reliability Documentation; Technical Exhibit 2.1.3-001, KSC CofF Project Baseline; and DRD 2.2-06 Rev C, Facility maintenance Execution Summary.

This change revises Article B-3, Contract Value and Article B-4, Award Fee. All other terms and conditions of the contract remain unchanged.

The contract estimated cost is increased by $4,247,067 and award fee by $303,034 for a total of $4,550,101.

In consideration of the modification agreed to herein as complete equitable adjustment for the contractor's proposal for adjustment, the contractor hereby releases the government from any and all liability under this contract for further equitable adjustments attributable to such facts and circumstances giving rise to the proposal for adjustment.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
Victoria G. Lockard Director, Contracts	Bryce D. Collins Contracting Officer

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY	16C. DATE SIGNED
Victoria G. Lockard	19 Jun 07	Bryce D. Collins	6/20/07
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

ARTICLE B-3 CONTRACT VALUE			
Basic Period Sep 98-30 Sep 03			
The contract value is summarized below:			
Contract Period	**Estimated Cost**	**Available Award Fee***	**Contract Value**
Phase-In Period (FFP)			
(Sept 1998)	$1,113,486		1,113,486
Basic Period Thru 432			
10/01/98-09/30/00	$396,406,378	$23,187,199	419,593,577
Neg. Cost Overrun MOD 135	$9,200,000	$0	9,200,000
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No.			**0**
Total FY99-FY00	$405,606,378	$23,187,199	428,793,577
(10/01/00-09/30/01)	$215,635,118	$13,106,768	228,741,886
Neg. Cost Overrun MOD 135	$18,804,377	$0	18,804,377
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No.			**0**
Total FY01	$234,439,495	$13,106,768	247,546,263
(10/01/01-09/30/02)	$234,055,207	$14,098,312	248,153,519
Neg. Cost Overrun MOD 135	$19,865,904	$0	19,865,904
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No.			**0**
Total FY02	$253,921,111	$14,098,312	268,019,423
(10/01/02-09/30/03)	$247,365,902	$15,357,411	262,723,313
Neg. Cost Overrun MOD 135	$22,426,471	$0	22,426,471
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No.			**0**
Total FY03	$269,792,373	$15,357,411	285,149,784
TOTAL BASIC PERIOD	**$1,164,872,843**	**$65,749,690**	**1,230,622,533**
Option Period 1 Oct 03 - 30 Sept 04			
Option 1A			
(10/01/03-09/30/04)	$244,075,599	$15,352,803	259,428,402
Neg. Cost Overrun MOD 135	$22,135,767	$0	22,135,767
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No.			**0**
Total FY04	$266,211,366	$15,352,803	281,564,169
Option 3BA			
(10/01/03-09/30/04)	$2,322,030	$185,762	2,507,792
Option 5BA			
(10/01/03-09/30/04)	$321,092	$25,687	346,779
TOTAL OPTION 1A PERIOD	**$268,854,488**	**$15,564,252**	**284,418,740**

Option Period 1 Oct 04 - 30 Sept 06			
Contract Period	**Estimated Cost**	**Available Award Fee***	**Contract Value**
Options Thru Mod 432			
OPTION 1B			
(10/01/04-09/30/05)	$278,673,577	$17,043,983	295,717,560
Neg. Cost Overrun MOD 135	$25,895,945	$0	25,895,945
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No. 436	$89,613	$6,524	$96,137
Total FY05	$304,659,135	$17,050,507	321,709,642
(10/01/05-09/30/06)	$258,457,913	$13,817,003	272,274,916
Neg. Cost Overrun MOD 135	$29,101,654	$0	29,101,654
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No. 436	$1,288,913	$84,097	$1,373,010
Total FY06	$288,848,480	$13,901,100	302,749,580
Option 3BB			
10/01/04-09/30/05	$2,391,149	$191,292	2,582,441
10/01/05-09/30/06	$2,477,883	$198,231	2,676,114
Total Option 3BB	$4,869,032	$389,523	5,258,555
Option 5BB			
10/01/04-09/30/05	$331,342	$26,507	357,849
10/01/05-09/30/06	$331,781	$26,542	358,323
Total Option 5BB	$663,123	$53,049	716,172
TOTAL OPTION 1B Period	**$599,039,770**	**$31,394,179**	**630,433,949**
Option Periods 1 Oct 06 - 30 Sep 08			
Contract Period	**Estimated Cost**	**Available Award Fee***	**Contract Value**
OPTION 1C			
(10/01/06-9/30/07)	$260,188,185	$15,222,301	275,410,486
Neg. Cost Overrun MOD 135	$31,867,270	$0	31,867,270
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No. 436	$1,478,778	$104,231	1,583,009
Total FY07	$293,534,233	$15,326,532	308,860,765
(10/01/07-9/30/08)	$264,079,621	$17,144,086	281,223,707
Neg. Cost Overrun MOD 135	$33,448,837	$0	33,448,837
Cost Overrun	$0	$0	0
Mod No. Cost Overrun			0
Mod No. 436	$1,389,763	$108,182	1,497,945
Total FY08	$298,918,221	$17,252,268	316,170,489

	Option Periods 1 Oct 06 - 30 Sep 08 Cont.		
Option 3BC			
10/01/06-09/30/07	$2,539,810	$203,185	2,742,995
10/01/07-09/30/08	$2,621,598	$209,728	2,831,326
Total Option 3BC	$5,161,408	$412,913	5,574,321
Option 4BB			
10/01/04-09/30/05	$0	$0	0
10/01/05-09/30/06	$0	$0	0
Total Option 4BB	$0	$0	0
Option 4BC			
10/01/06-09/30/07	$0	$0	$0
10/01/07-09/30/08	$0	$0	$0
Total Option 4BC	$0	$0	$0
Option 5BC			
10/01/06-09/30/07	$332,204	$26,576	358,780
10/01/07-09/30/08	$341,511	$27,321	368,832
Total Option 5BC	$673,715	$53,897	727,612
TOTAL OPTION 1C Period	**$598,287,577**	**$33,045,610**	**631,333,187**
TOTAL CONTRACT			
VALUE SEP98-SEP08	**$2,631,054,678**	**$145,753,731**	**$2,776,808,409**
*Earned fees for past periods plus the available fees for future periods			
Exercised options are moved above the Total Contract Value Line.			

ARTICLE B-4 AWARD FEE

The amount of award fee earned, if any, shall be determined in accordance with Section J, Attachment J-8, Award Fee Evaluation Plan, and other provisions of this contract as applicable. The following specifies by award fee period the amount of available award fee, the amount of earned award fee, and the award fee score.

AFP	BASIC PERIOD OF PERFORMANCE		Available Award Fee Through Mod 428	Total Award Fee For Mod 436	Adjusted Available Award Fee	Earned Award Fee Mod 428	Earned Award Fee Mod 436	Earned Award Fee	Award Fee Score and Mod
1	10/01/98	03/31/99	$7,681,869		$7,681,869	$6,146,144		$6,146,144	80% Mod 15
2	04/01/99	09/30/99	$6,033,858		$6,033,858	$4,826,665		$4,826,665	80% Mod 36
3	10/01/99	03/31/00	$7,837,000		$7,837,000	$6,731,039		$6,731,039	86% Mod 57
4	04/01/00	09/30/00	$6,451,003		$6,451,003	$5,483,352		$5,483,352	85% Mod 75
5	10/01/00	03/31/01	$7,589,239		$7,589,239	$6,754,934		$6,754,934	89% Mod 99
6	04/01/01	09/30/01	$6,976,249		$6,976,249	$6,348,388		$6,348,388	91%Mod118
7	10/01/01	03/31/02	$5,863,642		$5,863,642	$5,336,408		$5,336,408	91%Mod127
8	04/01/02	09/30/02	$9,798,867		$9,798,867	$8,765,356		$8,765,356	92%Mod147
9	10/01/02	03/31/03	$8,121,627		$8,121,627	$7,634,968		$7,634,968	94%Mod167
10	04/01/03	09/30/03	$8,128,883		$8,128,883	$7,722,439		$7,722,439	95%Mod194
11	10/01/03	03/31/04	$7,899,317		$7,899,317	$7,583,343		$7,583,343	96%Mod220
12	04/01/04	09/30/04	$8,227,738		$8,227,738	$7,980,906		$7,980,906	97%Mod248
13	10/01/04	03/31/05	$9,788,304		$9,788,304	$9,103,437		$9,103,437	93%Mod 283
14	04/01/05	09/30/05	$8,965,371	$7,169	$8,972,540	$8,158,346	$6,524	$8,164,870	91%Mod325
15	10/01/05	03/31/06	$9,078,192	$33,585	$9,111,777	$7,444,119	$27,540	$7,471,659	82%Mod350
16	04/01/06	09/30/06	$7,968,184	$68,306	$8,036,490	$6,597,657	$56,557	$6,654,214	82.8%Mod393
17	10/01/06	03/31/07	$8,586,503	$58,552	$8,645,055	$6,869,200	$46,842	$6,916,042	80%Mod430
18	04/01/07	09/30/07	$8,582,861	$57,389	$8,640,250				
19	10/01/07	03/31/08	$8,678,137	$55,452	$8,733,589				
20	04/01/08	09/30/08	$8,702,997	$52,730	$8,755,727				
	GRAND TOTAL		**$160,959,841**	**$333,183**	**$161,293,024**			**$145,753,731**	Earned & Available

ARTICLE G-2	CONTRACT FUNDING				
Pursuant to FAR Clause 52.232.22, Limitation of Funds, funds presently allotted to this contract and the period through which they are estimated to be adequate are specified in the table below:					
The below table is created with the beginning values based on modification 371					
As of MOD	Contract Value	Funded Cost	Funded Fee	Total Funded Cost/Fee	ADEQUATE THROUGH
Subtotal as of Mod 371	$2,807,573,014	$2,031,284,171	$163,520,197	$ 2,194,804,368	12/8/2006
374	$462,548				
376		$3,239,869	$259,190.00	$ 3,499,059	12/15/2006
377	$244,132				
378	($13,628,301)				
379	($2,553,358)				
383		$45,590,925	$3,647,274	$ 49,238,199	3/20/2006
384	$121,375				
385	($703,275)				
388	$207,277				
389		$14,362,829	$1,149,027	$ 15,511,856	2/13/2007
391	($1,384,405)				
392	$1,494,374				
393	($1,391,489)				
397	($1,733,940)				
399		$69,924,188	$5,593,935	$ 75,518,123	5/16/2007
408		$2,608,945	$208,716	$ 2,817,661	5/20/2007
410	($1,412,377)				
413		$24,615,995	$1,969,280	$ 26,585,275	6/21/2007
417	$479,010				
418	$500,602				
420		$27,867,048	$2,229,364	$ 30,096,412	7/27/2007
426		$111,683	$8,935	$ 120,618	
428	($16,020,850)				
429		$10,173,418	$813,873	$ 10,987,291	8/10/2007
430	($1,761,683)				
431	$1,765,654				
435		$761,649	$60,932	$ 822,581	8/11/2007
436	$4,550,101				
TOTAL	$2,776,808,409	$2,230,540,720	$179,460,723	$2,410,001,443	

NAS10-99001

JOINT BASE OPERATIONS AND SUPPORT

CONTRACT

ATTACHMENT J-1

(CHANGES CURRENT THROUGH MOD 436)

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STATEMENT OF WORK

1.0 PROJECT MANAGEMENT

The contractor shall accomplish the Joint Base Operations and Support Contract (J-BOSC). The J-BOSC provides launch support and public works such as civil engineering services, work control, infrastructure sustainment, and base operations support including information technology, logistics, PMEL laboratories, transportation, airfields operations, and protective, administrative, medical, and environmental services to NASA at Kennedy Space Center (NASA-KSC), the Air Force at Cape Canaveral Air Force Station (CCAFS), at Patrick Air Force Base (PAFB), and at the Florida Annexes.

The contractor shall interact, plan, and effectively coordinate and communicate with all levels of customers, both government and other associate contractors. The contractor shall provide reliable and efficient service that fully satisfies the requirements of the U.S. Air Force (USAF) and NASA and allows them to accomplish their diverse missions without exception and concern for their facilities and services.

The contractor shall implement government initiatives such as the maintenance and restoration of facilities, energy management and conservation, and evolving requirements related to the protection of the environment and minimizing personnel exposure to hazardous materials. Because of constrained budgets, the contractor shall implement trade-offs with other contract functions for the duration of the contract to ensure compliance with regulatory and statutory requirements. Government personnel shall be notified, in a timely manner, of such trade-offs and the impact of these trade-offs to contract requirements.

The contractor shall partner with KSC and the 45th Space Wing to maintain public safety and trust as well as the safety of the workforce. The contractor shall maintain safe and secure operating locations and be flexible and innovative in protecting and preserving physical and environmental assets. The contractor shall prepare for, and effectively respond to, emergency situations and contingencies. The contractor shall support real-time requirements 24 hours a day, 7 days a week.

The contractor shall assure superior customer satisfaction at all stages of work from requirements development through delivery. The contractor shall implement and sustain a customer-oriented work control and planning process that shall provide responsive base support and simultaneously support a multitude of customers having conflicting requirements and priorities.

Management Approach. The contractor shall develop, implement, and maintain a management approach to support NASA-KSC and the Air Force 45th Space Wing's goal to be the premier gateway to space. The contractor shall employ a highly innovative, entrepreneurial, and efficient management program that challenges the status-quo and worker culture in formulating and implementing high quality, timely, and cost-effective base support services. The contractor shall apply an integrated team approach that incorporates a centralized Program Management Office and a single set of consolidated and easily understandable policies and procedures for the J-BOSC program. The contractor shall: take a proactive approach to labor relations involving collective bargaining agreements that includes the formation of a consolidated Labor Management Council; "right-size" the workforce staffing profile; implement an incentive plan for the entire workforce that rewards employees for suggesting and developing ideas that result in quantifiable benefits; and manage the project through incorporation of quality concepts. The contractor shall comply with DRD 1.1-13, Report, Advance Notification of Workforce Reductions, when a workforce reduction is imminent.

The contractor shall optimize J-BOSC support services at the least possible cost within all performance parameters. The organization structure shall balance flexibility and accountability

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to ensure responsiveness, product quality, and resource control. The workforce shall be empowered with the responsibility and authority to achieve performance goals.

Business Approach. The contractor shall establish a program which embodies sound financial management concepts that result in affordable costs while continuously improving customer support. The contractor must realize cost savings through improved project efficiency while reducing dependency on government-furnished property and services. The contractor shall team with KSC, the 45th Space Wing, and their customers to optimize resource management. The contractor shall develop a subcontract program that recruits and selects qualified subcontractors, maximizes the use of commercial services, and provides meaningful subcontracting or teaming opportunities to achieve the J-BOSC socio-economic procurement goals.

Resource Management. The contractor shall provide a contract resource management system, to include subcontracts, for the total contract work activity. The contractor resource management system shall provide timely and accurate visibility of contract manpower, cost, and schedule performance and the interrelationship among them. This includes data and supporting variance analyses as well as special exercises involving schedules, work flows, and budgets. Work shall be prioritized, managed, and controlled within program funding levels. Contractor data shall be current, accurate, and complete, and actual costs shall not exceed approved operating plans.

Applicable Work Load Indicators (WLIs) for each WBS are incorporated in attachment J-12 and reported in accordance with DRD 1.1-12, Report and Review, Workload Indicators, Work Backlogs and Deferred Work.

1.1 MANAGEMENT AND CONTROL

1.1.1 Mission Support

The contractor shall support all mission related events per this statement of work.

1.1.1.1 Launch Support. The contractor shall provide all services consistent with mission requirements for support of Space Transportation System (STS) and other vehicle launches. These services shall include planning for operations, maintenance, and logistics support in preparation for launches, operations and maintenance support during launch operations, and requirements following launches prescribed in the Shuttle Integrated Operations and Maintenance Instructions (IOMIs), and Air Force Program Directives. NASA's KPD 8630.3, KSC Shuttle Processing Flight Readiness Certification Review Plan, and ELV/EELV, 501-97 (Draft) Universal Documentation System, depict the standard mission support requirements in accordance with Base Support Policy.

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1.1.1.1.1 Launch Readiness Briefings. The contractor shall provide Launch Readiness Briefings for each major milestone of the Space Transportation System (STS) flow. The briefings for the Pad Flow Readiness Review and Launch Countdown Review will be comprehensive in nature, while the remaining briefings will be milestone specific and consist of updates to the comprehensive packages. Joint NASA/SGS Reviews that will be required for STS flow are:

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#	Event/Milestone
1	Pad Rollover & Flow Readiness (MAJOR)
2	A5214 – Rollout
3	S00024 – Propellant Load
4	S0017 – TCDT
5	S5009 – Ord. Installation
6	S0037 – Tanking Test
7	Launch Countdown/RTLS (MAJOR)

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8 Landing - EOM

The contractor shall also facilitate at least one JBOSC Launch Readiness briefing for ELV and 45 SW launches inviting the government to attend. The contractor will provide the government with preliminary copies of the launch briefing package to review readiness status prior to the briefing (MOD 436)

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1.1.1.2 24-Hour Turn-Around. The contractor shall provide the necessary resources to support 24-hour turn-around time between launch configurations.

1.1.1.3 Liaison Duties. The contractor shall respond to customer needs 24 hours a day, 365 days a year. The contractor shall perform liaison duties between range users, customers, 45th Space Wing and KSC elements, contractors, and host agencies. Liaison duties include, but are not limited to, receiving support requests, coordinating activities such as work clearance request/excavation permits and utility outages, and passing work requirements to other contractors. Technical Exhibit 5.1-501 lists all the duties. The contractor shall provide a Cape Superintendent function to assist the Cape Commander's office with support activity.

1.1.1.3 Community Special Events. The contractor shall provide miscellaneous support for NASA-KSC, Air Force-CCAFS, PAFB special events, and community special events. This includes the External Relations Office and public affairs support.

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1.1.3 Flexibility

The contractor shall respond to changing service requirements, including work resulting in unexpected surges, and prioritize activities to best accomplish the intent of the contract in terms of mission support, Cape Canaveral Spaceport Management Office (CCSMO) initiatives, and customer service.

1.1.3.1 PAFB In-Scope Service Requirements. The contractor shall respond to service requirements contained within the general scope of this contract (not specifically identified) at PAFB, upon contracting officer direction, on a non-interference reimbursable basis. The contractor shall document work performed at PAFB under the scope of this paragraph and brief the government on such work on a monthly basis during the Work Management Process IPT. (Mod 306).

1.1.4 Work Classification and Control

The contractor shall properly classify and prioritize all work through the Work Control Center for day-to-day work requirements and through Engineering Services for facilities projects.

1.1.4.1 Schedules and Cost Estimates. The contractor shall provide schedules and cost estimates at the work order level that include cost element breakdowns as requested by the customer.

1.1.5 Work Management System

The contractor shall provide controlled access (network accessible), on-line, interactive automated management and work information system(s). The contractor shall provide authorized users with electronic access to this system and other on-line management information systems and databases. Management and work information systems shall be user friendly and provide required customer data as needed. Access includes the ability to read and download data, and construct and execute ad hoc queries and custom reports with current and historical data. Data shall be compatible with Microsoft software products or made available through a front-end user interface. Data shall be current, accurate, and complete. The

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contractor shall develop and maintain user's guides, and provide training for user on how to access on-line Management Information Systems (MIS) and databases.

1.3.6 Reimbursement Policy

The contractor shall comply with the requirements of the 45th Space Wing Instruction 65-601, Reimbursement Policy when advising the CCSMO of direct costs for Range users that can be identified readily with the particular program support.

1.3.7 Negotiated Estimated Cost (NEC)

The contractor shall ensure complete reconciliation of the Operating Plan to the Annual NEC, and the actual cost to the NEC on the same six month schedule as the accounting calendar.

1.4 QUALITY AND MISSION ASSURANCE

The contractor shall establish, implement, and maintain a comprehensive quality and mission assurance (reliability, maintainability, and quality assurance) program that meets programmatic requirements and is effective in the identification and mitigation of risks. The contractor shall establish and maintain a configuration control process for all configured Facility, Systems and Equipment (F/S/E) that is within the contractor's control for design and operations and maintenance as defined in the Configuration Management Data System (CMDS). The configuration control process shall include means to identify, document and track planned modifications by others to F/S/E that is contractor controlled or will be assigned to the contractor for operation and maintenance. The contractor shall perform hazard and reliability analyses. Risks shall be identified in sufficient time to allow correction or acceptable risk mitigation without programmatic impact. (MOD 436)

1.4.1 Quality Approach/Continuous Improvement

The contractor shall establish and implement a quality management system for all services provided under this contract that complies with the guidance in ANSI/ASQC/ISO 9001 2000 and KNPR 8720.1. The contractor shall assess and benchmark internal processes to improve services and processes to optimize the delivery of services or products to the customer. The approach shall include a disciplined methodology to determine process effectiveness (time or cost savings), a quality improvement plan and implementation schedule for identified deficiencies, and documentation of lessons learned. (MOD 436)

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1.4.1.1 Product and Service Quality. The contractor shall identify the requirement for Government Source Inspection for procurements based on the criticality (1, 1R, and 1S) (reference NSTS 22206 for criticality definitions) of the procurement for ground support equipment, cryogenic/hypergolic propellant mission essential equipment, and other procurements identified by the government based on system interface and vendor performance history.

The contractor shall provide and maintain Acceptance Data Packages, test results, analysis reports, inspection records, and delivery logs in accordance with programmatic requirements for hardware, software, and commodity delivery, or transfer to the government. The contractor shall collect and compile data and information to demonstrate that the products and services delivered to the government are in compliance with programmatic requirements and specifications contained within those programmatic documents.

1.4.2 Systems Safety

The system safety approach shall include, but not be limited to, analytical methods (both quantitative and qualitative, as appropriate) to assess program ground support hardware and

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software, and critical, mission essential, or highly hazardous F/S/E. The contractor shall develop and implement a process for the identification, mitigation, and control of hazards throughout the complete life cycle (design, development, manufacture, test, operations, maintenance, and disposal) of the F/S/E, materials, and processes under the control of the contractor before introducing them into the work environment. The contractor shall conduct an operations safety assessment on all high risk, first time use F/S/E, and submit the assessment to the government for review. The contractor shall monitor all design changes to critical F/S/E and update analysis as necessary to reflect the systems configuration.

All F/S/E of the following types that will be turned over to the contractor for O&M, that have either been temporarily turned over to the government for modification or repair (CofF) or are a part of new construction shall be verified/validated through a partnered process as operational to support required mission milestones:

- F/S/E that is deemed a "critical system" per NSTS 22206
- Non-Critical/MEE F/S/E which have a Combined ORMSD/SAA Assessment (COSA) per Technical Exhibit 2.1.2-003
- Non-critical high/medium voltage F/S/E (for the purpose of ensuring that modifications to the non-critical portion of the system do not impact the critical portions of the system).

System verification/validation shall be accomplished through the following when the situation exists as specified below (excluded from this effort is any normal maintenance that does not alter the configuration):

- The partnered Institutional Design Certification Review (IDCR) process – This process will be used at project completion or at the end of major project phases when all required documentation is available.
- The partnered Interim Readiness Assessment (IRA) process – This process will be used in the interim stages of a project (i.e. construction, activation, turnover, etc.) to document mission support readiness

System verifications/validations (IRA/IDCR) shall include all modifications categorized as "first use" for affected milestones. The process is intended to document that the Appropriate Organizations (i.e. Engineering, Reliability, NASA Center Operations, NASA Safety, etc.) have reviewed the project and determined:

1. In the case of an IRA that either:

- The project content performed is a like-for-like replacement and the configuration documentation matches the modified system. As such, there is no additional risk to the system or the program OR
- The project content performed does impact configuration documentation but the updates are administrative in nature and can be performed after the planned mission OR
- The project content performed does impact configuration documentation and a risk assessment shall be performed to determine if the configuration adds any additional/presently unknown risk(s) to the system or program.
    - The project open items deemed necessary for mission support shall be listed.

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2. In the case of an IDCR that either:

- The project content performed is a like-for-like replacement and the configuration documentation matches the modified system. As such, there is no additional risk to the system or the program and the finalized documentation will reflect this OR
- The project content performed does impact configuration documentation, but in an administrative nature. Updates will be made to the finalized documentation to reflect this OR
- The project content performed does impact configuration documentation and a risk assessment shall be performed to determine if the configuration adds any additional/presently unknown risk(s) to the system or program. The finalized documentation will be updated to reflect this.

The contractor shall prepare or update any required operations and maintenance documentation per the partnered processes. (reference SOW paragraph 2.1.2.4.1).

For JBOSC controlled projects, the system verification/validation and associated OMD required per the partnered processes shall be completed in sufficient time to allow correction or acceptable risk mitigation without programmatic impact. The verification/validation and OMD shall be completed through technical review per the partnered processes with the customer prior to its use in a critical operation or flow. For projects not under the control of the JBOSC contractor, system verification/validation and associated OMD required per the partnered processes will not be completed until the project contractor provides detailed drawings and equipment manufacturer specifications to the JBOSC Activation and Turnover group. System verification and OMD completion dates will be negotiated for each project with NASA-KSC safety and center operations.

In general, completion of documentation updates prior to STS launches will be the priority. Changes in the system configurations requiring interim conditions to be documented will not require complete documentation suite (SAA and OMRSD) updates. The contractor will coordinate with NASA-KSC safety and center operations for overall priorities to accomplish the launch mission and work to a published (and government coordinated) schedule. (MOD 436)

The contractor shall develop and implement a process to identify critical F/S/E which supports the institutional program per the requirements specified in NASA STD 8719.7. For new or modified F/S/E that the contractor builds, procures, or assumes operation or maintenance responsibility for, the contractor shall submit a project specific Hazard Analysis Data Sheet for the government's review. This requirement applies to F/S/E that is critical, mission essential, or has significant or unique hazards associated with it. The format of the Hazard Analysis Data Sheet shall be determined by the contractor and shall include, at a minimum, the type of analysis to be performed, an analysis schedule with established milestones, methods of analysis, depth of effort, identification of single failure points, and proposed mitigation of risks. The plan shall also address reviews and interfaces between the customer and the contractor. The plan shall be developed for the complete lifecycle of the F/S/E, and facility system safety activities shall take place concurrent with the normal facility acquisition process.

For the Shuttle Program, the contractor shall develop and implement a process to identify critical F/S/E which supports the Shuttle Program per the requirements specified in NSTS 22206 and submit a Hazard Analysis Data Sheet for the government's review. For F/S/E identified as Critical, a Failure Modes Effects Analysis/Critical Items List (FMEA/CIL) and a Hazard Analysis shall be performed and Hazard Report(s) generated per the requirements specified in NSTS

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22254. The contractor shall present all Critical Items (1, 1R, 1S, and 2) identified in the FMEA and Hazard Report for initial approval to the KSC Shuttle Program Risk Review Board (RRB), and final approval will be granted by the Kennedy Safety Review Panel (KSRP) and the Program Requirements Control Board (PRCB) per the requirements specified in NSTS 07700 Volume V, Information Management, and shall be maintained for all critical items per the requirements specified in NSTS 07700-10-MVP, Shuttle Master Verification Plan. The contractor shall obtain NASA Safety Engineering concurrence(s) on all analyses performed for the SSP. (MOD 436)

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1.4.2.1 Reliability and Maintainability. Shuttle System reliability shall be performed under the guidance of NSTS 5300.4 (1D-2). The contractor shall develop and implement a process which ensures the reliability and maintainability throughout the lifecycle of the F/S/E for which the contractor is responsible per the CMDS listing. The process shall include reliability and maintainability assessments for baseline allocations, trend analysis of materials and parts in support of operational integrity, and participation in failure reviews. The assessments shall identify critical items and the operational impacts of associated failure modes. The contractor shall prepare and maintain the associated FMEA/CIL and shall integrate the results of the reliability assessments with the system safety function. The contractor's process shall be based on the fundamental reliability and maintainability concepts and principles described in NASA-STD-8729.1. (MOD 436)

1.4.3 GIDEP

The contractor shall participate in the Government/Industry Data Exchange Program (GIDEP) in accordance with the requirements of the GIDEP S0300-BT-PRO-010 and S0300BU-GYD-010. The contractor shall review all Failure Experience Data GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Agency Action Notices, and NASA Advisories to determine if they affect the contractor products produced for NASA. For GIDEP ALERTS, GIDEP SAFEALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories that are determined to affect the program, the contractor shall take action to eliminate or mitigate any negative effect to an acceptable level. The contractor shall generate the appropriate failure experience data report(s) (GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory) in accordance with the requirements of GIDEP S0300-BT-PRO-010 and S0300BU-GYD-010, and KNPR 8715.3(T), KSC Safety Practices Procedural Requirements, whenever failed or nonconforming items, available to other buyers, are discovered during the course of the contact. **(Mod 334)**

2.0 PUBLIC WORKS

2.1 ENGINEERING SERVICES

The contractor shall provide engineering services to accomplish base operations and support services in support of facilities planning, real property management, facility programming, design services, specifications, engineering documentation, construction management, surveying, cost analysis, facility activation, and energy management at KSC, CCAFS, and the Florida Annexes. The contractor shall maintain Air Force and NASA facilities in a cost-effective manner that protects and preserves investments. The contractor shall provide engineering services to NASA in accordance with NASA-STD-8719.11 and NPG 8820.2E.

2.1.2.4 Joint Technical Documentation Control Center (JTDCC). The contractor shall maintain the baseline of and prepare, maintain, and deliver to the J-BOSC Engineering Documentation Center (EDC) updated engineering documentation for assigned J-BOSC F/S/E to include (as appropriate to the task) engineering documentation for conceptual, preliminary, and detailed design for sustaining engineering tasks. The contractor shall provide configuration

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controlled release and retrieval coding for J-BOSC engineering originals and associated engineering drawings, specifications, and documents. The contractor shall provide designated engineering records, document, and data management and control to include documentation closure against configured and critical F/S/E and related systems. The contractor shall prepare, maintain, release, and control documentation (such as OMIs and/or PMIs, maintain or "record" drawings as shown in CMDS) required by the contractor to perform operations, maintenance, repair, and modification of all assigned structures, facilities, utilities, and equipment on KSC, CCAFS, and the Florida Annexes, excluding PAFB. The contractor shall perform engineering documentation support as required to produce the Facility Number Report (CMDS/CID).

2.1.2.4.1 Operations and Maintenance Documentation. The contractor shall modify and update the following Operations and Maintenance Documentation (OMD), which includes drawings, instructions, specifications, System Assurance Analyses/System Criticality Analyses (SAAs/SCAs) and other Risk/Hazard Analysis Packages, SPAs, PV/S and Department of Transportation (DOT) compliance reports, OMRSDs, OMIs, and PMIs as directed by the applicable J-BOSC Configuration Control Board (CCB). At a minimum, all NASA critical F/S/E shall require drawings, SAAs/SCAs, SPAs, OMRSDs, OMIs, and PMIs. For non-critical F/S/E where OMD may add value to effective system maintenance or reliability, a Combined OMRSD SAA Assessment (COSA) will be generated. The contractor and government shall partner such cases (Reference Technical Exhibit 2.1.2-003, (MOD 436)

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The delivery of SAA, SCA, OMRSD documents shall be consistent with Section 1.4.2 "System Safety". The delivery of OMI, PMI and SPA documents shall be consistent with section 2.2.

As-built drawings for NASA maintained drawings, provided by the government or other contractors, shall be processed and released to EDC or logged for document maintenance upon final acceptance of turnover and subsequent receipt of accurate as-builts, and turnover documentation per the following schedule, or as directed by the applicable J-BOSC CCB:

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- 95% within 60 days for government critical systems--remainder within 90 days;
- 75% within 90 days for government configured and mission essential systems—remainder within 120 days; and,
- No more than 10 Engineering Orders (EOs) per maintained document, excluding pending EO (not yet implemented) and EOs for Relay Settings (MOD 436)

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For AF Configured drawings, existing drawings are accepted as "Best Available Data" and will be as-built as projects affect the drawings, and only to the extent the project affects or verifies the configuration. Reference Technical Exhibit 2.1.3-001 for the anticipated annual project value of NASA-KSC Construction of Facilities (CofF) projects. (MOD 436)

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2.1.2.4.2 Critical/Configured Systems Documentation. The contractor shall provide critical/configured systems baseline identification and change control; coordinate and maintain contractor interface agreements (memoranda of understanding); Configuration Management Data System (CMDS) technical data administration and maintenance; coordination and maintenance of CMDS memoranda of understanding between contractor and others as needed; maintenance of the CMDS configuration identification module; and provision of required CMDS release and retrieval coding.

The contractor shall utilize consistent, unambiguous data classification and maintenance codes to ensure that classifications and criticality status for all F/S/E and associated OMD are clearly identified. Classification codes shall include Critical, Non-Critical, Configured, Mission Essential Equipment, and Maintained items. (MOD 436)

2.1.2.4.3 Data Management. The contractor shall provide data management for CMDS derived web-based F/S/E O/M/E/U Matrix in accordance with DRD 2.2-01, Report, Facilities, Systems, and Equipment Operations/Maintenance/Engineering/User Matrix.

2.1.3 Construction Engineering

The contractor shall perform construction management, construction services, field surveillance and inspection, construction cost engineering, land surveying, facility activation and turnover support, and associated planning, scheduling, and administrative support for those construction projects implemented by the contractor or implemented by others and assigned to the contractor for construction engineering support.

The contractor shall provide construction engineering services beginning with constructability reviews at the 90% design phase. Support shall continue through the construction, beneficial occupancy, activation/turnover, and warranty program phases.

2.1.3.1 Construction Management. The contractor shall provide project and construction management support for all facility projects assigned to the contractor for design, construction management, and/or implementation. The contractor shall implement a construction management approach that provides high-quality construction performance and facilities that meet functional requirements on schedule and within approved funds. The contractor shall ensure that all bid packages contain complete and detailed documentation that fully describes each facility configuration, performance requirement and the intent for the facility construction work, including environmental permitting and construction. The contractor shall track, analyze and report project status, scope, schedule, and cost. The contractor shall address these items monthly and report on variances from agreed upon cost and schedule.

2.1.3.2 Construction Services. The contractor shall provide field surveillance and associated inspection services to ensure successful implementation of facility projects per Technical Exhibit 2.1.3-001. The contractor shall provide inspection services, while focusing on safe and environmentally sensitive execution of facility projects. The contractor shall perform daily site visits and witness specified on-site acceptance testing and mandatory inspection points. The contractor shall document non-conformance with drawing, specifications, contract provisions, and safety regulations. The contractor shall prepare and track punch list items to completion. The contractor shall coordinate shop support for outages, system testing, and utility locates.

The contractor shall provide environmental support to NASA Construction of Facilities (CoF) projects. The contractor shall provide environmental consulting expertise and coordination throughout the CoF process. The contractor shall provide consultant services at the Project concept, NASA Program Operating Plan, Preliminary Engineering Report, Engineering Design and Project Construction phases. The contractor shall provide input to the identification of potential environmental compliance requirements and documentation of requirements necessary to ensure that CoF environmental requirements are adequately scoped. The contractor shall participate at pre-work meetings to ensure that environmental requirements are communicated to CoF contractors. The contractor shall supplement inputs from other environmental subject matter experts from NASA, consulting engineers, and various J-BOSC organizations to support the planning and design engineering phases of CoF projects. This support will also include project field implementation consultation for environmental requirements such as waste management, stormwater pollution prevention plans, etc. and the monitoring of field compliance with KSC/regulatory requirements and best practices. (**Mod 388**)

The contractor shall provide tracking and distribution support for construction contractor shop drawings, material submittals, and other information provided for government review and approval. The contractor shall maintain submittal tracking logs to track the review and approval process. The contractor shall maintain submittal files as official Government records. The

contractor shall maintain tracking logs for construction contract change orders and supplemental agreements. The contractor shall track estimated, proposed, evaluated, and negotiated costs.

The contractor shall have construction inspectors on the job site when needed to support significant construction operations, critical inspection points, acceptance tests, and final inspections.

2.1.3.3 Construction Cost Engineering. The contractor shall provide facilities, systems, and equipment cost estimating and cost engineering services to support construction activities. The contractor shall provide construction cost engineering and scheduling support for assigned projects. The contractor shall review, analyze, and provide recommendations regarding contractor progress schedules, pay requests, cost proposals, and claims.

The contractor shall prepare complete findings of facts, including impact assessments for claims and proposed change orders with supporting cost estimate, for use by the Government on those construction contracts under surveillance. Cost analysis and estimating construction support shall be as requested for projects under surveillance commencing no later than project notice to proceed.

The contractor shall review and analyze construction activities in accordance with the following schedule or by the negotiated due date 90% of the time:

- Construction schedule – 3 days
- Pay request – 3 days
- Cost proposals – 10 days
- Claims – 30 days

The contractor shall conduct independent assessments and cost estimation of selected facility and Construction of Facility (CoF) projects, including quality control of project cost estimates. The contractor shall maintain the capability to perform life cycle cost analyses of facility and CoF projects. The contractor shall develop and maintain a project cost element database, including monthly cost indices, for facility and CoF projects. The contractor shall develop reports that analyze project bids and compare the bids against official government estimates.

2.1.3.4 Land Surveying. The contractor shall provide survey support for verification of requested in-place construction to required elevations and grades for projects assigned to the contractor for construction management services and minor data collection support for customer use. Geographic Information System (GIS) standards shall be utilized to support real estate data for KSC, CCAFS, and the Florida Annexes for the GIS maintenance function.

2.1.3.5 Facility Activation and Turnover. The contractor shall implement a facility activation plan that ensures that new or modified facilities, systems and equipment procured by the government are coordinated, reviewed, and accepted by J-BOSC for engineering, operations, and maintenance responsibility.

In support of facility activation, the contractor shall prepare Interim and Final O&M turnover packages for assigned projects. The contractor shall participate in projects requirement reviews, design reviews, project status meetings, systems acceptance testing, and final inspections. The contractor shall prepare real property turnover packages for government signature and distribute to appropriate KSC/CCAFS O&M and Real Property Officers. The contractor shall ensure that all OMD documentation has been properly processed and distributed to responsible O&M support organizations.

Projects implemented by others require that turnover packages be provided to J-BOSC for integration of F/S/E assigned to the contractor for O&M responsibilities.

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The contractor shall prepare KSC 21-136 forms and submit interim O&M turnover documentation to allow start of breakdown and code required maintenance within 2 weeks of customer's request after substantial completion. (MOD 436)

The contractor shall prepare and submit final turnover documentation within 30 working days after completion and closure of all punch list items and complete all OMD as required in sections 1.4, 2.1 and 2.2. (MOD 436)

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2.1.4 Energy and Water Conservation

2.1.4.1 Energy Management Program. The contractor shall provide program management support for the overall KSC and CCAFS Energy Management Program. The contractor shall conduct an Energy Management Program that plans, implements, and measures the status of conservation initiatives for J-BOSC responsible F/S/E in accordance with the O/M/E/U Matrix. The contractor shall coordinate an effective utilities conservation program that includes hot and chilled water, natural gas, propane, fuel oils, and electric power. The contractor shall support the USAF Energy Performance Contractor (ESPC) for CCAFS with respect to the USAF Energy Savings Performance Contract scope of work.

The contractor shall perform Facility Energy Audits for all NASA J-BOSC facilities which meet the intent of Executive Order (EO) 13123 and NPR 8570.1, Chapter 4. (Note: Due to a lack of government funds, the contractor will not be required to comply with EO 13123 and NPR 8570.1, Chapter 4 energy audit requirements until such time as funds become available).

The contractor shall actively support the KSC and CCAFS energy program and shall conduct an internal program for J-BOSC. The contractor shall provide the following support to the energy management and conservation program:

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- Support the coordination of the contract-wide program through information, collection and analysis;
- Identify and assist in implementing opportunities for applying cost-effective alternative fuel technologies and energy reduction projects;
- Identify and assist in implementing opportunities for cost-effective purchasing and application of utilities; and
- Utilize Type 3I energy saving projects and energy efficient designs for future projects

2.1.4.2 Energy Conservation. The contractor shall reduce energy consumption as defined in Performance Standard 2.1.4-01 (Energy Use Index in J-BOSC/NASA Facilities). The performance standard shall consist of two measures and shall be posted quarterly on the contractor's energy web page. One measure shall be calculated from standard EUI calculations and is not a contract requirement goal. The second measure shall be calculated without the Orsino Area miscellaneous category and is the contract requirement goal.

2.1.4.3 Reports and Plans. The contractor shall provide energy management program status to the government and shall collect, analyze, validate, and prepare reports and plans as listed in Technical Exhibit 2.1.4-01 – Energy Management Office Periodic Report Requirements. Reference Air Force Energy Program Procedural Memorandum (AF EPPM) 96-3 for Defense Utility Energy Reporting System (DUERS) for Air Force Periodical Report.

2.1.4.4 Water Management Program. The contractor shall provide a water management and conservation program in accordance with EO 13123 for KSC and CCAFS. The contractor shall

conduct a Water Program that plans, implements, and measures the status of conservation initiatives for J-BOSC responsible F/S/E.

2.2 INFRASTRUCTURE

The contractor shall provide operations, maintenance, engineering, and custodial services for the facilities, systems, equipment, grounds, and utilities at KSC, CCAFS, and the Florida Annexes to accomplish safe, effective, and environmentally compliant base operations and support services. Assigned F/S/E are designated by the contractor's O/M/E/U Matrix in accordance with DRD 2.2-01, Report, Facilities, Systems, and Equipment Operations/Maintenance/Engineering/User Matrix.

The contractor shall continuously maintain an infrastructure maintenance program based on Reliability Centered Maintenance (RCM) and Integrated Logistics Support (ILS). The contractor shall continuously maintain the inventory and systems analysis process, and maintain optimal baselines for each system and subsystem.

The contractor shall develop and provide a Five-Year Facility Maintenance and Facility Project Plan establishing long-term system sustaining projects and planning in accordance with DRD 2.2-04, Five Year Facility Maintenance and Facility Project Plans.

The contractor shall maintain an electronic F/S/E O/M/E/U Matrix in accordance with DRD 2.2-01, Report, Facilities, Systems, and Equipment Operations/Maintenance/Engineering/User Matrix.

2.2.1 Facilities/Systems/Equipment (F/S/E)

The contractor shall provide a comprehensive integrated management information system for receiving, validating, scheduling, controlling, subcontracting, project management, cost management, and tracking all work associated with the contract. The work control function shall identify all tasks, costs, durations and resources required. The contractor shall identify and implement tasks and work necessary to ensure that all facilities, structures, systems, and equipment for which O&M responsibility is assigned shall continue to function at their original capacity and at their design efficiency. Work to be identified includes preventive maintenance, corrective maintenance, and overhaul or replacement to obtain best value.

The contractor shall provide and maintain an on-line, interactive automated work control system that provides current, accurate visibility of all work. The system shall provide sufficient scheduling and reporting capability to communicate to customers work milestones (programming, design, procurement/contracting, pre-bid, bid opening, award, notice to proceed, completion dates, revised completion dates, construction status, utility locates) and cost (Rough Order of Magnitude (ROM), Final Design Estimate (FDE), original contract, current contract, pending change orders, and final contract) to completion, in accordance with DRD 2.2-08, Type 3C Project and Work Status Report.

The contractor shall provide the government with access to the man-hours expended on government submitted projects. Information input into the system shall include the facility number, system description, equipment number, utility description, and a complete description of work to be done. Information shall be sufficient enough to allow government customers to enter the system and perform searches for any F/S/E. The contractor shall provide the government with F/S/E reports in accordance with DRDs 2.2-04, Five Year Facility Maintenance and Facility Project Plans, 2.2-05, Backlog of Maintenance and Repair (BMAR), 2.2-06, Facility Maintenance Execution Summary, and 2.2-07, Facility and System Availability.

The contractor shall ensure the reliability of assigned facilities, systems, and equipment. Maintenance shall be performed to prevent deterioration to the point at which major refurbishing

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is required prior to the end of the designed life cycle to restore the system, facility, or equipment. Reliability Centered Maintenance (RCM) principles shall be employed in accordance with NPR 8831.2. For critical, mission essential, or life safety F/S/E, the contractor shall perform 100% of scheduled preventive/predictive maintenance (PM) tasks including all applicable maintenance/validation steps contained therein. Any PM not performed or completed in its entirety for critical, mission essential, or life safety F/S/E shall be briefed or reported to the responsible government functional subject matter expert (e.g. TA, CES) and to the contracting officer's technical representative (COTR) on a weekly basis. Maintenance analysis decisions requiring changes to the levels of preventive/predictive maintenance, shall be documented on the Maintenance Action Request (MAR) form, FAM-F-0006. Reductions in PM requirements or frequency for any F/S/E (i.e. critical, mission essential, life safety, or other) shall require pre-approval of the responsible government functional subject matter expert. (MOD 436)

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Warranty Maintenance. The contractor shall execute warranty provisions and maintain warranty or guarantee records for all equipment and material in the facilities support area during the time they are under warranty or guarantee; investigate the failure of any covered equipment or material and report findings to the appropriate customer; and take no action that would void a warranty without prior approval from the government representative. The contractor shall be responsible for obtaining warranty documents on all warranted equipment and materials installed by the contractor. Warranty documents shall be provided to the contractor upon installation of new equipment by others.

2.2.1.1 Operations, Maintenance, and Engineering. The contractor shall provide operations, maintenance, and engineering for all F/S/E, in accordance with the O/M/E/U Matrix, DRD 2.2-01, Report, Facilities, Systems, and Equipment Operations/Maintenance/Engineering/User Matrix (Technical Exhibit 2.2—017) including associated F/S/E firmware and software. When the contractor, the government, or both have identified F/S/E omissions or deletions, the O/M/E/U Matrix shall be updated by direction from the contracting officer. However, during the update or turnover process, the contractor shall continue to provide operations, maintenance, and engineering services for the pending facilities, systems, subsystems, structures or other items required for function. **(Mod 286)**

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For the implementation of maintenance, the contractor shall, at a minimum, have appropriate OMI, PMI and SPAs for all NASA Mission Essential and or Critical Systems. Upon final acceptance of turnover and subsequent receipt of accurate as-builts and vendor documentation, the above maintenance OMDs shall be updated per the following schedule, or as directed by the applicable J-BOSC CCB:

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- 95% within 60 days for government critical systems--remainder within 90 days;
- 75% within 90 days for government configured and mission essential systems-- remainder within 120 days; and
- No more than 10 Engineering Orders (EOs) per maintained document excluding pending EO (not yet implemented) and EOs for Relay Settings.

Reference Technical Exhibit 2.1.3-001 for the anticipated annual project value of KSC Construction of Facilities (CofF) projects.

The contractor shall provide problem reporting for all anomalies and off-nominal configuration changes for critical and/or mission essential F/S/E. Problem documentation shall include anomaly description and analysis, critical and/or mission essential F/S/E impacts, operational constraints, troubleshooting steps and findings, and corrective actions performed leading to closure of the anomaly. Problem documentation shall be readily accessible to responsible government functional subject matter experts. All open problem reports shall be briefed to

government management on a regular basis. The formats and frequencies of the reports shall be partnered with the Government. (MOD 436)

The contractor shall perform maintenance and operations of the interconnection facilities contained in the compliance document "Interconnection Agreement Between Florida Power & Light Company and the National Aeronautics and Space Administration." **(Mod 299)**

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2.2.1.3 Work Orders. (Mod 244) The contractor shall initiate and/or respond to construction, modification, maintenance and repair work orders as defined in Attachment J-9 and in accordance with the cost Ceiling established in the table below.

	GFY	Internal (Type 3I)	Customer (Type 3C)
Air Force	2004 - 2008	AFI32-1032	AFI32-1032
NASA	2004 - 2005	$200,000	$5,000,000
NASA	2006 - 2008	$200,000	*$500,000

Table 2.2.1.3-1 Work Order Cost Ceiling

All Air Force type 3 projects (3I and 3C) require Air Force coordination/approval prior to implementation. All projects greater than $1,500,000 require pre-approval by both the COTR and the Government Contracting Officer. Annual Type 3C Work Order Most Probable Cost Adjustments are defined in Technical Exhibit 2.2.1.3-001. All work requirements shall be documented in accordance with AFI 32-1032 or NPG 8820.2 as appropriate.

*This ceiling may be increased by mutual agreement of the parties to an amount not to exceed $5M in any fiscal year. (Mod 244)

The contractor shall perform project management, construction management, and subcontracting management, and shall provide Intranet based reporting for government-selected projects and other selected work to include project scope, status, budget, schedule, and accountability in accordance with DRD 2.2-08, Type 3C Project and Work Status Report.

Infrastructure-related work shall be given a numerical priority based on safety, environmental and mission criticality, and/or customer requirements. The contractor shall receive, document, schedule, and control infrastructure work requirements. The contractor's Work Control System shall assign a discrete Work Order Number (WON) for all maintenance, repair, construction and support services.

Every 6 months the contractor Work Control shall notify customers of current open Type 3C work orders and ask customers to revalidate the need for the work. If the customer indicates the work is no longer required, the contractor Work Control shall close those work orders.

Every 3 months the contractor Work Control shall notify the contractor Crafts/Shop management of current open continuous, repetitive or collection (Type 4) work orders to determine if the work is completed. If the work is certified as completed by the contractor Crafts/Shop Management, then the contractor Work Control shall close those work orders.

The contractor shall submit a Type 3C and a Type 3I Work Order Status Report in accordance with DRD 2.2-09, Type 3C Work Order Status Report and DRD 2.2-10, Type 3I Work Order Status Report.

2.2.1.4 Maintenance Support. The contractor shall provide engineering services and studies to ensure the economical maintenance of the CCAFS and KSC infrastructure to support space lift and launch base support missions. The contractor shall provide life-cycle sustaining engineering for F/S/E. Contractor life-cycle sustaining engineering shall provide continuing engineering support to: maintain a design that fulfills its original design intent and is compatible with the operational use; upgrade operational performance capabilities through product improvement redesign for more cost-effective operations; incorporate approved changes in requirements as they evolve; and provide other engineering support herein.

The contractor shall perform National Fire Protection Association (NFPA) code required maintenance on all fire alarms, fire suppression, emergency generator, emergency power, emergency lighting, and other applicable assigned F/S/E. The contractor shall perform routine and recurring maintenance on all assigned F/S/E as prescribed by maintenance analysis to ensure safe and efficient operations. The contractor shall perform maintenance on a non-interference basis with facility operations. Where this is not possible, outage requests for planned maintenance shall be coordinated with facility operations a minimum of 14 days in advance.

2.2.1.5 Deleted (MOD 436)

2.2.1.6 Deleted.

2.2.1.7 Road Shoulder Maintenance and Clear Drainage Systems. The contractor shall maintain road shoulders free from ruts, washouts, and dead or missing grass. The contractor shall clear drainage systems, including culverts, and control vegetation along access roads to allow waters to flow freely to natural basins or collecting points. Roads, roads shoulders, and drainage systems shown in Technical Exhibit 2.2.1.7-01 and per the schedule defined in the 5-Year Drainage System Maintenance Plan.

2.2.1.8 Preparation for Launch, Test and Training and Search (Xenon) Lights/Generator Support. The contractor shall provide facilities, equipment, and utilities support during pre-launch and landing for all launches according to shuttle integrated operations and maintenance instructions and Air Force Program Directives. NASA's KPD 8630.3, KSC Shuttle Processing Flight Readiness/Certification Review Plan, and ELV/EELV, 501-97 Universal Documentation System, depict the standard mission support requirements. **(Mod 257)**

The contractor shall prepare KSC Pad A&B slidewire bunker areas for launch, test, or training exercises as listed in Technical Exhibit 2.2.1.8, Pad A&B Slide Wire Area Support Standards. Preparation includes: grading area between sidewalks, removal of accumulations of eroded sand from perimeter of areas within the bunkers, and removal of large shells, rocks, and debris, adding clean builders sand as necessary, and removal of sand deposited on bunker sidewalks. The contractor shall inspect bunker dirt cover for proper depth and erosion control. If necessary, the contractor shall replenish dirt and seed properly. Sand fill depth at slide wire landing shall be inspected and sand replenished, if necessary, in accordance to the established safety guidelines.

The contractor shall maintain and operate search lights and associated generators in support of all government launches. This support includes four remote Trans Atlantic Launch Sites (TAL-sites). These sites include Moron, Spain, Zaragosa, Spain, Ben Guerir, Morocco and Istres, France. The Contractor is required to provide manning of three of these TAL-sites per shuttle launch. Existing inventory of search lights (xenon) is 126 units. The existing inventory of

generators associated with the search lights is 76 units. In addition to this inventory, the contractor shall be responsible for providing parts for 44 search lights located in White Sands and Edwards AFB. **(Mod 257)**

2.2.1.9 Deleted.

2.2.1.10 Office Moves and Alterations. The contractor shall perform moves and office alterations, including the relocation of personnel and office materials, partitions, and systems furniture, and perform the necessary design layout. The Launch Operations and Support Contract (LO&SC), Space Flight Operations Contract (SFOC), KSC Visitor Complex Concessionaire, and Checkout and Payload Processing Services Contract (CAPPS) are responsible for moves and non-floor-to-ceiling alterations within their assigned areas.

Services extend to minor modifications as necessary. In all facilities, the contractor shall design and implement all necessary convenience outlets, lighting, fire detection and alarm, and HVAC systems to accommodate the move. The contractor shall conduct Safety Design Reviews of Move/Mod Packages.

3.2.4.1 Propellant Operations, Maintenance and Engineering. The work to be performed by the contractor includes the following subtasks:

- Coordinating, identifying, and reporting deficiencies, and inspecting supplier deliveries for government-procured, direct-delivery propellants; the contractor shall document all anomalies, coordinate with appropriate organizations, determine and implement corrective action, and follow up on the implementation process;
- Providing propellant billing validations for government-procured propellants; the contractor shall process all acquisition, receipt, and inventory documents;
- Developing 3-year propellant forecasts to support government propellant procurement planning; commodity projections shall be derived from usage estimates obtained from NASA/45th Space Wing and other Spaceport entities;
- Providing technical assistance (engineering, safety, environmental, and operations and maintenance) in propellant deliveries to systems operated and maintained by others;
- Operating customer servicing equipment to support customer servicing/de-servicing operations (such as Orbiter refrigerant 21 servicing);
- Providing thermal conditioning of Delta hypergolic propellant and Nitrogen Oxide (NO) enrichment of Nitrogen Tetroxide;
- Inspecting and servicing non-Spaceport equipment staged at KSC and CCAFS, inspecting and certifying (pre- and post-shipping) equipment loaned off base, draining propellant systems, weighing cargo tanks, and storing and moving customer- owned hypergolic equipment;
- Supplying propellant handling equipment to accommodate facility on-site storage, anomaly and malfunction testing, and off-center hardware re-certification and overhaul;
- Documenting and reporting to the government on all Department of Transportation (DOT) compliance waiver/deviation issues associated with propellant fleet operation before propellant equipment is used for propellant handling;
- Maintaining the fluids handbook to provide current information on the management of various types of propellants. The handbook can be web-based and shall be updated at a minimum of every 3 years.
- Maintaining the existing fluids sampling plan and analyzing trends to ensure the integrity of the plan and the sampling frequency; and

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- Preparing Propellant Cost Estimate Reports and Cost Tracking Reports in accordance with DRD 3.2.4-01, Reports, Propellant Analysis.

The contractor shall provide services to Spaceport customers including operating, maintaining, and constructing assigned fixed and portable propellant facilities, systems, and utilities. The contractor shall establish and maintain an ongoing maintenance, refurbishment, and overhaul program that ensures the safety and operational readiness of propellant equipment and facilities. The contractor shall ensure that related certifications and exemptions are maintained.

The contractor shall provide propellant logistics services (such as deliveries and processing) to customers in accordance with customers' quality, quantity, and schedule requirements and contained within conveyances appropriate for the intended use.

The contractor shall provide operational statements, progress reviews, and periodic mission support reviews (KSC/CCAFS launches) to NASA. The contractor shall provide pre-launch propellant readiness status, GSPN/anomaly post-launch debriefing, and post-launch summary for Shuttle Operations.

The contractor shall provide support at Port Canaveral. Port activity includes pumping bilges of ships and missile tubes, providing compressed air to submarines.

The contractor shall support 45th Space Wing downrange activity including delivery and pick up of compressed gas cylinders to the Port Canaveral Wharf for shipment downrange by others.

The contractor shall provide Spaceport vacuum pump overhaul and vacuum system servicing support. The contractor shall maintain the PAFB flight line LOX carts.

In addition to KSC Shuttle Landing Facility (SLF) support, the contractor shall provide refueling at the Occupational Health Helipad and contingency refueling at the CCAFS Skid Strip to support NASA aircraft and helicopter requirements.

The contractor shall support commercial customers as directed by the government and as in accordance with the Air Force Base Support Policy (BSP).

The contractor shall provide operations and maintenance support of propellant systems and equipment as required in the O/M/E/U Matrix. For critical and mission essential propellants and life support equipment, the contractor shall perform 100% of scheduled preventive/predictive maintenance (PM) tasks including all applicable maintenance/validation steps contained therein. Any PM not performed or completed in its entirety for critical or mission essential systems and equipment shall be briefed or reported to the responsible government functional subject matter expert (e.g. TA, CES) and to the contracting officer's technical representative (COTR) on a weekly basis. Reductions in PM requirements or frequency shall require pre-approval of the responsible government functional subject matter expert.

The contractor shall provide problem reporting for all anomalies and off-nominal configuration changes for critical and mission essential propellants and life support systems and equipment. Problem documentation shall include anomaly description and findings, critical and/or mission essential impacts, operational constraints, troubleshooting steps and findings, and corrective actions performed leading to closure of the anomaly. Problem documentation shall be readily accessible to responsible government functional subject matter experts. All open problem reports shall be briefed to the Government on a regular basis. The formats and frequencies of the reports shall be partnered with the Government. (MOD 436)

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The contractor shall:

- Maintain records/documentation files including specifications, drawings, standards, manuals, and guidelines for all systems and equipment;

- Maintain a system to record total inventory, provide equipment utilization assessment, document inventory problems, and predict required inventory levels;
- Conduct a requirements assessment for each specific launch-related mission or project to include contingency planning and post-launch operational assessment, and conduct System Level Reviews for each Space Shuttle mission;
- Maintain and implement support and contingency plans; and
- Provide certification for propellant packaging to ensure compliance with DOT and shipping requirements when equipment is shipped off government installations.
- Monitor the condition of propellant equipment on loan to other agencies.

3.2.4.2 Deleted.

3.2.4.3 Deleted.

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APPENDIX C – PERFORMANCE STANDARDS

Number	Performance Description
1.1-1	No mission milestone schedule impact due to action or inaction of the contractor shall occur.
1.2-1	Vehicle Accident Rate will not exceed the prior 4 award fee period averages. Rate will be updated at the beginning of the fiscal year. (CCR 06-31, Mod 398)
1.3-1	Reserved
1.3-2	Monthly accrual estimates shall be 95% accurate to actual reported costs for the same period.
1.3-3	Reserved
1.3-4	Reserved
1.3-5	Minimize and fully reconcile the gap between Negotiated Estimated Cost (NEC) and actual cost per period and minimize and fully reconcile the gap between NEC and Operating Plan.
2.1.1-1	Reserved
2.1.1-2	Reserved
2.1.1-3	Reserved
2.1.1-4	97% of siting request packages shall be prepared within ten working days of receipt.
2.1.2-1	99% of the changes and additions to the SPECSINTACT NASA Mastertext shall be completed correctly the first time.
2.1.2-2	75% of all technical support questions shall be resolved within eight working hours. The remaining 25% of technical support calls shall be resolved within 24 working hours.

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Number	Performance Description
2.1.2-3	The services provided (EDC) for critical and mission-essential documentation shall be available to the user 100% of the time when essential to the user's activities as determined by the user.
2.1.2-4	(EDC) 99% of requests shall be completed as negotiated between SGS and the requester, but in no case shall impact major program schedule milestones.
2.1.2-5	90% of EDC master file shall be kept current, with no products later than 30 calendar days.
~~2.1.3-1~~	~~Engineering design cost estimates shall be accurate to 90% of actual acquisition costs.~~ Deleted, in original request (Mod 232)
2.1.2-6	Engineering design completion rate shall be 90% of program schedule. (Mod 232)
2.1.3-3	Reserved
2.1.3-4	Reserved
3.1.3-5	Reserved
2.1.4-1	Energy reduction goals for all NASA J-BOSC Facilities shall be in accordance with the Energy Use Index (EUI in BTU/sf/yr) of 1.5% annual reduction for Standard Facilities and 0.67% annual reduction for Energy Intensive Facilities. (Mod 137) Metric on Engineering Website
2.2.1-1	Critical and/or Mission Essential F/S/E/U shall be ready to the user 100% of the time from Call to Station until the mission milestone is completed or cancelled. (MOD 436)
2.2.1-2	Services and functions provided by all other F/S/E/U shall be ready to the user 98% of the time.
2.2.1-3	No more than 20 false fire alarms per month or 13 facility evacuations shall occur per month resulting from O/M/E attributed action/inaction of the contractor.
2.2.1-4	100% of Type 2 emergency work orders shall be mitigated within 24 hours, 99% completed within 10 calendar days, and 100% completed within 60 calendar days of the original call.
2.2.1-5	100% of Type 2 urgent work orders shall be mitigated within 72 hours, 98% completed within 20 calendar days, and 100% completed within 60 calendar days of the original call.

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Number	Performance Description
2.2.1-6	90% of Type 2 routine work orders shall be completed within 30 calendar days, 98% completed within 60 calendar days, and 100% completed within 180 calendar days of the original call. SGS will expend 74% of the Air Force Type 2C routine work order historical cost average each month. When that limit is reached, SGS will decline further requests for the remainder of that month and advise the customers that: a) SGS has reached the limit of the Wing's monthly budget; and b) the request may be resubmitted in a subsequent month. **(Mod 286)**
2.2.1-7	90% of Type 3C work orders shall be completed on or before the original negotiated completion date unless the customer initiates a change to the work. **(Mod 232)**
2.2.1-8	85% completion of schedule preventive predictive maintenance for F/S/E (Mod 219) **(Mod 286),** (MOD 436)
2.2.1-9	100% completion of scheduled preventive/predictive maintenance for critical and/or mission essential F/S/E as defined in CMDS
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2.2.1-12	90% of requested Type 3C Work Order ROM estimates shall be within 25% of the Final Design Estimates (FDE). **(Mod 232)**
2.2.1-13	100% Completions of all NFPA code-required *and life safety* maintenance. (MOD 436)
2.2.1-15	100% of in-work Air Force Type 3C Work Orders shall be resubmitted to the Air Force for continued work approval prior to expending funds beyond the approved FDE level. **(Mod 232)**
2.2.1-16	90% of Type 3C Work Orders shall have actual total completion costs less than or equal to the original final design cost estimate (FDE) plus the additional addendum(s) design cost estimate. **(Mod 232)** (MOD 436)

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Number	Performance Description
2.2.1-17	No utility damage shall result from contractor failure to properly locate or mark identifiable utility systems.
2.2.2-1	No dumpsters shall be visibly overflowing
2.2.2.2	Reserved
2.2.3-1	Reserved
2.2.3-2	Reserved
2.2.3-3	Reserved
2.2.4-1	Provide response for spills/glass breakage/overflows, and blood-borne pathogen cleaning, within 20 minutes of notification for assistance during normal work hours and within two hours at other times.
2.2.4-2	Areas should be clear of trash and debris, and be clean in appearance, with no more than eight validated customer complaints per month.
3.1.1-1	Fire and ambulance services will respond to all emergency calls within their designated zones within their allotted time 90% of the time. Per Mod 159 √ Fire Rescue will respond to all emergency calls in the Green Zone within 6 minutes or less. √ Fire Rescue will respond to all emergency calls in the Yellow Zone within 10 minutes or less. √ Fire Rescue will respond to all emergency calls in the Blue Zone within 12 minutes or less. √ Fire Rescue will respond to all emergency calls in the Red Zone in greater than 12 minutes. √ ALS Ambulance will respond to all emergency medical calls in the Green Zone within 6 minutes or less. √ ALS Ambulance will respond to all emergency medical calls in the Yellow Zone within 10 minutes or less. √ ALS Ambulance will respond to all emergency medical calls in the Blue Zone within 12 minutes or less. √ ALS Ambulance will respond to all emergency medical calls in the Red Zone in greater than 12 minutes.
3.1.2-1	Reserved
3.1.2-2	Reserved

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Number	Performance Description
3.1.2-3	Maintain accurate security programming guidance, plans, and directives maintained by updating items within 90 calendar days of the event that caused the item to become outdated
3.1.2-4	Reserved
3.1.3-1	Command and control Emergency Operations Center (EOC) shall be activated within 30 minutes of notification of an emergency or emergency exercise during normal duty hours, otherwise within two hours.
3.1.3-2	Reserved
3.2.1-1	90% of supplies, materials, transportation, and support services provided to meet the customer's negotiated need date.
3.2.1.2	Reserved
3.2.1-3	NEMS Discrepancy Report error input rate is not to exceed 10%.
3.2.1.4	90% priority shipments requiring next day delivery service, received before 2:00 p.m. will be packaged & shipped the same day (excluding shipments containing hazardous materials, international shipments, or items that require extensive packaging).
3.2.1.5	90% of NASA packages shall be delivered to the customer within 15 days.
3.2.1.6	90% of direct freight packages shall be delivered to customer within 5 days.
3.2.1.7	90% of Excess documents shall be processed within 30 days.
3.2.2-1	100% completion of preventive/predictive maintenance for critical and/or mission essential Heavy Equipment Shop equipment (NASA only) (MOD 436)
3.2.2-2	48% aggregate annual completion rate of preventive/predictive maintenance for all Heavy Equipment Shop equipment (NASA only) (MOD 436)
3.2.2-3	Reserved
3.2.2-4	Reserved
3.2.2-5	Air Force Mission Critical Emergency Vehicle In-Commission Rate shall be available 88% of the time.
3.2.2-6	Air Force Mission Critical War Readiness Material (463L) shall be available 86% of the time.

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Number	Performance Description
3.2.2-7	Air Force Registered/Owned Equipment shall be available 88% of the time. Metric 3.2.2.1d
3.2.2-8	KSC Launch Critical Vehicle In-Commission Rate shall be available 85% of the time.
3.2.3-1	At least 90% of priority laboratory work orders shall be completed as scheduled with the customer.
3.2.3-2	At least 90% of NASA calibrations not requiring repair shall be completed within 20 calendar days or as scheduled with the customer.
3.2.3-3	At least 90% of NASA standard actions not requiring repair shall be completed within 30 calendar days or as scheduled with the customer. Reference standards to be characterized for drift overtime are exempt from turnaround time requirement.
3.2.3-4	Reserved
3.2.3-5	Reserved
3.2.3-6	At least 90% of NASA calibrations laboratory priority work orders shall be completed as negotiated with customer.
3.2.3-7	At least 90% of AF calibrations not requiring repair shall be completed within 60 calendar days or as scheduled with the customer.
3.2.3-8	At least 90% of AF PMEL Priority work orders shall be completed as scheduled with the customer.
3.2.4-1	Commodities delivered shall meet customer specifications.
3.2.4-2	Propellants and Life Support services are delivered as scheduled or as negotiated with the customer 95% of the time.
3.2.4-3	100% completion of preventive/predictive maintenance for critical and/or mission essential Propellants and Life Support equipment. (MOD 436)
3.2.4.4 New PS	93% aggregate annual completion rate of preventive/predictive maintenance for all Propellants and Life Support equipment. (MOD 436)
3.2.5-1	100% Anomaly free flights. No aircraft in-flight anomalies as a result of inadequate maintenance.

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Number	Performance Description
3.2.5-2	Aircraft shall be available and ready to meet scheduled departure 95% of the time. Should deviations occur, an assessment of the situation, including estimated time to complete the repair, shall be required within one hour.
3.2.5-3	Reserved
3.2.5-4	Reserved
3.2.5-5	Aircraft servicing shall be provided within 60 minutes of the pilots request 92% of the time.
3.2.5-6	Reserved
3.2.5-7	100% of aircrew evaluations rated satisfactory or above.
3.2.6-1	Wastes shall be picked up within 15 calendar days of request.
3.2.6-2	Hazard determinations completed within 30 calendar days.
3.2.6-3	Post emergency spill clean-up shall commence within one work day of notification.
3.3.1-1	Computer systems and applications shall be operational and/or available 99% of the time, with unscheduled downtime not exceeding four hours for critical systems or 12 hours for non-critical systems for each incident.
3.3.1-2	Unauthorized actions that result in systems access, denial of services, loss of data integrity, or disclosure of sensitive information shall be reported to the Government within two hours upon detection.
3.3.1-3	Reserved
3.3.1-4	95% of IT milestones and products shall be provided as scheduled or as negotiated with the customer.
3.3.1-5	The Reportable software deliverable success rate will not be lower than 70% for the award fee period.
3.3.1-6	Servers shall be operational and/or available 99% of the time.
3.3.1-7	LPS, PMS/GMS, and MADS Minus-Time data shall be made available with a 90 % or better delivery time for each launch or launch event. Telemetry launch data shall be processed with the following delivery target hours: GMS/PMS – 72, LPS – 36, MADS SSME – 24, MADS SSME Ascent – 36.
3.3.2-1	Deleted Mod 203
3.3.2-2	Reserved
3.3.2-3	Reserved

Number	Performance Description
3.3.2-4	Deleted Mod 203
3.4.1-1	Provide 95% on-time completion of jobs as negotiated between the contractor and the customer, but no jobs later than five (5) work days after the negotiated completion date.
3.4.2-1	Meet need dates as negotiated with customers for 90% of all material acquisitions.
3.4.2-2	Reserved
3.4.3-1	Provide 80% accurate and consistent mail pickup and delivery within one hour of contractor-documented schedule on days where one or more personnel experience an unscheduled absence. Provide 100% accuracy on all other occasions.

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In general, System Assurance Analysis (SAA) and Operational and Maintenance Requirements Specification Documentation (OMRSD) on Critical systems with new Critical Items List (CIL) shall be completed through technical review with the customer prior to its use in a Critical operation or flow. SAAs and OMRSDs on Critical systems without CILs shall be complete through contractor's internal technical review prior to its use in a Critical operation or flow. SAAs and OMRSD, or approved alternate documents, required on Mission Essential non-critical systems shall be completed as negotiated with the customer.

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JOINT BASE OPERATIONS AND SUPPORT

CONTRACT

ATTACHMENT J-4

COMPLIANCE DOCUMENTS

COMPLIANCE DOCUMENTS

WBS	Document Number	Rev. Date	Document Name	Mod Number
1.1.1.1	45 SW Base Support Policy	06/00	Policy for Commercial Launch/Range Customers on Sources of Base Support	Mod 205
1.1.1.1	KNPR 8630.3A	07/05	KSC Shuttle Processing Flight Readiness Certification Review and Mission Management Team Support Plan	Mod 436
1.1.1.1	NSTS 08171	07/05	Operational Maintenance Requirements and Specification Document (OMRSD)	Mod 436
1.1.1.1	ELV/EELV 501.97	Draft	Universal Document System	
1.2	29 CFR 1910.119	11/95	Process Safety Management Standard	Mod 205
1.2	EWR 127-1 (T)	03/95	Eastern and Western Range Safety Policies and Processes	
1.2	KNPR 8715.3	12/04	KSC Safety Practices Procedural Requirements	Mod 348
1.2.1.2	KNPR 8715.3	10-04	KSC Safety Practices Procedural Requirements	Mod 334
1.3.2	45 SWI 65-601	06/03	Reimbursement Policy	Mod 205
1.3.2	NPR 9501.2D	05/01	NASA Contractor Financial Management Reporting	Mod 205
1.4.1	ANSI/ISO/ASQ-9001-2000	12/00	Standard, "Quality Systems-Model for Quality Assurance in Design, Production, Installation and Servicing"	Mod 205
1.4.1	NSTS 5300.4 (1D-2)	09/97	Safety, Reliability, Maintainability and Quality Provisions for the Space Shuttle Program	Mod 436
1.4.1	KNPR 8720.1	11/04	KSC Reliability, Maintainability, and Quality Assurance Procedural Requirements	Mod 266
1.4.2	NSTS 22206	07/01	Requirements for Preparation and Approval of Failure Modes and Effects Analysis (FMEA) and Critics Items List (CIL)	Mod 205
1.4.2	NASA STD 8719.7	01/98	Facility System Safety Guidebook	Mod 205
1.4.2	NSTS 07700 Volume V	10/03	Information Management Requirement	Mod 205
1.4.2	NSTS 22206	07/01	Requirements for Preparation and Approval of Failure Modes and Effects Analysis (FMEA) and Critics Items List (CIL)	Mod 205
1.4.2	NSTS 22254	07/01	Methodology for Conduct of Space Shuttle Hazard Analyses	Mod 205
1.4.2	NSTS 07700, Volume X	10/03	Flight and Control System Specification – Book 1, Requirements	Mod 205
1.4.2.1	NASA-STD-8729.1	12/98	Planning, Developing, and Managing an Effective Reliability and Maintainability (R&M) Program	Mod 205
1.4.3	KNPR 8715.3(T)	10/04	KSC Safety Practices Procedural Requirements	Mod 334
1.4.3	GIDEP S0300-BT-PRO-010 and S0300-BU-GYD-010	11/94	Government/Industry Data Exchange Program (GIDEP) Operation Manual	Mod 205

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JOINT BASE OPERATIONS AND SUPPORT

CONTRACT

ATTACHMENT J-5

TECHNICAL EXHIBITS

TECHNICAL EXHIBIT LISTING

WBS	Document Number	Rev. Date	Document Name	Mod Number
1.1.1.3	J-BOSC Tech Exhibit 5.1-501	10/97	Customer Support Function	205
2.1.1.1	J-BOSC Tech Exhibit 2.1.1.1-001	12/00	NASA Real Property	205
2.1.1.1	J-BOSC Tech Exhibit 2.1.1.1-002	12/00	AF Real Property	205
2.1.2.3.1	J-BOSC Tech Exhibit 2.1.2-001	12/03	Vessel/Systems	205
2.1.2.3.4	J-BOSC Tech Exhibit 2.1.2-002	12/03	Renewal Packages for DOT Exceptions	205
2.1.2.4.1	J-BOSC Tech Exhibit 2.1.2-003	06/07	MEE Non-Critical Systems for FY07 Reliability Documentation	Mod 436
2.1.2.4.1	J-BOSC Tech Exhibit 2.1.3-001	03/06	KSC CofF Project Baseline, WBS 2.1.3	Mod 436
2.1.3.2	J-BOSC Tech Exhibit 2.1.3-001	04/03	KSC Cof F Project Baseline, WBS 2.1.3	205
2.1.4.3	J-BOSC Tech Exhibit 2.1.4-01	08/02	Energy Management Office Periodic Report Requirements	205
2.2.1	J-BOSC Tech Exhibit 2.2.1-018	02/06	NOTU PM Frequencies	359
2.2.1.1	J-BOSC Tech Exhibit 2.2-017	05/05	On Line Operation Maintenance Engineering User	286

TECHNICAL EXHIBIT LISTING

WBS	Document Number	Rev. Date	Document Name	Mod Number
			Matrix (OMEU)	
2.2.1.1	J-BOSC Tech Exhibit 2.1.3-001	03/06	KSC CofF Project Baseline, WBS 2.1.3	Mod 436
2.2.1.3	J-BOSC Tech Exhibit 2.2.1.3-001	12/06	Type III Work Orders	390
2.2.1.7	J-BOSC Tech Exhibit 2.2.1.7-01	12/03	KSC Ditch Cleaning	205
2.2.1.8	J-BOSC Tech Exhibit 2.2.1.8	12/03	Pad A&B Slide Wire Area Support Standards	205
2.2.1.19	J-BOSC Tech Exhibit 5.5-801	02/97	Clean Room Services	205
2.2.1.19	J-BOSC Tech Exhibit 5.5-802	09/96	Clean Room Description - NASA	205
2.2.2	J-BOSC Tech Exhibit 2.2.2.3A	12/04	Florida Annexes Refuse Collection Sites and Frequencies	269
2.2.2	J-BOSC Tech Exhibit 2.2.2.3B	06-05	CCAFS Refuse Collection Sites and Frequencies	348 (CCR 05-39)
2.2.2	J-BOSC Tech Exhibit 2.2.2.3C	12/04	KSC Refuse Collection Sites and Frequencies	269
2.2.2.1	J-BOSC Tech Exhibit 5.5-826	11/06	CCAFS Grounds Areas Map and Requirements	398 (CCR 06-18)
2.2.2.1	J-BOSC Tech Exhibit 7.0-016	06/05	KSC Grounds Maintenance	348 (CCR 05-43)

TECHNICAL EXHIBIT LISTING

WBS	Document Number	Rev. Date	Document Name	Mod Number
2.2.2.1	J-BOSC Tech Exhibit 5.5-827	04/05	CCAFS Specific Grounds Maintenance Requirements	293
2.2.2.1	J-BOSC Tech Exhibit 2.2.2.1-01	12/03	Road Maintenance Areas of Responsibility for KSC and CCAFS	205
2.2.2.2	J-BOSC Tech Exhibit 2.2.2.2-01	12/03	Air Force Pest Management Plan	205
2.2.4	J-BOSC Tech Exhibit 2.2.4	04/06	Custodial Services	398 (CCR 06-36 & 07-01)
2.3	J-BOSC Tech Exhibit 2.3-01	12/06	Completed-One-Time Special Projects for Customers	398
2.3	J-BOSC Tech Exhibit 2.3-02	04/05	Security Support for New Horizon Mission	280
2.3	J-BOSC Tech Exhibit 2.3-03	01/05	Health Physics Services Support for New Horizon Mission	280

NAS10-99001

JOINT BASE OPERATIONS AND SUPPORT

CONTRACT

ATTACHMENT J-9

GLOSSARY, ACRONYMS, AND ABBREVIATIONS

45TH Space Wing (45 SW)	Represents an organization that includes staff and line organizations at Patrick Air Force Base (PAFB), Cape Canaveral Air Force Station (CCAFS), Antigua Air Station, and Ascension Auxiliary Air Field. Tenant organizations and contractors at PAFB, CCAFS, Antigua Air Station, and Ascension Auxiliary Air Field are NOT part of the 45 SW "Organization".
Airworthiness	The capability of an aircraft to be operated within a prescribed flight envelope in a safe manner.
ALERT	A report used to rapidly disseminate information on a significant part, material, or safety problem of general concern, as part of the Government-Industrial Data Exchange Program (GIDEP).
Antigua Air Station	A fully manned tracking and instrumentation station located in the Lesser Antilles approximately 1,250 miles south of Cape Canaveral Air Force Station.
Ascension Auxiliary Air Field	A fully manned tracking and instrumentation station on a volcanic-rock island in the South Atlantic nearly 5,000 miles downrange from Cape Canaveral Air Force Station.
Basic Information Guides (BIGs)	A reference document that compiles cartographic, topographic, geographic, photographic, historic and associated textual information covering facilities, utilities, instrumentation, communications and equipment located at CCAFS and the Florida annexes.
Cape Canaveral Air Force Station (CCAFS)	The geographic area of the station encompasses approximately 24.7 square miles (15,804 acres) and is located on the Atlantic Coast between Port Canaveral, Florida and the National Aeronautics and Space Agency (NASA), Kennedy Space Center (KSC). It includes Air Force, NASA, NOTU, and other tenants/customers. Name changed to Cape Canaveral Air Force Station (CCAFS) (Mod 135)
Cataloging	The process of uniformly identifying, describing, classifying, numbering, and publishing in the Federal catalog System all items of personal property (items of supply) repetitively procured, stored, issued and/or used by Federal Agencies.
Catastrophic (I), Hazard Severity Level	Hazard could result in a mishap causing fatal injury to personnel and/or loss of one or more major elements of flight hardware or ground facility.

Cocoa Ocean Beach Tracking Annex	An unmanned facility that occupies 1.22 acres of Air Force owned land, located five miles north of Patrick Air Force Base in the city of Cocoa Beach, Florida.
Computer	Any equipment or interconnected system or subsystems of equipment used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception, of data, or information. This includes mainframe computers, minicomputers, microcomputers, scientific workstations, word processors, automated office support systems, communication systems, and networks.
Computer, Critical System	An ADP system that provides data necessary to prevent a detrimental impact to workflow continuity.
Computer, Interface	A boundary across which two systems communicate. This interface may be a hardware connection or a convention used to allow communication between two software systems to include but not limited to application programming interfaces and/or graphical user interfaces.
Computer, Launch Critical System	A system that provides data to the critical path of the STS.
Computer, Launch Support Window	That period of time between 72 hours prior to scheduled lift-off and 8 hours post-launch.
Computer, Non-Critical System	An ADP system whose data output can be delayed without detrimental impact to the resumption of workflow continuity.
Computer, Software	The computer code or "program" that executes or runs on a computer. The term software also includes supporting documentation.
Computer, Software Upgrade	A software installation replacing previous source code, libraries and executables requiring verification and validation.
Computer, System Downtime	That period of time when a system is inoperable due to hardware/software/application failure or error in operations and the productive or simulated work being performed cannot be continued.
Computer, User	Any (authorized or unauthorized) individual or process that operates the computer, accesses the computer, inputs commands to the computer, or receives output from the computer.
Critical (II), Hazard Severity Level	Hazard could result in serious injury to personnel and/or damage to flight or ground equipment.

Critical F/S/E	Facility/System/Equipment where loss of overall system function or improper performance of a system function could result in loss of life, loss of vehicle, or damage to a vehicle system (as defined in NSTS 22206). (MOD 436)
Customer Requirements	Customer requirements are either verbal or written. Customer service personnel will determine the necessary documentation and establish the appropriate type of Work Order (WO).
Down Range	Antigua Air Station and Ascension Auxiliary Air Field.
Eastern Range	The Eastern Range is operated by the 45th Space Wing and includes Cape Canaveral Air Force Station, Patrick Air Force Base, the Florida Annexes, and the downrange sites of Antigua Air Station, and Ascension Auxiliary Air Field.
Emergency	An unexpected, serious occurrence or situation requiring prompt action to mitigate the potential for immediate mission impact, personal injury or loss of property.
False fire alarm	An alarm indication received at the local fire alarm control panel or central fire monitoring system when no fire condition exists. This definition excludes: • Alarms caused by communication system malfunctions/repair under the control of another Contractor. • Actual fires • Burned food (popcorn, toast, etc.) • Uncoordinated work by Contractors/Subcontractors other than the Contractor or its representatives. For the purpose of this definition, J-BOSC construction monitors are considered to be J-BOSC representatives.
Flight	For helicopters, flight commences upon engagement of the rotors for the purpose of take-off and continues until the aircraft has returned to the ground and rotors are disengaged. For fixed wing aircraft, flight commences with the taxi roll from a flight line and continues until the aircraft has completed the taxi roll to a flight line.
Florida Annexes	Annexes support the mission at Cape Canaveral Air Force Station and includes the following geographic locations: • Jonathan Dickinson Missile Tracking Annex • Malabar Transmitter Annex • Cocoa Ocean Beach Tracking Annex • Missile Instrumentation Station - Patrick AFB (Excluded from GIS and Real Property responsibility. **(MOD 205)_** • Melbourne Beach Optical Tracking Annex • Thirteen Mesonet Weather Sites located throughout Central Florida (**MOD 205**) • Fort Pierce Microwave Relay Annex**(MOD 205)**

	• Port Canaveral Cable Terminal Annex **(MOD 205)** • Stuart Microwave Relay Annex **(MOD 205)** • TiCo Airport Weather Annex **(MOD 205)**
Fort Pierce Microwave Relay Annex	This site occupies 1.76 acres and is located east of I-95, off Johnson Road, in Fort Pierce, Florida (St. Lucie County). (MOD 205)
Frustrated	An inbound shipment that is discrepant in some way (short, damaged etc.). The shipment is considered frustrated until the discrepancy is corrected.
GIDEP (Government-Industrial Data Exchange Program)	A cooperative effort to exchange research, development, design, testing, acquisition, and logistics information among Government and industry participants.
GIMS (Geographic Information Management System)	45th Space Wing systems management development of GIS for Air Force Space Command applications.
GIS (Geographic Information System)	A computerized relational database management system for capture, storage, retrieval, analysis, and display of spatial (locationally defined) data. GIS software applications allow users to develop linkages between graphical and non-graphical data. Once linked, spatial queries of the linked data can provide users with answers to questions in a fraction of the time previously required to perform the analysis manually.
Improved Grounds	Grounds on which intensive development and maintenance measures are performed, such as frequent mowing, edging, tree and shrubbery-trimming and landscaping. (MOD 205) This category applies to areas within the built-up section of an installation which contains lawns, landscaping, parade grounds, athletic facilities, picnic areas, and PAFB road shoulders and medians along main thoroughfares. Military Family Housing common areas and General Officer's Quarters are also considered improved grounds.
Inflight Anomalies	Any discrepancy due to improper and/or lack of maintenance that affects any system, component, or part associated with the G-159 aircraft and the UH-1H helicopters.
Information	Any communication or reception of knowledge, such as facts, data, or opinions, including numerical, graphic, or narrative forms, whether oral or maintained in any medium, including computerized databases, paper, microfilm, tapes, disks, memory chips, random access memory (RAM) read only memory (ROM), microfiche, communication lines or display terminals. The terms "data", "information", "material", "documents" and "matter" are used interchangeably.

Intermediate Microwave Relay Sites	Additional unmanned relay sites are located between Jonathan Dickinson Missile Transmitter Annex and Cape Canaveral Air Force Station near Wabasso, Fort Pierce, and Stuart, Florida.
Jonathan Dickinson Missile Tracking Annex (JDMTA)	This site occupies 12 acres inside the southern boundary of the Jonathan Dickinson State Park, just north of Jupiter, Florida in Martin County.
KSC	NASA, John F. Kennedy Space Center (the geographical location). (MOD 205)
KSC Records Staging Area	A controlled facility as prescribed by 36 CFR Ch. XII, paragraph 1228.224, used for the temporary storage of non-current records before their transfer to a records center or other disposition. The facility must contain less than 5,000 square feet of storage space or less than 25,000 cubic feet of records.
Major Move	Move of furniture and equipment requiring: floor to ceiling partition and/or fabric panel/landscape rearrangements; electrical modifications; telephone and data communications support from other organizations.
Major Overhaul	Major aircraft maintenance that encompasses major repair, and alterations required for major assemblies, subassemblies, and parts that must be accomplished at an FAA-certified industrial type or manufacturer facility.
Malabar Transmitter Annex (MTA)	This site occupies 640 acres and is located 6.2 miles southwest of Melbourne, Florida on SR 509 in Brevard County.
Melbourne Beach Optical Tracking Annex	An unmanned facility that occupies 1.87 acres of leased land, located 13 miles south of Patrick Air Force Base.
Mesonet Weather Sites	Small-scale networks of meteorological observing sites, each normally covers a very distinct, compact geographical area. Each is assigned an Air Force installation code and located throughout Central Florida. (MOD 205)
Micro-imaging	Reproduction processes used to reduce the storage requirements for hardcopy documents through microfilming, electronic scanning, CD-ROM manufacturing and other related disciplines.
Minor Move	Move of furniture, equipment, and possibly minor floor to ceiling partition and fabric panel rearrangements which are not complex. Minor moves do not require support from other organizations.
Missile Instrumentation Station - Patrick Air Force Base	An unmanned facility that occupies 4.7 acres of ocean front property within the boundaries of Patrick Air Force Base. However, it is considered to be one of the Florida Annexes. (Excluded from Real Property and GIS responsibility) **(MOD 205)**
Mission Essential F/S/E	Facility/System/Equipment where nominal operation is essential for successful mission performance and failure/inoperability could result in delay of mission or mission milestones and/or cause a loss of mission data. (MOD 436)
Mission Milestone Schedule Impact	An action or lack thereof that causes a delay to customer defined program objectives or critical path processing schedules.
MOD Kits	A set of tools and supplies set aside in a kit that is used exclusively for a NASA modification or special project.

Modification (192, **331**, 436)

KSC C of F PROJECT BASELINE

WBS 2.1.3

CONTRACT PERIOD:	FY:	VALUE:
Contract Year 1	FY 99	$ 17,400,000
Contract Year 2	FY 00	$ 21,000,000
Contract Year 3	FY 01	$ 20,000,000
Contract Year 4	FY 02	$ 17,400,000
Contract Year 5	FY 03	$ 31,500,000
BASIC Sub-total:		$ 107,300,000
Contract Year 6	FY 04	$ 36,700,000
Contract Year 7	FY 05	$ 25,300,000
Contract Year 8	FY 06	$ 48,285,000
Contract Year 9	FY 07	$18,119,000
Contract Year 10	FY 08	$24,008,000
OPTION Sub-total:		$152,412,000
TOTAL:		$259,712,000

NOTES:

1. **The original annual baseline established in the workload data of the request for proposal was $17,400,000.**

2. **This C of F baseline applies to J-BOSC services for construction management, project management, design engineering, operations and maintenance documentation maintenance engineering, and fire prevention services**

3. **The support is for projects that are being implemented through the NASA/KSC Procurement Office. It does not include support for projects outsourced to J-BOSC or other support contractors.**

Review and Comparison of JBOSC Technical Exhibit 2.1.2-003 to Current JLRRS Data

Type	SYSTEM
Electrical	POWER, K7-0468 CONVERTER COMP FAC LV
Grounding	GROUNDING, E4-2414A GENERATOR FACILITY
	GROUNDING, H5-2176 ALS SUBSTATION 15
	GROUNDING, J5-1195 DIFF GLOBAL POSIT
	GROUNDING, J5-1197 SLF CONTROL TOWER
	GROUNDING, J6-0407 ANTENNA BLDG (HRT)
	GROUNDING, J6-2428 COMM CROSS CONNECT #3
	GROUNDING, J6-2463 COMM CROSS CONN TERM
	GROUNDING, J8-2109 OPERATIONS SUPP BLDG
	GROUNDING, K6-0261 ALS SUBSTATION 33
	GROUNDING, K6-0791 OPF SCAPE BUILDING
	GROUNDING, K6-0947 VAB UTILITY ANNEX
	GROUNDING, K7-0468 C/C FACILITY
	GROUNDING, M6-0138 CD&SC
	GROUNDING, N6-1007 WATER PUMP STATION
	GROUNDING, M6-0342 CIF
	GROUNDING, K6-0794 TPS FACILITY
	GROUNDING, K7-0412 HP OXYGEN FACILITY
	GROUNDING, J7-0689 PAD B OSB
	GROUNDING, J7-1339 EMERGENCY RESP BLDG
Lightning Protection	LTG PROT, #95000 TPQ-18 STATION
	LTG PROT, E4-2414A GENERATOR FACILITY
	LTG PROT, H5-2176 ALS SUBSTATION 15
	LTG PROT, J6-2428 COMM CROSS CONNECT #3
	LTG PROT, J6-2463 COMM CROSS CONN TERM
	LTG PROT, K6-0791 OPF SCAPE BUILDING
	LTG PROT, K6-0794 TPS FACILITY
	LTG PROT, K6-0947 UTILITY ANNEX
	LTG PROT, K7-0412 HP OXYGEN FACILITY
	LTG PROT, K7-0569 C/C OPS BLDG.
	LTG PROT, M6-0138 CD&SC
	LTG PROT, M6-0342 CIF
	LTG PROT, M7-0362 OPS SUPT BLDG #2
	LTG PROT, J6-0407 ANTENNA BLDG, HRT
	LTG PROT, K6-0261 ALS SUBSTATION 33
	LTG PROT, K7-0468 CONVERTOR/COMPRESSOR
	LTG PROT, J6-0553A EMERG. GEN. BLDG
	LTG PROT, M3-0147 EMER GENERATOR BLDG
	LTG PROT, M6-0495D EMERGENCY GEN
	LTG PROT, J5-1197 SLF CONTROL TOWER
HVAC	HVAC, J6-0407 ANTENNA BUILDING, SLF
	HVAC, K6-0947, UA CLOSED CYC COOL WATER
	HVAC, K6-0947 UTILITY ANNEX, HTHW
	HVAC, K6-0947 UTILITY ANNEX
	HVAC, K6-0947E CONDENSER WATER TRTMT
	HVAC, #60680 MISS ASSY BLG AE (BOILERS)
	HVAC,#60680 MISS ASSEM BLG AE (CHILLERS)
	HVAC, #60680 BLDG AE

CONTRACT APPLICATION I RMATION FOR DRL _____	ITEM NO. -06 Rev.C

B. LINE ITEM TITLE:
Facility Maintenance Execution Summary

C. OPR.	D. TYPE	E. INSPECT/ ACCEPT	F. FREQ.	G. INITIAL SUB.	H. AS OF DATE
TA	3	I	Monthly /Annually	Nov.15,2006	09/30

J. REMARKS:
Block K: Type "D" is electronic via email or portable media, using Microsoft Excel.
This Revision supercedes all previous versions and parts.

K. DISTRIBUTION	TOTALS NO.	TYPE
JP-B/Infrastructure Lead	1	D
KSC/NASA/TA - Functional Manager for Facilities Maintenance	1	D
45 CES/CELO/Chief, Range Operations Element	1	D

DATA REQUIREMENT DESCRIPTION

1. TITLE
Facility Maintenance Execution Summary

2. NUMBER

3. USE
This document will be used by Government personnel to assess the Contractor's stewardship of assigned real property and collateral equipment.

4. DATE

5. ORGANIZATION

7. INTERRELATIONSHIP
WBS 2.2, DRD

6. REFERENCES
NPR 8831.2D

8. PREPARATION INFORMATION

1. **Labor Hour Estimate**: Deliver spreadsheets that depicts the number of manhours to do 100% of the PMs (+PTs) that are needed for maintenance of our Facilities/Systems/Equipment as covered by WBS 2.2. Infrastructure for the current fiscal year.
   - Summary worksheet of estimated annual labor hours by primary system
   - Detail worksheets (by primary system) showing, at a minimum:
     Equipment Number, PM Number, Job Plan Number, PM's Performance Frequency, Estimated Labor Hours, PM's Occurences per year.
   - in Excel workbook format, Annual (at the beginning of the Fiscal Year).

2. **Deferral Pareto Charts**:
2.1. PM Deferrals:
   - in Excel workbook format, Monthly.
2.2. PM Deferrals: for the Critical/MEE/Code Compliant Systems-Equipment:
   - in Excel workbook format, Monthly.
2.3. PT Deferrals:
   - in Excel workbook format, Monthly.

3. **Completed PMs**: Deliver charts that shows the number of PM/PTs Issued, "Adjusted" Issued, and Completed.
   - in Excel workbook format, Monthly.
   - "Adjusted" Issued = Issued - "Can't Do" - "Should not Do" - Cancelled.
     Can't Do = AD, EU, OD.
     Shouldn't Do = IU, VS, RP.
3.1. Deliver a Bar-chart for the month's period grouped by primary systems.
3.2. Deliver a Trend line chart that shows the total values for the previous 12 months (including the current month).

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8. PREPARATION INFORMATION (continued)

4. **Completed PTs**: Deliver charts that shows the number of PM/PTs Issued, "Adjusted" Issued, and Completed.
- in Excel workbook format, Monthly.
- "Adjusted" Issued = Issued - "Can't Do" - "Should not Do" - Cancelled.
  Can't Do = AD, EU, OD.
  Shouldn't Do = IU, VS, RP.

4.1. Deliver a Bar-chart for the month's period grouped by primary systems.
4.2. Deliver a Trend line chart that shows the total values for the previous 12 months (including the current month).

5. **6-Month Overdue**: Deliver a listing of the Type1 PM maintenance tasks for Facility-Systems-Equipment.
- in Excel workbook format, Monthly.
- Data should be provided in list format.
- The listing needs to include all of the WONs that were Reported more than 6 months ago and are still Open or Completed.
- The listing needs to include the following fields (as a minimum): WON, Won Description, Reported Date, Completion Date, (current) Status.

6. **Lag Time from Submittal to Completed to Closed:** Deliver a listing of the Type1 PM maintenance tasks for Facility-Systems-Equipment.
- in Excel workbook format, Monthly.
- Data should be provided in table format as well as depicted graphically (chart).
- The data will be for the previous 12 months.
- For each month, the data and charting needs to collect and display the following:
  - Number of "Reported WONs" (opened / issued).
  - The number of the "Reported WONs" that are now in the status of Closed (Maximo's Close and Can).
  - The number of the Reported WONs that are now in the status of Completed (Maximo's Comp and Cmplt)
  - The number of the Reported WONs that are now in the status of Deferred (Maximo's CDEF).
  - The number of the Reported WONs that are now still in the status of Open.

Format to be partnered with the Government.