

# **CONFORMED ROME CONTRACT>NNL04AA03B (Modification 188)**

The following information has been determined to be exempt from disclosure and has been deleted from the contract modification:

- Section B.3 – Target Costs, Fees and Cost Sharing
- Section B.4 – Estimated Costs and Fees
- Section B.6 – Estimated Costs and Fees
- Exhibit B – IDIQ Direct and Indirect Rates
- Exhibit G – Safety and Health Plan
- Exhibit L – IT Security Implementation Plan
- Exhibit M – Small Business Subcontracting Plan
- Exhibit O – Organizational Conflict of Interest Avoidance Plan

The deleted material is exempt from disclosure under 14 C.F.R. 1206.300(b)(4) which covers trade secrets and commercial or financial information obtained from a person and, privileged and confidential information. It has been held that commercial or financial material is “confidential” for purposes of this exemption if its disclosure would be likely to have either of the following effects: (1) impair the Government’s ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained, National Parks and Conservation v. Morton, 498 F2d 765 (D.C. Cir. 1974).

## **PART I - THE SCHEDULE**

### **SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS**

#### **B.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED (MAY 1999)**

The Contractor shall provide all resources (except as may be expressly stated in this contract as furnished by the Government) necessary to perform the requirements delineated in Exhibit A, Statement of Work (SOW) as listed below. This contract contains recurring and non-recurring work. The base contract contains the recurring work and the Indefinite-Delivery Indefinite-Quantity (IDIQ) portion contains the non-recurring work. In determining the applicability of pertinent clauses, the term "base" portion of the contract means applicable to the recurring work and "entire" means applicable to both the base (recurring) and IDIQ (nonrecurring) work. If no annotation is made, it applies to the entire contract.

#### **Contract Line Item Number**

##### **(CLIN)**

##### **SOW Section**

##### **Type**

0	Phase-In	Firm Fixed Price (FFP)
1	1, 3, 4 and 5 (excludes Section 4.1.2 & Section 1.3.10 services associated with Research Operations Facilities)	Cost Plus Incentive Fee (CPIF)
2	2 <sup>1,2</sup>	Cost Plus Fixed Fee (CPFF)
3	Section 4, Subsection 4.1.2	Cost Plus Incentive Fee (CPIF)
4.1	IDIQ work	Firm Fixed Price (FFP)
4.1.1	IDIQ work (Recovery Act Task Orders)	Firm Fixed Price (FFP)
4.2	IDIQ work	CPFF
4.2.1	IDIQ work (Recovery Act Task Orders)	CPFF
4.3	Government Purchase Card (PCard) work	PCard (FFP)

<sup>1</sup>For Years 1 and 2, SOW 2.2.2 was priced under CLIN 1.

<sup>2</sup>Includes Section 1.3.10 services associated with Research Operations Facilities

#### **B.2 FIRM FIXED PRICE (CLIN 0)**

The total firm fixed price for Phase-In of this contract is \$354,662.

#### **B.3 ESTIMATED COST AND INCENTIVE FEE (1852.216-84)(OCTOBER 1996)(applicable to CLINS 1 and 3)**

The target cost of this contract is (b) (4). The target fee of this contract is (b) (4) (b) of target cost). The total cost and target fee as contemplated by the Incentive Fee clause of this contract is **\$239,533,283**.

The maximum fee is (b) (4) (b) of target cost).

The minimum fee is (b) (4) (b) of target cost).

The cost sharing for cost underruns is: Government (b) Contractor (b)

The cost sharing for cost overruns is: Government (b) Contractor (b)

THE BREAKOUT OF TARGET COST/INCENTIVE FEE FOR THE BASE PERIOD AND ANY AWARD TERM PERIOD IS AS FOLLOWS:

**BASE PERIOD SUMMARY FOR CLINS 1 AND 3**

<b><u>Period Covered</u></b>	<b><u>Target Cost</u></b>	<b><u>Target Fee</u></b>	<b><u>Total</u></b>	<b><u>Min Fee</u></b>	<b><u>Max Fee</u></b>
1/Year 1 (9 mo.s)	(b) (4)		\$23,485,059	(b) (4)	
2/Year 2	(b) (4)		22,796,462	(b) (4)	
3/Year 3	(b) (4)		21,451,370	(b) (4)	
4/Year 4	(b) (4)		22,150,040	(b) (4)	
5/Year 5A (6 mo.s)	(b) (4)		11,336,435	(b) (4)	
6/Year 5B (6 mo.s)	(b) (4)		11,336,435	(b) (4)	
<b>Total Base Period</b> (5 years)	(b) (4)	(b) (4)	\$112,555,801	(b) (4)	

**BASE PERIOD CLIN 1**

<b><u>Period Covered</u></b>	<b><u>Target Cost</u></b>	<b><u>Target Fee</u></b>	<b><u>Total</u></b>	<b><u>Min Fee</u></b>	<b><u>Max Fee</u></b>
1/Year 1 (9 mo.s)	(b) (4)		\$22,985,158	(b) (4)	
2/Year 2	(b) (4)		22,315,405	(b) (4)	
3/Year 3	(b) (4)		20,998,025	(b) (4)	
4/Year 4	(b) (4)		21,680,738	(b) (4)	
5/Year 5A (6 mo.s)	(b) (4)		11,094,147	(b) (4)	
6/Year 5B (6 mo.s)	(b) (4)		11,094,147	(b) (4)	
<b>Total Base Period</b> (5 years)	(b) (4)		\$110,167,619	(b) (4)	

**BASE PERIOD CLIN 3**

<b><u>Period Covered</u></b>	<b><u>Target Cost</u></b>	<b><u>Target Fee</u></b>	<b><u>Total</u></b>	<b><u>Min Fee</u></b>	<b><u>Max Fee</u></b>
1/Year 1 (9 mo.s)	(b) (4)		\$499,901	(b) (4)	
2/Year 2	(b) (4)		481,057	(b) (4)	
3/Year 3	(b) (4)		453,345	(b) (4)	
4/Year 4	(b) (4)		469,302	(b) (4)	
5/Year 5A (6 mo.s)	(b) (4)		242,288	(b)	
6/Year 5B (6 mo.s)	(b) (4)		242,288	(b)	
<b>Total Base Period</b>	(b) (4)		\$2,388,181	(b) (4)	

(5 years)

**AWARD TERM PERIODS**

<b><u>Period Covered</u></b>	<b><u>Target Cost</u></b>	<b><u>Target Fee</u></b>	<b><u>Total</u></b>	<b><u>Min Fee</u></b>	<b><u>Max Fee</u></b>
<b>7/(Year 6A)</b> (6 add'l months)	(b) (4)		<b>\$12,750,724</b>	(b) (4)	
CLIN 1	(b) (4)		\$12,499,141	(b) (4)	
CLIN 3	(b) (4)		\$251,583	(b) (4)	
<b>8/(Year 6B)</b> (6 add'l months)	(b) (4)		<b>\$12,750,724</b>	(b) (4)	
CLIN 1	(b) (4)		\$12,499,141	(b) (4)	
CLIN 3	(b) (4)		\$251,583	(b) (4)	
<b>9/(Year 7A)</b> (6 add'l months)	(b) (4)		<b>\$13,200,991</b>	(b) (4)	
CLIN 1	(b) (4)		\$12,938,561	(b) (4)	
CLIN 3	(b) (4)		\$262,430	(b) (4)	
<b>10/(Year 7B &amp; 8A)</b> (add'l 1 year)	(b) (4)		<b>\$28,463,812</b>	(b) (4)	
CLIN 1	(b) (4)		<b>\$27,927,001</b>	(b) (4)	
<b>10A (Year 7B)</b>	(b) (4)		\$13,783,060	(b) (4)	
<b>10B (Year 8A)</b>	(b) (4)		\$14,143,941	(b) (4)	
CLIN 3	(b) (4)		<b>\$536,811</b>	(b) (4)	
<b>10A (Year 7B)</b>	(b) (4)		\$262,430	(b) (4)	
<b>10B (Year 8A)</b>	(b) (4)		\$274,380	(b) (4)	
<b>11/(Year 8B &amp; 9A)</b> (add'l 1 year)	(b) (4)		<b>\$29,330,202</b>	(b) (4)	
CLIN 1	(b) (4)		<b>\$28,769,260</b>	(b) (4)	
<b>11A (Year 8B)</b>	(b) (4)		\$14,143,941	(b) (4)	
<b>11B (Year 9A)</b>	(b) (4)		\$14,625,320	(b) (4)	
CLIN 3	(b) (4)		<b>\$560,941</b>	(b) (4)	
<b>11A (Year 8B)</b>	(b) (4)		\$274,380	(b) (4)	
<b>11B (Year 9A)</b>	(b) (4)		\$286,561	(b) (4)	
<b>12/(Year 9B &amp; 10A)</b> (add'l 1 year)	(b) (4)		<b>\$30,481,030</b>	(b) (4)	
CLIN 1	(b) (4)		<b>\$29,893,157</b>	(b) (4)	
<b>12A (Year 9B)</b>	(b) (4)		\$14,625,320	(b) (4)	
<b>12B (Year 10A)</b>	(b) (4)		\$15,267,837	(b) (4)	
CLIN 3	(b) (4)		<b>\$587,873</b>	(b) (4)	
<b>12A (Year 9B)</b>	(b) (4)		\$286,561	(b) (4)	
<b>12B (Year 10A)</b>	(b) (4)		\$301,312	(b) (4)	
<b>13/(Year 10B)</b> (6 add'l months)	(b) (4)		<b>\$15,569,150</b>	(b) (4)	
CLIN 1	(b) (4)		\$15,267,837	(b) (4)	
CLIN 3	(b) (4)		\$301,312	(b) (4)	

**SUMMARY FOR CLINS 1 AND 3 -- BASE AND ALL AWARD TERM PERIODS**

<u>Period Covered</u>	<u>Target Cost</u>	<u>Target Fee</u>	<u>Total</u>	<u>Min Fee</u>	<u>Max Fee</u>
Total for Periods 1 - 6	(b) (4)		\$112,555,801	(b) (4)	
Total for Periods 7 - 13	(b) (4)		\$142,546,632	(b) (4)	
Total for All Periods	(b) (4)		\$255,102,433	(b) (4)	

**B.4 ESTIMATED COST AND FIXED FEE (1852.216-74)(DECEMBER 1991)(applicable to CLIN 2)**

The estimated cost of this contract is (b) (4) exclusive of the fixed fee of (b) (4) (b) (4) of estimated cost). The total estimated cost and fixed fee for CLIN 2 is **\$98,578,761**.

THE BREAKOUT OF ESTIMATED COST/FIXED FEE FOR THE BASE PERIOD AND ANY AWARD TERMS IS AS FOLLOWS:

**BASE PERIOD**

<u>Period Covered</u>	<u>Estimated Cost</u>	<u>Fixed Fee</u>	<u>Total</u>
1/Year 1 (9 mo.s)	(b) (4)		\$7,787,613
2/Year 2	(b) (4)		8,729,932
3/Year 3	(b) (4)		10,414,785
4/Year 4	(b) (4)		11,537,225
5/Year 5A (6 mo.s)	(b) (4)		6,074,736
6/Year 5B (6 mo.s)	(b) (4)		6,074,736
<b>Total Base Period</b> (5 years)	(b) (4)		\$50,619,026

**AWARD TERM PERIODS**

<u>Period Covered</u>	<u>Estimated Cost</u>	<u>Fixed Fee</u>	<u>Total</u>
<b>7/(Year 6A)</b> (6 add'l months)	(b) (4)		<b>\$6,685,237</b>
<b>8/(Year 6B)</b> (6 add'l months)	(b) (4)		<b>\$6,685,237</b>
<b>9/(Year 7A)</b> (6 add'l months)	(b) (4)		<b>\$5,468,333</b>
<b>10/Year (7B &amp; 8A)</b>	(b) (4)		<b>\$10,674,749</b>

<b>10A (Year 7B)</b>	(b) (4)		\$5,468,333
<b>10B (Year 8A)</b> (add'l 1 year)	(b) (4)		\$5,206,416
<b>11/(Year 8B &amp; 9A)</b>	(b) (4)		<b>\$9,617,927</b>
<b>11A (Year 8B)</b>	(b) (4)		\$5,206,416
<b>11B (Year 9A)</b> (add'l 1 year)	(b) (4)		\$4,411,512
<b>12/(Year 9B &amp; 10A)</b>	(b) (4)		<b>\$8,828,251</b>
<b>12A (Year 9B)</b>	(b) (4)		\$4,411,512
<b>12B (Year 10A)</b> (add'l 1 year)	(b) (4)		\$4,416,740
<b>13/Year (10B)</b> (6 add'l months)	(b) (4)		<b>\$4,416,740</b>

**SUMMARY FOR BASE AND ALL AWARD TERM PERIODS**

<b><u>Period Covered</u></b>	<b><u>Estimated Cost</u></b>	<b><u>Fixed Fee</u></b>	<b><u>Total</u></b>
<b>Total for Periods 1 - 6</b>	(b) (4)		<b>\$50,619,026</b>
<b>Total for Periods 7 - 13</b>	(b) (4)		<b>\$52,376,474</b>
<b>Total for All Periods</b>	(b) (4)		<b>\$102,995,500</b>

**B.5 TOTAL CONTRACT VALUE**

(a) The total contract value for all CLINS (excluding B.2 CLIN 0 for Phase-In), including IDIQ, for the base and all award term periods, if earned, is as follows:

	<b>CLIN 1</b>	<b>CLIN 3</b>	<b>CLINS 1 &amp; 3</b>	<b>CLIN 2</b>	<b>CLIN 4</b>	<b>TOTAL</b>
<b>Period (s)</b>	<b>(Cost/Fee)</b>	<b>(Cost/Fee)</b>	<b>subtotal (Ref. B.3)</b>	<b>(Ref. B.4) (Cost/Fee)</b>	<b>IDIQ</b>	<b>(Cost/Fee)</b>
1	\$22,985,158	\$499,901	\$23,485,059	\$7,787,613	\$36,500,000	\$67,772,672
2	22,315,405	481,057	22,796,462	8,729,932	49,700,000	81,226,394
3	20,998,025	453,345	21,451,370	10,414,785	50,600,000	82,466,155
4	21,680,738	469,302	22,150,040	11,537,225	51,500,000	85,187,264
5 (Year 5A)	11,094,147	242,288	11,336,435	6,074,736	26,300,000	43,711,171
6 (Year 5B)	11,094,147	242,288	11,336,435	6,074,736	26,600,000	44,011,171
7(Year 6A)	12,499,141	251,583	12,750,724	6,685,237	27,200,000	46,635,960
8 (Year 6B)	12,499,141	251,583	12,750,724	6,685,237	27,500,000	46,935,961

9 (Year 7A)	12,938,561	262,430	13,200,991	5,468,333	28,300,000	46,969,325
10 (Year 7B & 8A)	27,927,001	536,811	28,463,812	10,674,749	57,800,000	96,938,561
11 (Year 8B & 9A)	28,769,260	560,941	29,330,202	9,617,927	59,400,000	98,348,129
12 (Year 9B & 10A)	29,893,157	587,873	30,481,030	8,828,251	61,100,000	100,409,281
13 (Year 10B)	-	-	-	-	-	-
<b>SUBTOTAL</b>	<b>\$234,693,881</b>	<b>\$4,839,402</b>	<b>\$239,533,283</b>	<b>\$98,578,761</b>	<b>\$502,500,000</b>	<b>\$840,612,044</b>

**Award Term Periods**

7 (Year 6A)	\$0	\$0	\$0	\$0	\$0	\$0
8 (Year 6B)	\$0	\$0	\$0	\$0	\$0	\$0
9 (Year 7A)	\$0	\$0	\$0	\$0	\$0	\$0
10 (Year 7B & 8A)	\$0	\$0	\$0	\$0	\$0	\$0
11 (Year 8B & 9A)	\$0	\$0	\$0	\$0	\$0	\$0
12 (Year 9B & 10A)	\$0	\$0	\$0	\$0	\$0	\$0
13 (Year 10B)	\$15,267,837	\$301,312	\$15,569,150	\$4,416,740	\$31,200,000	\$51,185,889
<b>SUBTOTAL</b>	<b>\$15,267,837</b>	<b>\$301,312</b>	<b>\$15,569,150</b>	<b>\$4,416,740</b>	<b>\$31,200,000</b>	<b>\$51,185,889</b>

**10-yr TOTAL      \$249,961,718    \$5,140,715    \$255,102,433    \$102,995,500    \$533,700,000    \$891,797,933**

(b) CLIN 4 -- The total IDIQ maximum value is \$502,500,000 for the 9-1/2 year period of performance. The IDIQ maximum value for CLINs 4.1 and 4.2 is \$500,500,000 and the maximum value for CLIN 4.3 is \$2,000,000. If additional performance terms are earned/lost, the maximum value for IDIQ work will be increased/decreased as indicated above. The IDIQ maximum contract value for the 10-year period of performance for CLINs 4.1 and 4.2 is \$531,700,000 and for CLIN 4.3 is \$2,000,000, for a total maximum value for CLIN 4 of \$533,700,000 as reflected above.

## B.6 CONTRACT FUNDING (NFS 18-52.232-81) (JUN 1990) (applicable to all SOW Sections)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this contract is listed below. This allotment is for CLINs 1-3 and covers the following estimated period of performance: Contract effective date through January 13, 2012.

(b) An additional amount of See Table Above is obligated under this contract for payment of fee.

CLINS	Est. Cost	Inc./Fixed Fee	Total CPIF/FF	*IDIQ/FFP	Total Funding
<b>0 Phase-in (FFP)</b>	0	0	0	\$354,662	\$354,662
<b>1 CPIF (12T)</b>	(b) (4)		\$184,545,686	0	\$184,545,686
<b>2 CPFF (13T)</b>	(b) (4)		\$80,706,273	0	\$80,706,273
<b>3 CPIF (14T)</b>	(b) (4)		\$3,491,276	0	\$3,491,276
<b>4.1 IDIQ FP (15T)</b>	\$0	\$0	\$0	\$90,605,651	\$90,605,651
<b>4.1 IDIQ FP (99T)</b>	\$0	\$0	\$0	\$140,551,139	\$140,551,139
<b>NNL10AB99T (HydroBasin)**</b>				\$2,224,154	\$2,224,154
<b>subtotal</b>				\$233,380,944	\$233,380,944
<b>4.2 IDIQ CPFF(16T)</b>	(b) (4)		\$37,776,951	0	\$37,776,951
<b>4.1.1 FFP ARRA***</b>				\$1,577,342	\$1,577,342
<b>4.2.1 CPFF ARRA***</b>	(b) (4)		\$13,992,250		\$13,992,250
<b>4.3 FFP Pcard***</b>				\$300,782	\$300,782
<b>TOTAL FUNDING</b>	(b) (4)		\$320,512,436	\$235,613,730	\$556,126,166

\*H-21, Contract Funding fill in

\*\* Note the funding amounts for task NNL10AB99T (HydroImpact Basin effort) is obligated on the individual task order under CLIN 4.1; the amount listed here is administrative only and does not reflect additional obligations. This is required to ensure the total funding amount on the contract is formally recorded.

\*\*\*Note the funding amounts for the ARRA/FFP PCard efforts are obligated on the individual task orders/PCards; the amounts listed here are administrative only and do not reflect additional obligations. This is required to ensure the total funding amount on the contract is formally recorded.

## B.7 RESERVED

## B.8 INDEFINITE DELIVERY/INDEFINITE QUANTITY (IDIQ) WORK – UNIT PRICED DIRECT AND INDIRECT RATES (CLIN 4.1 and 4.2)

(a) Work that is of a nonrecurring nature and cannot be sufficiently identified or quantified in advance is identified as IDIQ work. IDIQ Task Orders may be issued for any of the SOW areas.

(b) IDIQ work will be issued as Firm Fixed Price or Cost Plus Fixed Fee at the sole discretion of the Contracting Officer and shall utilize the rates in Exhibit B, unless otherwise approved by the Contracting Officer.



(c) All Task Orders shall be negotiated between the Contractor and the Contracting Officer. IDIQ work shall be issued utilizing the Integrator System as described in SOW Section 5.1.1 in addition to facsimile or other electronic means as needed to facilitate work flow.

(d) IDIQ work shall be ordered in accordance with the Section I clauses entitled "Ordering," "Order Limitations," and "Indefinite Quantity."

(e) See Section H-19 for IDIQ Procedures

## **SECTION C – STATEMENT OF WORK**

The Statement of Work is located in Section J, Exhibit A.

## **SECTION D - PACKAGING AND MARKING**

### **D.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

No clauses are included in this section.

## **SECTION E - INSPECTION AND ACCEPTANCE**

### **E.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

#### **I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

CLAUSE NUMBER	DATE	TITLE
52.246-3	MAY 2001	INSPECTION OF SUPPLIES – COST REIMBURSEMENT (applicable to CLINS 1-3 and CLIN 4.2)
52.246-5	APR 1984	INSPECTION OF SERVICES—COST- REIMBURSEMENT (applicable to CLINS 1-3 AND CLIN 4.2)
52.246-2	AUG 1996	INSPECTION OF SUPPLIES – FIXED PRICE (applicable to CLIN 0 and 4.1)
52.246-4	AUG 1996	INSPECTION OF SERVICES—FIXED PRICE (applicable to CLIN 0 and 4.1)
52.246-12	AUG 1996	INSPECTION OF CONSTRUCTION (applicable to construction task orders)
52.246-13	AUG 1996	INSPECTION -- DISMANTLING, DEMOLITION, OR REMOVAL OF IMPROVEMENTS (applicable to dismantling, demolition, or removal of improvements task orders)

#### **II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES**

No NASA FAR Supplement Clauses are included in this section by reference.

## **SECTION F - DELIVERIES OR PERFORMANCE**

### **F.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference and are applicable to the entire contract unless otherwise stated:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.247-34	NOV 1991	FOB DESTINATION (applicable to all CLINS)
52.247-35	APR 1984	FOB DESTINATION WITHIN CONSIGNEE'S PREMISES (as applicable to CLIN 4)
52.242-15	AUG 1989	STOP-WORK ORDER (ALTERNATE I) (APR 1984) (applicable to CLINS 1-3 and CLIN 4.2)
52.242-15	AUG 1989	STOP-WORK ORDER (APR 1984) (applicable to CLIN 4.1)

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

No NASA FAR Supplement Clauses are included in this section by reference.

**F.2 PERIOD OF PERFORMANCE (LaRC 52.211-91) (NOV 2002)**

The period of performance of this contract shall be **114 Months, from February 1, 2004 to July 31, 2013**, unless modified under the award term provisions of this contract. (See Clause G.2)

**F.3 PLACE(S) OF PERFORMANCE (LaRC 52.211-98) (OCT 1992)**

The place(s) of performance shall be: NASA Langley Research Center, Hampton, Virginia, the Contractor's facility located in Hampton, Va, and other sites as may be designated by the Contracting Officer.

**F.4 DELIVERY REQUIREMENTS (LaRC 52.211-96) (APR 2007)**

(a) Deliveries are required to be made throughout the contract period of performance.

(b) Delivery shall be f.o.b. destination to the facilities listed below depending on the nature of the deliverable:

National Aeronautics and Space Administration  
Langley Research Center  
4 South Marvin Street (Bldg. 1206)  
Hampton, VA 23681-2199

OR as specified in or Task Orders.

(c) The Contractor shall notify the Contracting Officer's Technical Representative in writing at least 10 business days prior to the scheduled delivery date with a copy of the notification to the Contracting Officer. The notification shall include, as a minimum, the dimensions and weight of each container, the scheduled delivery date, and any Government equipment/service needed for off-loading. Since internal coordination by the Government is necessary to assure the availability of any required Government assistance, failure of the Contractor to comply with this notification requirement may result in delays in unloading the carrier at the f.o.b. destination site and related additional expenses to the Contractor (e.g., demurrage charges, re-delivery). The Contractor shall make delivery to the F.O.B. destination site between the hours of 8:30 a.m. to 2:30 p.m., Monday through Friday, Government holidays excepted, or as otherwise established as a result of the notification requirement cited above.

(d) The Contractor shall instruct either its driver or the driver of the commercial carrier to obtain specific routing instructions to the delivery/installation site from the Transportation and Warehousing Section, 4 South Marvin Street, Building 1206, NASA Langley Research Center. Failure to do so may cause lack of proper documentation of the

delivery and related delays in NASA, Langley Research Center internal processing procedures and payment of the Contractor's invoice(s).

(e) Notwithstanding any Government assistance, the Contractor shall retain full responsibility for equipment handling, even if a Contractor's representative is not present during this process.

## **SECTION G - CONTRACT ADMINISTRATION DATA**

### **G.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference and are applicable to the entire contract:

#### **I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

CLAUSE NUMBER	DATE	TITLE
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None included by reference.

#### **II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES**

CLAUSE NUMBER	DATE	TITLE
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The following clauses are applicable to the entire contract:

1852.223-71	DEC 1988	FREQUENCY AUTHORIZATION
1852.227-70	MAY 2002	NEW TECHNOLOGY (applicable only to Large Business)
1852.227-86	DEC 1987	COMMERCIAL COMPUTER SOFTWARE-LICENSING
1852.242-71	DEC 1988	TRAVEL OUTSIDE OF THE UNITED STATES
1852.242-73	NOV 2004	NASA CONTRACTOR FINANCIAL MANAGEMENT REPORTING

### **G.2 AWARD TERM**

(a) Period of Performance: The contract "BASE" period of performance of five (5) years may be increased/decreased in six-month or one-year "award term" increments, up to an additional five (5) years, based on overall contract performance. These "award term" periods will be increased/decreased by the Government based on cost control and overall contractor performance as evaluated in accordance with the contract's approved Award Term and Performance Evaluation Plan (ATPEP).

(b) Award Term and Performance Evaluation Plan: The ATPEP will be approved by the Government and provided to the Contractor during the phase-in period. The ATPEP will serve as the basis for any award term decisions. The ATPEP may be revised by the Government and re-issued to the Contractor prior to the commencement of any 6-month evaluation period or during any evaluation period as agreed upon between the Contractor and the Contracting Officer. The Government may designate areas of special performance evaluation emphasis during any evaluation period.

Failure to meet contract requirements or metrics in any area designated for "special performance evaluation emphasis" may be considered as a "reportable deficiency" in developing award term adjective ratings (see ATPEP rating scale.) An Award Term Determination Official (ATDO) shall be appointed by the Government and is responsible for the overall award term evaluation and award term decisions.

(c) Award Term Administration: The award term evaluation will be completed on an annual basis. The annual evaluation will be comprised of two successive 6-month "interim" evaluations and be combined to obtain the "final" annual adjective rating. The first year (Period 1) of the contract will be evaluated on a "shadow" basis where the results will not be used in making an award term decision. Award term decisions that affect the period of performance will commence in the second contract year (Period 2) and will conclude at the end of contract year eight (Period 11), if all terms have been awarded.

(d) Award Term Decisions: For the evaluation periods at the conclusion of contract year two, the Contractor must meet or underrun the contract target cost for CLINs 1 and 3 and the final annual adjective rating must be a "very good" or above to be awarded additional contract term. For the evaluation periods at the end of years 3-8, the Contractor must meet or underrun the contract target cost for CLINs 1 and 3 and the final annual adjective rating must be an "excellent" to be awarded additional contract term. In addition, for the evaluation periods at the end of years 2-4, the Contractor may also lose term if the final annual adjective rating is "poor/unsatisfactory" which will reduce the base period of performance.

(e) Automatic Re-competition Decision: If at the end of any annual award term period an additional term is not earned, the contract period of performance will be fixed and will end at the then current completion date. The contractor cannot be awarded an additional term in any final year of the contract period. If the annual award term evaluations result in an increase or decrease to the period of performance, a unilateral modification will be executed by the Government to reflect the increase or decrease in total contract value. Any increase or decrease to the contract value will be in accordance with the priced periods stated in Sections B-3 and B-4 in addition to the IDIQ maximum values for CLIN 4 stated in Section B-5. In no event will the contract be extended beyond the 10-year period of performance via the award term process.

**G.3 SUBMISSION OF VOUCHERS FOR PAYMENT (NFS 1852.216-87) (MAR 1998) (applicable to CLINS 1-3 and CLIN 4.2)**

(a) The designated billing office for cost vouchers for purposes of the Prompt Payment clause of this contract is indicated below in (b)(1). Public vouchers for payment of costs shall include a reference to the number of this contract.

(b)(1) If the contractor is authorized to submit interim cost vouchers directly to the NASA paying office, the original voucher should be submitted to:

NASA Shared Services Center  
Financial Mgmt Division – Accts Payable  
Bldg 1111, C. Road  
Stennis Space Center, MS 39529  
Fax 866-209-5415; [NSSC-AccountsPayable@nasa.gov](mailto:NSSC-AccountsPayable@nasa.gov)

(2) For any period that the Defense Contract Audit Agency has authorized the Contractor to submit interim cost vouchers directly to the Government paying office, interim vouchers are not required to be sent to the Auditor, and are considered to be provisionally approved for payment, subject to final audit.

(3) Copies of vouchers should be submitted as directed by the Contracting Officer.

(c) If the contractor is not authorized to submit interim cost vouchers directly to the paying office as described in paragraph (b), the contractor shall prepare and submit vouchers as follows:

(1) One original Standard Form (SF) 1034, SF 1035, or equivalent Contractor's attachment, to: DCAA Hampton Roads Branch Office, 514 Butler Farm Road, Suite 290, Hampton, VA 23666-1500

(2) Five copies of SF 1034, SF 1035A, or equivalent Contractor's attachment, to the following offices by insertion in the memorandum block of their names and addresses:

- (i) Copy 1 Contracting Officer
- (ii) Copy 2 Auditor

- (iii) Copy 3 Contractor
- (iv) Copy 4 Contract administration office; and
- (v) Copy 5 Project management office.

(3) The Contracting Officer may designate other recipients as required.

(d) Public vouchers for payment of fee shall be prepared similarly to the procedures in paragraphs (b) or (c) of this clause, whichever is applicable, and forwarded to:

NASA Shared Services Center  
Financial Mgmt Division – Accts Payable  
Bldg 1111, C. Road  
Stennis Space Center, MS 39529  
Fax 866-209-5415; [NSSC-AccountsPayable@nasa.gov](mailto:NSSC-AccountsPayable@nasa.gov)

This is the designated billing office for fee vouchers for purposes of the Prompt Payment clause of this contract.

Fixed fee shall be paid in monthly installments based upon the percentage of completion of work as determined by the Contracting Officer. The following formulas are provided as a convenience for calculating the interim fee provided the formulas produce a reasonable percentage as compared to completion of work. The Contractor shall show both formulas on its fee voucher, however, the maximum fee percentage for fee billing is the smaller of the percentages resulting from the application of the two formulas. If at any time the Contracting Officer determines that the fee percentage is not in concert with the completion of work, the fee formula will be adjusted, or another methodology that results in comparative fee billing as agreed upon by the Contractor and Contracting Officer.

A. Cost Incurred to Date / Contract Estimated Cost = \_\_\_\_%

B. Months of Performance Expended to Date / Contract Period of Performance (Months) = \_\_\_\_%

(e) In the event that amounts are withheld from payment in accordance with provisions of this contract, a separate voucher for the amount withheld will be required before payment for that amount may be made.

(f) Vouchers for cost-type IDIQ task orders shall have the Task Order No. indicated on all vouchers. Cost and Fee vouchers for IDIQ work shall also be submitted separately.

#### **G.4 PAYMENT OF INCENTIVE FEE (applicable to CLINS 1 and 3)**

Incentive fee payments will be made by the Government every six months based upon cost incurred by the contractor and upon receipt of a proper invoice from the Contractor. The contractor shall calculate the incentive fee due in accordance with the Section I clause, Incentive Fee, and submit the fee invoice in accordance with G.3(d) above within 30 days of the end of the evaluation period. The Contracting Officer may adjust the amount of fee paid in accordance with the Incentive Fee clause.

#### **G.5 PAYMENT OF FIXED FEE (1852.216-75) (DEC 1988) (applicable to CLIN 2 and CLIN 4.2)**

The fixed fee shall be paid in monthly installments based upon the percentage of completion of work as determined by the Contracting Officer. Payment of fee for IDIQ orders shall be at completion and acceptance of work unless otherwise stated in the Order.

#### **G.6 PAYMENT OF PHASE IN AND FIXED PRICE IDIQ WORK (applicable to CLIN 4.1)**

In accordance with the Section I clause, 52.232-1, Payments, payments for Phase In and IDIQ Fixed Price orders will be made by the Government based on receipt of a proper invoice and completion and acceptance of services

rendered. Upon request from the contractor, the Contracting Officer may approve interim partial payments based on milestones for Orders with a total value of \$100,000 or more and a duration of 6 months or longer.

**G.7 GOVERNMENT PURCHASE CARD (PCard) (applicable to CLIN 4.3)**

(a) The Contractor shall accept orders placed by authorized Government Purchase Card (PCard) users. The Government PCard is a purchasing instrument issued through a commercial bank to a Government Agency to facilitate micro purchases. The Government PCard shall only be accepted for fixed price work under \$3,000, or the micro purchase threshold.

(b) The Contractor shall accept and perform only those services within the scope of the ROME contract. In addition, the Contractor shall obtain all Government functional approvals (e.g., safety, environmental or standard practice engineers) as required in this contract. Use of a Government PCard by Government personnel does not alter the terms and conditions of this contract or the SOW requirements.

(c) The Contractor shall utilize Clause H.19 for pricing work under CLIN 4.3. Any request for work that cannot be priced based on the requirements of Clause H.19 requires advance approval of the Contracting Officer. The Contractor shall, to the maximum extent possible, minimize all documentation for work under CLIN 4.3 commensurate with the dollar value of the work being requested. The Contractor is responsible for tracking and reporting PCard orders. See Exhibit C, Contract Documentation Requirements, for reporting requirements.

(d) The Government PCard shall be billed by the Contractor when the work is completed and accepted by the customer.

**G.8 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE (1852.227-72) (JULY 1997)**

(a) For purposes of administration of the clause of this contract entitled "New Technology" or "Patent Rights--Retention by the Contractor (Short Form)," whichever is included, the following named representatives are hereby designated by the Contracting Officer to administer such clause:

New Technology Representative, MS 223  
Contracting Officer Technical Representative  
NASA Langley Research Center  
Hampton, VA 23681-2199

Patent Representative, MS 141  
Office of Chief Counsel  
NASA Langley Research Center  
Hampton, VA 23681-2199

(b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquires or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative. This clause shall be included in any subcontract hereunder requiring a "New Technology" clause or "Patent Rights--Retention by the Contractor (Short Form)" clause, unless otherwise authorized or directed by the Contracting Officer. The respective responsibilities and authorities of the above-named representatives are set forth in 1827.305-370 of the NASA FAR Supplement.

**G.9 TECHNICAL DIRECTION (NFS 1852.242-70) (SEP 1993)**

(a) Performance of the work under this contract is subject to the written technical direction of the Contracting Officer Technical Representative (COTR), who shall be specifically appointed by the Contracting Officer in writing in

accordance with NASA FAR Supplement 1842.270. "Technical direction" means a directive to the Contractor that approves approaches, solutions, designs, or refinements; fills in details or otherwise completes the general description of work or documentation items; shifts emphasis among work areas or tasks; or furnishes similar instruction to the Contractor. Technical direction includes requiring studies and pursuit of certain lines of inquiry regarding matters within the general tasks and requirements in Section C of this contract.

(b) The COTR does not have the authority to, and shall not, issue any instruction purporting to be technical direction that--

- (1) Constitutes an assignment of additional work outside the statement of work;
- (2) Constitutes a change as defined in the changes clause;
- (3) Constitutes a basis for any increase or decrease in the total estimated contract cost, the fixed fee (if any), or the time required for contract performance;
- (4) Changes any of the expressed terms, conditions, or specifications of the contract; or
- (5) Interferes with the Contractor's rights to perform the terms and conditions of the contract.

(c) All technical direction shall be issued in writing by the COTR.

(d) The Contractor shall proceed promptly with the performance of technical direction duly issued by the COTR in the manner prescribed by this clause and within the COTR's authority.

If, in the Contractor's opinion, any instruction or direction by the COTR falls within any of the categories defined in paragraph (b) above, the Contractor shall not proceed but shall notify the Contracting Officer in writing within 5 working days after receiving it and shall request the Contracting Officer to take action as described in this clause. Upon receiving this notification, the Contracting Officer shall either issue an appropriate contract modification within a reasonable time or advise the Contractor in writing within 30 days that the instruction or direction is--

- (1) Rescinded in its entirety; or
- (2) Within the requirements of the contract and does not constitute a change under the changes clause of the contract, and that the Contractor should proceed promptly with its performance.

(e) A failure of the Contractor and Contracting Officer to agree that the instruction or direction is both within the requirements of the contract and does not constitute a change under the changes clause, or a failure to agree upon the contract action to be taken with respect to the instruction or direction, shall be subject to the Disputes clause of this contract.

(f) Any action(s) taken by the Contractor in response to any direction given by any person other than the Contracting Officer or the COTR shall be at the Contractor's risk.

#### **G.10 CONTRACTOR REQUESTS FOR GOVERNMENT-PROVIDED PROPERTY (1852.245-70) (SEP 2007) (DEVIATION)**

(a) The Contractor shall provide all property required for the performance of this contract. The Contractor shall not acquire or construct items of property to which the Government will have title under the provisions of this contract without the Contracting Officer's written authorization. Property which will be acquired as a deliverable end item as material or as a component for incorporation into a deliverable end item is exempt from this requirement.

(b)(1) In the event the Contractor is unable to provide the property necessary for performance, and the Contractor requests provision of property by the Government, the Contractor's request shall--

- (i) Justify the need for the property;
- (ii) Provide the reasons why contractor-owned property cannot be used;
- (iii) Describe the property in sufficient detail to enable the Government to screen its inventories for available property or to otherwise acquire property, including applicable manufacturer, model, part, catalog, National Stock Number or other pertinent identifiers;
- (iv) Combine requests for quantities of items with identical descriptions and estimated values when the estimated values do not exceed \$100,000 per unit; and

(v) Include only a single unit when the acquisition or construction value equals or exceeds \$100,000.

(2) Contracting Officer authorization is required for items the Contractor intends to manufacture as well as those it intends to purchase.

(3) The Contractor shall submit requests to the Contracting Officer no less than 30 days in advance of the date the Contractor would, should it receive authorization, acquire or begin fabrication of the item.

(c) The Contractor shall maintain copies of Contracting Officer authorizations, appropriately cross-referenced to the individual property record, within its property management system.

(d) Property furnished from Government excess sources is provided as-is, where-is. The Government makes no warranty regarding its applicability for performance of the contract or its ability to operate. Failure of property obtained from Government excess sources under this clause is insufficient reason for submission of requests for equitable adjustments discussed in the clause at 52.245-1, Government Property.

(End of clause)

**G.11 INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY (1852.245-71) (SEP 2007) (ALTERNATE I NOV 2004) (DEVIATION)**

(a) The Government property described in paragraph (c) of this clause may be made available to the Contractor on a no-charge basis for use in performance of this contract. This property shall be utilized only within the physical confines of the NASA installation that provided the property unless authorized by the contracting officer under (b)(1)(iv). Under this clause, the Government retains accountability for, and title to, the property, and the Contractor shall comply with the following:

- (1) NASA Procedural Requirements (NPR) 4100.1, NASA Materials Inventory Management Manual;
- (2) NASA Procedural Requirements (NPR) 4200.1, NASA Equipment Management Procedural Requirements;
- (3) NASA Procedural Requirement (NPR) 4300.1, NASA Personal Property Disposal Procedural Requirements

Contract Managers shall ensure all Installation Accountable Government Property is reassigned before the current contractor equipment user resigns or is terminated.

Property not recorded in NASA property systems must be managed in accordance with the requirements of FAR 52.245-1.

The Contractor shall establish and adhere to a system of written procedures to assure continued, effective management control and compliance with these user responsibilities. Such procedures must include holding employees liable, when appropriate, for loss, damage, or destruction of Government property.

(b) (1) The official accountable recordkeeping, financial control, and reporting of the property subject to this clause shall be retained by the Government and accomplished within NASA management information systems prescribed by the installation Supply and Equipment Management Officer (SEMO) and Financial Management Officer. If this contract provides for the Contractor to acquire property, title to which will vest in the Government, the following additional procedures apply:

(i) The Contractor shall not utilize the installation's central receiving facility for receipt of contractor-acquired property. However, the Contractor shall provide listings suitable for establishing accountable records of all such property received, on a monthly basis, to the SEMO.

(ii) The Contractor shall furnish a copy of each purchase order, prior to delivery by the vendor, to the installation central receiving area.

(iii) The Contractor shall establish a record of the property as required by FAR 52.245-1, Government



Property, and furnish to the Industrial Property Officer a DD Form 1149, Requisition and Invoice/Shipping Document, (or installation equivalent) to transfer accountability to the Government within 5 working days after receipt of the property by the Contractor. The Contractor is accountable for all contractor-acquired property until the property is transferred to the Government's accountability.

(iv) Contractor use of Government property at an off-site location and off-site subcontractor use require advance approval of the Contracting Officer and notification of the Industrial Property Officer. The property shall be considered Government furnished and the Contractor shall assume accountability and financial reporting responsibility. The Contractor shall establish records and property control procedures and maintain the property in accordance with the requirements of FAR 52.245-1, Government Property, until its return to the installation. NASA Procedural Requirements related to property loans shall not apply to offsite use of property by contractors.

(2) After transfer of accountability to the Government, the Contractor shall continue to maintain such internal records as are necessary to execute the user responsibilities identified in paragraph (a) of this clause and document the acquisition, billing, and disposition of the property. These records and supporting documentation shall be made available, upon request, to the SEMO and any other authorized representatives of the Contracting Officer.

(c) The following property and services are provided if checked.

- (1) Office space, work area space, and utilities. Government telephones are available for official purposes only.
- (2) Office furniture.
- (3) Property listed in Exhibit E.

(i) If the Contractor acquires property, title to which vests in the Government pursuant to other provisions of this contract, this property also shall become accountable to the Government upon its entry into Government records.

(ii) The Contractor shall not bring to the installation for use under this contract any property owned or leased by the Contractor, or other property that the Contractor is accountable for under any other Government contract, without the Contracting Officer's prior written approval.

- (4) Safety and fire protection for Contractor personnel and facilities.
- (5) Medical treatment of a first-aid nature for Contractor personnel injuries or illnesses sustained during on-site duty.
- (6) Cafeteria privileges for Contractor employees during normal operating hours.
- (7) Building maintenance for facilities occupied by Contractor personnel.
- (8) Moving and hauling for office moves, movement of large equipment, and delivery of supplies. Moving services may be provided on-site, as approved by the Contracting Officer.

#### **G.12 FINANCIAL REPORTING OF NASA PROPERTY IN THE CUSTODY OF CONTRACTORS (NFS 1852.245-73) (SEP 2007)**

(a) The Contractor shall submit annually a NASA Form (NF) 1018, NASA Property in the Custody of Contractors, in accordance with the provisions of [1845.505-14](#), the instructions on the form, subpart [1845.71](#), and any supplemental instructions for the current reporting period issued by NASA.

(b) (1) Subcontractor use of NF 1018 is not required by this clause; however, the Contractor shall include data on property in the possession of subcontractors in the annual NF 1018.

(2) The Contractor shall mail the original signed NF 1018 directly to the cognizant NASA Center Deputy Chief Financial Officer, Finance, unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission.

(3) One copy shall be submitted (through the Department of Defense (DOD) Property Administrator if contract

administration has been delegated to DOD) to the following address, unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission:

NASA Langley Research Center, Industrial Property Officer, Mail Stop 377, Hampton VA 23681-2199

NASA Langley Research Center, Financial Management Office, Property Management, Mail Stop 175, Hampton VA 23681-2199

(c) (1) The annual reporting period shall be from October 1 of each year through September 30 of the following year. The report shall be submitted in time to be received by October 15. The information contained in these reports is entered into the NASA accounting system to reflect current asset values for agency financial statement purposes. Therefore, it is essential that required reports be received no later than October 15. Some activity may be estimated for the month of September, if necessary, to ensure the NF 1018 is received when due. However, contractors' procedures must document the process for developing these estimates based on planned activity such as planned purchases or NASA Form 533 (NF 533 Contractor Financial Management Report) cost estimates. It should be supported and documented by historical experience or other corroborating evidence, and be retained in accordance with FAR Subpart 4.7, Contractor Records Retention. Contractors shall validate the reasonableness of the estimates and associated methodology by comparing them to the actual activity once that data is available, and adjust them accordingly. In addition, differences between the estimated cost and actual cost must be adjusted during the next reporting period. Contractors shall have formal policies and procedures, which address the validation of NF 1018 data, including data from subcontractors, and the identification and timely reporting of errors. The objective of this validation is to ensure that information reported is accurate and in compliance with the NASA FAR Supplement. If errors are discovered on NF 1018 after submission, the contractor shall contact the cognizant NASA Center Industrial Property Officer (IPO) within 30 days after discovery of the error to discuss corrective action.

(2) The Contracting Officer may, in NASA's interest, withhold payment until a reserve not exceeding \$25,000 or 5 percent of the amount of the contract, whichever is less, has been set aside, if the Contractor fails to submit annual NF 1018 reports in accordance with 1845.505-14 and any supplemental instructions for the current reporting period issued by NASA. Such reserve shall be withheld until the Contracting Officer has determined that NASA has received the required reports. The withholding of any amount or the subsequent payment thereof shall not be construed as a waiver of any Government right.

(d) A final report shall be submitted within 30 days after disposition of all property subject to reporting when the contract performance period is complete in accordance with (b)(1) through (3) of this clause.

(End of clause)

### **G.13 IDENTIFICATION AND MARKING OF GOVERNMENT EQUIPMENT (1852.245-74) (SEP 2007) (DEVIATION)**

(a) The Contractor shall identify all equipment to be delivered to the Government using NASA Technical Handbook (NASA-HDBK) 6003, "Application of Data Matrix Identification Symbols to Aerospace Parts Using Direct Part Marking Methods/Techniques", and NASA Standard (NASA-STD) 6002, "Applying Data Matrix Identification Symbols on Aerospace Parts". This includes deliverable equipment listed in the schedule and other equipment when NASA directs physical transfer to NASA or a third party. The Contractor shall identify property in both machine and human readable form unless the use of a machine readable-only format is approved by the NASA Industrial Property Officer.

(b) Property shall be marked in a location that will be human readable, without disassembly or movement of the property, when the items are placed in service unless such placement would have a deleterious effect on safety or on the item's operation.

(c) Concurrent with equipment delivery or transfer, the Contractor shall provide the following data in an electronic spreadsheet format:

- (1) Item Description.
- (2) Unique Identification Number (License Tag).
- (3) Unit Price.

(4) An explanation of the data used to make the unique identification number.

(d) For items physically transferred under paragraph (a) the following additional data is required:

- (1) Date originally placed in service.
- (2) Item condition.
- (3) Date last serviced.

(e) The data required in paragraphs (c) and (d) shall be delivered to the NASA center receiving activity listed below: NASA Langley Research Center, 4 South Marvin Street (Bldg. 1206), Hampton, VA 23681-2199

(f) The contractor shall include the substance of this clause, including this paragraph (f), in all subcontracts that require delivery of equipment.

(End of clause)

#### **G.14 PROPERTY MANAGEMENT CHANGES (1852.245-75) (SEP 2007) (DEVIATION)**

(a) The Contractor shall submit any changes to standards and practices used for management and control of Government property under this contract to the assigned property administrator and Industrial Property Officer (IPO), prior to making the change whenever the change -

- (1) Employs a standard that allows increase in thresholds or changes the timing for reporting loss, damage, or destruction of property;
- (2) Alters physical inventory timing or procedures;
- (3) Alters recordkeeping practices;
- (4) Alters practices for recording the transport or delivery of Government property; or
- (5) Alters practices for disposition of Government property.

(b) The Contractor shall contact the IPO at: NASA Langley Research Center, Attn: Susan Tillman, Mail Stop 377, Hampton, VA 23681-2199, (757) 864-2064, [susan.c.tillman@nasa.gov](mailto:susan.c.tillman@nasa.gov).

(End of clause)

#### **G.15 LIST OF GOVERNMENT-FURNISHED PROPERTY PURSUANT TO FAR 52.245-1 (NASA 1852.245-76) (SEP 2007) (DEVIATION)**

For performance of work under this contract, the Government will make available Government property identified in Exhibit D of this contract on a no-charge-for-use basis pursuant to the clause at FAR 52.245-1, Government Property. The Contractor shall use this property in the performance of this contract at the contractor's facility, NASA LaRC, and at other location(s) as may be approved by the Contracting Officer. Under the clause FAR 52.245-1, the Contractor is accountable for the identified property.

(End of Clause)

#### **G.16 REAL PROPERTY MANAGEMENT REQUIREMENTS (1852.245-83)(SEP 2007) (DEVIATION)**

(a) In addition to the requirements of the FAR Government Property Clause (FAR 52.245-1) the Contractor shall comply with the following in performance of any maintenance, construction, modification, demolition, or management activities of any Government real property:

- (1) NPD 8800.14, Policy for Real Property Management.
- (2) NPR 8831.2, Facility Maintenance Management.

(b) Within 30 calendar days following award, the Contractor shall provide a plan for maintenance of Government real property provided for use under this contract. The Contractor's maintenance program shall enable the identification, disclosure, and performance of normal and routine preventative maintenance and repair. The Contractor shall disclose

and report to the Contracting Officer the need for replacement and/or capital rehabilitation. Upon acceptance by the Contracting Officer, the program shall become a requirement under this contract.

(c) Title to parts replaced by the Contractor in carrying out its normal maintenance obligations shall pass to and vest in the Government upon completion of their installation in the facilities. The Contractor shall keep the property free and clear of all liens and encumbrances.

(d) The Contractor shall keep records of all work done to real property, including plans, drawings, charts, warranties, and manuals. Records shall be complete and current. Record of all transactions shall be auditable. The Government shall have access to these records at all reasonable times, for the purposes of reviewing, inspecting, and evaluating the Contractor's real property management effectiveness. When real property is disposed of under this contract, the Contractor shall deliver the related records to the Government.

(e) The Contracting Officer may direct the Contractor in writing to reduce the work required by the maintenance program authorized in paragraph (b) at any time.

(End of clause)

#### **G.17 OCCUPANCY MANAGEMENT REQUIREMENTS (1852.245-82) (SEP 2007) (DEVIATION)**

(a) In addition to the requirements of the clause at FAR 52.245-1, Government Property, the Contractor shall comply with the following in performance of work in and around Government real property:

- (1) NPD 8800.14, Policy for Real Property Management.
- (2) NPR 8831.2, Facility Maintenance Management
- (3) LAPD 8800.14, Real Property Management

(b) The Contractor shall obtain the written approval of the Contracting Officer before installing or removing Contractor-owned property onto or into any Government real property or when movement of Contractor-owned property may damage or destroy Government-owned property. The Contractor shall restore damaged property to its original condition at the Contractor's expense.

(c) The Contractor shall not acquire, construct or install any fixed improvement or structural alterations in Government buildings or other real property without the advance, written approval of the Contracting Officer. Fixed improvement or structural alterations, as used herein, means any alteration or improvement in the nature of the building or other real property that, after completion, cannot be removed without substantial loss of value or damage to the premises. Title to such property shall vest in the Government.

(d) The Contractor shall report any real property or any portion thereof when it is no longer required for performance under the contract, as directed by the Contracting Officer.

(End of Clause)

#### **G.18 PROVIDING FACILITIES TO CONTRACTORS (LaRC 52.245-90) (APR 2008)**

(a) In accordance with FAR 45.102, it is policy of the Government that Contractors shall furnish all property required for performing Government contracts.

(b) The Government will provide EXISTING plant equipment as listed in G.15 and Exhibits D and E. Any existing plant equipment items that are coded "Y" in Exhibits D and E that reach the end of their useful life during the contract period, or which are beyond economical repair, shall be replaced by the Contractor, if the plant equipment is still needed for contract performance. "Plant Equipment", as used in this contract, includes personal property such as general purpose off-the-shelf equipment, machine tools, test equipment, furniture and vehicles. "Plant Equipment" does not include material, special test equipment, or special tooling.

(End of Clause)

#### **G.19 USE OF GOVERNMENT FURNISHED EQUIPMENT ON A RENTAL BASIS**

A. The Contractor, and approved subcontractors, may use, on a non-interference basis, Government Furnished Equipment (GFE), on a rental basis, at their facility and other locations so long as the Government incurs no additional costs, and the Government benefits from such usage as stated in Paragraph B below. Additionally, the Contractor shall exempt and hold the Government harmless from any property damage or personal injury liability resulting from the Contractor's usage of GFE on a rental basis.

B. The Contractor shall pay a rental rate of \$16.42 per labor hour. The Contractor shall credit the contract for every labor hour, or portion thereof, that any approved GFE rental equipment is used for work other than work on this contract, or formally approved for rent-free use on another Government contract. This rate shall be reviewed annually, prior to issuance of any modification to extend the term of the contract, and changes to the rates, if any, shall be incorporated into subsequent modifications.

C. Payment shall be reflected as a credit to CLIN 1 and shall be reflected on NASA Form 533, Monthly Contractor Financial Management Report, to assure a cost reduction for the maintenance and repair of GFE. Additionally, the Contractor shall reflect the credit (cost reduction) to CLIN 1 on their Standard Form 1034, Public Voucher, immediately following the "Total Billing" line on the SF 1035 continuation sheet.

D. The Contractor shall at its expense repair, recalibrate, or replace any GFE that fails while in a "rental mode", and such costs shall not be billed to this, or any other Government contract.

E. The Contractor shall give priority in the use of GFE to performing work under this contract, and shall not undertake any work involving the use of GFE that would interfere with performing existing requirements under this contract.

F. The initial rental period shall be until July 31, 2009, and continue in accordance with any award term period earned or lost, but no later than January 31, 2013. The cost reduction benefit to the Government shall be reviewed at the end of the rental period, and, at the option of the Contracting Officer, contract costs are not reduced by an acceptable amount, this rental provision may be unilaterally withdrawn via written notification."

G. SIMCO Electronics, as a ROME subcontractor, is hereby authorized to use GFE on a commercial basis.

(End of Clause)

#### **G.20 INVOICES FOR CONTRACTS FUNDED UNDER THE AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) OF 2009**

In addition to the requirements set forth in any payment and invoicing clauses contained within this contract, the following special requirements apply to those contracts with work authorized under the American Recovery and Reinvestment Act (ARRA) of 2009 (herein after referred to as the Recovery Act)—

(a) All invoices/vouchers for work performed subject to the Recovery Act shall be marked "RECOVERY ACT INVOICE" in bold capitalized red text not less than two inches wide and a half inch tall, on the upper right hand corner of the invoice/voucher. All requests for payment (whether for cost, fee, or price) for work performed subject to the Recovery Act shall be submitted separately from requests for payment for any other work performed under the contract.

(b) All invoices/vouchers shall be marked with the following fund cite information, prominently on the first page: (Insert RA WBS info and other information as otherwise directed by the Contracting Officer).

(c) All invoices/vouchers shall be submitted via e-mail with no more than one invoice/voucher per e-mail submission.

(d) All vendors are encouraged to visit [www.nssc.nasa.gov/vendorpayment](http://www.nssc.nasa.gov/vendorpayment) for additional information on the invoicing and payment process.

NOTE: Invoicing and payment directions associated with Recovery Act funding are likely to change from time to time during the course of the Recovery Act spending. Therefore, the contractor shall comply with additional instructions upon receipt of written notice by the Contracting Officer.

## **SECTION H - SPECIAL CONTRACT REQUIREMENTS**

### **H.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference and apply to the entire contract:

#### **I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

No FAR Clauses are included in this section by reference.

#### **II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES**

CLAUSE NUMBER	DATE	TITLE
1852.208-81	NOV 2004	RESTRICTIONS ON PRINTING AND DUPLICATING
1852.223-70	APR 2002	SAFETY AND HEALTH
1852.223-75	FEB 2002	MAJOR BREACH OF SAFETY OR SECURITY
1852.225-70	FEB 2000	EXPORT LICENSES
		Insert in Paragraph (b): NASA Langley Research Center
1852.242-72	AUG 1992	OBSERVANCE OF LEGAL HOLIDAYS ALTERNATE I (SEP 1989) ALTERNATE II (OCT 2000)

### **H.2 RESERVED**

### **H.3 SECURITY PROGRAM/NON-U.S. CITIZEN EMPLOYEE ACCESS REQUIREMENTS (LaRC 52.204-91) (FEB 2007)**

Access to the LaRC by non-U.S. citizen employees, including those in permanent resident alien status, shall be approved in accordance with NPR 1371.2A, "Procedural Requirements for Processing Requests for Access to NASA Installations or Facilities by Foreign Nationals or U.S. Citizens Who are Reps of Foreign Entities". Processing requires advance notice of a minimum of 20 days depending on the nationality of the non-U.S. citizen or foreign representative. Access authorization shall be for a maximum of one year and must be re-evaluated annually. Non-U.S. citizen employees or foreign representatives must be under escort at all times while on Center (by a NASA Civil Servant or permanently badged contractor) unless otherwise approved by the International Visitors Coordinator (IVC).

### **H.4 RESERVED**

### **H.5 LIMITATION OF FUTURE CONTRACTING (NASA 1852.209-71) (DEC 1988)**

(a) The Contracting Officer has determined that this acquisition may give rise to a potential organizational conflict of interest. Accordingly, the attention of prospective offerors is invited to FAR Subpart 9.5--Organizational Conflicts of Interest.

(b) The nature of the conflicts are:

(1) The contractor may provide systems engineering and technical direction for systems for which the contractor does not have overall responsibility for as described in 9.505-1(a). As such, the contractor may be in a position to favor its own products and capabilities.

(2) The contractor shall be required to develop, prepare, or assist in developing specifications, designs, statements of works that NASA may incorporate into competitive acquisitions (e.g. fabrication, construction, or installation work). Such effort may be determined to be a conflict of interest in accordance with FAR 9.505-2. As such, the contractor may be in a position to favor its own capabilities and products, thus creating a potential conflict of interest.

(3) The contractor may also have access to proprietary information and to various other types of data as described in H.6, H-14, and H-16. As such, the contractor would be in a position to obtain non-public information, thus, creating a potential conflict of interest.

(4) There will be an Inspection and Quality Assurance (IQA) contractor who will be responsible for inspecting the work of the ROME contractor and all of its subcontractors. As such, the ROME contractor would be in a position to self-evaluate its own work should it compete for the IQA contract or serve as a subcontractor on the IQA contract creating a potential conflict of interest.

(c) The restrictions upon future contracting are as follows:

(1) The Contractor shall not be awarded any contracts to supply systems or any of its major components or be a subcontractor or consultant to a supplier of the system or any of its major components.

(2) If the Contractor, under the terms of this contract, or through the performance of IDIQ orders pursuant to this contract, is required to develop specifications or statements of work to be used in a competitive acquisition, the Contractor shall be ineligible to perform the work described in that solicitation as the contractor or first-tier subcontractor under an ensuing NASA contract. This restriction shall remain in effect for a reasonable time, as agreed to by the Contracting Officer and the Contractor, sufficient to avoid unfair competitive advantage or potential bias.

(3) To the extent that the work under this contract requires access to proprietary, business confidential, or financial data of other companies, and as long as these data remain proprietary or confidential, the Contractor shall protect these data from unauthorized use and disclosure and agrees not to use them to compete with other companies. Further, restrictions and procedures governing the contractors use of proprietary or confidential business information are found in H.15, Handling of Data.

(4) The contractor, as well as its subcontractors at all tiers, is prohibited from participating under the NASA Langley IQA contract, or any successor contract, as the prime contractor or as a subcontractor at any tier. An identical clause will be placed in the IQA contract and in any successor contract.

## **H.6 RESERVED**

## **H.7 OBSERVATION OF REGULATIONS AND IDENTIFICATION OF CONTRACTOR'S EMPLOYEES (LaRC 52.211-104) (FEB 2007)**

(a) Observation of Regulations--In performance of that part of the contract work which may be performed at Langley Research Center (LaRC) or other Government installation, the Contractor shall require its employees to observe the rules and regulations as prescribed by the authorities at LaRC or other installation including all applicable Federal, NASA and Langley safety, health, environmental and security regulations.

(b) Identification Credentials--At all times while on LaRC property, the Contractor shall require its employees, subcontractors and agents to wear credentials issued by NASA LaRC. Contractors will be held accountable for these credentials, and may be required to validate its active employees on an annual basis with the NASA LaRC Security Office. Immediately upon employee termination or contract completion, badges shall be returned to the NASA LaRC Badge and Pass Office. It is agreed and understood that all NASA identification badges remain the property of NASA and the Government reserves the right to invalidate such badges at any time.

(c) Employee Out Processing--The Contractor shall ensure that all employees who are terminated or no longer connected with work being performed under this contract are out processed through the LaRC Badge and Pass Office. Badges and keys must be accounted for and returned.

#### **H.8 INCORPORATION OF SECTION K OF THE PROPOSAL BY REFERENCE (LaRC 52.215-107) (NOV 2002)**

Pursuant to FAR 15.204-1(b), the completed Section K of the proposal is hereby incorporated by reference.

#### **H.9 SMALL DISADVANTAGED BUSINESS PARTICIPATION--CONTRACT TARGETS (LaRC 52.219-91) (OCT 2002) (for offeror fill-in)**

(a) FAR 19.1202-4(a) requires that SDB participation targets be incorporated in the contract. Targets for this contract are as follows: (See Internet at <http://www.census.gov/epcd/www/naics.html> for Department of Commerce NAICS Industry Subsectors.)

	Department of Commerce NAICS Industry Subsectors	Dollar Target	Percent of Contract Value
<b>Base Periods</b>			
1	TBD	3,961,134	5%
	541710	7,922,267	10%
2	TBD	4,431,510	5%
	541710	8,863,020	10%
3	TBD	4,556,387	5%
	541710	9,112,774	10%
4	TBD	4,644,228	5%
	541710	9,288,456	10%
5	TBD	2,469,783	5%
	541710	4,939,565	10%
6	TBD	2,484,783	5%
	541710	4,969,565	10%
	TOTAL	67,643,473	15%
<b>Award Term Periods</b>			
7	TBD	2,519,265	5%
	541710	5,038,530	10%
	TOTAL	7,557,796	15%
8	TBD	2,535,229	5%
	541710	5,070,459	10%
	TOTAL	7,605,688	15%
9	TBD	2,569,872	5%
	541710	5,139,743	10%
	TOTAL	7,709,615	15%
10	TBD	5,193,542	5%
	541710	10,387,084	10%
	TOTAL	15,580,626	15%
11	TBD	5,281,694	5%
	541710	10,563,389	10%
	TOTAL	15,845,083	15%
12	TBD	5,386,474	5%
	541710	10,772,949	10%
	TOTAL	16,159,423	15%



13	TBD	2,731,455	5%
	541710	5,462,910	10%
	TOTAL	8,194,364	15%

(b) FAR 19.1202-4(b) requires that SDB concerns that are specifically identified by the offeror be listed in the contract when the extent of the identification of such subcontractors was part of the SDB evaluation subfactor. SDB concerns (subcontractors) specifically identified by the offeror are as follows:

Name of Concern(s):

(b) (4)

The Contractor shall notify the Contracting Officer of any substitutions of firms that are not SDB concerns.

(c) If the prime offeror is an SDB (including joint venture partners and team members) that has waived the price evaluation adjustment, the target for the work it intends to perform as a prime contractor in authorized Department of Commerce NAICS Industry Subsectors is as follows:

	Dollars	Percent of Contract Value
Base Periods		
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A
6	N/A	N/A
Award Term Periods		
7	N/A	N/A
8	N/A	N/A
9	N/A	N/A
10	N/A	N/A
11	N/A	N/A
12	N/A	N/A
13	N/A	N/A

#### H-10 RESERVED

#### H.11 ISO 9001:2000 CERTIFICATION/REGISTRATION REQUIREMENTS QUALITY MANAGEMENT SYSTEM (CERTIFIED AT AWARD) (LaRC 52.246-99) (NOV 2002)

The Contractor's quality system shall be Certified/Registered to the current ANSI/ISO/ASQC Q ISO 9001 standard, Quality Management Systems Requirements.

The Contractor's quality system shall remain Certified/Registered to the ISO 9001 standard during the term of the contract. The Government reserves the right to audit the Contractor's quality system at any time.

"Certified/Registered" as used in this clause means that the contractor has defined, documented, and will continually implement during the term of the contract management-approved methods of operation that have been audited by a 3rd party ISO 9001 Registrar and found meet to the requirements given in the above-cited International Standard.

#### H.12 CONSTRUCTION SUBCONTRACTS

The construction-related clauses listed in Section I.V shall apply, as applicable, to the performance of any construction subcontracts issued by the ROME contractor. Work performed by contractor employees is considered repair services and not subject to construction requirements. For Government-selected IDIQ services, the Contractor agrees to obtain performance and payment bonds or alternative payment protection. For the purposes of the clauses Performance and Payment Bonds – Construction, Alternative Payment Protections, and Additional Bond Security, the “contract price” shall be deemed to refer to the price of the work order or task order. In response to selected construction work, the contractor may include in pricing proposals, the price of performance and payment bonds or alternative payment protection as a separate expense.

#### **H.13 ASSIGNMENT OF COPYRIGHT IN COMPUTER SOFTWARE**

The Contractor is authorized to assert, or to authorize the assertion of, claim to copyright in any and all computer software first developed in performance of this contract as authorized by FAR Clause 52.227-14, as modified by NASA FAR Supplement Clause 1852.227-14. Having been granted permission to assert, or authorize the assertion of, claim to copyright in computer software first developed in performance of this contract, the Contractor hereby agrees to assign, or obtain the assignment of, all right, title, and interest in any and all copyrights in computer software first developed in performance of this contract to the U.S. Government. For purposes of defining the rights in the computer software, computer software shall include source codes, object codes, executables, ancillary files, and documentation.

#### **H.14 ADDITIONAL DATA RIGHTS**

(a) Data included in 52.227-14(b) includes, but is not limited to,

- all data input into any Government-owned IT system listed in the SOW
- all computer software developed in performance of this contract
- all processes and procedures developed in performance of this contract
- all data identified as a deliverable under this contract (with the exception of data resulting from the testing of third parties' test articles in NASA LaRC's facilities, wherein such data has associated restrictions limiting the Government's rights in such data)

(b) Pursuant to FAR 27.404-2(c)(1), FAR clause 52.227-14, Alternate II, paragraph (g)(3) is modified by adding the following after "disclosure:"

- "(1) Use by support service contractors and their subcontractors; and
- (2) Evaluation or assessment by nongovernment evaluators."

(c) Reserved

(d) Pursuant to FAR 27.404-2(c)(4), FAR clause 52.227-14, Alternate III, is modified by adding the following paragraphs (f) through (i):

"(f) Where the contractor proposes its standard commercial software license, those applicable portions thereof consistent with Federal laws, standard industry practices, the Federal Acquisition Regulations (FAR) and the NASA FAR Supplement, including the restricted rights in paragraph (b) of this clause, are incorporated into and made a part of this contract.

(g) Although the contractor may not propose its standard commercial software license until after this purchase order/contract has been issued, or at or after the time the computer software is delivered, such license shall nevertheless be deemed incorporated into and made a part of this contract under the same terms and conditions as in paragraph (f) of this clause. For purposes of receiving updates, correction notices, consultation, and similar activities on the computer software, the NASA Contracting Officer or the NASA Contracting Officer's Technical Representative/User may sign any agreement, license, or registration form or card and return it directly to the contractor; however, such signing shall not alter any of the terms and conditions of this clause.

(h) If the incorporated contractor's software license contains provisions or rights that are less restrictive than the restricted rights in paragraph (b) of this clause, then the less restrictive provisions or rights shall prevail.

(i) The contractor's acceptance is expressly limited to the terms and conditions of this purchase order/contract. If the specified computer software is shipped or delivered to NASA, it shall be understood that the contractor has unconditionally accepted the terms and conditions set forth in this clause, and that such terms and conditions (including the incorporated license) constitute the entire agreement between the parties concerning rights.

#### **H.15 RESERVED**

#### **H.16 ENABLING CLAUSE BETWEEN ROME CONTRACTOR AND OTHER LANGLEY CONTRACTORS (LaRC 52.215-116) (FEB 2003)**

(a) NASA has entered into contracts with the firms listed below for other support services at Langley Research Center:

<b>Contractor*</b>	<b>Services*</b>
Safety & Quality Assurance Alliance, Inc. (SQA <sup>2</sup> )	Safety and Quality Assurance
Lockheed Martin	Outsourcing Desktop Initiative for NASA (ODIN)
Stringer Ghaffarian Technologies (SGT)	Langley Information Technical Enhanced Services (LITES)
Grounds Maintenance, Inc. (GMI)	Groundskeeping and Pest Control Services
CSC Applied Technology	Security Services
SAIC	Environmental Engineering Services
NSR Integrity	Custodial Services

\*Changes to Contractor names and titles of services are subject to change based on written notice by the Contracting Officer.

(b) In the performance of this contract, the ROME Contractor agrees to cooperate with the above listed Contractors or follow-on contractors by: responding to invitations from authorized personnel to attend meetings; providing access to technical information and research, development and planning data, test data and results, schedule and milestone data; limited financial data including estimates, all in original form or reproduced, discussing/coordinating matters related to projects; providing access to Contractor facilities utilized in the performance of this contract; and allowing observation of technical activities by appropriate support Contractor technical personnel.

(c) The Contractor further agrees to include in each subcontract over \$1 million or 10 percent of prime contract value, whichever is less, a clause requiring compliance by a subcontractor and succeeding levels of subcontractors with the response and access provisions of paragraph (b) above, subject to coordination with the Contractor. This agreement does not relieve the Contractor of responsibility to manage subcontracts effectively and efficiently, nor is it intended to establish privity of contracts between the Government or the service Contractor(s) and such subcontractors.

(d) Contractor personnel are not authorized to direct another Contractor in any manner.

(e) To the extent that the work under this contract requires access to proprietary information, and as long as these data remain proprietary, the Contractor shall protect the data from unauthorized use and disclosure.

(f) Neither the Contractor nor their subcontractors shall be required in the satisfaction of the requirements of this clause to perform any effort or supply any documentation not otherwise required by their contract or subcontract.

#### **H.17 DATA ENTRY INTO INTEGRATOR AND CURRENT OME IT SYSTEMS**

(a) At contract award, the Contractor shall utilize the appropriate OME IT System listed in SOW Appendix 5.1 OME IT Business Systems, to capture and record all customer requests for services in addition to the Integrator as required by SOW Section 5.

(b) For each service requested, a record shall be entered into the current MIS until MIS integration is complete. The Contractor shall capture and populate the same fields for data entry that are currently maintained in the various MIS. All records shall be kept up-to-date as the work progresses.

## H.18 RESERVED

## H.19 ISSUANCE OF NON-RECURRING WORK (INDEFINITE DELIVERY INDEFINITE QUANTITY (IDIQ) TASK ORDERS (TO)) (CLIN 4.1 and 4.2)

(a) Services of the type performed in any area of the SOW may be required as part of the IDIQ portion of the contract. The Government will issue IDIQ work as Task Orders which require additional funding. Orders may be issued as fixed price or cost reimbursable. The contractor shall not process any requests for cost reimbursable task orders without prior written approval by the Contracting Officer. The Contractor shall request the customer to use the Government Purchase Card (PCard) for all fixed price task orders under the micropurchase threshold in accordance with clause G.7.

(b) The Contracting Officer will issue IDIQ work as it is needed. All IDIQ efforts shall be completed in accordance with the SOW requirements, metrics, and approvals, in addition to the requirements as stated within the task order.

(c) The following procedures currently exist to support IDIQ workflow and will be revised by the Government during Phase-in to reflect functional changes as a result of the ROME contract: LMS CP-5612. Each task order proposal shall include a technical, cost/price and schedule section, as well as all Organizational Conflict of Interest (OCI) requirements in accordance with Exhibit O, Organizational Conflicts of Interest Avoidance Plan.

### (d) Establishing Estimated Cost/Price for IDIQ Work

(1) The contractor shall submit all task order proposals within 15 business days after receipt of a task order request from the COTR, unless otherwise requested by the COTR. If the contractor is unable to submit the task order proposal within the required 15 business days, or the requestor requests a submission period of less than 15 business days, the contractor shall contact the COTR within 2 business days of receipt of the task order request to reach an agreement on the due date for the task order proposal. The cost/price proposal from the Contractor shall include the applicable labor and indirect/burdened rates identified in Exhibit B, unless otherwise approved by the Contracting Officer. In addition, labor hours, material, equipment and other direct costs, and/or any other appropriate information to determine the reasonableness of the Contractor's proposal shall be provided. Proposed material/equipment costs shall include applicable transportation charges and discounts. The following procedures are hereby applicable:

#### a. Labor

1. Establishing Labor Hour Quantity. The Contractor shall furnish a proposal that includes a detailed breakdown of labor hours for each craft performing work on each IDIQ order. Proposed labor hour quantities shall be based on R. S. Means® Facilities Maintenance & Repair Cost Data, if applicable. If the R. S. Means® Facilities Maintenance & Repair Cost Data does not apply (as mutually agreed upon between the Contracting Officer and the Contractor), the proposed labor hour quantity shall be developed from historical data or another appropriate industry standard labor hour performance guide.

2. Establishing Total Labor Costs. Proposed labor costs shall be determined by totaling the number of labor hours for each craft and then multiplying by the appropriate unit price labor category from Exhibit B. The unit price for categories of labor not addressed in Exhibit B shall be as mutually agreed upon between the Contracting Officer and the Contractor.

#### b. Material

1. Establishing Material Quantity. The Contractor shall furnish a proposal that includes a detailed breakdown of material required to perform work on each IDIQ order. Proposed material requirements shall include a list of materials establishing the size, quality, and number of units.

2. Establishing Total Material Costs. Proposed material costs shall be based on the appropriate R. S. Means® Estimating Guide, adjusted to the LaRC area. If the R. S. Means® Estimating Guide does not apply (as mutually agreed between the Contracting Officer and the Contractor), material costs shall be developed from competitive vendor quotes, historical data, or another appropriate industry standard. Proposed material costs shall include applicable transportation charges and discounts.

c. Equipment Requirements

1. Establishing Equipment Quantity. The Contractor shall furnish a proposal that includes a detailed breakdown of equipment required to perform work on each IDIQ order. Requirements for equipment shall include the identification of the type, size, capacities, number of units, and hours of use for each unit.

2. Establishing Total Equipment Costs. Equipment costs for IDIQ work shall include only that equipment necessary for performance that is not available from either the Installation Accountable Government Property (IAGP) or from recurring work areas of the contract. It is incumbent upon the Contractor to demonstrate the unavailability of such equipment. If such equipment is not available, the total equipment cost shall be established based on the following paragraphs:

a. Proposed equipment costs shall be based on the appropriate R. S. Means® Estimating Guide, adjusted to the LaRC area. If the R. S. Means® Estimating Guide does not apply (as mutually agreed between the Contracting Officer and the Contractor), equipment costs shall be developed from competitive vendor quotes, historical data, or another appropriate industry standard.

b. Cost for equipment operators, when separate operators are required, shall be based on the R. S. Means® standard labor hour basis, historical data, or another appropriate standard as guide lines unless operator cost is included in the equipment rental price or the operator has been provided by the Government.

(2) Proposed Fee shall be 7% of the estimated cost. However, fee for efforts that consist of significant subcontracting and/or material, equipment or supplies to be procured may be adjusted on a case-by-case basis by mutual agreement of the Contracting Officer and contractor.

(3) The complexity and dollar value of the task order will determine the level of detail required in the Contractor's proposal and shall include, as necessary, technical approach, cost/price detail, schedule/milestones, metrics, and any safety or quality requirements. The contractor's proposal may also include the development of a detailed statement of work to support OME/IT functions. The contractor shall obtain a completed statement of work from the Government, which defines the Government's requirements, prior to developing a statement of work for any task order effort. An authorized Contractor employee shall sign contractor's estimates/proposals. In the event of a conflict between the requirements of the task order and the Contractor's proposal, the TO shall prevail.

(4) Subcontracts. If the contractor elects to utilize a subcontract for IDIQ work, the contractor's proposal shall include documentation supporting adequate price competition and documentation supporting the fact that the proposed price is fair and reasonable and that the Government is receiving the best value in the contractor's approach to the work. The documentation shall include the bids received, the successful bidder and the basis for award (e.g., low bidder or best value). If competitive quotes are not received, justification of price reasonableness shall be provided in addition to a justification for procuring from a single source, if applicable. Documentation shall also be in accordance with the contractor's approved purchasing system.

(5) The Contracting Officer will either approve the proposal or negotiate any areas of disagreement with the contractor. The contractor shall not perform any work on an IDIQ until authorized by the Contracting Officer. Government Purchase Card IDIQ orders do not require Contracting Officer approval. The Contracting Officer reserves the right to accomplish the work with other than this contract.

(6) After review and any necessary discussions between the parties, a task order may be issued to the Contractor containing, as a minimum, the following:

(a) Date of the order.

- (b) Contract number and order number.
- (c) Statement of work identifying the objectives or results desired, including special instructions or other information necessary for performance.
- (d) Performance and quality assurance standards where appropriate.
- (e) Maximum dollar amount authorized (estimated cost and fee or price).
- (f) Delivery/performance schedule including start (if applicable) and end dates.
- (g) Accounting and Appropriation data.

(7) Work is complete when the requester acknowledges the work has been satisfactorily completed. The Contractor shall complete all documentation and update the appropriate OME Business System and/or Integrator within 14 calendar days after completion of the task order effort, unless otherwise approved by the Contracting Officer. Invoices shall not be submitted until the data entry and documentation is complete. See Section G for payment terms and conditions.

(8) In addition to the proposal documentation requirements stated herein, the Contractor shall deliver all supporting technical documents such as shop drawings, vendors' literature, and specifications as stated in task order.

(e) For those facilities that have Facility Libraries, all supporting documentation shall be processed in accordance with Statement of Work Section 4.1.7. All other documentation shall be posted to the OME Virtual Library, in accordance with Statement of Work Section 5.1.2.

(f) The contractor shall maintain on-site task order documentation to support approach, schedule, and cost for each task order in addition to any documentation required by the Contractor's approved purchasing system.

## **H.20 SAFETY AND HEALTH PLAN**

The Contractor's approved Safety and Health Plan is incorporated as Exhibit G.

## **H.21 LIMITATION OF FUNDS (FIXED-PRICE CONTRACT) (1852.232-77) (MARCH 1989) (Applicable to CLIN 4.1)**

(a) The total amount allotted by the Government to CLIN 4.1 is the amount set forth in each task order. This allotment is for the performance of work in accordance with the limitations and completion dates as set forth in the task order authorized by the Contracting Officer. The total price of each task order issued under CLIN 4.1 and the amount of funding that is presently available for payment and allotted to the task order will be set forth in the individual task order. It is anticipated that from time to time additional funds will be allocated to the task order, until the total price of said items in the task order is allotted. Reference Clause B.6 for current funded amount for CLIN 4.1.

(b) The Contractor agrees to perform or have performed work on the items specified in paragraph (a) of this clause up to the point at which, if this contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause would, in the exercise of reasonable judgment by the Contractor, approximate the total amount at the time allotted to the contract. The Contractor is not obligated to continue performance of the work beyond that point. The Government is not obligated in any event to pay or reimburse the Contractor more than the amount from time to time allotted to the contract, anything to the contrary in the Termination for Convenience of the Government clause notwithstanding.

(c) (1) It is contemplated that funds presently allotted to this contract will cover the work to be performed until date specified in individual Task Orders.

(2) If funds allotted are considered by the Contractor to be inadequate to cover the work to be performed until that date, or an agreed date substituted for it, the Contractor shall notify the Contracting Officer in writing when within the next 60 days the work will reach a point at which, if the contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause will approximate 75 percent of the total amount then allotted to the contract.

(3) (i) The notice shall state the estimate when the point referred to in paragraph (c)(2) of this clause will be reached and the estimated amount of additional funds required to continue performance to the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it.

(ii) The Contractor shall, 60 days in advance of the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, advise the Contracting Officer in writing as to the estimated amount of additional funds required for the timely performance of the contract for a further period as may be specified in the contract or otherwise agreed to by the parties.

(4) If, after the notification referred to in paragraph (c)(3)(ii) of this clause, additional funds are not allotted by the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, the Contracting Officer shall, upon the Contractor's written request, terminate this contract on that date or on the date set forth in the request, whichever is later, pursuant to the Termination for Convenience of the Government clause.

(d) When additional funds are allotted from time to time for continued performance of the work under this contract, the parties shall agree on the applicable period of contract performance to be covered by these funds. The provisions of paragraphs (b) and (c) of this clause shall apply to these additional allotted funds and the substituted date pertaining to them, and the contract shall be modified accordingly.

(e) If, solely by reason of the Government's failure to allot additional funds in amounts sufficient for the timely performance of this contract, the Contractor incurs additional costs or is delayed in the performance of the work under this contract, and if additional funds are allotted, an equitable adjustment shall be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the items to be delivered, or in the time of delivery, or both.

(f) The Government may at any time before termination, and, with the consent of the Contractor, after notice of termination, allot additional funds for this contract.

(g) The provisions of this clause with respect to termination shall in no way be deemed to limit the rights of the Government under the default clause of this contract. The provisions of this Limitation of Funds clause are limited to the work on and allotment of funds for the items set forth in paragraph (a) of this clause. This clause shall become inoperative upon the allotment of funds for the total price of said work except for rights and obligations then existing under this clause.

(h) Nothing in this clause shall affect the right of the Government to terminate this contract pursuant to the Termination for Convenience of the Government clause of this contract.

## **H.22 OPTION TO PURCHASE CONTRACTOR-OWNED VEHICLES AND EQUIPMENT**

This clause is applicable to property valued at greater than \$5K and used solely for the performance of this contract. At the end of the contract period of performance, the contractor grants the Government options for the following: (1) the contractor agrees to sell any property used in performance of this contract to the successor contractor at its depreciated value based on the contractor's depreciation schedule; or (2) the contractor agrees to sell any property used in performance of this contract to the Government at its depreciated value based on the Contractor's depreciation schedule; or (3) the contractor agrees to utilize the depreciated property on a follow-on contract if the contractor is the successor contractor; or (4) the contractor agrees to sell the property for fair market value within 120 days after the end of the period of performance and will credit this contract for the amount of any excess of the sale price minus the depreciated value and selling expenses. The Government may exercise one of the above options by unilateral modification issued to the contractor not later than 30 days after the end of the contract period of performance.

## **H.23 ADJUSTMENTS TO EXHIBIT B RATES**

(a) This clause applies to Exhibit B rates that are subject to area prevailing wage determinations and subject to collective bargaining agreements.

(b) This contract includes escalation to cover expected cost increases for which adjustment is provided for in this clause. Therefore, the Contracting Officer will only consider increases for items in paragraph (e) that exceed the escalated amounts in the contract and for which the CO determines the contractor is not responsible.

(c) The wage determination, issued under the Service Contract Act of 1965, as amended, (41 U.S.C. 351, et seq.), by the Administrator, Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, current on the anniversary date of a multiple year contract or the beginning of each renewal award term period, shall apply to this contract. If no such determination has been made applicable to this contract, then the Federal minimum wage as established by section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended, (29 U.S.C. 206) current on the anniversary date of a multiple year contract or the beginning of each renewal award term period, shall apply to this contract.

(d) In accordance with paragraph (b), the contract estimated cost or contract unit price labor rates in Exhibit B will be adjusted to reflect the Contractor's actual increase or decrease in applicable wages and fringe benefits to the extent that the increase is made to comply with or the decrease is voluntarily made by the Contractor as a result of:

(1) The Department of Labor wage determination applicable on the anniversary date of the multiple year contract, or at the beginning of the renewal award term period. For example, the prior year wage determination required a minimum wage rate of \$4.00 per hour. The Contractor chose to pay \$4.10. The new wage determination increases the minimum rate to \$4.50 per hour. Even if the Contractor voluntarily increases the rate to \$4.75 per hour, the allowable price adjustment is \$.40 per hour;

(2) An increased or decreased wage determination otherwise applied to the contract by operation of law; or

(3) An amendment to the Fair Labor Standards Act of 1938 that is enacted after award of this contract, affects the minimum wage, and becomes applicable to this contract under law.

(e) Any adjustment will be limited to increases or decreases in wages and fringe benefits as described in paragraph (c) of this clause, and the accompanying increases or decreases in social security and unemployment taxes and workers' compensation insurance, but shall not otherwise include any amount for general and administrative costs, overhead, or profit.

(f) The Contractor shall notify the Contracting Officer of any increase claimed under this clause within 30 days after receiving a new wage determination or negotiation of a new Collective Bargaining Agreement unless this notification period is extended in writing by the Contracting Officer. The Contractor shall promptly notify the Contracting Officer of any decrease under this clause, but nothing in the clause shall preclude the Government from asserting a claim within the period permitted by law. The notice shall contain a statement of the amount claimed and any relevant supporting data, including payroll records, that the Contracting Officer may reasonably require. Upon agreement of the parties, the contract estimated cost or contract unit price labor rates in Exhibit B shall be modified in writing. The Contractor shall continue performance pending agreement on or determination of any such adjustment and its effective date.

(g) The Contracting Officer or an authorized representative shall have access to and the right to examine any directly pertinent books, documents, papers and records of the Contractor until the expiration of 3 years after final payment under the contract.

#### **H.24 OBSERVATION OF SAFETY STAND DOWN EVENT BY CONTRACTOR EMPLOYEES (LaRC 52.223-92) (MAY 2006)**

The Langley Research Center (LaRC) Safety Stand Down event is an annual event dedicated to learning best practices for a safe work environment. When the LaRC Director designates the Safety Stand Down event, the Contractor shall require all onsite and nearsite employees to participate in Safety Stand Down activities at LaRC. Normal work activities, with the exception of critical services (e.g., physical and computer security), will be suspended.

The following services are exempt from the safety stand down activities noted above and shall continue to be performed on Safety Stand Down Day: (1) Work required to conduct or support "schedule critical" activities essential for the success of the Agency's mission [mission essential activities]. The Contracting Officer will notify the contractor of any mission essential operations that must be supported during the Safety Stand Down Event; (2) Activities necessary to ensure safe, healthful, and secure conditions for workers and visitors at LaRC; (3) Prompt correction of hazards or conditions that could result in loss of life, personal injury or illness, property loss or damage, or environmental harm; or (4) Performance or support of LaRC essential services. Examples include, but are not limited to, fire and rescue services, medical services, utility operations and repair, urgent and emergency repairs, hazardous materials removal, physical and computer security, and the receipt of mail, package, and freight deliveries.

#### **H.25 SPECIAL REQUIREMENTS FOR SERVICE CONTRACTS (LARC 52.211-99) (APR 2007)**

A. Inherently Governmental Functions - No inherently government functions as defined in FAR 2.101 and FAR 7.5 shall be performed by the contractor under this NASA LaRC contract. Contractor employees shall not participate



in any deliberations or meetings intended to exercise an inherently governmental function. All final determinations such as binding the United States to take or not to take some action, selecting program priorities, and providing direction to Federal employees shall be made by the government. The contractor shall immediately notify the Contracting Officers Technical Representative (COTR) and the Contracting Officer if performance of an activity would result in the performance of an inherently governmental function.

B. Non-Personal Services Contract - In accordance with FAR 37.101, this contract is a non-personal services contract in that the contractor personnel rendering the services shall not be subject, either by the contract's terms or by the manner of its administration, to the continuous supervision and control of a Government officer or employee. The contractor shall immediately notify the COTR and the Contracting Officer if, through contract administration, the actions of a government employee will result in the performance of a personal services contract.

C. Identification of Contractor Personnel - All contractor personnel who attend meetings, answer government telephones, use a nasa.gov e-mail address, or work in situations where their actions could be construed as acts of Government officials shall clearly identify themselves as contractor personnel. Contractor employees shall never identify themselves as representing NASA but rather shall identify themselves as being under contract to NASA. Additionally, all contractor work spaces located on NASA LaRC shall be clearly identified.

D. Marking of Reports - The contractor shall mark all documents or reports produced under this contract with the contractor name, contract number, and task order number if applicable.

## **H.26 RESERVED**

## **H.27 VIRGINIA AND LOCAL SALES TAXES (LARC 52.229-92) (FEB 2004)**

To perform this contract, the Contractor must be knowledgeable of relevant state and local taxes when making purchases of tangible personal property. The Contractor shall refrain from paying inapplicable taxes or taxes where an exemption exists, but shall pay applicable taxes that are reimbursable pursuant to FAR 31.205-41, Taxes. Even though title to property purchased under this contract may pass to the Government and the price is reimbursable under contract cost principles, such transactions do not in themselves provide tax immunity to the Contractor. Therefore, within 30 days after the effective date of this contract, the Contractor shall request from the Virginia State Tax Commission a ruling on any tax exemptions that may be applicable to purchases made under this contract. The Contractor shall provide all facts relevant to the situation and shall pursue an interpretation of the law that is most favorable to both the Contractor and the Government.

## **H.28 REPORTING OF INCIDENTS INVOLVING WORKPLACE VIOLENCE (LARC 52.223-93) (MAY 2011)**

The contractor and its employees shall comply with LAPD 1600.5, Workplace Violence and Threatening Behavior. The contractor shall conduct training on and develop procedures for recognizing, managing and responding to incidents and threats of workplace violence as defined in LAPD 1600.5.

In accordance with LAPD 1600.5, if the LaRC Workplace Violence and Prevention Program (WVPP) Threat Assessment Team determines it is appropriate for the contractor to participate in a WVPP Threat Assessment Team meeting, the contractor shall comply with the request. The contractor shall report the disposition of any incidents to the LaRC WVPP Threat Assessment Team.

This requirement shall flow down to the subcontractors, however the subcontractors shall report up through the prime contractor.

## **H.29 LARC ENVIRONMENTAL MANAGEMENT (LaRC 52.223-94)**

Located in the ecologically sensitive Chesapeake Bay watershed, Langley Research Center (LaRC) is committed to fulfill our mission in a manner that promotes environmental stewardship, sustainability, and continual improvement, while mitigating environmentally driven mission risks. LaRC expects its contractors to support LaRC in fulfilling this commitment.

The Contractor shall ensure that all onsite activities performed and equipment used to fulfill the requirements of the contract are in compliance with all local, state, and federal environmental laws and regulations; environmental Executive Orders; NASA Policy Directives (NPDs) and Procedural Requirements (NPRs), and LaRC environmental directives (LAPDs) and procedures (LPRs). The NASA and LaRC regulatory authorities include, but are not limited to the most recent version of the following:

- NPD 8500.1, NASA Environmental Management
- NPR 8553.1, NASA Environmental Management System
- NPR 8570.1, Energy Efficiency and Water Conservation
- NPR 8530.1, Affirmative Procurement Program and Plan for Environmentally Preferable Products
- LAPD 8500.1, LaRC Environmental and Energy Management
- LPR 8500.1, Environmental and Energy Program Manual

Contractor support of LaRC's Environmental Management System (EMS) pursuant to NPR 8553.1 and LPR 8500.1 includes conducting operations consistent with LaRC EMS objectives and targets, responding to information requests, attendance at team meetings (up to 2 one-hour meetings a year). In accordance with NPR 8530.1 and LPR 8500.1 the contractor shall maximize the purchase of approved items when designated items are procured for use on this contract. A complete listing of all categories and products the EPA has designated as having to meet recycled/reclaimed percentages can be found at <http://www.epa.gov/cpg/products.htm>.

The Government remains the owner and operator of record for all environmental activities conducted on LaRC owned properties. LaRC's Environmental Management Branch (EMB) is the single point of contact with Federal, State, or local regulatory agencies and their representatives unless otherwise directed by the Contracting Officer. All on-site Contractor activities and personnel are subject to environmental compliance reviews, investigations, inspections, or similar inquiries which may be conducted by Federal, State, or local regulatory agencies or the LaRC EMB. The Contractor shall immediately notify the LaRC EMB when contacted by external regulatory agency representatives and shall cooperate fully with the LaRC EMB in responding to regulatory agency representatives. The Contractor shall complete, maintain, and make available to the Contracting Officer and LaRC EMB, all documentation relating to environmental compliance required by law or regulation. As directed by the Contracting Officer the Contractor will make such documentation available to personnel of regulatory agencies. If a Notice of Violation, Notice of Noncompliance, Notice of Deficiency, or similar notice is received by the Contractor or one of its subcontractors in the performance of work under this contract, the Contractor shall immediately notify the Contracting Officer or the Contracting Officer's Technical Representative. The Contractor shall fully cooperate with NASA LaRC in correcting any problems giving rise to any such notices and shall fully cooperate with NASA LaRC personnel in their efforts to resolve any violations so that regulatory assessments of civil fines or penalties are minimized or avoided.

## SECTION I - CONTRACT CLAUSES

### I.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference and are applicable to the entire contract unless otherwise noted:

#### I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.202-1	JUL 2004	DEFINITIONS
52.203-3	APR 1984	GRATUITIES
52.203-5	APR 1984	COVENANT AGAINST CONTINGENT FEES
52.203-6	SEP 2006	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT
52.203-7	JUL 1995	ANTI-KICKBACK PROCEDURES
52.203-8	JAN 1997	CANCELLATION, RESCISSION AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY
52.203-10	JAN 1997	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY
52.203-12	SEP 2007	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS
52.203-13	APR 2010	CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT
52.203-14	DEC 2007	DISPLAY OF HOTLINE POSTER(S) Paragraph (b)(3) Fill In: NASA LaRC Office of Inspector General; (757) 864-3262
52.203-15	JUN 2010	WHISTLEBLOWER PROTECTIONS UNDER THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009
52.204-2	AUG 1996	SECURITY REQUIREMENTS
52.204-4	AUG 2000	PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER
52.204-7	APR 2008	CENTRAL CONTRACTOR REGISTRATION
52.204-9	SEP 2007	PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL
52.204-10	JUL 2010	REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS
52.204-11	JUL 2010	AMERICAN RECOVERY AND REINVESTMENT ACT— REPORTING REQUIREMENTS *NOTE: Contractor shall comply with reporting requirements of this clause.
52.209-6	SEP 2006	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT
52.211-5	AUG 2000	MATERIAL REQUIREMENTS
52.211-15	APR 2008	DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS
52.215-2	MAR 2009	AUDIT AND RECORDS – NEGOTIATION(ALT I) (MAR 2009)
52.215-8	OCT 1997	ORDER OF PRECEDENCE - UNIFORM CONTRACT FORMAT
52.215-11	OCT 1997	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA – MODIFICATIONS
52.215-13	OCT 1997	SUBCONTRACTOR COST OR PRICING DATA-MODIFICATIONS
52.215-14	OCT 1997	INTEGRITY OF UNIT PRICES
52.215-15	OCT 2004	PENSION ADJUSTMENTS AND ASSET REVERSIONS
52.215-17	OCT 1997	WAIVER OF FACILITIES CAPITAL COST OF MONEY
52.215-18	JUL 2005	REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS
52.215-21	OCT 1997	REQUIREMENTS FOR COST OR PRICING DATA OR

		INFORMATION OTHER THAN COST OR PRICING DATA – MODIFICATIONS
52.216-7	DEC 2002	ALLOWABLE COST AND PAYMENT Insert 30 <sup>th</sup> in Paragraph (a)(3).
52.216-8	MAR 1997	FIXED FEE (applicable to CLIN 2 and CLIN 4.2)
52.216-18	OCT 1995	ORDERING Insert "contract effective date" through "contract completion" in paragraph (a).
52.216-19	OCT 1995	ORDER LIMITATIONS Insert "\$100" "\$10M", "\$20M", "1", and "2" in paragraphs (a), (b)(1), (b)(2), (b)(3) and (d), respectively.
52.216-22	OCT 1995	INDEFINITE QUANTITY Insert "contract completion date plus six months" in paragraph (d).
52.217-8	NOV 1999	OPTION TO EXTEND SERVICES Insert "5 days of contract completion
52.219-8	MAY 2004	UTILIZATION OF SMALL BUSINESS CONCERNS
52.219-9	JUL 2010	SMALL BUSINESS SUBCONTRACTING PLAN (ALTERNATE II) (OCT 2001)
52.219-16	JAN 1999	LIQUIDATED DAMAGES-SUBCONTRACTING PLAN
52.219-25	APR 2008	SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM - DISADVANTAGED STATUS AND REPORTING
52.222-1	FEB 1997	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES
52.222-2	JUL 1990	PAYMENT FOR OVERTIME PREMIUMS Insert "\$0" in paragraph (a).
52.222-3	JUN 2003	CONVICT LABOR
52.222-4	JUL 2005	CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION
52.222-21	FEB 1999	PROHIBITION OF SEGREGATED FACILITIES
52.222-26	MAR 2007	EQUAL OPPORTUNITY
52.222-35	SEP 2006	EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS
52.222-36	JUN 1998	AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES
52.222-37	SEP 2006	EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS
52.222-41	NOV 2007	SERVICE CONTRACT ACT OF 1965, AS AMENDED
52.222-54	JAN 2009	EMPLOYMENT ELIGIBILITY VERIFICATION
52.223-2	DEC 2007	AFFIRMATIVE PROCUREMENT OF BIOBASED PRODUCTS UNDER SERVICE AND CONSTRUCTION CONTRACTS
52.223-3	JAN 1997	HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA, ALTERNATE I (JULY 1995)
52.223-5	AUG 2003	POLLUTION PREVENTION AND RIGHT- TO-KNOW INFORMATION
52.223-6	MAY 2001	DRUG-FREE WORKPLACE
52.223-10	AUG 2000	WASTE REDUCTION PROGRAM
52.223-11	MAY 2001	OZONE DEPLETING SUBSTANCES
52.223-12	MAY 1995	REFRIGERATION EQUIPMENT AND AIR CONDITIONERS
52.223-14	AUG 2003	TOXIC CHEMICAL RELEASE REPORTING
52.223-15	DEC 2007	ENERGY EFFICIENCY IN ENERGY-CONSUMING PRODUCTS
52.225-5	AUG 2009	TRADE AGREEMENTS
52.225-13	JUN 2008	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES
52.227-1	DEC 2007	AUTHORIZATION AND CONSENT
52.227-2	DEC 2007	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT
52.227-14	DEC 2007	RIGHTS IN DATA--GENERAL ALTERNATE II (DEC 2007)

ALTERNATE III (DEC 2007) AS MODIFIED BY 1852.227-14 (Note: The paragraph numbering has changed in the updated FAR Clause 52.227-14. Until such time as 1852.227-14 is updated, all references in 1852.227-14 to subparagraph (3) must be changed to subparagraph (4).)

52.227-16	JUN 1987	ADDITIONAL DATA REQUIREMENTS
52.228-7	MAR 1996	INSURANCE--LIABILITY TO THIRD PERSONS
52.230-2	OCT 2008	COST ACCOUNTING STANDARDS
52.230-6	JUN 2010	ADMINISTRATION OF COST ACCOUNTING STANDARDS
52.232-9	APR 1984	LIMITATION ON WITHHOLDING OF PAYMENTS
52.232-17	OCT 2008	INTEREST
52.232-22	APR 1984	LIMITATION OF FUNDS
52.232-23	JAN 1986	ASSIGNMENT OF CLAIMS
52.232-25	OCT 2008	PROMPT PAYMENT (ALTERNATE I) (FEB 2002)
52.232-33	OCT 2003	PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION
52.232-36	FEB 2010	PAYMENT BY THIRD PARTY
52.232-37	MAY 1999	MULTIPLE PAYMENT ARRANGEMENTS
52.233-1	JUL 2002	DISPUTES (ALTERNATE I) (DEC 1991)
52.233-3	AUG 1996	PROTEST AFTER AWARD (ALTERNATE I) (JUN 1985)
52.236-22	APR 1984	DESIGN WITHIN FUNDING LIMITATIONS
52.236-23	APR 1984	RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR
52.236-24	APR 1984	WORK OVERSIGHT IN ARCHITECT-ENGINEER CONTRACTS
52.236-25	JUNE 2003	REQUIREMENTS FOR REGISTRATION OF DESIGNERS
52.237-2	APR 1984	PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION
52.237-3	JAN 1991	CONTINUITY OF SERVICES
52.239-1	AUG 1996	PRIVACY OR SECURITY SAFEGUARDS
52.242-1	APR 1984	NOTICE OF INTENT TO DISALLOW COSTS
52.242-3	MAY 2001	PENALTIES FOR UNALLOWABLE COSTS
52.242-4	JAN 1997	CERTIFICATION OF FINAL INDIRECT COSTS
52.242-13	JUL 1995	BANKRUPTCY
52.243-2	AUG 1987	CHANGES--COST-REIMBURSEMENT (ALTERNATE II) (APR 1984)
52.244-2	OCT 2010	SUBCONTRACTS Insert: (d) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts: any subcontract over \$700,000 Insert: (j) Paragraphs (c) and (e) of this clause do not apply to the following subcontracts, which were evaluated during negotiations: subcontractors evaluated during pre-award of the contract <i>Sierra Lobo Inc.</i> ; <i>Analytical Services &amp; Materials Inc.</i> ; <i>Tessada &amp; Associates Inc.</i> ; and <i>Wyle Laboratories Inc.</i> and all subcontractors evaluated prior to the award of contract modifications and task orders issued against the contract.
52.244-5	DEC 1996	COMPETITION IN SUBCONTRACTING
52.244-6	JUN 2010	SUBCONTRACTS FOR COMMERCIAL ITEMS
52.245-1	AUG 2010	GOVERNMENT PROPERTY
52.245-9	AUG 2010	USE AND CHARGES
52.246-23	FEB 1997	LIMITATION OF LIABILITY
52.246-24	FEB 1997	LIMITATION OF LIABILITY – HIGH VALUE ITEMS
52.246-25	FEB 1997	LIMITATION OF LIABILITY-- SERVICES
52.248-1	FEB 2000	VALUE ENGINEERING
52.249-6	MAY 2004	TERMINATION (COST-REIMBURSEMENT)

52.249-14	APR 1984	EXCUSABLE DELAYS
52.251-1	AUG 2010	GOVERNMENT SUPPLY SOURCES
52.253-1	JAN 1991	COMPUTER GENERATED FORMS

## II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
1852.203-70	JUN 2001	DISPLAY OF INSPECTOR GENERAL HOTLINE POSTERS
1852.204-75	SEP 1989	SECURITY CLASSIFICATION REQUIREMENTS
	Insert:	"Secret" and "Exhibit I" in 1 <sup>st</sup> and 2 <sup>nd</sup> sentences, respectively
1852.209-72	DEC 1988	COMPOSITION OF THE CONTRACTOR
1852.215-84	OCT 2003	OMBUDSMAN
	:	Insert in Paragraph (b): "Cynthia C. Lee, direct inquiries to the Office of Procurement Deputy Director, NASA Langley Research Center, Mail Stop 134, Hampton, VA 23681-2199; phone (757)864-2426; facsimile (757)864-8541"
1852.216-89	JUL 1997	ASSIGNMENT AND RELEASE FORMS
1852.219-74	SEP 1990	USE OF RURAL AREA SMALL BUSINESSES
1852.219-75	MAY 1999	SMALL BUSINESS SUBCONTRACTING REPORTING
1852.219-76	JUL 1997	NASA 8 PERCENT GOAL
1852.223-74	MAR 1996	DRUG- AND ALCOHOL-FREE WORKFORCE
1852.228-75	OCT 1988	MINIMUM INSURANCE COVERAGE
1852.237-70	DEC 1988	EMERGENCY EVACUATION PROCEDURES
1852.242-78	APR 2001	EMERGENCY MEDICAL SERVICES AND EVACUATION
1852.243-71	MAR 1997	SHARED SAVINGS

### III. The following additional clauses are applicable to CLIN 4.1 unless otherwise noted.

52.228-5	JAN 1997	INSURANCE – WORK ON A GOVERNMENT INSTALLATION
52.229-3	APR 2003	FEDERAL, STATE, AND LOCAL TAXES
52.232-1	APR 1984	PAYMENTS
52.232-8	FEB 2002	DISCOUNTS FOR PROMPT PAYMENT
52.243-1	AUG 1987	CHANGES—FIXED PRICE, ALTERNATE II (APR 1984)
52.246-16	APR 1984	RESPONSIBILITY FOR SUPPLIES
52.249-2	MAY 2004	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED PRICE)
52.249-8	APR 1984	DEFAULT (FIXED- PRICE SUPPLY AND SERVICE)

### IV. The following clauses are applicable only to construction subcontracts (Ref. H-12)

52.222-6	JUL 2005	DAVIS-BACON ACT
52.222- 7	FEB 1988	WITHHOLDING OF FUNDS
52.222-8	JUN 2010	PAYROLLS AND BASIC RECORDS
52.222-9	JUL 2005	APPRENTICES AND TRAINEES
52.222-10	FEB 1988	COMPLIANCE WITH COPELAND ACT REQUIREMENTS
52.222-11	JUL 2005	SUBCONTRACTS (LABOR STANDARDS)
52.222-12	FEB 1988	CONTRACT TERMINATION -DEBARMENT
52.222-13	FEB 1988	COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS
52.222-14	FEB 1988	DISPUTES CONCERNING LABOR STANDARDS
52.222-15	FEB 1988	CERTIFICATION OF ELIGIBILITY
52.222-27	FEB 1999	AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION

*52.225-9	FEB 2009	BUY AMERICAN ACT-CONSTRUCTION MATERIALS (UNDER \$7,443,000)
*52.225-11	AUG 2009	BUY AMERICAN ACT-CONSTRUCTION MATERIALS (OVER \$7,443,000)
*52.225-21	MAR 2009	REQUIRED USE OF AMERICAN IRON, STEEL, AND OTHER MANUFACTURED GOODS--BUY AMERICAN ACT--CONSTRUCTION MATERIALS * Applicable in lieu of FAR clause 52.225-9 when using funds appropriated under the Recovery Act as prescribed in FAR Part 25.1102(e)(1)
*52.225-23	AUG 2009	REQUIRED USE OF AMERICAN IRON, STEEL, AND OTHER MANUFACTURED GOODS--BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS * Applicable in lieu of FAR clause 52.225-1 when using funds appropriated under the Recovery Act as prescribed in FAR Part 25.1102(e)(1)
52.227-4	DEC 2007	PATENT INDEMNITY -CONSTRUCTION CONTRACTS
52.228-2	OCT 1997	ADDITIONAL BOND SECURITY
52.228-5	JAN 1997	INSURANCE - WORK ON A GOVERNMENT INSTALLATION
52.228-11	SEP 2009	PLEDGES OF ASSETS
52.228-12	OCT 1995	PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS
52.228-13	JUL 2000	ALTERNATIVE PAYMENT PROTECTIONS
52.228-14	DEC 1999	IRREVOCABLE LETTER OF CREDIT
52.228-15	NOV 2006	PERFORMANCE AND PAYMENT BONDS – CONSTRUCTION
52.232-5	SEPT 2002	PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS
52.232-27	OCT 2008	PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS
52.236-2	APR 1984	DIFFERING SITE CONDITIONS
52.236-3	APR 1984	SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK
52.236-5	APR 1984	MATERIAL AND WORKMANSHIP
52.236-6	APR 1984	SUPERINTENDENCE BY THE CONTRACTOR
52.236-7	NOV 1991	PERMITS AND RESPONSIBILITIES
52.236-8	APR 1984	OTHER CONTRACTS
52.236-9	APR 1984	PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS
52.236-10	APR 1984	OPERATIONS AND STORAGE AREA
52.236-11	APR 1984	USE AND POSSESSION PRIOR TO COMPLETION
52.236-14	APR 1984	AVAILABILITY AND USE OF UTILITY SERVICES
52.236-15	APR 1984	SCHEDULES FOR CONSTRUCTION CONTRACTS
52.236.21	FEB 1997	SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION —ALT I (APR 1984)
52.236-22	APR 1984	DESIGN WITHIN FUNDING LIMITATIONS
52.236-23	APR 1984	RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR
52.236-24	APR 1984	WORK OVERSIGHT IN ARCHITECT-ENGINEER CONTRACTS
52.236-25	JUNE 2003	REQUIREMENTS FOR REGISTRATION OF DESIGNERS
52.236-26	FEB 1995	PRECONSTRUCTION CONFERENCE
52.242-14	APR 1984	SUSPENSION OF WORK
52.243-4	JUN 2007	CHANGES
52.245-9	JUN 2007	USE AND CHARGES
52.246-12	AUG 1996	INSPECTION OF CONSTRUCTION
52.246-21	MAR 1994	WARRANTY OF CONSTRUCTION --ALTERNATE I (APR 1984)
52.248-3	SEP 2006	VALUE ENGINEERING-CONSTRUCTION
52.249-2	MAY 2004	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED PRICE) ALT I (SEP 1996)
52.249-10	APR 1984	DEFAULT (FIXED-PRICE CONSTRUCTION)
1852.209-72	DEC 1988	COMPOSITION OF THE CONTRACTOR
1852.236-73	DEC 1988	HURRICANE PLAN





## **I.2. CLAUSES IN FULL TEXT**

The following contract clauses pertinent to this section are hereby provided in full text and are applicable to the entire contract:

52.252-2	FEB 1998	CLAUSES INCORPORATED BY REFERENCE
52.215-19	OCT 1997	NOTIFICATION OF OWNERSHIP CHANGES
52.216-10	MAR 1997	INCENTIVE FEE (only applicable to CLINS 1 & 3)
52.222-42	MAY 1989	STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES
52.223-9	MAY 2008	ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED PRODUCTS
52.227-23	JUN 1987	RIGHTS TO PROPOSAL DATA (TECHNICAL)
52.252-6	APR 1984	AUTHORIZED DEVIATIONS IN CLAUSES
52.236-108 (LaRC)	JAN 2001	TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (applicable only to construction subcontracts, See H-12.)
1852.237-72	JUN 2005	ACCESS TO SENSITIVE INFORMATION
1852.237-73	JUN 2005	RELEASE OF SENSITIVE INFORMATION
1852.204-76	OCT 2009	SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES
52.232-19	APR 1984	AVAILABILITY OF FUNDS FOR THE NEXT FISCAL YEAR

## **I.3 CLAUSES INCORPORATED BY REFERENCE (FAR 52.252-2) (FEB 1998)**

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): <https://www.acquisition.gov/far/> or <http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>

## **I.4 NOTIFICATION OF OWNERSHIP CHANGES (52.215-19) (OCT 1997)**

- (a) The Contractor shall make the following notifications in writing:
- (1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.
  - (2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.
- (b) The Contractor shall-
- (1) Maintain current, accurate, and complete inventory records of assets and their costs;
  - (2) Provide the ACO or designated representative ready access to the records upon request;
  - (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
  - (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.
- (c) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

## **I.5 INCENTIVE FEE (52.216-10) (MAR 1997)**

- (a) General . The Government shall pay the Contractor for performing this contract a fee determined as provided in this contract.
- (b) Target cost and target fee . The target cost and target fee specified in the Schedule are subject to adjustment if the contract is modified in accordance with paragraph (d) of this clause.

(1) "Target cost," as used in this contract, means the estimated cost of this contract as initially negotiated, adjusted in accordance with paragraph (d) of this clause.

(2) "Target fee," as used in this contract, means the fee initially negotiated on the assumption that this contract would be performed for a cost equal to the estimated cost initially negotiated, adjusted in accordance with paragraph (d) of this clause.

(c) Withholding of payment. Normally, the Government shall pay the fee to the Contractor as specified in the Schedule. However, when the Contracting Officer considers that performance or cost indicates that the Contractor will not achieve target, the Government shall pay on the basis of an appropriate lesser fee. When the Contractor demonstrates that performance or cost clearly indicates that the Contractor will earn a fee significantly above the target fee, the Government may, at the sole discretion of the Contracting Officer, pay on the basis of an appropriate higher fee. After payment of 85 percent of the applicable fee, the Contracting Officer may withhold further payment of fee until a reserve is set aside in an amount that the Contracting Officer considers necessary to protect the Government's interest. This reserve shall not exceed 15 percent of the applicable fee or \$100,000, whichever is less. The Contracting Officer shall release 75 percent of all fee withholds under this contract after receipt of the certified final indirect cost rate proposal covering the year of physical completion of this contract, provided the Contractor has satisfied all other contract terms and conditions, including the submission of the final patent and royalty reports, and is not delinquent in submitting final vouchers on prior years' settlements. The Contracting Officer may release up to 90 percent of the fee withholds under this contract based on the Contractor's past performance related to the submission and settlement of final indirect cost rate proposals.

(d) Equitable adjustments. When the work under this contract is increased or decreased by a modification to this contract or when any equitable adjustment in the target cost is authorized under any other clause, equitable adjustments in the target cost, target fee, minimum fee, and maximum fee, as appropriate, shall be stated in a supplemental agreement to this contract.

(e) Fee payable.

(1) The fee payable under this contract shall be the target fee increased by fifty cents for every dollar that the total allowable cost is less than the target cost or decreased by thirty cents for every dollar that the total allowable cost exceeds the target cost.

In no event shall the fee be greater than ten percent or less than four percent of the target cost.

(2) The fee shall be subject to adjustment, to the extent provided in paragraph (d) of this clause, and within the minimum and maximum fee limitations in paragraph (e)(1) of this clause, when the total allowable cost is increased or decreased as a consequence of-

(i) Payments made under assignments; or

(ii) Claims excepted from the release as required by paragraph (h)(2) of the Allowable Cost and Payment clause.

(3) If this contract is terminated in its entirety, the portion of the target fee payable shall not be subject to an increase or decrease as provided in this paragraph. The termination shall be accomplished in accordance with other applicable clauses of this contract.

(4) For the purpose of fee adjustment, "total allowable cost" shall not include allowable costs arising out of-

(i) Any of the causes covered by the Excusable Delays clause to the extent that they are beyond the control and without the fault or negligence of the Contractor or any subcontractor;

(ii) The taking effect, after negotiating the target cost, of a statute, court decision, written ruling, or regulation that results in the Contractor's being required to pay or bear the burden of any tax or duty or rate increase in a tax or duty;

(iii) Any direct cost attributed to the Contractor's involvement in litigation as required by the Contracting Officer pursuant to a clause of this contract, including furnishing evidence and information requested pursuant to the Notice and Assistance Regarding Patent and Copyright Infringement clause;

(iv) The purchase and maintenance of additional insurance not in the target cost and required by the Contracting Officer, or claims for reimbursement for liabilities to third persons pursuant to the Insurance Liability to Third Persons clause;

(v) Any claim, loss, or damage resulting from a risk for which the Contractor has been relieved of liability by the Government Property clause; or

(vi) Any claim, loss, or damage resulting from a risk defined in the contract as unusually hazardous or as a nuclear risk

and against which the Government has expressly agreed to indemnify the Contractor.

(5) All other allowable costs are included in "total allowable cost" for fee adjustment in accordance with this paragraph (e) unless otherwise specifically provided in this contract.

(f) Contract modification. The total allowable cost and the adjusted fee determined as provided in this clause shall be evidenced by a modification to this contract signed by the Contractor and Contracting Officer.

(g) Inconsistencies . In the event of any language inconsistencies between this clause and provisioning documents or Government options under this contract, compensation for spare parts or other supplies and services ordered under such documents shall be determined in accordance with this clause.

## I.6 RESERVED

## I.7 RESERVED

## I.8 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (FAR 52.222-42) (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY: IT IS NOT A WAGE DETERMINATION

Employee Class	Monetary Wage
Analyst, Infrared	\$ 18.32
Analyst, Motor	\$ 18.32
Analyst, Oil	\$ 18.32
Analyst, Project	\$ 22.57
Analyst, Project (GIS)	\$ 27.05
Analyst, Vibration	\$ 18.32
Apprentice	\$ 13.69
Architect	\$ 22.57
Asbestos Worker	\$ 16.79
Backhoe Operator	\$ 17.53
Calibration Mechanic	\$ 17.53
Carpenter, Maintenance	\$ 16.79
Clerk, General	\$ 11.01
Computer System Analyst II	\$ 22.57
Crane Operator, Maintenance	\$ 17.53
Data Base Administrator	\$ 22.57
Drafter IV	\$ 15.25
Electrician, Maintenance High Voltage	\$ 18.32
Electrician, Maintenance	\$ 17.53
Elevator Repairer	\$ 17.53
Engineer, (5-15 Years Experience)	\$ 22.57
Engineer, Junior (<5 Years Experience)	\$ 18.66
Engineer, Senior (>15 Years Experience)	\$ 32.17
Engineering Technician I	\$ 9.80
Engineering Technician II	\$ 11.01
Engineering Technician III	\$ 12.31
Engineering Technician IV	\$ 15.25
Engineering Technician V	\$ 18.66
Engineering Technician VI	\$ 22.57
Engineering Drawings Files Clerk	\$ 9.80
Equipment Service Mechanic	\$ 17.53
Engineer, Computer (>5 Years Experience)	\$ 22.57

Insulator, Pipecover, Maintenance	\$ 16.79
Laborer, Class "B" Maintenance	\$ 11.21
Laborer, Class All Maintenance	\$ 12.14
Librarian	\$ 16.89
Machinist, Maintenance	\$ 17.53
Machinist, Precision	\$ 18.32
Manager, DAS Services	\$ 32.17
Manager, IT Services	\$ 32.17
Manger, Project (< 10 Years Experience)	\$ 22.57
Manger, Project (>10 Years Experience)	\$ 32.17
Mason, Bricklayer, Maintenance	\$ 17.53
Mechanic, Crane	\$ 17.53
Mechanic, Maintenance	\$ 17.53
Mechanic, Ref & A/C Maintenance	\$ 17.53
Millwright, Maintenance	\$ 17.53
Painter, Maintenance	\$ 16.79
Pipefitter, Maintenance	\$ 17.53
Planner	\$ 16.89
Plant Technician	\$ 17.53
Plant Technician, Senior	\$ 18.32
Precision Machine Repairman	\$ 18.32
Production Control Specialist	\$ 13.72
Programmer Analyst, Journeyman (>4 Years Experience)	\$ 22.57
Programmer Analyst, Junior (>2 Years Experience)	\$ 20.55
Programmer Analyst, Senior (>6 Years Experience)	\$ 27.05
Rigger, Maintenance	\$ 17.53
Roofer, Maintenance	\$ 16.79
Sheet Metal	\$ 17.53
Stationary Steam Engineer	\$ 17.53
Steamfitter	\$ 17.53
Surveyor, Licensed	\$ 22.57
System Analyst, Journeyman (>4 Years Experience)	\$ 27.05
System Analyst, Junior (>2 Years Experience)	\$ 22.57
System Analyst, Senior (>6 Years Experience)	\$ 32.17
Technician, Ref & A/C Maintenance	\$ 17.53
Utility Person	\$ 10.28
Water Treatment	\$ 16.79
Water Treatment Chemist	\$ 17.53
Welder	\$ 17.53
Technical Writer	\$ 22.57

## FRINGE BENEFITS

Annual Leave - Receives 13 days paid leave for service up to 3 years; 20 days for 3 to 15 years service; and 26 days for 15 years service or over.

Sick Leave - Receives 13 days paid leave per year.

Holidays - Receives 10 paid holidays per year.

Health Insurance - Government pays up to 72% of health insurance.

Group Life Insurance - Government pays one-third of the cost of the basic life insurance premium.

Retirement - The Government provides three retirement plans identified as the Civil Service Retirement System (CSRS), the Federal Employees Retirement System (FERS), and the CSRS Offset. Under the CSRS, the Government contributes 7% of the employees' base pay towards the retirement benefit and 1.45% towards Medicare. Under the FERS, the Government contributes 11.2% of the employees' base pay towards a basic benefit plan, 6.2% to Social Security, 1.45% towards Medicare, and 1% (plus matching contributions of up to 4% of basic pay, depending on employees' contributions) to a thrift savings plan. Under the CSRS Offset, the Government contributes 0.8% of the employees' base pay towards the retirement benefit, 6.2% to Social Security, and 1.45% towards Medicare. Part-time Federal employees receive pro rata annual leave, sick leave, holiday leave, health insurance, and group life insurance benefits based on the number of hours worked.

**I.9 ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED PRODUCTS (FAR 52.223-9) (MAY 2008)**

(a) Definitions. As used in this clause--

"Postconsumer material" means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

"Recovered material" means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall--

(1) Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of postconsumer material content; and

(2) Submit this estimate to Environmental Management Office, MS 418.

(End of clause)

**I.10 RIGHTS TO PROPOSAL DATA (TECHNICAL) (FAR 52.227-23) (JUN 1987)**

Except for data contained on pages \_\_\_N/A\_\_\_, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data--General" clause contained in this contract) in and to the data contained in the proposal dated August 8, 2003, upon which this contract is based.

**I.11 AUTHORIZED DEVIATIONS IN CLAUSES (FAR 52.252-6) (APR 1984)**

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

**I.12 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (LaRC 52.236-108) (JAN 2001)**

A. This clause specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled, "Default (Fixed Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied.

1. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

B. The following schedule of monthly anticipated adverse weather delays is based on historical climatic data for the project location and will constitute the baseline for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

#### MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

13 12 11 9 10 11 11 9 7 8 9 10

C. Upon acknowledgment of the Notice to Proceed and continuing throughout the contract, the Contractor shall record the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

D. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather delay days exceed the number of days anticipated in the schedule of monthly anticipated adverse weather delays above, the Contracting Officer will determine whether the Contractor is entitled to a time extension. The Contracting Officer will convert any qualifying delays to equivalent work days and issue a modification in accordance with the Contract Clause entitled, "Default (Fixed Price Construction)." Modifications for unusually severe weather will be for time extensions only and will not include monetary consideration.

#### **I.13 1852.237-72 ACCESS TO SENSITIVE INFORMATION (JUN 2005)**

(a) As used in this clause, "sensitive information" refers to information that a contractor has developed at private expense, or that the Government has generated that qualifies for an exception to the Freedom of Information Act, which is not currently in the public domain, and which may embody trade secrets or commercial or financial information, and which may be sensitive or privileged.

(b) To assist NASA in accomplishing management activities and administrative functions, the Contractor shall provide the services specified elsewhere in this contract.

(c) If performing this contract entails access to sensitive information, as defined above, the Contractor agrees to -

(1) Utilize any sensitive information coming into its possession only for the purposes of performing the services specified in this contract, and not to improve its own competitive position in another procurement.

(2) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(3) Allow access to sensitive information only to those employees that need it to perform services under this contract.

(4) Preclude access and disclosure of sensitive information to persons and entities outside of the Contractor's organization.

(5) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in this contract and to safeguard it from unauthorized use and disclosure.

(6) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(7) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(d) The Contractor will comply with all procedures and obligations specified in its Organizational Conflicts of Interest Avoidance Plan, which this contract incorporates as a compliance document.

(e) The nature of the work on this contract may subject the Contractor and its employees to a variety of laws and regulations relating to ethics, conflicts of interest, corruption, and other criminal or civil matters relating to the award and administration of government contracts. Recognizing that this contract establishes a high standard of accountability and trust, the Government will carefully review the Contractor's performance in relation to the mandates and restrictions found in these laws and regulations. Unauthorized uses or disclosures of sensitive information may result in termination of this contract for default, or in debarment of the Contractor for serious misconduct affecting present responsibility as a government contractor.

(f) The Contractor shall include the substance of this clause, including this paragraph (f), suitably modified to reflect the relationship of the parties, in all subcontracts that may involve access to sensitive information.

#### **I.14 1852.237-73 RELEASE OF SENSITIVE INFORMATION (JUN 2005)**

(a) As used in this clause, "sensitive information" refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at 1852.237-72, Access to Sensitive Information.

(c)(1) The Contractor shall identify any sensitive information submitted in support of this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages [insert page numbers or other identification of pages].

Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.

(2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

(1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.

(2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

(3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(4) Allow access to sensitive information only to those employees that need it to perform services under its contract.

(5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.

(6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.

(7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

- (e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures
- (f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.
- (g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

#### **I.15 1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (OCT 2009)**

- (a) The Contractor shall protect the confidentiality, integrity, and availability of NASA Electronic Information and IT resources and protect NASA Electronic Information from unauthorized disclosure.
- (b) This clause is applicable to all NASA contractors and subcontractors that process, manage, access, or store unclassified electronic information, to include Sensitive But Unclassified (SBU) information, for NASA in support of NASA's missions, programs, projects and/or institutional requirements. Applicable requirements, regulations, policies, and guidelines are identified in the Applicable Documents List (ADL) provided as an attachment to the contract. The documents listed in the ADL can be found at: [www.nasa.gov/offices/ocio/itsecurity/index.html](http://www.nasa.gov/offices/ocio/itsecurity/index.html). For policy information considered sensitive, the documents will be identified as such in the ADL and made available through the Contracting Officer.
- (c) Definitions
- (1) IT resources means any hardware or software or interconnected system or subsystem of equipment, that is used to process, manage, access, or store electronic information.
- (2) NASA Electronic Information is any data (as defined in the Rights in Data clause of this contract) or information (including information incidental to contract administration, such as financial, administrative, cost or pricing, or management information) that is processed, managed, accessed or stored on an IT system(s) in the performance of a NASA contract.
- (3) IT Security Management Plan -- This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract.
- (4) IT Security Plan -- this is a FISMA requirement; see the ADL for applicable requirements.

Within 30 days after contract award, the Contractor shall develop and deliver an IT Security Management Plan. The delivery address and approval authority will be included in the ADL.

All contractor personnel requiring physical or logical access to NASA IT resources must complete NASA's annual IT Security Awareness training. Refer to the IT Training policy located in the IT Security website at <https://itsecurity.nasa.gov/policies/index.html>.

(d) The Contractor shall afford Government access to the Contractor's and subcontractors' facilities, installations, operations, documentation, databases, and personnel used in performance of the contract. Access shall be provided to the extent required to carry out a program of IT inspection (to include vulnerability testing), investigation and audit to safeguard against threats and hazards to the integrity, availability, and confidentiality of NASA Electronic Information or to the function of IT systems operated on behalf of NASA, and to preserve evidence of computer crime.

(e) At the completion of the contract, the contractor shall return all NASA information and IT resources provided to the Contractor during the performance of the contract in accordance with retention documentation available in the ADL. The Contractor shall provide a listing of all NASA Electronic information and IT resources generated in performance of the contract. At that time, the Contractor shall request disposition instructions from the Contracting Officer. The Contracting Officer will provide disposition instructions within 30 calendar days of the contractor's request.

(f) The Contracting Officer may waive specific requirements of this clause upon request of the contractor. The Contractor shall provide all relevant information requested by the Contracting Officer to support the waiver request.



The Contractor shall insert this clause, including this paragraph in all subcontracts that process, manage, access or store NASA Electronic Information in support of the mission of the Agency.

(End of clause)

**I.16 52.232-19 AVAILABILITY OF FUNDS FOR THE NEXT FISCAL YEAR (APR 1984)**

Funds are not presently available for performance under this contract beyond the amount allotted and funded through date as identified in funding modifications to the contract or otherwise identified in individual task order awards. The Government's obligation for performance of this contract beyond that date is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise for performance under this contract beyond the date specified in funding modifications to the contract or otherwise identified in individual task order awards, until funds are made available to the Contracting Officer for performance and until the Contractor receives notice of availability, to be confirmed in writing by the Contracting Officer.

(End of clause)

**PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**

**SECTION J - LIST OF EXHIBITS and ATTACHMENTS**

Exhibit A	Statement of Work, Revision 7, dated October 2011
Exhibit B	IDIQ Direct and Indirect Rates (Revised Mod 141)
Exhibit C	Contract Documentation Requirements, Revision 2, dated October 2011
Exhibit D	Government-Furnished Property (off-site)
Exhibit E	Installation-Accountable Government Property (on-site)
Exhibit F	RESERVED
Exhibit G	Safety and Health Plan (Revised Mod 26)
Exhibit H	RESERVED
Exhibit I	Contract Security Classification Spec. (DD Form 254) (Revised Mod 111)
Exhibit J	Register of Wage Determination and Fringe Benefits (Revised Mod 141)
Exhibit K	Collective Bargaining Agreements (Revised Mod 111)
Exhibit L	IT Security Implementation Plan, dated December 20, 2010
Exhibit M	Small Business Subcontracting Plan (Addendum #4 dated 4/11/11)
Exhibit N	PIV Card Issuance Procedures
Exhibit O	Organizational Conflict of Interest Avoidance Plan (Mod 136)

Exhibit A

# Statement of Work

for

Research Operations, Maintenance  
and Engineering

# ROME

NASA Langley Research Center

October 2011

**REVISION 7**

# RESEARCH OPERATIONS, MAINTENANCE AND ENGINEERING

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## **1.0 INTRODUCTION**

The NASA Langley Research Center (LaRC) in Hampton, VA, has been instrumental in shaping aerospace history for more than nine decades. Established in 1917 as the first National Civil Aeronautics Laboratory, LaRC has become a comprehensive, world-class center for aeronautics, atmospheric science, space technology, and structures and materials research. Further information on the LaRC mission and its contribution to the NASA vision can be obtained from the web site <http://www.nasa.gov/centers/langley>. LaRC possesses a wide variety of unique aeronautical/aerospace research facilities and systems in addition to a large institutional infrastructure, such as roads, central utilities, buildings, structures and installations. A comprehensive facility management program ensures that these facilities are operated, maintained and engineered in accordance with NASA and LaRC mandates, in support of state-of-the-art research testing. LaRC is an OSHA Voluntary Protection Program (VPP) Star site and the Langley Management System (LMS) is ISO 9001:2000 certified.

## **1.1 SCOPE**

The Research Operations, Maintenance, and Engineering (ROME) contract includes a broad scope of research facility-related operations, maintenance, engineering and related information technology (OME & IT) support services, including the development of new and emerging capabilities and technologies that will evolve over the life of the contract. While the majority of work is directly in support of LaRC at the Center, other industry partners and Government agencies may be supported, occasionally at remote sites. The Contractor shall, except as otherwise specified, furnish all personnel, training, facilities, equipment materials, transportation, and management necessary to perform the following major categories of work:

- a. Contract management, customer service, work management and control
- b. Research facilities operations and research testing
- c. Central utilities operations, including steam, compressed air, electrical power distribution, facility systems, energy management, and potable water
- d. Research and institutional facility maintenance, repairs, modification, construction and system development
- e. Maintenance services, including reliability centered maintenance, repairs, instrumentation calibration and repair, instrumentation metrology and data systems maintenance
- f. Research and institutional facility and systems engineering, including pre-project planning, design, and construction
- g. Engineering services, including facilities configuration management, reliability engineering, tactical engineering, safety and risk engineering evaluations, pressure system recertification, drafting and project management/planning support
- h. Research facility technology development, including facility automation systems, data acquisition systems, instrumentation systems and test techniques.



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- i. Documentation, drawing files, construction specifications, virtual libraries and library management
- j. OME-related IT services including administration, planning, development maintenance and project management and deployment
- k. Equipment management support for all Installation Accountable Government Property

### 1.1.1 Facilities

The Contractor shall furnish facility OME and IT services to all active LaRC facilities and installations specified in Appendix 1.1, *LaRC Facilities and Installations*. The Contractor shall provide services to each facility in a manner commensurate with that facility's status as reflected on the test schedule. For information concerning facility status, see SOW Section 2.2.3, Facility Priority Meeting. The Government will provide on-site technical and office space for 300 Contractor employees.

### 1.1.2 Acronyms, Appendices, Applicable Regulations

See Appendix 1.2 for *Commonly Used Acronyms*; Appendix 1.3 for *Applicable Regulations, Statutes, Procedures and Standards*; and Appendix 1.4, for the *Table of Contents for Appendices*.

## **1.2 GOALS**

The Contractor shall develop and implement innovative and cost-effective management systems, processes and initiatives to achieve the following specific contract goals while meeting all Statement of Work (SOW) requirements and performance standards.

### 1.2.1 Excellence in Safety and Occupational Health

NASA safety initiatives include the goal to become the Nation's leader in the safety and occupational health of the NASA work force and in the safety of the products and services that NASA provides. Accordingly, the Contractor shall ensure proactive and sustained excellence in providing for the safety and occupational health of the public, astronauts and pilots, employees, and high value equipment and property. Basic characteristics and attributes of safety and occupational health excellence include, but are not limited to:

- a. Achievement of the NASA expectation for zero mishaps in the workplace
- b. A comprehensive and effective safety and health program that includes:
  - 1. Management commitment and employee involvement
  - 2. System and worksite hazard analysis
  - 3. Hazard prevention and control
  - 4. Safety and health training
- c. A periodic Contractor safety and health self-evaluation and reporting process
- d. Utilization of an OSHA VPP or equivalent third party program evaluation

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### 1.2.2 Technical Excellence

The Contractor shall ensure proactive and sustained technical excellence in providing safe, accurate, secure, timely and efficient support to enable LaRC to meet its mission and increase its value to the Nation and to its research customers. Basic characteristics and attributes of technical excellence include, but are not limited to:

- a. Experienced and competent technical leaders in each of the contract's core mission areas
- b. Comprehensive knowledge of the LaRC infrastructure that effectively and consistently meets mission requirements
- c. Highly trained personnel that are experienced, versatile and readily adaptable to new techniques and technology
- d. Effective implementation of OME & IT services and projects that are accurate, thorough, and are performed with a high degree of technical expertise
- e. Proactive research customer engagement resulting in repeat business and the highest level of customer trust and satisfaction in LaRC

### 1.2.3 Effective Leadership, Management and Processes

The Contractor shall provide qualified and experienced leadership, management teams, and processes that deliver high value to the LaRC research community. Basic characteristics and attributes of effective leadership management and processes include, but are not limited to:

- a. A strong local and corporate leadership, with demonstrated experience to:
  - 1. Manage, operate, maintain, and modify large, complex technical, research and institutional facilities
  - 2. Manage the full spectrum support services necessary to meet all contract requirements
  - 3. Manage change
- b. Processes are streamlined, well-defined, add value, and incorporate meaningful performance measures
- c. Personnel and scheduling flexibility efficiently supports a dynamic requirements environment
- d. Effective lines of communication with all LaRC partners, customers, and interfacing Contractors
- e. Technology improvements, industry best practices, standards and models are used to reduce cost and enhance productivity
- f. Leadership and skills to improve NASA's fiscal and management accountability by effectively aligning the OME processes with the Agency's processes and integrating the OME IT systems with the Agency's business systems

### 1.2.4 Facility Reliability and Availability

The Contractor shall ensure asset (e.g. research facilities, plants, offices, utility systems, equipment, and information technology) reliability, availability, maintainability, and configuration management. Basic characteristics and attributes of facility reliability and availability include, but are not limited to:

- a. Support is responsive, well integrated, and thoroughly coordinated with customer and Government requirements
- b. Conflicting requirements are resolved by data-driven solution assessments and sound decision processes
- c. Interruptions to operations are minimal while mission objectives and customer satisfaction are attained
- d. Research schedules are met due to proactive facility maintenance, precise quality control procedures, and accurate configuration management

### 1.2.5 Effective Information Technology Systems

The Contractor shall provide Information Technology (IT) systems and processes that integrate and streamline information flow in order to facilitate timely management decisions, ensure facility reliability provide high quality research data, and increase customer satisfaction. Basic characteristics and attributes of efficient, effective IT and systems include, but are not limited to:

- a. IT systems are secure, reliable, available, and in compliance with Government policy and guidelines
- b. IT systems support the OME business goals and objectives and are integral to the daily decision processes
- c. IT meets the customer's needs, is accessible, easy to find, useful and adds value
- d. Data acquisition and facility automation systems are effectively integrated to provide accurate and quality data and safe, responsive facility operation
- e. The following elements are achieved:
  1. More effective planning of IT investments
  2. Creation of easy-to-find single points of access
  3. Reduction of the Government and Contractor's reporting burden
  4. OME information that is shared more quickly and conveniently
  5. Automation of internal processes reduces costs and utilizes Government and industry best practices

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### 1.2.6 Cost Reduction and Control

The Contractor shall reduce and aggressively control the cost of LaRC research facility operations, maintenance, and engineering and related IT services while maintaining technical excellence within manageable levels of risk. Basic characteristics and attributes of cost reduction and control include, but are not limited to:

- a. Cost reduction and improvement initiatives that are well defined, and include justifications, cost-benefit analyses, risk assessments, and implementation plans
- b. Proposed initiatives that leverage ongoing LaRC initiatives and are accelerated to maximize benefits in the early years of the contract
- c. Initiative results that are measured, validated and documented
- d. Cost analysis that is traceable to work outputs and provides real-time information to support mission decisions
- e. Cost that is collected by facility and Work Breakdown Structure (WBS) element to facilitate cost visibility and allocation in conformance with NASA and LaRC policy
- f. Cost control that includes accurate accounting, thorough assessment, timely and sound decisions and recommendations
- g. Customer satisfaction that increases while cost reduction and control is accomplished

### 1.2.7 Creation of a NASA/Contractor Partnership

The Contractor shall participate in the successful creation of a mutually beneficial NASA/Contractor partnership. Basic characteristics and attributes of a successful partnership include substantial progress toward meeting all of the above-mentioned specific objectives. In addition, NASA and the Contractor will collaboratively:

- a. Resolve issues expeditiously and to the satisfaction of customers
- b. Develop and accomplish meaningful metrics
- c. Develop trust and open communications
- d. Evaluate and exploit opportunities for marketing and utilization of excess LaRC facility capacity
- e. Participate in LaRC sponsored formal partnering sessions with the Contractor to be conducted at LaRC. The goal of this initiative is to develop and implement a contract management strategy that becomes mutually beneficial and ingrained within the LaRC culture.

### 1.2.8 Research Facility Operations

As demand for testing services waxes and wanes both within a given research facility and across the suite of LaRC's facilities, the ability to size facility capacity through use of different strategies and operational structures is critical to financial performance. The Government will continually monitor projected demand for its research facilities and implement the strategies and operational structures that best offer the desired capacity

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and financial performance. Though not all inclusive, examples of operational structures available for implementation include modulating the number of operational hours available and the use of shared staffing that rotates across facilities to meet changes in demand. Given the Government's strategies and operational structures, the Government will provide operational and budgetary parameters in accordance with SOW 2.3.2 for use in the Contractor's Annual Operations Plan (AOP). The requirements for the AOP are contained in Section 2.3 of this SOW.

A key component of the Government's operations approach is the use of a blended workforce consisting of Government and Contractor employees to implement the strategic objectives and priorities formulated by the Government. Strategic functions will be executed by the Government and will be focused on setting strategic direction and priorities. Tactical functions will be executed by the blended workforce and will be focused on day-to-day operations within the facilities. An objective of this approach is its flexibility and adaptability to meet evolving mission requirements, business environment changes, and implementation of different operational structures. Though not all inclusive of required workforce attributes, the Contractor's workforce shall have the ability to move across facilities and/or re-scale as demand increases or decreases, the ability to implement new skill sets within the workforce to align with requirements, and the ability to maintain core capabilities and knowledge to meet future requirements. As a component of the Government's operational strategy, the Government intends to migrate tactical operations of certain functions defined in this SOW to the Contractor. The Government's migration of functions will be based on changes in the Center's mission, budget variations, changes within the Government workforce, and the demand of the facilities. In addition, the Government may assume functions for operations based on the needs of the Government to address skill mix deficiencies and workforce level disparities.

Safe migration of wind tunnel operational functions as described in SOW Section 2.1 is essential to the success of LaRC and the ROME contract. Wind tunnel operations are inherently high-risk and a critical Center mission element. The safe operation of these facilities and delivery of high quality research data will continue to be LaRC's highest priorities. Given the complexity of the functions involved in the operation of these facilities and the operational knowledge that will be shared between the Government and Contractor, the Government and Contractor will execute a knowledge transfer and sharing strategy that allows Contractor and Government personnel to work alongside each other as a blended workforce. The Government and Contractor are jointly responsible for the overall safe operation of the facility. The Contractor shall be responsible for the safety of its employees at all times. To assist with the migration of safety, maintenance, test engineering, and operations knowledge from Government to Contractor personnel, the Contractor shall work with the Government to complete research projects that will be in progress. During this time, the Contractor shall be responsible for capturing and documenting research facility operational and process knowledge.

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The contractor shall:

- a. Support the development of the LaRC strategic and business plans for the accomplishment of the LaRC vision.
- b. Develop tactical and management processes that enable achievement of LaRC goals and objectives. Support strategic planning and implementation activities. Scan the LaRC environment for developments and trends that are relevant to the Center vision, goals, and objectives.
- c. Principle Relationships: The Contractor shall support and participate in the continuation of the LaRC migration of functions process and changes to the operational models, to include support to LaRC in the development of the strategic vision, goals, and objectives.
- d. Support and contribution to the Center's long range planning. This includes support of the future test capability of LaRC. The contractor shall explore trends through strategic market analyses by planning teams and relate them to the environmental and resource availability trends perceived for the future. This shall include informing potential customers of current and proposed LaRC capabilities to assist them in planning their development programs at LaRC.
- e. Develop, maintain, and distribute a LaRC Consolidated Facilities Schedule reflecting long range forecasts and monthly, weekly, and daily schedules of test and research facility operations.

### **1.3 GENERAL REQUIREMENTS**

All work shall meet the requirements specified herein and shall be accomplished in conformance with approved, accepted, and most current versions of standards of the industry; equipment manufacturers recommendations; all applicable NASA, NASA LaRC, local, state, and federal standards; and all applicable codes, as referenced in this document. The Contractor shall perform all facility modification and construction in accordance with specifications and standards contained in SOW Section 4.1.6

#### **1.3.1 Configuration Management**

The Contractor shall ensure that the configurations of all systems, including facility mechanical, electrical, control, process systems, Data Acquisition Systems (DAS), Facility Automation Systems (FAS) and IT systems are reviewed, approved in accordance with the appropriate Configuration Management procedures, and placed under configuration management, as required by this contract. See SOW Section 3, Maintenance, for DAS configuration management requirements, Section 4, Engineering, for Facilities Configuration Management requirements, and Section 5, Information Technology, for IT system configuration management requirements.

### 1.3.2 Critical Contractor Interfaces

The Contractor will primarily interface with the Center Operations Directorate (COD) for coordinating OME and IT tasks with the Government. However, research test planning and execution will require interface with research customers, facility management organizations (e.g. Ground Facilities Testing Directorate (GFTD) and Research Directorate (RD), other service providers at LaRC, and possibly other external service providers; maintenance and repair work will require interfaces with facility occupants, including Government and Contractor employees; engineering services and projects will require interfaces with research customers, COD personnel, and facility occupants; and IT services will require interface with all LaRC users of the contractor managed IT systems. The Contractor shall interface with the Contracting Officer (CO) and/or Contracting Officer's Technical Representative (COTR) to address and resolve contractual issues. Roles and responsibilities for critical interfaces are identified and expanded in Appendix 1.6, *Critical Contract Interfaces*. In some cases, the position described (e.g. Facility Coordinator or Test Engineer) will be a Contractor employee, while in other cases a NASA employee may hold that position. In either case, LaRC has designated these functions for the performance of specific and vital roles and responsibilities.

### 1.3.3 Licenses and Certifications

The Contractor shall obtain and submit to the CO all licenses required to conduct business (e.g. local or state business licenses) prior to beginning work on this contract. Work requiring personnel licensing and certification shall not commence before the Contractor obtains and submits to the CO the required licensing and certifications as stated below in Section 1.3.4. All licenses and certificates shall be kept up-to-date throughout the contract period.

### 1.3.4 Worker Qualifications

The Contractor shall supply and administer a flexible, competent, and qualified staff, integrated appropriately across all areas of the contract in order to fully support and accomplish the requirements. Subcontractors and/or teaming arrangements shall be fully integrated in the Contractor's management structure. The Contractor shall ensure all personnel are qualified on the basis of appropriate educations, training, experience, and certification to perform assigned tasks, accomplishing safety critical operations in compliance with regulatory requirements and in accordance with site-specific standards and procedures (e.g. Safety Operator). The degree of skill of individuals shall be commensurate with that required for the work. All apprentices and trainees shall be supervised and shall have all work inspected by the applicable lead mechanic, technician, or engineer for their particular field. See Appendix 1.7, *Worker Qualifications*, for selected worker qualification requirements.

### 1.3.5 Training

The Contractor shall develop and implement a training program to accomplish specialized and site-specific training and development of Contractor employees to ensure that worker skills, qualifications, certifications and experience are commensurate with the employees' work assignment and consistent with aerospace/industry standards and NASA requirements. Training shall ensure that employees working on high-energy LaRC systems demonstrate knowledge of the overall system concepts and an understanding of the system components and their operating characteristics. Training may include, but is not limited to, classroom instruction (local or factory), hands-on training, and a practical or written testing and certification program. The Contractor shall establish and maintain a registry of specialized and site-specific Contractor employee qualifications, certifications, and training. The register shall be current to within ten (10) calendar days of any change in the employee's training or qualification status. On a space available basis, and as agreed to between the Contractor and the CO, the Contractor shall provide contract related training for selected NASA civil service OME personnel in LaRC facility processes.

#### 1.3.5.1 Training and Certification Plan

The Contractor shall maintain an OME and IT Training and Certification Plan. The plan shall provide a start-to-finish training program that includes all lesson requirements and address, by facility and function, which Contractor employees are qualified to perform specific operations in each facility (both research and central utility facilities). The training and certification plan shall include the current state of workforce readiness, the training required in the upcoming year, recurrent/refresher training required to maintain a fully trained workforce, additional employee improvement training necessary to ensure remediation for personnel that may not have been previously exposed to all test processes or techniques, and methods for accomplishing training in a timely manner. The training and certification plan shall include, but is not limited to:

- a. Description of the Contractor OME & IT certification program including a list of required certifications for all technical functions
- b. Training requirements to meet each of those certifications
- c. Training and certification schedule
- d. Procedure that establishes the individual's certification
- e. How certification records will be maintained
- f. Procedures by which NASA and other Contractor personnel may obtain training
- g. Instructor training and certification requirements and processes

#### 1.3.5.2 Training and Certification

For those functions the Contractor will be required to perform in accordance with the AOP, the Government will provide facility specific training and certification for both Government and Contractor employees designated to perform research facility operations in specified research facilities. During this period, the Contractor shall



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develop consistent and standardized research facility operations, training and certification processes and procedures. Upon the establishment of consistent and standardized training and certifications processes and procedures, and as mutually agreed upon between both parties, the Government will transfer leadership and overall responsibility for research facility operations training and certifications for specified facilities and functions to the Contractor.

1.3.5.2.1 The Contractor shall ensure the quality and integrity of the training and certification program and provide a process in its Training and Certification Plan for evaluation and implementation of proposed changes to the training and certification process. The change process shall provide clear traceability of changes in production procedures and methods to changed contract and/or facility operations requirements.

### 1.3.5.3 Training Categories

The Contractor shall establish and implement training requirements based on the following categories:

- a. Safety training: Safety training and certifications are specified in LPR 1740.6, *Personnel Safety Certification*, and LPR 1710.10, *Langley Research Center Energy Control Program (Lockout/Tagout)*. Examples include Safety Operator, Ionizing Radiation Worker, Hazardous Material, and High Worker. The Government will issue Safety certifications in accordance with LPR 1710.10. However, the Contractor shall provide Safety Operator Field Certifiers to field certify its own Safety Operator Candidates in accordance with LPR 1710.10 within six months from the contract implementation date.
- b. Operational training: Operational training includes all training related to operations (wind tunnel or utilities). Operational training includes, but is not limited to, process, procedures, and institutional equipment safety training. Wind-tunnel operational training includes facility configuration, operation, test or test technique training. Facility specific technical topics that shall be addressed in an operational training program are identified in the Standard Operating Procedures, Integrated Operations Procedures, and in SOW Section 2.
- c. Certification or Qualification Training: Includes all training required to obtain/maintain a process or personnel certification/qualification. Process certifications and qualifications are specified in LPR 1740.7, *Process Systems Certification Program*, and as specified in Sections 1.3.4 and 2.1 of this SOW. Certification, when required, shall verify that individuals possess the competencies, skills, and experience pertinent to their work assignment and that those workers demonstrate a working knowledge of the laws, regulations and NASA directives pertinent to their tasks.
- d. Technical training: Includes ongoing OME and IT training and development required to maintain and expand competencies in state of the art and LaRC

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specific systems and technologies. Also included is corporate and local support for continuing formal education and on the job training for technical services personnel.

### 1.3.5.4 Instructors

Where the objective of training is to develop certified workers, the Contractor shall provide trained and certified instructors to conduct all training activities. The Contractor shall maintain instructor training and certification plans and guides in accordance with the approved training plan (Reference Section 1.3.5.1)

### 1.3.5.5 Knowledge Capture

The Government will specify the facilities that the Contractor shall capture and document the critical knowledge residing within the existing research facility operations workforce. This process shall facilitate safe operations of the affected research facilities and enhance present and future employee training. This knowledge base currently consists of current OME and IT staff knowledge, experience, and training that is in various stages of documentation, but is largely un-documented. The Contractor shall also acquire knowledge through familiarization with established operating documentation, such as Standard Operating Procedures (SOP) and Integrated Operating Procedures (IOP).

### 1.3.6 Safety and Environmental Requirements

The Contractor shall ensure that all work is conducted in a safe manner and complies with all safety, health, and environmental directives, instructions, policies, regulations and applicable SpecsIntact requirements, and any revisions, updates, or successor documents to those identified in this contract (reference Appendix 1.3, *Applicable Regulations, Statutes, Procedures and Standards*). The Contractor shall demonstrate proactive and innovative safety and health practices on a continual basis throughout the contract period. The Contractor shall provide an ISO 9001:2000 registered, process-based Safety and Environmental Program. The Safety Program shall include a standard Safety Manual with proven processes and checklists for the contract performance.

#### 1.3.6.1 Contractor's Safety and Environmental Program

The Contractor shall establish a proactive safety and environmental program that is commensurate with the LaRC safety policy to provide a safe and healthful workplace for all employees. The Contractor shall participate in committees, reviews, and teams to further the safety initiatives at LaRC. The Contractor shall develop a Safety Training and Awareness Program including documented new employee orientation, routine and special training, active participation in LaRC "Safety and Health Awareness Week (SHAW)" and safety meetings as required in LPR 1740.3, *Facility Safety Head and Facility Coordinator Guide*. Personnel training records shall be maintained in

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accordance with SOW Section 1.3.5. The Contractor shall ensure that its employees report any accident, fire, toxic chemical, electrical, security, flooding, or police emergency in accordance with the CO approved Safety and Health Plan. The Contractor shall report unsafe facility and equipment conditions discovered during the performance of this contract to the Facility Safety Head immediately upon discovery.

### 1.3.6.2 Safety Clearance Procedures (Lockout/Tagout)

The Contractor shall provide certified Safety Operator Field Certifiers and certified Safety Operators to perform Safety Clearance Procedures in accordance with policies and procedures in LPR 1710.10, as specified in Paragraphs (a) and (b) below. Contractor Safety Operator personnel performing Safety Clearance Procedures are subject to random unscheduled drug testing in accordance with NASA FAR Supplement Clause 1852.223-74, Drug- and Alcohol-Free Workforce.

- a. The Contractor shall perform Safety Clearance Procedures to secure systems and equipment in the performance of this contract. Included are electrical systems up to 115,000 volts, high-pressure systems up to 12,000 PSI, and various mechanical systems and equipment.
- b. The contractor shall also perform Safety Clearance Procedures when needed to secure systems and equipment in (a) above for access by other Contractors and Government personnel.

### 1.3.6.3 Disaster Preparedness

The Contractor shall provide support when requested by the Emergency Preparedness Officer (EPO) in accordance with LPR 1046.1, *Emergency Management Plan*, and LPR 8715.1, *Hurricane Response and Recovery Plan*, to maintain and protect LaRC facilities in the event of manmade (e.g. facility accidents, biohazards) and natural disasters (e.g. weather events). Within 30 calendar days of the contract implementation date, and annually thereafter, the Contractor shall submit to the CO for approval a Disaster Preparedness Plan to support the EPO in response to emergencies. The plan shall also delineate appropriate immediate action to prevent/limit further damage to facilities that have sustained damage from a weather event.

The Contractor's emergency preparedness and response may include resolution of unusual or emergency situations. The Contractor may be required to assist NASA, within the general scope of work, but in currently unidentified ways, in preparation for, or in response to emergencies. Obligations under this requirement shall only arise when one or more of the criteria at FAR 18.001, enabling NASA to utilize "Emergency Acquisition Flexibilities", are met. If the emergency preparedness and response requirements result in changes to the contract, all contract adjustments will be processed in accordance with the Changes clause of this contract. All obligations under this requirement will be handled through the Annual Work Plan (AWP) as detailed in Section 3.1.11.1.

1.3.6.4 Hazardous/Regulated/Non-Hazardous Material and Waste

The Contractor shall handle, remove, work with, and/or package for disposal hazardous/regulated/non-hazardous wastes including, but not limited to asbestos, polychlorinated biphenyls (PCBs), coatings and corrosion control waste, and contaminated waste oil as encountered in the performance of the work. Unless otherwise stated, the Government will perform disposal of hazardous/regulated/non-hazardous wastes generated at LaRC. The Contractor shall dispose of any asbestos, medical, and/or bio-hazardous waste. The Contractor shall manage the waste in accordance with applicable Federal, State, and local environmental laws, and LAPD 8500.1, *LaRC Environmental and Energy Management*. The Contractor shall ensure that all Satellite Accumulation Areas (a) in facilities that have ROME Contractor Facility Environmental Coordinators and (b) at temporary maintenance, construction, or demolition sites under the Contractors control are maintained in accordance with LAPD 8500.1. The contractor shall ensure that all employees who handle hazardous waste and used oil attend mandatory LaRC Waste Management Training provided by the Government. When required, hazardous material shall be purchased and inventoried in accordance with LPR 1710.12, *Potentially Hazardous Materials-Hazard Communication Standard*, LPR 8800.1, *Environmental Program Manual*, and LMS-CP-4759, *Acquisition of Hazardous Materials*. The Contractor shall use the Chemical Materials Tracking System (CMTS) (<http://emis.ndc.nasa.gov/cmts/>) to report inventory of LaRC purchases of potentially hazardous material. The Contractor shall purchase only those materials required for a specific task and shall enter all approval forms required for the potentially hazardous material purchase in the CMTS within five (5) calendar days of the purchase. The Contractor shall update the LaRC Asbestos Configuration Management Plan (Section 4.1.2.6) when any asbestos is removed from a facility or discovered in a facility in accordance with LPR 1740.4, *Facility Systems Safety Analysis and Configuration Management*.

1.3.6.5 Hazardous Material (HAZMAT) Emergency Response

The Contractor shall provide HAZMAT emergency response 24 hours per day, 7 days per week for (a) biological and chemical HAZMAT incidents including, but not limited to, sewage leaks, oil spills, chemical spills, fuel spills, weapons of mass destruction events, refrigerant release, waste contamination, and blood, and (b) support for LaRC emergency responses per LPR 8715.12, *LaRC Integrated Spill Contingency Plan*. The Contractor shall utilize (a) HAZMAT response equipment and supplies that are stored in Building 1292-A and (b) any other appropriate equipment, supplies and resources necessary for the response, identification, and cleanup of HAZMAT. The Contractor shall replace any materials consumed from the HAZMAT storage area within 72 hours of their consumption (unless otherwise approved by the CO), including Level A Suits. The Contractor shall provide HAZMAT technicians to meet requirements of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response. The Contractor shall provide HAZMAT technician response as follows.

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- a. During normal working hours – two technicians shall respond to the site within 15 minutes after a request. Two additional technicians (four total on-site) shall respond to the site if requested, or if needed, within one hour after the request.
- b. After normal working hours – The Contractor shall respond by radio or telephone within 15 minutes of a request. If requested, or if needed, up to 4 technicians shall respond to the site within one hour after the request.

### 1.3.6.6 Soil Removal and Disposal

The Contractor shall be responsible for the disposition of any excavated soil that is generated by the Contractor's activities on LaRC. The Contractor shall provide supporting soil analysis if the soil will be removed from the Center. Sampling, analytical procedures, and disposal of excavated soil shall be conducted in accordance with SpecsIntact Master Specification, Section 01 35 23.00 41-Langley Safety and Environmental Requirements, paragraph 1.13.1, *Soil excavation*. For Contractor activities that disturb a soil area equal to or greater than 2,500 square feet, the Contractor shall comply with the requirements in SpecsIntact Master Specification, Section 01 35 23.00 41-Langley Safety and Environmental Requirements, paragraph 1.12, *Soil Erosion and Sediment Control*, and its subparagraphs 1.12.1, and 1.12.2. Soil that is classified as a solid waste shall be disposed at a permitted landfill. For soil that is not classified as a solid waste, the Contractor may dispose of the soil as commercial or industrial fill material. Soil that is reused on-site does not require analysis. The Contractor may store soil on the job-site for the purpose of reusing it for fill or grading or while waiting for soil analysis results, but shall be responsible for securing and controlling the area. Before soil is removed from LaRC, the Contractor shall submit to the LaRC Environmental Branch the results of the soil sample analysis and the identification and location of the planned disposal site.

### 1.3.6.7 Systems Safety Engineering

The Contractor shall have Systems Safety Engineering capabilities to support the full range of activities conducted under this contract. Duties include, but are not limited to, the following:

- a. Identify, assess, and control hazards to personnel and equipment associated with the operation, maintenance, modification, and construction of LaRC facilities.
- b. Perform hazard analyses on a wide range of systems including, but not limited to, high pressure, cryogenic, high voltage, high temperature, hydraulic, and high speed rotating machinery.
- c. Perform special safety and facility assurance projects such as updating/developing safety handbooks, performing special safety studies, and performing reliability analysis on research facilities and /or equipment.

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### 1.3.7 Service Plans

The Contractor shall develop and submit an annual contract-level Service Plan (SP) to the CO for review and approval. The SP is a cross-functional guide for the next Fiscal Year (FY) Contractor support service requirements based on the current needs of LaRC. The contractor shall develop the SP, and changes thereto, in coordination and collaboration with the Government to ensure focus is placed on defining the requirements and matching those requirements to projected funding/contract value limitations. The SP is intended to be a flexible working document, incorporating changes throughout the year (as approved by the CO) to accommodate the needs of LaRC. Due to the Contract Year (CY) and FY being different, the SP shall clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations. The Contractor shall maintain this contract deliverable and continuously update the SP based on fluctuations in the Government's requirements.

The SP shall provide a top-level summary for each individual functional area work plan and correlate into the applicable Contract Line Item Number (CLIN). Each functional work plan has its own individual requirements as defined in the individual SOW Sections referenced below. The functional work plans are as follows:

- a. Annual Facility Plan (AFP), Section 1.3.10.1
- b. Annual Operations Plan (AOP), Section 2.3
- c. Annual Work Plan (AWP), Section 3.1.11.1
- d. Annual Metrology Plan (AMP), Section 3.2.1.1
- e. Annual DAS/FAS Plan (ADFP), Section 3.3.5
- f. Annual Engineering Plan (AEP), Section 4.1.8
- g. Annual Information Technology Plan (AITP), Section 5.3.15

The Contractor shall submit the SP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall have an effective date of October 1<sup>st</sup> and will be finalized by approval of the CO no later than September 30<sup>th</sup>.

### 1.3.8 Availability of Utilities

The Government will furnish the utility services at existing outlets for the Contractor's use in those facilities provided by the Government for the work performed under the contract, including electricity, data and voice communications, research liquid & gas products, steam, natural gas, potable water, sewage service, and refuse collection (from existing collection points). The Contractor shall provide and maintain the necessary service lines from the existing Government outlets to the work site. The Government will furnish existing telephones for Contractor use. The Contractor shall use

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Government telephones for official contract business only. The Government will furnish existing electronic data connections. The Contractor shall use Government electronic data connections for official contract business only. The Government will provide internal mail service. Any radio and wireless communications equipment shall be furnished by the Contractor and shall be used only upon receipt of approvals and FCC licenses and frequencies for the equipment in accordance with LPR 2570.5, *Radio Frequency Spectrum Management*.

### 1.3.9 Hours of Operation

Normal business hours at NASA LaRC are 6:00 a.m. to 6:00 p.m. Monday through Friday, except for Federal Holidays. NASA program requirements and testing commitments will dictate the Contractor's work hours and may include 24-hour, 7 days per week operations.

### 1.3.10 Facility Support Services

The Contractor shall provide Facility Safety Head, Facility Coordinator, and Facility Environmental Coordinator services for facilities at NASA LaRC. The facilities requiring Contractor support will be stated in the Annual Facility Plan (AFP).

#### 1.3.10.1 Annual Facility Plan (AFP)

The Contractor shall develop and submit to the CO for review and approval an AFP as specified herein. The AFP is a guide for the next Fiscal Year (FY) facility support service requirements based on the current needs of LaRC. The contractor shall develop the AFP, and changes thereto, in coordination and collaboration with the Government to ensure focus is placed on defining the requirements and matching those requirements to projected funding/contract value limitations. The AFP is intended to be a flexible working document, incorporating changes throughout the year (as approved by the CO) to accommodate the needs of LaRC. Due to the Contract Year (CY) and FY being different, the AFP shall clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations. The Contractor shall maintain this contract deliverable and continuously update the AFP based on fluctuations in the Government's requirements.

The Contractor shall submit the AFP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall have an effective date of October 1<sup>st</sup> and will be finalized by approval of the CO no later than September 30<sup>th</sup> will be finalized.

NOTE: The AFP covers facility services in Research Operations Facilities (Reference Section 2). The requirements of Section 2, Operations, are covered in the Annual

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Operations Plan (AOP). In the event of a discrepancy between the AFP and the AOP, the AOP takes precedence. All services listed in the AFP in support of Research Operations Facilities shall be charged to CLIN 2.

1.3.10.2 Facility Safety Head: All facilities at LaRC have a Facility Safety Head (FSH) responsible for safety at the facility. The FSH shall be responsible for the safe operation of the facility as delineated in LAPD 1700.2, *Safety Assignments and Responsibilities*. Additional guidelines for the FSH are found in LPR 1740.2, *Facility Safety Requirements*, and LPR 1740.3, *Facility Safety Head and Facility Coordinator Guide*. The LaRC Safety and Mission Assurance Office (SMAO) maintains the current listing of the FSHs. The Contractor shall perform the FSH function for each facility in accordance with the AFP (Reference Section 1.3.10.1). Specific duties of the Contractor provided FSH in research facilities shall include, but not be limited to:

- a. Hold monthly Facility Safety Meetings to educate and inform the facility staff on safety issues, lessons learned, and new safety procedures and regulations.
- b. Review test article stress reports, normal and emergency operating procedures, and changes to configuration controlled documents.
- c. Ensure that safety training is conducted in an effective and timely manner.
- d. Ensure that safety hazards and safety audit findings are corrected.
- e. Identify, assess, and control hazards to personnel and equipment associated with the operation, modification, and construction of LaRC facilities.
- f. Perform hazard analysis on a wide range of systems including, but not limited to, high pressure, cryogenic, high voltage, high temperature, hydraulic, and high speed rotating machinery
- g. Perform special safety and facility assurance projects such as updating/developing safety handbooks, performing special safety studies, and performing reliability analysis on a research facility and/or equipment.

1.3.10.3 Facility Coordinator: All facilities at LaRC have a Facility Coordinator (FC) who is responsible for assisting the FSH in the safe operation of the facility as delineated in LAPD 1700.2. The Contractor shall notify the FC in advance of any work scheduled to be performed in the FCs facility. The notification shall include the location of the work, type of work, and the estimated completion date. The Contractor shall coordinate any work in the FCs facility to avoid unacceptable disruptions in the Government's business. Additional guidelines for the FC are found in LPR 1740.2 and LPR 1740.3. The LaRC SMAO maintains the current listing of FCs. The Contractor shall perform the FC function for each facility in accordance with the AFP (Reference Section 1.3.10.1). Specific duties of the Contractor provided FC shall include, but not be limited to:

- a. Identify and coordinate work associated with facility maintenance, repairs, and modifications.
- b. Initiate or take action to correct safety hazards and safety audit findings.



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**1.3.10.4 Environmental Coordinator:** All facilities at LaRC have a Facility Environmental Coordinator (FEC) to ensure proper environmental compliance for the activities performed within their facilities. The FEC is the principal contact for all environmental matters that include, but are not limited to, maintenance, procedures, inspections and annual training. The FEC shall be the liaison between the Contractor and EMO to ensure that the facility is operated in accordance with all applicable Federal, State, and local laws and regulations. Additional guidelines for FEC's are specified in LAPD 8500.1, *LaRC Environmental and Energy Management*, and in functional areas found in LPR 8800.1, *Environmental Program Manual*. The Environmental Management Office (EMO) maintains the current listing of FECs. The Contractor shall perform the FEC function for each facility in accordance with the AFP (Reference Section 1.3.10.1). Specific duties of the Contractor provided FEC shall include, but not be limited to:

- a. Ensure all chemicals used in each research facility are properly cataloged and stored
- b. Maintain and update a Material Safety Data Sheet (MSDS) for each chemical item used in each facility. The MSDS shall be organized and stored in a notebook that resides in the Facility Library in the major research facilities or an accessible location in other facilities
- c. Serve as the principal contact for all environmental matters that include, but are not limited to, maintenance, procedures, inspections, and annual training

### **1.3.11 Equipment Management Support**

The Contractor shall provide comprehensive equipment management support that includes the appointment of a property custodian responsible for the management and oversight of the Installation Accountable Government Property (IAGP) provided in Exhibit E of this contract. The Contractor's property custodian shall comply with the duties and responsibilities detailed in NASA Procedural Requirement (NPR) 4200.1, *NASA Equipment Management Procedural Requirements*, and NPR 4200.2, *Equipment Management Manual for Property Custodians*.

## **1.4 MANAGEMENT AND ADMINISTRATION**

The Contractor shall provide integrated management and administrative services required for performance of all contract activities including, but not limited to, planning, technical, business, and regulatory requirements. Research testing requirements are very dynamic and are peculiar to each research facility, changing and evolving rapidly over the course of each contract year. Accordingly, the Contractor shall provide for proactive and effective workforce management and resource leveling, subcontracting and purchase agreements. Testing requirements for each research facility will be communicated to the Contractor through regularly held planning and coordination meetings and through research facility test schedules, after which it will become the

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Contractors responsibility to provide appropriate resources. To the maximum extent possible, the Contractor shall consolidate and streamline OME and IT processes, ensuring that all work is accomplished in a safe and high quality manner, satisfies all performance requirements, and is performed within the required schedule and cost.

### 1.4.1 Customer Services Management

Beginning on the contract implementation date, the Contractor shall deliver a Customer Services Management Center (CSMC) to manage and process customer requested services. The CSMC shall also answer customer questions on process and procedures, or requests for additional information and shall coordinate all OME contract related customer training and consultation services. The Contractor shall provide the CO with monthly updates on the CSMC performance that will allow the Government to accurately assess CSMC operations. Basic characteristics and attributes of Customer Services Management include, but are not limited to:

- a. A clear mission statement that reflects the purpose of the CSMC
- b. Clearly defined CSMC goals and measurable objectives, and a strategy to achieve goals and objectives
- c. A program to train CSMC personnel on new and/or upgrades to products and services
- d. A plan for short and long-term marketing of CSMC availability, products, and services
- e. Clearly defined, documented, and understood CSMC contact processes which describe how each type of customer call will be handled, including calls for services not required under this contract and calls received outside of the Customer Services Desk's normal operating hours, and
- f. A procedure to validate that CSMC personnel follow contact processes and that the resulting customer feedback is very good or higher. The program shall include quality contact criteria and an objective scoring technique.
- g. Technology that supports the immediate and long-range CSMC requirements facilitates quality CSMC technician performance and can be quickly and easily understood by CSMC Technicians and customers
- h. An accurate assessment of customer satisfaction with Contractor service delivery and outcomes including a CSMC continuous improvement initiative incorporating customer feedback and involvement
- i. Use of commercially available customer services desk statistical and trend analysis tools to accurately report on CSMC performance and recurring problems. Include procedures to eliminate and/or remedy recurring problems
- j. Customer self-help support interfaces including population of a knowledge base of customer requests and/or questions and corresponding resolutions and/or answers
- k. Comprehensive on-line reporting of customer services data

#### 1.4.1.1 Customer Services Desk

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The Contractor shall create a single, on-site OME Customers Services Desk (CSD) to receive and process OME & IT trouble calls, service requests, instrumentation work orders, work requests, task orders, and general customer questions and clarification requests. Customer communications shall come from multiple contact points including, but not limited to, phone, email, web (reference Section 1.4.1.3., OME Enterprise Information Portal), fax, and walk-ins.

1.4.1.1.1 The Contractor shall utilize a commercial customer services desk support product to electronically manage this service, taking into consideration products available through the LaRC information Technology Architecture and integration with other customer service products currently in use by NASA IT Support Service Contractors.

1.4.1.1.2 The Contractor shall operate the CSD Monday through Friday, 8 hours per day (during the period of the LaRC normal business hours), excluding federal holidays. Emergency and urgent calls shall be supported 24 hours per day/7days per week. The CSD shall facilitate effective and proactive communications with OME&IT customers through multiple communication channels including but not limited to email, web, and phone. The Contractor shall automate the CSD tasks and communication with customers to the fullest extent possible while ensuring automation does not degrade customer satisfaction. Work includes, but is not limited to:

- a. Accurate call classification (routine, urgent, emergency) into the appropriate category (e.g. trouble call, service request, task order)
- b. Providing a multi-tier approach to resolving customer requests, problems, and questions including quality Tier 1 (i.e. receives help request , first level of support) support to resolve routine customer calls and requests for help
- c. Seamless and accurate redirection and tracking of calls from Tier 1 to Tier 2 (i.e. other, more qualified, contract personnel) or Tier 3 (i.e. other contract personnel or external groups such as vendors) and/or other Center customer services desks (e.g. support desks for other NASA support service Contractors)
- d. Formal recording of calls into the OME Work Request System (Reference Section 5.1.1) and the appropriate OME IT System (Reference Appendix 5.1) until such time the Work Request Tracking Systems and OME IT System are integrated (Reference Section 5.1.3, Work Request Tracking System requirements).
- e. Minimizing repetitive entry of customer contact and logistical information by utilizing LaRC data repositories (e.g. GIS) containing this information and populating ROME CSD unique contact and logistical information.
- f. Ensuring the customer and the involved parties are aware of the call's status and have the capability to track call status via the OME Enterprise Information Portal (reference Section 1.4.1.3)
- g. Documenting resolution or actions involved in closing out the call and ensuring calls are not closed prior to their completion and the customer's agreement
- h. Issuing customer feedback surveys following the close of each call (reference section 1.4.1.2, Contractor Performance Management and Assessment)

### 1.4.1.2 Contract Performance Management and Assessment

The Contractor shall measure and report to the CO on its timeliness, quality and overall customer satisfaction in all areas of contract service delivery and outcomes. The Contractor shall implement multiple methods to gather and accurately assess Contractor performance including, but not limited to, an automated customer feedback and evaluation mechanism issued within 24 hours following the completion of the rendered service. The Contractor shall post monthly summaries of the performance evaluation results to the OME Virtual Library, ensuring results are available only to the CO and COTR and other personnel designated by the CO and/or COTR. The Contractor shall provide visibility of summarized Contractor performance metrics to OME and IT customers. The Contractor shall review and analyze customer feedback collected by the Customer Services Desk in order to identify new customer requirements and determine recurring problems with Contractor services and supported IT applications. The Contractor shall present the review findings (segregated by OME and IT) to the CO and COTR at regularly schedule contract status meetings.

### 1.4.1.3 OME Enterprise Information Portal (EIP)

The Contractor shall integrate all CSMC interfaces with the Enterprise Information Portal (reference Section 5.1 for development requirements). The EIP shall be the primary electronic interface through which the services and support provided by the CSMC can be requested and tracked. The EIP shall also be the primary customer interface to an underlying OME Enterprise Architecture and shall promote and support end-user self-sufficiency by making the information contained in the IT systems more accessible, useful, reliable and easy to find. The EIP shall present to its customers a single interface through which customers can easily complete such tasks as initiate and track requests for service, locate important documents, view consolidated financial reports, and find OME service providers. In addition, the EIP shall be the primary web interface, through which the services provided by the CSMC can be acquired and feedback provided.

### 1.4.2 Communication

The Contractor shall conduct regular status meetings with the designated Government official at intervals that are mutually acceptable, but at least monthly. At the meetings, service problems and proposed resolutions shall be identified, opportunities for partnering shall be reviewed, assessed, and scheduled, Government and Contractor concerns shall be communicated and resolved, and progress on projects shall be addressed. For all formal meetings between the Contractor and Government personnel, the Contractor shall prepare and issue an agenda at least 2 business days prior to the meeting, and at the meeting, take minutes and record actions. Within 1 business day following the meeting, the Contractor shall post all documents pertaining to and resulting from the meeting to the OME Virtual Library. In addition, the Contractor shall track progress on actions resulting from the meeting until the action is either

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completed or cancelled. The Contractor and the Government shall communicate as needed during the period between these meetings to discuss and resolve problems, risks, and actions.

### 1.4.3 Documentation Management

The Contractor shall manage all OME and related IT documentation. Documentation includes, but is not limited to, reports, submittals, service manuals, drawings, plans, permits, and warranties. The Contractor shall integrate the management of hardcopy and electronic documents to the fullest extent possible in order to minimize the user's burden to "seek and find" documents in disparate formats and locations. The Document Management Program shall include management of facility libraries (Section 4.1.7) and the delivery and support of an OME Virtual Library.

#### 1.4.3.1 Reports and Submittals

The Contractor shall deliver all reports and submittals to the CO in electronic format. All reports and submittals specified in Appendix 1.9, *Technical Documentation Requirements List (TDRL)*, and Exhibit C, *Contract Documentation Requirements*, shall be posted to the OME Virtual Library, unless otherwise directed by the CO. The organization structure for reports and submittals shall be intuitive and flexible; reflecting the organization of the services and products supported. Reports and submittals contained in the Virtual Library shall be accessible by Government personnel approved by the CO only, without Contractor action. The Contractor shall retain historical reports until such time the CO agrees to their removal. Reports and submittals shall be posted in both PDF and the document's native format, with access to both formats provided for each report. The Contractor shall use the appropriate products for native file formats.

### 1.4.4 Process and Procedure Management

To ensure consistent high quality service in the operations, maintenance and repair, and engineering of LaRC systems and alignment with Agency processes, the Contractor shall develop new OME and related IT processes and procedures, update and standardize existing OME processes and procedures; comply with formal controls and periodic reviews of all facility specific processes and procedures (e.g. Agency and Center Policy, Procedures, Standard Operating Procedures and Integrated Operating Procedures). The Contractor shall incorporate within the procedures those proven best practices, technical processes and administrative procedures. Notwithstanding the various levels of technical and management review, all new or revised procedures shall be approved by the COTR and managed using the appropriate LaRC configuration management system.

### 1.4.5 Space Utilization

To ensure efficient utilization of LaRC technical and office space for on-site Contractor maintenance, engineering, and IT personnel, the Contractor shall develop and submit to

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the CO a space utilization study and recommendation for locating all on-site ROME Contractor personnel. Technical and office space will be provided for Contractor operations personnel within Contractor operated facilities, in accordance LAPD 8800.15, *Facilities Utilization Program*. Guidelines for office space utilization for other on-site Contract employees are furnished in LAPD 8800.15.

### 1.4.6 Indefinite Delivery Indefinite Quantity (IDIQ) Projects

SOW Sections 2 through 5 may include projects for non-recurring work not included in the contract "base". This work shall be classified as IDIQ work issued through task orders (TOs) in accordance with clause H.19 of the contract. IDIQ projects for OME and IT may include, but are not limited to: support for an off-site testing project; service requests (Reference Section 3.1.7), modifications to an existing facility, construction projects, and the development and deployment of a new IT system.

When an IDIQ project is ordered, the Contractor shall follow the instructions in clause H.19 of the contract. As indicated in clause H.19, the Contractor shall develop work plans, cost and schedule estimates, acquire functional approvals (Reference Appendix 3.5, Rev 3, *Functional Approval Requirements*), and track the progress of the project using the appropriate OME IT System. All IDIQ projects shall comply with the applicable NASA Procedural Requirements (NPR) (e.g. NPR 7120.7, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*, NPR 7120.5, *NASA Space Flight Program and Project Management Requirements*, and NPR 7120.8, *NASA Research and Technology Program and Project Management Requirements*) for project planning. Specific requirements will be specified in the TO statement of work.

### 1.4.7 Metrics

The Contractor shall submit to the CO and COTR the metrics required by Appendix 1.10, Metrics, no less than monthly and brief, at a minimum, the CO and COTR on the metrics during scheduled contract performance reviews. These metrics will be use by the Government to evaluate the performance of the Contractor. At a minimum, the Contractor shall highlight and discuss trends, areas of concern, areas of improvement, and actions being taken to correct areas of concern and areas where the stated metric is not achieved. All metrics shall be submitted monthly to the Virtual Library. The Contractor will only be evaluated for actions and activities within its control. Any metric that is not achieved due to actions/activities outside the control of the Contractor shall be noted in the monthly submission by the Contractor.

## **2.0 OPERATIONS**

Operations at Langley Research Center (LaRC) involve both research facilities, such as wind tunnels and laboratories, and central utilities, such as the production and/or distribution of steam, high pressure air, electricity, potable water, sanitary sewer, and natural gas. This section addresses research facility operations goals and objectives; the identification of Government facilities at which the contractor may assume certain operational functions as functional responsibility is migrated from the Government to the Contractor; and a description of the required research facility and utilities operations services. The operation of research and central utilities is anticipated to include a blended workforce consisting of Contractor and Government personnel.

### **2.0.1 Goals and Objectives**

The mission of LaRC is to conduct world-class research and technology development in support of the Agency's program requirements. The facilities and infrastructure that are operated at LaRC are vital components of this mission. Within this context, LaRC will provide stewardship of facility capability to ensure that the Center:

- a. Operates, develops, and maintains world class Center facilities when that level of capability is required to perform its mission
- b. Actively seeks partnering activities to limit infrastructure and duplication of capability
- c. Uses various mechanisms and operational structures to size facility capacity to meet program demand requirements, (i.e., the Center will implement operational structures to align capacity with demand, put facilities on stand-by or close under-utilized facilities not supported by Programs)
- d. Achieves the following LaRC research facility operations and testing objectives
  1. Operating facilities in a safe manner
  2. Providing high-quality data to research customers
  3. Maximizing facility utilization while minimizing downtime
  4. Providing high-quality research customer relations
  5. Completing unique research test goals and objectives

### **2.0.2 Research Facility Operational Functions**

The Government facilities for which the Contractor may assume certain operational functions will be identified by the Government on an annual basis with periodic adjustments as needed. These facilities and operational functions will be defined in the AOP. Examples of facilities that the Contractor may assume certain operational functions include, but are not limited to:

- a. National Transonic Facility (NTF), Building 1236
- b. Unitary Plan Wind Tunnel (UPWT), Building 1251
- c. 14- by 22- Foot Subsonic Tunnel (14x22), Building 1212C

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- d. Transonic Dynamics Tunnel (TDT), Building 648
- e. 8-Foot High Temperature Tunnel (8-Ft HTT), Building 1265
- f. Low Speed Aeroacoustic Wind Tunnel (LSAWT), Building 1221
- g. Jet Exit Test Facility (JETF), Building 1234
- h. 0.3-Meter Transonic Cryogenic Tunnel (0.3-M TCT), Building 1242
- i. 20-Inch Mach 6 CF4 Tunnel, Building 1275
- j. 15-Inch Mach 6 High Temperature Air Tunnel, Building 1251
- k. 31-Inch Mach 10 Air Tunnel, Building 1251
- l. 20-Inch Mach 6 Air Tunnel, Building 1247D
- m. Supersonic Combustion Ramjet Test Complex, Building 1221C/D, 1247B
- n. 20-Inch Supersonic Wind Tunnel, Building 1247D
- o. Supersonic Low Disturbance Tunnel, Building 1247D
- p. Combined Loads Test System, Building 1256
- q. Landing and Impact Research Facility, Building 1297
- r. Research Air Compressor Station and Air Operations, Building 1247D/E
- s. NTF Liquid Nitrogen (LN2) Plant, Building 1241

The Government will provide performance criteria for functions to be assumed by the contractor. The Contractor shall demonstrate competency in the performance of all research facility operations functions (Section 2.1) and comply with existing certification procedures in the LPR 1740.7, *Process System Certification Program*, where they apply. The Government will assess the Contractor's progress and completion of certification of contractor personnel through various methods based on the complexity of the functions (e.g. review panel, or skill demonstration). The AOP shall include the contractor's approach to meet the performance criteria for each function at each facility.

### 2.0.3 Research Facility Test Processes

Within the context of Section 2.0, test processes for Wind Tunnels are defined as sets of generic tasks that must be completed to perform research testing. After the identification of the operational functions for which the Contractor will assume responsibility, as addressed in Section 2.0.2 above, the Government will retain the responsibility for performing the test process outlined in Langley Management System (LMS) Center Process (CP)-0501, *Response to Wind Tunnel Test Requests*, and the Contractor shall perform wind tunnel testing in accordance with the following test processes:

LMS-CP-0502: *Wind Tunnel Test Planning*

LMS-CP-0503: *Wind Tunnel Model Build-Up and Installation*

LMS-CP-0504: *Conducting a Wind Tunnel Test*

LMS-CP-0505: *Closing Out a Wind Tunnel Test*

### 2.0.4 Research Facility Procedures

Within the context of Section 2.0, operations procedures are defined as sets of specific tasks that must be followed precisely for the purpose of safely operating research facility



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systems. The Contractor shall provide operations support for aerospace research facilities, laboratories, and organizations at LaRC in accordance with facility operations procedures referenced in Configuration Management Online (CMOL). These procedures are specific to each individual facility and include, but are not limited to, Standard Operating Procedures (SOP), Integrated Operating Procedures (IOP), Safety and Emergency Procedures (SEP), Maintenance Operating Procedures (MOP), Preventive Maintenance Procedures (PMP), Maintenance Instruction Procedures (MIP), Administrative Integrated Procedures (AIP), Task Descriptions (TD), and Facility Management Plans (FMP). The safe and efficient execution of these procedures requires qualified facility personnel with specific technical training, proof of proficiency, and written certification as defined in Sections 1.3.3, 1.3.4, and 1.3.5. These personnel qualifications are a prerequisite to implementing the procedures. These research facility procedures are available in CMOL.

### 2.0.5 Roles and Responsibilities

The Contractor shall perform facility operations; research customer service, inspection and quality management for all Contractor furnished facility operations services. The Contractor shall facilitate LaRC research customer involvement in all phases of research facility testing: Pre-test, test, and post-test activities. The Government will retain the following functions:

- a. Strategic management, including planning and capital investment advocacy
- b. Safety assurance functions
- c. Quality assurance functions
- d. Mission assurance functions
- e. Initial research customer relations for wind tunnel test requests
- f. Input to Contractor regarding the technical approach to test techniques
- g. Establish research facility testing priorities
- h. Partner with the Contractor regarding each of the above

### 2.0.6 Government Furnished Fluids

The Government will furnish the following bulk fluids used in aerodynamic testing:

a) Liquid and gaseous nitrogen, b) Liquid and gaseous oxygen, c) Liquid and gaseous hydrogen, d) Helium, e) CF<sub>4</sub>, f) R-134a, g) Methane, h) Silane, i) other fuels and fluids as may be necessary for specific test operations.

### 2.0.7 Marketing and Utilization of Excess Facility Capacity

The Contractor shall support the Government in strategically marketing LaRC facilities with emphasis on marketing facilities that are underutilized or under capacity. The level of Contractor performance will be determined in accordance with the AOP (reference section 2.3). The Contractor shall participate in NASA/Contractor jointly planned

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marketing and capability awareness activities, including, but not limited to, attending conferences, assisting the Government on technical committees, and evaluating opportunities to grow LaRC's customer base in both the near- and long-term with the goal of increasing the LaRC customer base in the long-term. The Contractor shall actively seek out potential customers for utilization opportunities in LaRC facilities. The Contractor shall assist NASA in the development and execution of an annual business development plan. The Contractor shall submit a monthly report to the CO, due by the 10<sup>th</sup> business day of the following month being reported, detailing all marketing and business development strategy efforts, to include, but not be limited to: facilities emphasized, customers contacted, customer testing requirements, and capabilities needed to support testing. The Contractor shall not act as an agent of the Government through this support and shall not commit the Government's resources to any potential LaRC customer. Only an authorized Government Civil Servant can perform such a role on behalf of the Government.

### **2.1 RESEARCH FACILITY OPERATIONS**

The Contractor shall provide operations support functions described below in Sections 2.1.1 through 2.1.21 for aerospace research facilities, laboratories, and organizations at LaRC in accordance with test processes defined in Section 2.0.3, facility operations procedures referenced in Section 2.0.4, and as follows:

- a. The Government will identify facilities and operational functions that require Contractor support on an annual basis with periodic adjustments as needed. The Contractor shall provide the operations services summarized in Sections 2.1.1 through 2.1.21 for the functions identified by the Government.
- b. For facilities not listed in Section 2.0.2, but identified by the Government as facilities requiring operational function support, the Contractor shall provide the services specified in 2.1.1 through 2.1.21 for the functions identified by the Government, while working as an integral member of that facility's blended workforce (consisting of other Contractors and Government personnel). Specific research facility operations functions within each specified research facility are driven by research testing requirements. Operational functions at these facilities may be migrated by the Government to the Contractor for specified functions in the future. Therefore, the Contractor may be required to perform a portion of or all of the operations services summarized in Sections 2.1.1 through 2.1.21 for the functions identified by the Government. The level of Contractor performance will be determined in accordance with SOW Section 2.3, ROME AOP.
- c. The Contractor shall conduct tests in research facilities employing Data Quality Assurance processes. These processes include, but are not limited to, Statistical Quality Control and Check Standard Testing. Statistical Quality Control methods, principles, and procedures shall be followed in every measurement process associated with data to be given to a research facility customer. Further details

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are presented in Section 2.1.7 and Appendix 2.4, *AIAA Paper 2000-2201, Langley Wind Tunnel Data Quality Assurance – Check Standard Results*.

- d. LaRC research facilities operate using the operational structure (single, multiple or extended shifts, block operations, shared staffing) that best aligns with research testing demand. In accordance with the AOP, the Contractor shall perform all functions necessary for pre-test, test, and post-test activities simultaneously based on the demand and operational structure parameters provided by the Government.
- e. The research testing requirements in terms of operational hours per day will be specified and approved in accordance with the AOP or otherwise directed by the CO.
- f. The Government will provide the Contractor with the projections of research testing requirements on an annual basis with periodic adjustments as required. These projections shall be used in conjunction with SOW Section 2.3 to determine the Contractor's staffing requirements.
- g. Any scheduling conflicts that cannot be resolved directly by the Contractor with the NASA facility managers shall be referred to the CO or designee for a final decision.

### 2.1.1 Operations Management

Operations management for LaRC research facilities includes, but is not limited to, the following duties and responsibilities (NOTE: The Government currently uses aeroCOMPASS as a test information repository. The Contractor shall perform the functions in this system or other electronic test information system specified by the Government.):

- a. Coordinate and integrate schedules for day-to-day activities
- b. Provide weekly updates and maintain facility and test schedules in aeroCOMPASS (see Appendix 5.1)
- c. Conduct operations in a safe, efficient, and effective manner, maximizing facility availability and minimizing facility downtime
- d. Maintain facility characteristics and capabilities data in aeroCOMPASS
- e. Interface and negotiate unique test goals and objectives with facility research customers and facility operations personnel to ensure that test plans and objectives are fully satisfied
- f. Ensure that the research customer receives an exit survey and returns the exit survey or provides feedback no later than 1 week after each research test
- g. Resolve issues/problems with facility operations identified on the customer's exit survey or feedback

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- h. Operate LaRC research facilities in accordance with LaRC commitments to schedules for research testing, planned facility modifications, and performance of major facility repairs
- i. For facility shutdown periods in excess of 2 weeks, perform cost-effective resource leveling to make appropriate use of its facility operations workforce, including cross-utilization of employees both within a facility and across multiple facilities, personnel training and temporary staffing reductions
- j. The contractor shall share lessons learned with facility staff and other Facility/Operations Management at appropriate forums.
- k. The contractor shall collect and provide facility operational metrics to the Government's Facility Manager or designee.

### 2.1.2 Test Engineering

Test engineering duties include, but are not limited to, the following:

- a. Coordinate and conduct all test phases (pre-test, test, and post-test) to operate major research experimental facilities and conduct experimental investigations. In the case of unique testing at research facilities, the research customer may provide guidance during these operations.
- b. Serve as primary facility interface with customer representatives during the entire test process
- c. Ensure the health of the instrumentation and data acquisition systems during the test build-up and execution phases by use of best practice monitoring and diagnostic techniques. These best practices used shall include statistical process control techniques and use the Data Quality Assurance strategies described in Section 2.1.7, Appendix 2.4, and Appendix 2.5, *Data Quality Assurance Activities for Wind Tunnel Testing*
- d. Serve as the principal authority and technical advisor for the specified facility and assist the research customer in developing and implementing detailed test plans that meet the research customer's needs
- e. Advise research customers on the use of the facility, test techniques, and experimental methods, including facility capabilities and limitations
- f. Maintain all test documentation in an aeroCOMPASS Electronic Test Notebook, as defined in Section 2.1.19.2
- g. Monitor model development and fabrication
- h. Reduce research data and report findings, including quality checks and comparisons of achieved quality to customer requirements
- i. Implement new test techniques developed for the facility, as described in Section 4.2.3.4 or for specific research facility tests
- j. The Contractor shall perform data verification (DV) at specific facilities as determined by the Government. Data verification requirements are contained in LMS-OP-0407, *Data Verification (DV) at NTF, 14X22, 0.3M TCT and UPWT*. DV requirements specific to other facilities may be developed and implemented at a future time.

### 2.1.3 Facility Systems Engineering

Facility system engineering services include, but are not limited to, the following:

- a. Consult, analyze, and participate in facility design and modification projects
- b. Troubleshoot mechanical, electrical, controls, pneumatic, and hydraulic systems
- c. Provide instrumentation and engineering monitoring and evaluation of overall system performance and operation of critical facility components. Critical facility components are those that could jeopardize facility operations due to performance degradation or failure. Contractor system performance evaluation includes, but is not limited to:
  - 1. Identify facility equipment systems and document required maintenance, adjustment or replacement
  - 2. Identify and correct operations that can cause loss of performance, inefficient use of consumables, and equipment failures or major shutdowns
  - 3. Perform critical facility operational data evaluation on a semi-annual basis and record the result in aeroCOMPASS
  - 4. Identify significant trends and provide a rationale for optimization of the integrated operation and record the result in aeroCOMPASS

### 2.1.4 Digital Controller Engineering

Digital controller engineering support duties include, but are not limited to, the following:

- a. Develop, operate, and maintain digital controllers, including digital servo controllers, using existing digital controller systems
- b. Develop and submit written operating instructions for digital control systems as needed to support specific tests of specific test articles to test engineer for review. Operating instructions necessary to implement model control laws shall be completed two months prior to the scheduled research facility test. Each set of instructions shall include general instructions that are applicable to all systems and specific instructions applicable only to the system for which it is being written. The operation instructions shall reside in aeroCOMPASS
- c. Ensure that all digital control and associated interface systems are fully operational, current and available for testing. This includes, but is not limited to, hardware and software upgrades, preventive maintenance, corrective maintenance, design and implementation of programming enhancements, system interfaces, system monitoring and protection subassemblies.

### 2.1.5 Ground Vibration Test Engineering

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The Contractor shall perform ground vibration testing for research test articles and shall perform other structural testing activities as required by the test plan (e.g. model stiffness, deformation, static loads, and mass and inertia measurements). The Contractor shall operate and maintain a structural testing laboratory as part of the model preparation capability. The Contractor shall perform structural analysis in support of test activities. The Contractor's ground vibration test engineering duties include, but are not limited to, the following:

- a. Ensure compliance of all structural laboratory computer/data acquisition and instrumentation systems with LMS-CP-0506, *Selection, Calibration, Use, Control, Recall, Procurement, and Storage of Measuring and Test Equipment (M&TE)*.
- b. Maintain instrumentation used in structural testing. Instrumentation (e.g., accelerometers, signal conditioning boxes, impact hammers, load cells) shall be kept in operational ready condition and in calibration. Other equipment such as shakers, cables, and stands shall be maintained in accordance with manufacturers' recommendation and ready for testing.
- c. Maintain Ground Vibration Test (GVT) computer/data acquisition and reduction systems. The Contractor shall ensure that the latest versions of software are installed on the GVT computers. The computer system configurations shall be kept ready for test activities through the use of such systems as backups, file storage, and virus protection. These systems are relatively mobile allowing use in various facilities. Two independent systems shall be kept in operational readiness so that a single system failure will not interfere with the wind-tunnel schedule. In the event of a failure rendering a system inoperable, the Contractor shall take immediate action to return to operational readiness via the second GVT system.
- d. Perform GVT on models in preparation for use in research facilities
- e. Perform structural analysis related to structural testing activities.

### 2.1.6 Data Systems Operations Support

Data acquisition systems currently deployed in the research facilities are generally networked with control systems, data reduction systems, real-time display systems, and file servers for archiving research data. Research facilities also have custom hardware that has been designed to handle digital input/output interfaces to instruments such as digital control panels. Data acquisition, data reduction, and real-time display software includes custom software written in C, C++, or Fortran with third party software used for some data acquisition (e.g., Labview, Autonet,) and graphics (Sammi and SL-GMS). Data reduction/archiving software is generally implemented on Sun Workstations or Desktop PC's. Refer to the Computerized Maintenance Management System (CMMS) at <http://romemaxx.ndc.nasa.gov/maximo/> for further detail on hardware and software implementations of the data systems.

2.1.6.1 The Contractor shall perform on-site operation of data acquisition and measurement systems. Some systems shall be of a prototype or unique nature where

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initial performance analysis is required to perform desired system enhancements. The Contractor shall provide data acquisition operations services including, but not limited to, the following:

- a. Pre-test phase
  1. Participate in pre-test meetings with the Government and research customer to determine data systems test specific support requirements, including hardware and software quality assurance requirements
  2. Develop test unique software and integrate it with any Research customer-provided equipment
  3. Build the test setup configuration for the data and control system
  4. Prepare supporting documentation for the test and post in aeroCOMPASS
- b. Testing phase
  1. Validate correct data system and control system test configuration
  2. Validate correct interface and functioning with customer provided equipment
  3. Validate correct operations of unique test support software
  4. Validate correct computation of all parameters, display, and control data
  5. Provide troubleshooting support during the test
  6. Provide operational support for the data and control system during the test
- c. Post-test phase
  1. Provide post-test data reduction support
  2. Document and archive test data, data quality assurance information and test scenario at each facility
  3. Deliver final data according to research customer's format instruction
  4. Address findings in the research customer's test exit survey

2.1.6.2 The Contractor shall perform off-site research operations in support of other NASA Centers or Government Agencies as needed. Off-site support shall include but is not limited to, acoustics and other field tests that require the development, operations, and maintenance of portable DAS and instrumentation systems and special analysis data. The Contractor shall be responsible for all aspects of off-site testing (e.g. transportation, setup, clean-up, data generation and reporting). The Contractor shall develop, maintain, and utilize procedures, which ensure high quality off-site test data is generated. The Government will issue an IDIQ TO for off-site operations work. The IDIQ TO will delineate performance and quality standards.

2.1.6.3 The Contractor shall operate and maintain the video cameras and associated control and data systems that are used for model surveillance and flow visualization data. The systems consist of cameras and PCs that measure model deformation, pressure/temperature paint data, florescent mini-tuft flow visualization data, test article position/attitude and focusing Schlieren flow visualization data. The systems include an environmental control processor to manage heating and cooling for the system. The video network broadcasts model surveillance for customer observation. The Contractor shall support laser system testing requirements through hardware and instrumentation setup and calibration, system operation, and data acquisition and reduction.

2.1.7 Data Quality Support

2.1.7.1 The Contractor shall implement Data Quality Assurance (DQA) methods and technologies within the research facilities as defined by the Government Subject Matter Expert (SME). These methods and technologies are outlined in Appendices 2.4 and 2.5, but are subject to modifications as defined by the Government SME. These duties include, but are not limited to, the following:

- a. Train test engineering and technician personnel in the use of Government furnished DQA methods
- b. Audit the output from metrology activities as applied to standard facility instrumentation and test specific instrumentation
- c. Execute and monitor the DQA tasks within each research customer test and periodic check standard test
- d. Perform check standard probe tests and check standard model tests in specified research facilities and execute the DQA tasks associated with each test. The Contractor shall coordinate the need for and frequency of tests with the Government's Facility Manager.
- e. Execute DQA tasks within each customer test project

2.1.7.2 For all tests, the Contractor shall provide data quality assurance operations services including, but not limited to, the following:

- a. Pre-test phase
  1. Participate in pre-test meetings with the Government and research customer to determine test-specific data quality assurance support requirements, including measurement uncertainty and accuracy requirements.
  2. Predict and determine the probable measurement system uncertainty levels for the various test conditions and the measurement/instrumentation systems used for the test
  3. Predict the probable correction levels, including the effects of wall interference, buoyancy and mounting system (e.g. cavity/base pressures)
  4. Prepare supporting DQA documentation for the test and post in aeroCOMPASS
- b. Testing phase
  1. Validate that the instrumentation repeatability is as expected from the pre-test prediction and monitor throughout the test according to procedures supplied by the Government.
  2. Compute post-point classical wall interference corrections for analysis during the test (NTF and 14x22 only)
- c. Post-test phase
  1. Provide post-test validation of the pre-test uncertainty estimates
  2. Provide post-test values of wall interference corrections using the wall-pressure system (NTF and 14x22 only)
  3. Document and archive data quality assurance information at each facility.



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### 2.1.8 Laser and Dynamic Data Support

2.1.8.1 The Contractor shall operate laser test systems capable of supporting all research test programs in accordance to LPR 1710.8, *Non-Ionizing Radiation*, and facility SOPs. These test systems include test hardware, instrumentation, software, and data systems for laser vapor screen, laser velocimetry, and Doppler global velocimetry test capability. The Contractor shall support laser system testing needs through hardware and instrumentation setup and calibration, system operation, and data acquisition and reduction in research facilities.

2.1.8.2 The Contractor shall operate the dynamic data acquisition system, currently located at 14x22, capable of supporting all research test programs. The Contractor shall setup the dynamic data acquisition system for all relevant tests conducted in the research facilities. The Contractor shall support dynamic data acquisition needs by obtaining, reducing, and disseminating all data to the Research customers.

### 2.1.9 Facility Automation and Control Systems Operations (FAS) Support

The Contractor shall perform FAS operations duties that include, but are not limited to, the following:

- a. Support the FAS interface to the DAS and instrumentation used to monitor and diagnose performance of tunnel controls, to analyze facility data, and to assist in post run diagnosis of any FAS anomalies
- b. Perform troubleshooting, checkout and repair of the FAS and perform corrective changes to existing closed-loop control and automated interlock systems
- c. Configure the FAS parameters for proper operations prior to each test with respect to tunnel and test article safety
- d. Record and enter documentation related to the test into aeroCOMPASS
- e. Recommend improvements to the FAS to enhance the operating performance, reliability, efficiency, and test capabilities of the facility

### 2.1.10 Instrumentation Systems Support

The Contractor shall provide instrumentation system support for all test phases (pre, test, and post). The Contractor shall conduct testing to ensure that instrumentation functions as designed, resolve all instrumentation related problems as needed, and participate in the LaRC Metrology Process for facility instrumentation, in accordance with LMS-CP-0506. Instrumentation systems support includes, but is not limited to:

- a. Pre-test phase
  1. Initiate and facilitate communications with research customers to ensure needed instrumentation is acquired, properly calibrated and installed without impact to the test schedule

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2. Meet with Government and research customer to determine instrumentation requirements
3. Develop an instrumentation test plan
4. Collect instrumentation to support the test from existing instrument inventory
5. Recommend and purchase instrumentation
6. Ensure that all required instrumentation is properly calibrated and available to support the test
7. Design and fabricate any required test apparatus, instrumentation cabling, supporting power systems, customer interface equipment, and other systems necessary to conduct the test
8. Provide instrumentation hookup lists for the data system, control systems, and customer equipment
- b. Testing Phase
  1. Install instrumentation, provide customer interfaces, fixtures, cabling, and other hardware necessary to conduct the test
  2. Validate correct installation and calibration
  3. Support troubleshooting during the test
- c. Post-test phase
  1. Remove instrumentation, cabling, test fixtures, and other hardware
  2. Support post-test data reduction and data quality activities, as required
  3. Provide final test documentation including related calibration data in aeroCOMPASS
  4. Address and remedy any unacceptable findings in the research customer's test exit survey

### 2.1.11 Test Management

Test and model systems planning, integration and wind tunnel test management includes, but is not limited to:

- a. Interface with the research customer, test engineering personnel, and operations management to plan and schedule the necessary disciplines required to receive, prepare, install, test, and remove each research test article
- b. Lead the facility team in coordinating, integrating, and scheduling all work in the facility
- c. Prioritize work, delegate task assignments, balance workload, identify training needs, monitor team performance, ensure the readiness of all facility and test support equipment and consumables and conduct safe and efficient test operations

### 2.1.12 Test Article Integration

Test article integration duties include, but are not limited to the following:

- a. Consult with the research customer during test planning, preparation, and test article design and fabrication

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- b. Assemble the test article and perform checkout procedures. Test article assembly shall comply with LPR 1710.15, *Wind Tunnel Model Systems Criteria*, and facility Standard Operating Procedures
- c. Install the test article in the wind tunnel test section or other test locations, such as Model Preparation Areas
- d. Disassemble test article and pack for storage or shipment at the end of the test
- e. Inspect and maintain facility hardware components, including, but not limited to, stings, knuckles, adapters, and balance blocks

### 2.1.13 Technical Operations

The Contractor shall operate facilities, test article components, and auxiliary equipment during all test phases (pre-test, test, and post-test) while working as an integral member of a facility's blended workforce. The Contractor shall comply with all applicable SOP, IOP, SEP, MOP, PMP, MIP, AIP, and FMP. The Contractor shall be certified to operate facility equipment in accordance with these procedures and with LPR 1740.7, *Process System Certification Program*.

### 2.1.14 Electrical System Support

The Contractor electrical system support in research facilities includes, but is not limited to, the following:

- a. Troubleshoot and repair motor generators, drive equipment energized by voltages up to 115,000 volts, interlocking devices and systems, electrical control circuits, Programmable Logic Controllers (PLC), Programmable Automation Controllers (PACs), model injection and control systems electronic regulators, generators, motors, and automatic and manual valve controls and instrumentation
- b. Modify electrical/electronic systems for testing and keep such systems in operational readiness
- c. Provide electrical services to main drive systems for research facilities
- d. Maintain facility electrical drawings, schematics and wiring diagrams for functional use
- e. Operate the main drive panel at the research facilities
- f. Obtain certification to operate the rotating drive equipment in accordance with standard operating procedures and provide real time troubleshooting and repair in accordance with LPR 1740.7

### 2.1.15 Fluid Systems Support

Liquid and gaseous fluid operations includes compressed air handling, heavy gas compression, reclamation, and storage systems, helium compression and reclamation systems, oxygen and methane compressor systems, liquid and gaseous nitrogen pumps and other ancillary equipment, hydrogen, argon, and silane pumping and dispensing systems, and nitrogen gas evacuation systems and nitrogen/cryogenic

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pumping stations. The Contractor fluid handling services in research facilities (including the NTF LN2 Plant) includes, but is not limited to the following:

- a. Operations of the fluid compressor pumping and dispensing facilities.
- b. Maintain system pressure at their required levels as designed and intended in their respective system design
- c. Identify all system abnormalities upon detection and initiate remedial action
- d. Respond to operational emergencies, that present unsafe conditions, reduce pressure or secure systems per facility SOPs
- e. Support off loading of commercially delivered liquid nitrogen, silane liquid oxygen, helium and hydrogen from Department of Transportation (DOT) type trailers to facility storage containers listed in Appendix 2.6, *List of Off-Loading Service Procedures and Checklists*. These duties include both the off loading and disconnecting and connecting of DOT-type tube and tank trailers as required. The Contractor shall follow SOP and checklist for this system, as shown in Appendix 2.6.

### 2.1.16 Reserved

### 2.1.17 Model Structural Analysis

The Contractor shall provide engineering review of all test article documentation submitted to the facility by the research customer in accordance with LPR 1710.15, *Wind-Tunnel Model Systems Criteria*. Duties include, but are not limited to, the following:

- a. Perform supplementary analysis (e.g., vibration, divergence, flutter) to verify structural integrity of models and associated elements including the model support hardware such as balances, stings, and adapters, roll mechanisms and pitch mechanisms
- b. Determine the test operating boundary limits of the research facility test conditions as a function of allowable loads on the test article, and point out any particular areas of concern regarding the safety of the test article and support system to the Facility Safety Head and test engineer
- c. Provide corrected calibration constants and associated limits for the set up of tunnel load monitoring and model protection and shutdown instrumentation systems (e.g. Balance Dynamic Display Unit (BDDU), Critical Point Analyzer (CPA), Model Protection and Shutdown System (MPSS) II, and Balance Loads And Monitoring System (BLAMS))
- d. Make real-time decisions regarding the safety and integrity of the test article during times when structural changes or modifications are required during the test
- e. Resolve issues regarding fastener clamping applications and torque requirements
- f. Obtain applicable special procedures or test waivers in accordance with LPR 1710.15 prior to the start of a research customer test

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### 2.1.18 Facility Configuration Management

The Contractor shall maintain all respective facility baseline drawings and documentation (SOP, IOP, MOP, MMP, AIP, and SEP) as defined in Section 4.1.2.

### 2.1.19 Facility and Test Documentation

#### 2.1.19.1 Non-Test Related Documentation

The Contractor shall place hard copy facility information, such as equipment manuals and drawings, in the Facility Library described in Section 4.1.7. Non-test related information shall be maintained in aeroCOMPASS to the greatest extent possible, including, but not limited to the following:

- a. Facility Resume, as defined in LPR 1740.3, *Facility Safety Head and Facility Coordinator Guide*
- b. Facility Test Schedule
- c. Facility logs (non-test related)

#### 2.1.19.2 Test Documentation

The Contractor shall record all test process events and information into an aeroCOMPASS Electronic Notebook in compliance with LMS-CP-0502, *Wind Tunnel Test Planning*.

### 2.1.20 Reserved

### 2.1.21 Facility Scheduling and Integration

The Contractor shall develop facility and test schedules for use by the Government and the Contractor to coordinate research testing, facility operations and maintenance activities. The Contractor shall maintain and update on a weekly basis schedules in aeroCOMPASS.

## **2.2 RESEARCH UTILITY SYSTEMS OPERATIONS**

This Section identifies the requirements for research utility systems supporting the LaRC research operations. These essential systems are critical for Research operations throughout the Center, and include:

- a. Research Air Compressor Station (Building 1247E)
- b. NTF LN2 Plant (Building 1241)

### 2.2.1 Research Air Compressor Station (Building 1247E)

The Contractor shall ensure that high-pressure air is produced and distributed safely and efficiently in accordance with CID 1710.40, *Langley Research Center Pressure Systems Handbook*. The high-pressure air distribution systems at LaRC provide compressed air from 110 psi to 6,000 psi. There are approximately 39,000 linear feet of pipe in the system. Six (6) compressors located in Building 1247E produce high-pressure air (5,000 & 6,000 psi) that supports research operations throughout LaRC. The high-pressure air distribution systems include four (4) storage fields that are located behind Building 1247E and several smaller storage fields in other locations on the center. A reducing station at Building 1215 has the capacity to provide the Center 110 psi and 350-psi service and instrument air in emergency situations. The Contractor shall maintain system pressures at their required levels as designed and intended for their respective system operations, and shall perform high-pressure air production operations as required to support research testing. Normal operations for this facility shall include 5 days per week, 2 shifts per day. However, when research testing requirements exceed the capacity of the 5 day per week schedule, the Contractor shall increase its operating schedule to up to a 7 days per week, 24 hours per day, until the research testing demand is satisfied. The Contractor shall operate the entire compressed air distribution system to provide, continuous air pressure between 350 and 5,800 psig with a dew point no greater than  $-50^{\circ}\text{C}$ , as required. The Contractor shall attend weekly Research Facilities priority meetings as outlined in Section 2.2.3 and shall manage high pressure air production as required to satisfy the demand established at the weekly meeting.

#### 2.2.1.1 High Pressure Air Operation Logs

The Contractor shall maintain daily operations logs, including equipment instrument readings, operator tasks assigned, routine maintenance performed, and emergency conditions. The Contractor shall ensure all compressor operation records are up-to-date, maintained at the Compressor plant a minimum of 3 years, available upon request within 24 hours, and posted in the OME Virtual Library. The Contractor shall maintain a monthly record of plant production, equipment runtime, and high pressure air produced per machine, submit a report to the CO within 7 business days of the reporting period and post the report in the OME Virtual Library.

#### 2.2.1.2 High Pressure Air Production

The Contractor shall operate and monitor compressors and related equipment identified in accordance with the operational procedures and checklists contained in the approved Operation Procedures Plan (OPP). The Contractor shall use the following standard operating procedures and checklists:

- a. 01-SOP-COMP-1 Standard Operating Procedure for Compressor 1 Feeding Dryer 1

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- b. 01-SOP-COMP-3 Standard Operating Procedure for Compressor 1 Feeding Dryer 3
- c. 01-SOP-COMP-4 Standard Operating Procedure for Compressor 1 Feeding Dryer 4
- d. 01-SOP-COMP-5 Standard Operating Procedure for Compressor 1 Feeding Dryer 5
- e. 01-SOP-COMP-6 Standard Operating Procedure for Compressor 1 Feeding Dryer 6
- f. 01-SOP-DRYER-1 Standard Operating Procedure - Reactivate Dryer 1
- g. 01-SOP-DRYER-2 Standard Operating Procedure - Reactivate Dryer 2
- h. 01-SOP-DRYER-3 Standard Operating Procedure - Reactivate Dryer 3
- i. 01-SOP-DRYER-4 Standard Operating Procedure - Reactivate Dryer 4
- j. 01-SOP-DRYER-5 Standard Operating Procedure - Reactivate Dryer 5

The Contractor shall incorporate within the OPP those proven "industry best practices", technical processes and administrative procedures. Plans shall be submitted to the CO for approval within 90 calendar days of contract start and reviewed and updated annually. The Contractor shall use the most current version of the OPP approved by the CO and archived in the OME Virtual Library.

### 2.2.2 NTF LN2 Plant (Building 1241)

The Contractor shall operate, maintain and monitor the NTF LN2 Plant and related equipment to support the NTF's cryogenic testing requirements in accordance with integrated operating procedure 100-IOP-01, NTF LN2 Plant Operations at Building 1241. NTF LN2 Plant operations includes, but is not limited to, daily inspections, interlock checks, plant start ups from warm conditions, defrost conditions and cold conditions, and System checks during weekend operations.

### 2.2.3 Facility Priority Meeting

The Contractor shall participate in the Facility Priority Meeting. This meeting is held weekly and conducted by the Government. The purpose of the meeting is to determine the priorities for shared resources, that include staffing, and utilities, such as electricity and high-pressure air. A representative from each research facility, Government or Contractor, presents a short summary of their current facility status and the expected staffing and utility needs for the upcoming week. At the conclusion of the meeting, the priorities are set by the Government for the upcoming week.

## **2.3 ROME ANNUAL OPERATIONS PLAN (AOP)**

The Contractor shall develop and submit a ROME AOP that defines the approach to meet the operational requirements for the upcoming Government Fiscal Year (FY) considering the operational and budgetary parameters provided by the Government. The purposes of the AOP are to (1) anticipate the annual activities expected at each of

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the facilities and across all facilities the contractor is required to support for the upcoming fiscal year, (2) develop an approach that optimizes performance consistent with the operational parameters (e.g. workforce, schedule, budget, capacity), (3) effectively use a blended workforce consisting of Government and Contractor employees to implement the strategic objectives and priorities formulated by the Government, and (4) achieve flexibility and adaptability to meet evolving mission requirements and business environment changes.

An effective plan shall direct funding to achieve the best utilization of resources. The Contractor shall work closely with the Government to understand the LaRC-specific requirements for the ROME contract that shall be reflected by the Contractor in the AOP. The Government and Contractor will continuously collaborate and coordinate on changes to the operational and budget parameters to ensure a clear understanding of the Government's needs, the division of roles and responsibilities, and the content that will be included in the AOP. The Contractor shall continuously update the AOP "Facilities Operations Requirements" to align the resources and operational support to meet the operational parameters.

### 2.3.1 Objectives and Content of the AOP

The AOP shall detail the Contractor's overall approach to achieve the Center's goals, objectives, timetables, and Government's degree of participation in the performance of facility operations. The plan shall reflect the most efficient operational approach within and across facilities, given a blended workforce assuming Government employee contribution and anticipated funding limitations, to operate the facilities to support testing in a safe, cost effective, and productive manner. The plan shall be developed in coordination with the Government requiring organization(s) to arrive at the most efficient solution to meet customer requirements, testing schedule, and safe operations

The AOP shall include, but not be limited to, the following:

- a. Delineate the overall approach to meet safe facility operations to achieve the Center's goals, objectives, timetables, and considering the Government's degree of participation in the performance of facility operations (see SOW 2.3.3)
- b. Approach to operations with blended workforce including strategy that fosters Contractor personnel to work alongside Government facility personnel
- c. Describe the tactical actions necessary to ensure the stewardship of the facilities and be adaptable to the ever-changing conditions that impact the Center's operations including approach to moving and adjusting workforce across multiple facilities to accommodate demand
- d. Document the Government and Contractor roles and responsibilities critical to managing and conducting operations effectively and safely
- e. Annual Workforce Plan: The contractor's Workforce Plan shall clearly demonstrate how the Contractor will meet performance requirements for those functions to be performed by the contractor for the upcoming period. The plan



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shall include the approach to perform those functional responsibilities defined by the Government to include:

1. Information regarding the skill mix, staffing levels, and distribution of Contractor employees involved in testing and facility operations for the suite of facilities identified by the Government assuming the FTE levels provided by the Government for those functions in each facility.
2. Approach to assume functions directed by the Government in the operations listed in SOW Section 2.1 within periods of time defined by the Government to include functional responsibilities and requirements that the Contractor must meet to successfully assume the function(s), a process to demonstrate the skill of the Contractor to meet the requirements, and the criteria to be used to validate completion of the assumption of the function(s).
3. Approach to knowledge capture and migration of critical skills to include knowledge capture and documentation process, and a training plan that includes timelines to be fully accountable for those function(s) at the required certification level and minimum qualifications.
4. Approach to implementing new skills within the workforce to align with requirements.
5. Approach to maintaining core capabilities and knowledge to meet future requirements.
- f. Contingency plans to address demand fluctuations of plus or minus 20% and workforce plans when facilities are idle due to maintenance, repair, lack of demand, or upgrade.
- g. Input from the Contractor's Wind Tunnel Working Group reflecting technology insertion, benchmarking, best practice and expertise from similar operations (e.g. AEDC, NASA Ames, DOD, and industry).
- h. Identify the impacts of requirements not funded and recommended alternatives to satisfy those requirements, including incremental solutions that may be feasible. Alternatives shall include critical timelines for accomplishment.
- i. Suggested operational improvements and facility upgrades along with a proposed implementation plan that will enhance LaRC's ability to meet future testing needs.
- j. Develop and maintain metrics that assess the overall health and condition of the facilities, critical LaRC processes, migration of functions, and indication of how well the Center is progressing toward established goals. These metrics will be applied to the entire contract as well as individual subtasks of this SOW, and will be used as a tool to manage contract execution.

### 2.3.2 Government Provided Information (Parameters)

The Government will provide the operational and budgetary parameters for inclusion and consideration in the development of the AOP for the upcoming Government fiscal year. Parameters for multiple years may also be included. The parameters will continuously fluctuate and will include, but not be limited to:

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- a. Annual projections of demand for individual facilities and across the suite of facilities with quarterly adjustments to demand projection
- b. Operational structure parameters such as the expected daily operational hours for each facility and workforce sharing parameters if multiple facilities are expected to operate in a block mode.
- c. Customer test schedules for each facility
- d. The identification of research facilities requiring operational support from the contractor
- e. A prioritized list of operational functions that will be accomplished by the Contractor for each facility and/or block of facilities, to include the schedule by which the contractor is expected to be fully operational to perform the functions. NOTE: The functions that the contractor shall perform will continuously change based on the Government's workforce strategies. Functions may migrate back and forth from Government to Contractor performance as well as being shared by both.
- f. Government workforce distribution by facility and in the aggregate that includes the facility functions that will be performed by Government employees (FTEs)
- g. Anticipated budget for contract services for the upcoming Fiscal Year and by the corresponding Contract Years
- h. Performance criteria for functions to be performed by the Contractor.

### 2.3.3 Approach and Milestones for the AOP

The Contractor shall submit the AOP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The CO will provide the operational parameters for inclusion in the AOP no later than August 1<sup>st</sup>. The Contractor shall submit the plan in advance of the upcoming fiscal year, but no later than September 1<sup>st</sup>. The Government will provide comments within 15 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. Due to the Contract Years and Fiscal Years being different, the AOP shall clearly delineate the upcoming Fiscal Year and correlate to the Contract Years to ensure traceability to the contract values (CPFF amount) and funding limitations. The Contractor shall maintain this contract deliverable and continuously update the AOP based on fluctuations in the operational parameters provided by the Government.

The Contractor shall not exceed the cost limitation of the contract. The contractor shall submit an AOP revision any time the total cost is anticipated to exceed the current cost amount of the contract or deviate from the AOP by 15% or more. The revision shall be submitted to the Contracting Officer (CO) within fifteen (15) calendar days after the need for revision is known. Changes to the scope, to include resource changes or an increase/decrease to the level of effort, will be handled in accordance with the Changes clause of the contract.

## **3.0 MAINTENANCE**

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Facility and Facility System Maintenance at LaRC involves all activities necessary to ensure that LaRC facilities (Reference Appendix 1.1, *LaRC Facilities and Installations*) facility systems and collateral equipment are safe, fully operational, reliable and available on demand. LaRC facility maintenance is reliability centered and includes Preventive Maintenance (PM), facility and system repairs.

Facilities maintenance does not include fire department protection services personnel, security, grounds, custodial services, service requests, or work on non collateral equipment. (Reference definitions in Appendix A of NPR 8831.2E, *Facilities Maintenance Management*).

### 3.0.1 Maintenance Goals and Objectives

LaRC Facility Maintenance involves the aggressive and proactive pursuit and implementation of the safest and most cost-effective blend of Reliability Centered Maintenance (RCM) management, procedures, technology and industry best practices. The Contractor shall develop and implement a comprehensive facility RCM Program and establish the most efficient maintenance organization to protect the health and safety of personnel, protect the environment, protect and preserve LaRC facility capability and capital investment, enable mission performance and minimize facility life-cycle costs. Basic characteristics and attributes of comprehensive and cost-effective facility maintenance program; includes, but is not limited to, documented evidence of:

- a. Improvements in availability and system reliability
- b. Emphasis on conversion of time based maintenance (PMs) to condition based maintenance (PT&I) where the equipment failure mechanism supports the conversion
- c. Improvements in facility maintenance data quality, collection, accuracy and application
- d. Improvements in maintenance customer service and customer satisfaction
- e. Improvements in cost avoidance for facility system repair and replacement
- f. Benchmarking and the identification and assimilation of new and emerging facility maintenance technologies and industry best practices
- g. Continuous maintenance program assessments and improvements by measuring against objective maintenance program performance criteria
- h. The Contractor shall accurately record all maintenance data in the CMMS in a timely manner (Reference Chapter 6 in NPR 8831.2E). The CMMS (<http://romemaxx.ndc.nasa.gov/maximo/>) is a set of computer software modules and equipment databases containing facility data with the capability to process the data for facilities maintenance management functions

### **3.1 REQUIREMENTS BY BUILDING OR AREA (REFERENCE: APPENDIX 1.1)**

#### 3.1.1 Reserved

#### 3.1.2 Preventive Maintenance (PM) and Predictive Testing & Inspection (PT&I)

3.1.2.1 The Contractor shall perform the LaRC PM Program as specified in the CMMS. The CMMS establishes the minimum requirements and frequency for each scheduled PM. The Contractor shall coordinate all PM and PT&I changes with the Maintenance Configuration Control Board (MCCP). The MCCP is a joint NASA/Contractor Board that provides oversight to the Maintenance Program. The Contractor shall update and validate all approved changes (Reference LMS-CP-5616, *CMMS Change Request*) to the PM program in the CMMS. The Contractor shall manage the overall PM program to ensure PMs are planned, prioritized and executed in accordance with the Annual Work Plan (AWP). PMs shall be prioritized for execution according to asset criticality and failure impact. All Safety Critical PMs not completed in a timely fashion shall be reported to the MCCB on a monthly basis. All Pressure Vessels and Pressurized Systems PMs not completed in a timely fashion shall be reported in accordance with NASA-STD-8719.17, *NASA Requirements for Ground-Based Pressure Vessles and Pressurized Systems (PV/S)*, and to the MCCB on a monthly basis.

#### 3.1.2.2 Predictive Testing and Inspection (PT&I)

The Contractor shall perform the LaRC PT&I Program specified in the CMMS. The Contractor shall document all PT&I finds that indicate a change in equipment reliability or service in the CMMS in a format that allows for analysis tracking and reporting. The Contractor shall monitor the condition of the equipment in such a manner that allows the frequency of testing to be adjusted based on PT&I find rate. The Contractor shall perform follow up PT&I on all equipment where corrective action results from a PT&I task or in the performance of acceptance testing and inspection of new equipment/systems. Where applicable, the Contractor shall apply PT&I technology when it is advantageous to validate the quality and effectiveness of the repairs. The follow up PT&I task shall be performed at a frequency and duration to establish a new baseline for analysis on the equipment/system. The Contractor shall inspect and evaluate in-service and newly acquired equipment against criteria in Appendix 3.6, *Equipment Acceptance Criteria*.

#### 3.1.3 Reserved

#### 3.1.4 Programmed Maintenance (PGM)

PGM is similar to PM and PT&I in that it is a scheduled activity intended to prevent failure. However, as specified in NPR 8831.2E, these activities occur on a cycle that is longer than one-year (e.g. every fifth year). This category is different from PM in that if a planned cycle is missed the original planned work still remains to be accomplished; whereas in PM, only the next planned cycle is accomplished instead of doing the work

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twice, such as two lubrications, two adjustments, or two inspections. Funding levels for PGM tasks will be defined in the AWP for the following categories:

3.1.4.1 Multi-year PM requirements that exceed \$100,000 per year in labor and non-labor costs shall be funded as a "Discrete PM" and handled through a TO in accordance with Section 1.4.6.

3.1.4.2 The Contractor shall perform temporary and permanent patching of sections of flexible and rigid pavement, pavement marking, the cutout of pavement for utility repairs, and shoring for utility repairs at NASA LaRC in accordance with Appendix 3.19, *Road and Other Surface Area Standards*. There are approximately 54,000 linear feet of Roads (asphalt, concrete, gravel) and 2,000,000 square feet of parking lots. The Contractor shall maintain signs in good condition (e.g. street, traffic, building signs) guardrails, gutters, curbs, ramps, sidewalks, pads, and wheel blocks.

3.1.4.3 The Contractor shall perform roofing and related facility work in accordance with the National Roofing Contractors Association (NRCA) Standards and the definition, procedures, and applicable SPECSINTACT sections (Reference Section 4.1.6). The Contractor shall accomplish temporary repairs under wet conditions as required to protect Government property and personnel. Durable permanent repairs shall be completed as soon as conditions allow. The Contractor shall coordinate and complete manufacturer's inspections on roofs to ensure compliance with manufacturer's warranty.

3.1.4.4 The Contractor shall provide painting services on and within the facilities listed in Appendix 1.1. Painting applications include, but are not limited to, corrosion control (Reference Corrosion Control Operations Procedure Plan in Section 3.1.5.5.22) and/or high performance coatings, architectural, preservation, spot, repair, and traffic signal marking.

### 3.1.5 Trouble Calls and Repairs

Repairs and Trouble Calls are facility work required to restore a facility or component thereof, including collateral equipment, to a condition substantially equivalent to its originally intended and designed capacity. It includes the substantially equivalent replacements of utility systems and collateral equipment necessitated by incipient or actual breakdown without regard to breakdown or cost. The Contractor shall receive and respond, based on priority, 24 hours per day, 7 days a week. When required, the Contractor shall secure the appropriate LaRC functional approvals (Reference Appendix 3.5, *Functional Approval Requirements*) prior to executing work. The Contractor shall document and record all Repair data in the CMMS.

3.1.5.1 Trouble Calls (TC) (subset of repair) are unplanned minor facility problems that are not estimated.

- a. Routine Calls. Routine calls are unplanned minor facility problems that are too small to be estimated (usually less than about 20 work hours or \$2,000). They

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generally are responded to by grouping according to craft and location. Initial response shall be within three (5) calendar days to initiate work or convert to a repair. Routine call work shall be completed within twelve (17) calendar days.

- b. **Emergency Calls.** Emergency calls are safety of life or property threatened; immediate mission impact; loss of utilities. Work shall begin immediately upon receipt of a trouble call during normal business hours and within two (2) hours of receipt of a trouble call after normal business hours. The Contractor shall divert resources as necessary and work until the emergency is mitigated and critical systems restored. Once the emergency is mitigated, the work order will be downgraded to a lesser priority. Due to its nature, emergency work is not restricted to a level of effort such as routine Calls (although in many cases it falls within the work hour and/or dollar limit of routine calls).

3.1.5.2 Repairs as a work type are planned facility work efforts that are estimated to not exceed the \$100,000 project threshold. The Contractor shall perform repairs or replacements on LaRC collateral systems and equipment (Reference NPR 8831.3E). The Contractor shall change the work type of an existing TC in the CMMS to "Repair" if it becomes apparent that the work will require planning. The Contractor shall submit for approval of the COTR a brief description explaining the repair and the approach along with a rough order of magnitude estimates for repairs that are expected to exceed \$100,000. The Contractor shall secure the appropriate LaRC functional approvals (Reference Appendix 3.5, *Functional Approval Requirements*) prior to executing work.

### 3.1.5.3 Reserved

3.1.5.4 The Contractor shall classify and perform each Repair Request as required below and shall provide the requestor with the Request Number and classification at the time the Repair is made. The timeliness of completion for Repairs shall be as indicated below or as approved by the COTR. In the event of a disagreement regarding the classification of the work, the caller shall be directed to the COTR for resolution. The Contractor will be evaluated on its success in meeting customer timeliness requirements (Reference Section 1.4.1.2).

3.1.5.4.1 Emergency (Priority 6): Will be worked as Trouble Calls (Reference Section 3.1.5.1).

3.1.5.4.2 Urgent (Priority 5): Maintenance or repair work required for continued facility operation impending serious impact on mission. Work shall be completed to ensure continuous operation of the facility and to restore healthful environment. The Contractor shall respond to this request within the same day the call was received and an appropriate level of effort shall continue until the urgency is mitigated with all required work completed no later than 20 calendar days after receipt of request.

3.1.5.4.3 Priority (Priority 4): Maintenance or repair work that is required to support the mission or as required to meet test project deadlines; significant adverse effect on the

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mission, life, safety or environment. The Contractor shall respond to this request within 7 calendar days to determine the scope of work. Work shall be completed to meet the mission requirements, but not later than 30 calendar days of receipt of the request unless otherwise agreed to with the facility coordinator.

3.1.5.4.4 Routine (Priority 3): The facilities maintenance work can be scheduled routinely within the capability of the facilities maintenance organization. Redundancy is available; impact on mission insignificant. Facilities work is subject to availability of resources and may be consolidated by facility or zone or as directed to obtain efficiency of operation. The Contractor shall respond within 14 calendar days to determine the scope of work and complete work within 41 calendar days of receipt of the request unless otherwise agreed to with the facility coordinator.

3.1.5.4.5 Discretionary (Priority 2): Maintenance or repair work that is requested by facility occupants, but not essential to protect, preserve, or restore facilities and equipment; impact on mission negligible. The Contractor shall respond to discretionary work requests within 14 calendar days to determine the scope of work and complete only as workload allows. This work shall be categorized as Deferred Maintenance if not completed after 71 calendar days.

3.1.5.4.6 Deferred (Priority 1): Work that may be safely, operationally, and economically postponed; impact on mission negligible. The work should be done but cannot be scheduled because of higher priority work, funds shortage, or conditions outside the control of the maintenance organization. The Contractor shall respond to deferred work requests within 14 calendar days to determine the scope of work. The work may be reclassified if conditions permit or included in the Deferred Maintenance.

### 3.1.5.5 Repair Details

3.1.5.5.1 The Contractor shall, when disposing of equipment, comply with property disposal procedures required by NPR 4200.1G, *NASA Equipment Management Procedural Requirements*.

3.1.5.5.2 The Contractor shall coordinate all scheduled utility outages with the Facility Coordinator and Safety Head of the affected facilities. Utility outage requests shall be submitted at least 3 business days in advance and shall include dates, times, facility(s), and equipment/system(s) that will be affected.

3.1.5.5.3 The Contractor shall respond to unscheduled utility outages 24 hours per day, 7 days a week, and the Contractor's response shall be in compliance with the requirements in Section 3.1.5.4. During normal business hours, the Contractor shall notify the Utility Manager within one hour of an unscheduled outage. After normal business hours, the Contractor shall notify the Utility Manager by 9:00 a.m. of the next business day. The Contractor shall post a written report to the OME Virtual Library within three (3) business days after each occurrence that includes a summary of the event, action taken and probable cause for the outage.

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3.1.5.5.4 The Contractor shall obtain a digging permit for all excavations or anything that penetrates the ground greater than 6 inches deep in accordance with LPR 1740.2, *Facility Safety Requirements*. Where excavations are made in performing work, the Contractor shall restore the area to its original condition. If previously unidentified archaeological resources or unanticipated effects to archaeological resources are discovered the contractor shall immediately halt all activity within a one hundred (100) foot radius of the discovery, notify the Contracting Officer of the discovery and ensure that no unauthorized personnel have access to the site and no further work is done in the area of discovery until NASA LaRC has complied with 36 CFR Part 800.13(b) and any other legal requirements.

3.1.5.5.5 The Contractor shall initiate and maintain records in the CMMS (Reference Section 5.0, e.g. MAXIMO) to reflect all work performed on LaRC facilities, equipment and systems. Data maintained in the CMMS is Government owned and shall be retained by the Government at the end of the Contract.

3.1.5.5.6 The Contractor shall perform precision cleaning, refurbishment, repair and maintenance and verification of parts, components, assemblies, subsystems, systems, or related equipment in accordance with LPR 1740.5, *Procedures for Cleaning of Systems and Equipment for Oxygen Service*, and the Oxygen Cleaning Operations Procedure Plan (Reference Section 3.1.5.5.22). Oxygen cleaning of non-collateral equipment will be funded through a Service Request.

3.1.5.5.7 The Contractor shall operate and maintain the Component Verification Facility (CVF). The primary function of the CVF is the testing of safety critical pressurized components in accordance with the preventive maintenance schedule established in the CMMS. Secondary functions and services of the CVF include the fabrication and testing of flexible hoses and testing of small pressurized vessels and systems, either by hydrostatic or pneumatic test. Capabilities to be maintained include hydrostatic testing with water up to 60,000 psig, pneumatic testing with air or nitrogen up to 6,000 psig, testing of oxygen clean items, verification testing of bourdon-tube pressure gages, and verification testing of relief valves. Work shall be performed in accordance with CID 1710.40, *Langley Research Center Pressure Systems Handbook*, and the Component Validation Operations Procedure Plan (Reference Section 3.1.5.5.22). The Contractor shall maintain and recalibrate test equipment required for component validation to ensure compliance with the facility resume. The Contractor shall handle work or pressure gauges, relief valves, pressure sensors, piping and hoses and similar components used in non collateral equipment as a Service Request.

3.1.5.5.8 The Contractor shall perform rigging and hauling services at NASA LaRC and other local locations as required in support of the maintenance program (as defined in the AWP). Work involves rigging and hauling of equipment, structures, models, and other items at LaRC facilities and occasionally for off-site locations. Rigging work shall be performed in accordance with the LaRC Safety Manual and the Rigging and Hauling Operations Procedure Plan (Reference Section 3.1.5.5.22). Equipment used for lifting



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shall comply with NASA-ST-8719.9, *NASA Standard for Lifting Devices and Equipment*. Rigging work on non-collateral equipment and work not included in the maintenance program (as defined in the AWP) will be handled as a Service Request.

3.1.5.5.9 The Contractor shall provide periodic certification, inspection and testing, maintenance, and repairs to elevators, dumbwaiters and man lift systems. All inspection and testing shall be performed in accordance with applicable state and local regulations, in addition to sections of the National Fire Protection Association (NFPA), American Standards Institute, Inc. (ANSI) Safety Codes, current OSHA regulations, American Society of Mechanical Engineers (ASME) A17.1 and the Crane and Elevator Operations Procedure Plan (Reference Section 3.1.5.5.22).

3.1.5.5.10 The Contractor shall perform inspection, testing certification, maintenance, repair, modification, and equipment replacement as required to support built-in cranes, hoists, slings and other lifting devices. Also included is inspection and load testing for mobile cranes, forklifts, and specialized research apparatus in accordance with either original manufacturer's or engineering specifications. The Government will furnish the test weights (Reference Exhibit E, *IAGP equipment*). All inspections and tests shall be performed by or in the presence of a qualified crane mechanic leader and in accordance with the NASA-STD-8719.9, *Standard for Lifting Devices and Equipment*, LPR 1740.2, the Crane and Elevator Operations Procedure Plan (Reference Section 3.1.5.5.22) and current OSHA regulations.

3.1.5.5.11 The Contractor shall perform welding and brazing required for the maintenance and repair of facility mechanical, structural, pressure vessel and process systems. Welders shall be qualified and certified for the specific welding process in accordance with applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section IX, American National Standards Institute (ANSI), American Welding Society (AWS) D1.1 and D1.3 Standards, and the contract OPP.

3.1.5.5.12 The Contractor shall perform maintenance and repair of lubrication systems and hydraulic systems that range from 5 to 10,000 psi. When repaired, lubrication and hydraulic systems shall be free flowing, in safe operating condition, and free of leaks and drips. All work shall be in accordance with LPR 1710.12, *Potentially Hazardous Materials - Hazard Communication Standard*, and CID 1710.40, *Langley Research Center Pressure Systems Handbook*.

3.1.5.5.13 The Contractor shall provide maintenance, repair, and/or overhaul of mechanical systems including machinery; centrifugal, rotary and reciprocating compressors; high pressure and vacuum valves; gear and piston-type vacuum and miscellaneous pumps; plant instrumentation; vacuum spheres and gas storage cylinders and tanks; electrical equipment and components; and various mechanical equipment as well as associated appurtenances necessary to generate and deliver various liquids and gases to their respective dispensing or distribution system or to evacuate and reclaim the gases and liquids from such systems. All work shall be in accordance with LPR 1710.12 and CID 1710.40.

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3.1.5.5.14 The Contractor shall perform maintenance and repair of pressure vessels and process piping and tubing of various materials including, but not limited to, carbon steel, stainless steel, monel, inconel, and aluminum, in accordance with the ASME Boiler and Pressure Vessel Code, ASME B31.1 and ASME B 31.3, and only as approved by the NASA SPE for Pressure Systems. Work shall be performed in accordance with LPR 1710.12 and CID 1710.40.

3.1.5.5.15 The Contractor shall maintain and repair unique mechanical and electrical drive system components for drives from fractional horsepower to 135,000 horsepower. The Contractor shall perform all component, equipment and system maintenance and repair in accordance with checklists prepared for their respective component, equipment or system, LPR 1710.6, *Electrical Safety*, and other applicable specifications.

3.1.5.5.16 The Contractor shall perform carpentry and masonry maintenance and repair in accordance with the definitions, procedures, and applicable SPECSINTACT section (Reference Section 4.1.6). All new construction shall be handled as a Service Request.

3.1.5.5.17 The Contractor shall perform maintenance and repair of all electrical systems and equipment at LaRC, including electrical power distribution systems and facility electrical equipment. Included, but not limited to, are service connections, distribution panels, connections, conduits, conductors, grounds, outlets, switches, receptacles, wiring circuit breakers, branch circuits, ground fault circuits, motors, transformers, and lighting. All electrical work shall be in accordance with LPR 1710.6, *Electrical Safety*, and the Electrical High & Low Voltage Operations Procedure Plan (Reference Section 3.1.5.5.22).

3.1.5.5.18 The Contractor shall perform plumbing maintenance and repair for all piping systems at LaRC. All plumbing work shall be performed in accordance with CID 1710.40.

3.1.5.5.19 The Contractor shall operate, maintain, and repair all heating, ventilating, air conditioning, and refrigeration (HVAC/R), and HVAC control systems, cooling towers, and associated mechanical equipment at LaRC, in accordance with applicable HVAC Standards. The Contractor shall provide properly sized temporary air conditioning within three (3) business days of loss of service during the normal cooling months (May to October), unless otherwise negotiated with the Facility Coordinator, or as directed by the CO. The Contractor shall be fully compliant with the applicable requirements of Section 608 of the Clean Air Act. The Contractor shall perform all tasks required by 40 CFR Part 82 Subpart F, Recycling and Emissions Reduction (NPR 8570.1).

3.1.5.5.20 The Contractor shall provide maintenance, repair and programming services for the fire protection and life safety systems at LaRC. Systems and equipment to be serviced include, but are not limited to, fire and smoke detection/alarm and alarm

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monitoring systems; automatic sprinkler (wet, dry pipe, pre-action, and deluge system) and standpipe systems, including fire water distribution systems, pumps and fire hydrants; deluge systems; gaseous extinguishing systems; dry and wet chemical extinguishing systems, high expansion foam; fire and smoke containment systems; and oxygen depletion systems. All fire detection equipment shall be maintained and repaired in accordance with NFPA 72, the manufacturer's recommendations, the Fire Protection System Operations Procedure Plan (Reference Section 3.1.5.5.22), Appendix 3.18, *Fire Protection and Life Safety System Maintenance and Repair Standards*, and NASA-STD-8719.11, *Safety Standard for Fire Prevention*.

3.1.5.5.21 The LaRC storm drainage system consists of approximately 89,000 linear feet of pipe (2 to 60 inches diameter), 483 catch basins, and 153 manholes. The Contractor shall maintain and repair all subsurface storm drainage components and skimming basins. Open ditches are not covered by this contract except oil booms shall be maintained and checked weekly in the open ditches at two locations, the Cemetery on Doolittle Road and the Credit Union on Durand Street. The Contractor shall provide oil soaking devices to maintain standard operations. Oil flows in the outfalls and their clean up shall be covered by a Service Request.

### 3.1.5.5.22 Maintenance Operations Procedure Plan (OPP)

The Contractor shall develop and maintain OPPs for the operations, maintenance and repair for all LaRC systems. The systems requiring OPPs include the following; however, the contractor shall develop and maintain OPPs for any future systems either identified by the Contractor or Government.

- a. Oxygen Cleaning
- b. Component Validation
- c. Rigging and Hauling
- d. Cranes and Elevators
- e. Electrical High and Low Voltage
- f. Fire detection and Prevention Systems
- g. HVAC
- h. Corrosion Control
- i. Industrial Instrumentation

The Contractor shall incorporate into each OPP proven "best commercial practices", technical processes and administrative procedures. Plans shall be submitted to the CO for approval within 90 calendar days of contract implementation date and reviewed and updated annually thereafter. The Contractor shall post the OPP to the OME Virtual Library within 5 business days of approval. The Contractor shall use the most current version of the OPP as approved through Configuration Management Control and archived in the OME Virtual Library.

3.1.5.5.23 The Contractor shall manage and maintain an inventory of all transformers at NASA LaRC and update as necessary when changes or replacements are conducted. The SD Meyers Transformer spreadsheet shall be used and shall contain

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the following required data: Building and location, serial number, gallons, ppm of pcb, manufacture date, retro-filled dates (provided initially by the Government). The Contractor shall submit to the LaRC Environmental Manager a current up-to-date transformer inventory in December of each year. Transformer and capacitor inventory shall be made available to any regulatory authorities if requested.

### 3.1.6 Reserved

### 3.1.7 Service Requests (SRs)

Service requests are not maintenance items, but are so often performed by facilities maintenance organizations that they become a part of the baseline work force. Service Requests are requests for facilities-related work that is new in nature and, as such, should be funded by the requesting organization. Service Requests are initiated by anybody at the Center and shall be handled as an IDIQ task order in accordance with Section 1.4.6. Examples of these requests include installation of an outlet to support a new copier machine, providing a compressed air outlet to a new test bench, renovating an office, and installing special cabinetry. Service Request work includes facilities construction and additions with values less than the CoF \$1,000,000 threshold.

### 3.1.8 Central Utility Systems Operations and Maintenance

This Section identifies the requirements for central utility systems supporting the LaRC infrastructure. These essential systems are critical for Research operations throughout the Center and include:

- a. The West Area Steam Plant (Building 1215)
- b. Service Air and Instrument Air Production (Building 1215)
- c. Electrical Power Distribution
- d. Potable Water
- e. Sanitary Sewer
- f. Natural Gas
- g. Duty Officer
- h. Power Dispatch
- i. Water Treatment

#### 3.1.8.1 The West Area Steam Plant

The Contractor shall provide 24 hours per day, 7 days per week operations and maintenance services for the West Area Steam Plant and all associated systems specified herein. The Steam Plant's primary function is the production and distribution of reliable and efficiently produced steam and hot water. Secondary is the production and distribution of service and instrument air. Steam generated at this facility supports the operation of steam ejectors for research operations, provides building heat in the winter, produces domestic hot water and supports absorption chillers. The operation of the West Area Steam Plant (Building 1215) includes the start-up and shutdown of heating

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equipment, preventive maintenance (Reference Section 3.1.2), production of service air and the production and distribution of steam. These products are also generated through the operation of several remote sites located on the Center (Reference Section 3.1.8.1.9). Underground walk-through tunnels (approximately 12,000 linear feet) and shallow trenches (approximately 5,000 linear feet) convey the steam and service air throughout the Center. The domestic hot water is supplied by two (2) instantaneous hot water heaters and circulated by two (2) centrifugal pumps, with one (1) running continuously.

### 3.1.8.1.1 Refuse-Fired Steam Generating Facility

In addition to service provided from the West Area Steam Plant, LaRC receives steam from the Refuse-Fired Steam Generating Facility (RFSGF), Building 1288. The RFSGF is Government-owned and operated/maintained by the City of Hampton, Virginia. The RFSGF produces approximately 378,000,000 pounds of steam per year.

### 3.1.8.1.2 Steam Production and Distribution System

Production at West Area Steam Plant is approximately 124,000,000 pounds of steam per year. The West Area Steam Plant has a total connected steam capacity of 390,000 pounds per hour using natural gas as fuel or 340,000 pounds per hour using #2 fuel oil. The Contractor shall ensure that steam is produced and distributed safely and efficiently in accordance with CID 1710.40. The services the Contractor shall provide include, but are not limited to, the following:

- a. Ensure steam is available without interruption to meet LaRC research and institutional requirements. The Contractor will be furnished a minimum of 30 minutes notice when the steam ejectors will be brought on line for research operations.
- b. The Contractor shall operate and monitor boilers and related equipment in accordance with the standard operating procedures and checklists contained in the Steam Plant Operation Procedures Plan (Reference Section 3.1.8.7).
- c. The Contractor shall provide and coordinate an annual third party boiler inspection for all boilers requiring certification.
- d. The Contractor shall maintain the West Area Steam Plant operations records (Reference Appendix 2.9, Central Steam Plant Operations Records). The Contractor shall ensure all boiler operation records are up to date, maintained at the steam plant a minimum of 3 years, and available upon request within 24 hours or accessible any time in the OME virtual Library.
- e. The Contractor shall maintain, monitor and repair the entire steam distribution system, including the condensate return system to ensure the system is operational 24 hours per day, 7 days per week.

3.1.8.1.3 The boilers are presently fueled by natural gas. The Contractor shall not convert to an alternate fuel without approval of the CO except in an emergency. In the event of an emergency conversion, the Contractor shall notify the CO in writing on the

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next business day, providing an explanation of the circumstances and justification for the action taken.

3.1.8.1.4 The Contractor shall maintain effective communications with RFSGF to ensure that the Steam Plant operations are closely coordinated with the RFSGF operations, to maximize efficiency and minimize fuel consumption.

### 3.1.8.1.5 Steam System Documentation

The Contractor shall develop and submit the following reports in the OME Virtual Library. Monthly reports shall be posted within 7 business days of the reporting period, and annual reports shall be posted within 10 business days of the reporting period. Annual Boiler Inspection reports shall be prepared by a qualified (ASME or equivalent) Boiler Inspector.

- a. Annual Boiler Inspection Report
- b. Bimonthly Boiler Water Chemistry Report
- c. Monthly Fuel Consumption and Transfer Report
- d. Monthly Utility Report (Includes all utilities that are operated or managed at the Steam Plant)
- e. Monthly Steam Plant Report (includes but not limited to steam produced, steam ejector operations, equipment run time log)
- f. Monthly Steam Plant Propane Usage Log
- g. Monthly Boiler Water Chemicals Used
- h. Monthly Summary of Nitrogen Deliveries

### 3.1.8.1.6 Steam Plant/Remote Boiler Water Treatment

The Contractor shall perform the necessary tests to meet applicable manufacturer requirements or State Water Control Board requirements on hardness, polymer, sulfite, causticity (alkalinity as OH), pH, conductivity, and total dissolved solids in Parts Per Million (PPM). The Contractor shall develop and submit to the CO for approval its boiler water sampling, testing, and treatment plan within 90 calendar days of the contract implementation date. Changes in the approved water treatment plan shall be made only upon CO approval. The Contractor shall test boiler water from each operating boiler daily. The Contractor shall test, daily, condensate return and feed water samples regardless of boiler operation. The off-line boilers shall be tested twice a week for PH, alkalinity, and sulfite concentration and the boilers will be fired as needed to keep chemistry within limits. The water in the water softener shall be tested four (4) times per shift. The Contractor shall post the test results in the OME Virtual Library monthly within 5 business days of the reporting period. The remote boilers chemistry shall be tested twice weekly while operational. The Contractor shall provide all water treatment chemicals required for plant operations. The CO may require sampling and testing once per shift, specifying the time(s) the samples are taken, observing the sampling

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extraction, and require an independent laboratory analyze the samples. The Contractor shall maintain the boiler water within the following limits:

a. Polymer	1.5 - 2.5 PPM
b. Conductivity:	2500 - 3000 mmhos
c. Sulfite:	20 - 50 PPM
d. PH:	8.2 to 8.5
e. Hardness	0 -1 PPM
f. Causticity (alkalinity as OH):	200 - 600 PPM
g. Total Dissolved Solids:	2000 - 4000 PPM

### 3.1.8.1.7 Steam Plant Fuel

The Contractor shall maintain the fuel level in each tank at no less than 40% of capacity, and initiate fuel orders directly to the Government fuel supplier when required. The fuel storage capacity for #2 fuel is 150,000 gallons in the three (3) underground storage tanks at Building 1215. The Contractor shall monitor fuel levels on all the fuel tanks and receive fuel from tanker trucks at Building 1215 (unless otherwise arranged by the Contractor), transfer the fuel to and among storage tanks (including remote sites), and make all operational fuel transfers. The Contractor shall, within 5 business days of the reporting period document in the OME Virtual Library the amount of fuel received in each delivery. Tank soundings shall be taken and recorded before and after each fuel delivery to verify the actual quantities. The Contractor shall operate fuel transport equipment to refuel all generators, and diesel pumps. The Contractor shall maintain all fuel oil handling equipment including storage tanks, pumps, fuel transport vehicles, piping, and shall comply with all federal regulations pertaining to fuel operations.

3.1.8.1.8 The Contractor shall deliver fuel oil to outlying areas, including emergency generators and remote heating units and post a monthly report of fuel delivered to the OME Virtual Library (Reference 3.1.8.1.5). If any fuel oil leaks are observed or detected, the Contractor shall take immediate action to contain and stop the leak (if safe to do so) and shall report any oil leaks (released to the environment) to the LaRC Emergency Dispatcher to initiate spill response.

### 3.1.8.1.9 Remote Steam Operations Remote Boiler Checks

The Contractor shall operate and maintain oil and gas-fired, remote heating units. This shall include, but not be limited to, maintenance of burners, pumps, switches, stacks, firebox chambers, the outer casings, fire tubes, line strainers, fuel tanks, and nozzles. The Contractor shall perform daily checks of remote boilers, furnaces and heat exchangers and post findings (including date of check, problems discovered, and follow-up actions) in CMMS. The remote steam operations systems include:

- a. Two boilers at Building 647.

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- b. Individual heating units using propane, natural gas and oil located in Buildings 1228, 1245, 1258, 1297, and 1297C
- c. Steam to water heat exchangers in Building 1154
- d. One natural gas fired tube boiler in Building 1206 and one in Building 1275

### 3.1.8.1.10 Delivery of Government Furnished Nitrogen

The Contractor shall deliver Government-furnished nitrogen using a Government-furnished vehicle in accordance with LPR 1710.12, *Potentially Hazardous Materials – Hazard Communication Standard*, in LaRC and Contractor facilities. This activity shall be performed during normal operating hours unless directed otherwise by the CO. The Contractor shall operate the vehicle in accordance with 01-N2-SOP, *Standard Operating Procedure Nitrogen Fill Truck Operations*. The Contractor shall maintain records of all nitrogen deliveries. This data shall be recorded electronically into Virtual Library and summarized by the Contractor in a Monthly report submitted to the CO by the 5<sup>th</sup> workday of the following month.

### 3.1.8.2 Service Air and Instrument Air Production

The Contractor shall operate, monitor and maintain low-pressure air compressors (with one running continuously) located in the West Area Steam Plant. The Contractor shall furnish service and instrument air without interruption 24 hours per day, 7 days per week. The Contractor shall submit air service production for the 110 psig air supply for the previous month to the OME Virtual Library monthly, within 5 business days of the reporting period.

### 3.1.8.3 Electrical High Voltage Distribution System

LaRC electrical distribution systems include solid-state industrial controls and large contactors and switchgear that operate at voltages up to 115,000 volts. The high voltage distribution system includes, but is not limited to, all underground and overhead distribution cables, manholes, switchgear, substations and pad mounted transformers, within the range of 115kv, 22kv, 38.5kv, 6.9kv, and 2.4kv primary voltages, including all 600v secondary switchgear and feeders into facilities. High voltage electrical work is not confined to the property of LaRC, but includes limited support to the RFSGF consisting of the 2.4 kV feeder up to and including air switch number 4S13 located at RFSGF. NASA also provides electrical power for Langley Air Force Base (AFB); however, the Contractor's responsibility for support is limited to reading several electrical meters (Reference to Appendix 3.23, *Electrical Meter Locations*) and performing LockOut/TagOut on NASA devices supplying electrical power to the Langley AFB.

#### 3.1.8.3.1 Electrical Distribution System Requirements

The Contractor shall ensure the safe and efficient conveyance of electrical power to meet all end user requirements. The Contractor shall operate, maintain, construct, repair, and/or replace the electrical systems and components that comprise the high



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voltage distribution system. The Contractor shall ensure system and components continuously furnish a steady, fault-free power supply 24 hours per day, 7 days per week. All persons working on high voltage electrical systems shall be properly trained and familiar with applicable codes and standards (See Appendix 1.7, Worker Qualifications). The Contractor shall provide the following support:

- a. Scheduling and coordinating of electrical power outages (Reference Section 3.1.5). Verifying switching procedures and tracking outage requests for construction work. Resolving issues such as the use of alternate feeders and emergency generators as needed to facilitate outage requests
- b. Reporting electrical system status
- c. Completing preventive maintenance, troubleshooting, and repairs of system components including, but not limited to, defective substation equipment and substation yard fences, routine circuit breaker/transformer relay maintenance, relay adjustments, meter installation and repair, cathodic protection systems, vacuum filling oil transformers, and surge suppression systems
- d. Reserved
- e. Making recommendations for equipment replacement and system improvements
- f. Providing a safety watch for personnel performing work in designated high voltage substations
- g. Completing commissioning tests on selected new installations, and witnessing selected field tests performed by the ROME Contractor and other Contractors.
- h. Performing quality assurance checks of selected high voltage power distribution equipment. Verifying all new high voltage distribution system connections, protective device settings, and coordination curves prior to energizing the system
- i. Providing coordination and configuration control of breaker settings (all electrical system protective devices)
- j. Issuing and controlling switch, circuit breaker, cable and manhole numbers, as required
- k. Updating and maintaining all electrical distribution system documentation including, but not limited to, switching diagrams, manhole drawings, protective relay settings and circuit breaker overload settings, and test reports
- l. Providing operations, maintenance and repair of electrical backup systems
- m. Holding regular meetings and coordinating work with the LARC Standard Practice Engineer (SPE) for Electrical Systems to discuss identified system deficiencies and concerns.

### 3.1.8.4 Potable Water

Domestic water is supplied by Newport News Waterworks through an 8-inch line with a meter and a back flow preventor located behind Building 1146. There are two water pumps in Building 1215 that raise the water pressure to 76-80 psi for filling the 500,000 gallon elevated water tank that provides fire protection and reserve capacity. The potable water system components consist of copper, PVC, CPVC, cast iron, and galvanized materials. There are approximately 87,000 linear feet of pipe in the system. The Pressure Gauge readout and domestic water booster pumps are located at Building

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1215, the Steam Generation Plant. The system has isolation valves at each facility with loop capability to provide water bypass.

### 3.1.8.4.1 Potable Water System

The Contractor shall operate the entire LaRC potable water system up to the first valve in from the Newport News Water Works System (Reference Section 3.1.8.7, *Potable Water System Operation Procedure Plan*). Included is monitoring the potable water operation, providing maintenance, repairing, managing the Center's cross connection program, evaluating system performance and making recommendations to the CO for equipment replacement and system improvements. Potable water flow shall be maintained within LaRC properties so as to prevent interruptions of services, contamination, and to ensure compliance with applicable health and regulatory agency standards (Virginia Department of Environmental Quality) 24 hours per day, 7 days per week. The Contractor shall ensure that only personnel certified by the Commonwealth of Virginia Health Department perform maintenance and repair work on cross connection devices. The system pressure shall be monitored and maintained to ensure system pressure of between 76 and 80 PSI. The Contractor shall monitor the condition of the water distribution system for leaks and make prompt repair as required. The Contractor shall operate the domestic water booster pumps located in Building 1215 to ensure that the system operates at 100% of the design capacity at all times. The Contractor shall document and submit monthly to the OME Virtual Library, within 5 business days of the reporting period, the previous month's water meter readings for all facilities with water meters (Reference Appendix 2.11, *Water Meters to be Read*).

### 3.1.8.5 Sanitary Sewer

The sanitary sewer system at LaRC is composed of pipe sizes up to 24-inch diameter cast iron, PVC and terra cotta main lines. The piping system consists of approximately 36,000 linear feet of sewer mains that convey sewage through gravity lines and/or force mains utilizing thirty automatically operated sewage pumping stations. High water alarms are installed in the pits and are monitored 24 hours a day by the duty officers in Building 1215. All sewage is collected at Building 1223B and pumped off the center through an 8 inch PVC forced main and insertion valve (which records total sewage flow and is read out in Building 1215) to Hampton Roads Sanitation District (HRSD) line located at North Armistead Avenue, Route 172, Hampton, Virginia. Primary and secondary power sources have been installed to reduce the impact from a localized power failure. The Contractor is responsible for the system up to the HRSD shutoff valve located outside of the perimeter fence, just north of Building 1212C, alongside Route 172.

#### 3.1.8.5.1 Sanitary Sewer Operation Requirements

The Contractor is responsible for the sanitary sewer system within the confines of LaRC property (Reference Section 3.1.8.7, *Sanitary Sewer Operation Procedure Plan*). The Contractor shall monitor the sanitary sewer system to ensure that the system provides

sewage collection and disposal capability throughout LaRC 24 hours per day, 7 days per week. The Contractor shall maintain and repair the sanitary sewer system at NASA LaRC in order to provide the safe, reliable, and efficient conveyance of sanitary sewage. The Contractor shall ensure free flow is maintained in gravity lines within LaRC properties. The Duty Officer in Building 1215 monitors sewage pumping stations high water alarms. The Contractor shall document and submit to the OME Virtual Library, within 5 business days of the reporting period, the amount of sewage discharged for the previous month and monthly sewage certification sheet (Reference Appendix 2.13, *Sewage Meters to be Read*).

#### 3.1.8.6 Natural Gas Distribution

The Contractor shall monitor, maintain and repair the natural gas distribution system (Reference Appendix 2.14, *Natural Gas Readings Report*) in each facility from the isolation valve to the main distribution system. The Contractor shall submit to the OME Virtual Library within 5 business days of the reporting period, the amount of natural gas usage by facility for the previous month. The natural gas distribution system up to isolation valve for each facility is owned and maintained by Virginia Natural Gas.

#### 3.1.8.7 Operations Procedures Plans

3.1.8.7.1 The Contractor shall standardize and establish formal control and periodic review of the following operations procedure plans (OPP) for the operations, maintenance, and repair of the following LaRC systems:

- a) Steam Plant
- b) Potable Water
- c) Sanitary Sewer
- d) Water Treatment
- e) Energy Management and Control System (EMCS)

3.1.8.7.2 The Contractor shall incorporate within the OPP those proven "industry best practices" and technical processes and administrative procedures. Plans shall be submitted to the CO for approval within 90 calendar days of contract start date and reviewed and updated annually thereafter. The Contractor shall post the OPP to the OME Virtual Library within 5 business days of approval. The Contractor shall use the most current version of the OPP as approved through Configuration Management Control and archived in the OME Virtual Library.

#### 3.1.8.8 Other Utility Services

3.1.8.8.1 The Contractor shall provide materials and services to perform water treatment of cooling tower and closed loop systems. Water treatment services include, but are not limited to, development of a water treatment program for each system and testing and treatment of circulating water to prevent accumulation of scale, corrosion,

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biological growths, and other foreign materials. Upon CO approval, the Contractor shall continuously monitor the water treatment program to meet the treatment standards. The Contractor shall submit monthly (by the 5<sup>th</sup> business day) detailed records of the results of all inspection checks and chemical treatments to include: building number and system, date chemicals were applied, description of chemicals used, quantity of chemicals used per system to maintain standards, chemical level readings in system before and after adjustments, date of inspection check and adjustment, and monthly water usage (Reference Appendix 2.11, *Water Meters to be Read*).

- a. Circulating Water Treatment Program for each cooling tower in accordance with Appendix 3.20, *Water Treatment Standards*, and the HVAC and Water Treatment Operations Procedure Plan (Reference Section 3.1.8.7).
- b. Perform water treatment for all closed-loop cooling systems in accordance with Appendix 3.20, *Water Treatment Standards*, and the HVAC and Water Treatment Operations Procedure Plan (Reference Section 3.1.8.7).

### 3.1.9 Reserved

### 3.1.10 Reserved

### 3.1.11 Special Programs

This section identifies requirements for special programs not identified elsewhere in the maintenance section of the SOW.

#### 3.1.11.1 Annual Work Plan (AWP)

The Contractor shall develop and submit to the LaRC Maintenance Manager and CO for review and approval an AWP in accordance with NPR 8831.2E, *Facilities Maintenance Management*, and as specified below. The AWP is a guide for the next Fiscal Year (FY) maintenance activity, based upon findings and recommendations from historical data and provides assurance that LaRC maintenance priorities are followed. The Contractor shall utilize the format in Appendix H of NPR 8831.2E for the AWP. The contractor shall develop the AWP and changes thereto in coordination and collaboration with the Government to ensure focus is placed on defining the requirements and matching those requirements to projected funding levels. The AWP is intended to be a flexible working document, incorporating changes throughout the year (as approved by the CO) to accommodate emerging mission and customer requirements. The Contractor shall maintain this contract deliverable and continuously update the AWP based on fluctuations in the data elements provided by the Government. The AWP shall also address the following:

- a. All quantities of work to be performed shall be specified in the AWP.
- b. The Contractor shall identify and differentiate in the AWP funds utilized on institutional equipment from those utilized for research equipment.

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- c. The Contractor shall identify data required by NPR 8831.2E Appendix H to be furnished by NASA and shall collaborate with NASA to collect and include in the AWP.

The Contractor shall submit the AWP to the LaRC Maintenance Manager and CO on an annual basis with quarterly updates or as otherwise directed by the CO. The CO will provide the data elements for inclusion in the AWP no later than May 1<sup>st</sup>. The Contractor shall submit the Plan no later than July 1<sup>st</sup>. The Government will provide comments within 30 calendar days after plan submission. The Contractor shall submit the final plan within 30 calendar days after Government comments. The Plan shall have an effective date of October 1<sup>st</sup> and will be finalized no later than September 30<sup>th</sup>. Due to the Contract Years and Fiscal Years being different, the AWP shall clearly delineate the upcoming Fiscal Year and correlate to the Contract Years to ensure traceability to the contract values and funding limitations. The Contractor shall maintain this contract deliverable and continuously update the AWP based on fluctuations in the requirements provided by the Government.

### 3.1.11.2 Facility Condition Assessment (FCA)

The Contractor shall perform FCA inspections on LaRC assets in accordance with NPR 8831.2E and shall perform a complete assessment of the Center on a recurring 5 year cycle. Appendix 1.1 provides the Contractor a list of facilities to include in the FCA inspection program. The Contractor shall:

- a. Identify and quantify all deficient conditions in terms of deferred maintenance, capital repair/plant renewal
- b. Describe clearly and accurately the cause or nature of each deficient condition and devise methods of correction for each deficient condition (correction projects).
- c. Classify, rank and prioritize all deficient conditions in accordance with NPR 8831.2E
- d. Identify, prioritize, deferred maintenance reduction projects that best take advantage of available funds and improve facility functions
- e. Maintain a continuously updated facilities database for Current Replacement Value, Facilities Condition Index Deferred Maintenance Cost and Deferred Maintenance Project Scopes
- f. Contractor shall identify Deferred Maintenance on institutional equipment from that of research equipment

### 3.1.11.3 Reliability Centered Maintenance (RCM) Program Management Plan

The Contractor shall perform RCM Analysis on LaRC assets in accordance with NPR 8831.2E. The Contractor shall perform a complete assessment of the Center on a recurring 5 year cycle. Appendix 1.1 provides the Contractor a list of facilities to include in the RCM Analysis program. The Contractor shall:

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- a. Assign/Validate assets to system hierarchy
- b. Optimize the Maintenance Plan for each asset based on failure modes
- c. Evaluate frequency of maintenance with respect to asset use and failure rate
- d. Standardize on maintenance approach with respect to Asset Category
- e. Maintain and continuously updated facilities maintenance database (CMMS) with approved changes to maintenance program
- f. Identify and quantify changes in maintenance requirements based on RCM Analysis
- g. The Contractor shall perform Root Cause Failure Analysis (RCFA) on all equipment/systems where a pattern of multiple failures occurs or failure that results in significant impact to mission or cost. The Contractor shall post a record of all RCFA in the OME Virtual Library.

3.1.11.4 The Contractor shall perform maintenance, repair and provide technical support for the LaRC Energy Management and Control System (EMCS), which includes the Utilities Control System (UCS) and the Energy Management System (EMS) (Reference Section 3.1.8.7, EMCS Operations Procedure Plan and Appendix 3.23, *Electrical Meter Locations*). The EMCS functions to efficiently control HVAC, lighting, and other energy consuming equipment, and consists of host console computers with a manned interface for monitoring and controlling remote systems through an integrated network control system. The Contractor shall staff the Energy Management console computers during normal business hours (Reference Section 1.3.9). The Contractor shall respond to all trouble calls involving the EMCS, UCS and EMS as defined in Section 3.1.5. The Contractor shall use the EMCS to provide energy conservation and management consistent with guidelines in NPR 8570.1, *Energy Efficiency and Water Conservation*, and in accordance with the EMCS Operations Procedure Plan.

3.1.11.5 The Contractor shall collect, catalog, and maintain information in the CMMS on critical spares as they are identified while performing maintenance and repair activities on LaRC systems and equipment. Critical spare items are defined as those parts and/or materials that are essential or critical to the operation of a facility and that may require long lead times to obtain.

3.1.11.6 The Contractor shall provide all labor, supervision, tools, materials, equipment, transportation and management necessary to respond to weather related events or emergencies as directed by the Emergency Operations Center (EOC). When directed by the EOC, the contractor shall perform snow removal and cleanup activities, to include, but not be limited to, removing snow from and sanding/salting roads, walkways, parking lots, handicap ramps, aircraft ramps, taxiways and other surfaced areas, in accordance with LPR 1046.1, *NASA Langley Research Center Emergency Plan*. The Contractor shall provide to the CO a Snow Removal Plan for the removal of snow and ice and the associated cleanup activities. The plan shall address the Contractor's equipment, consumables, and staffing to remove snow and ice and associated cleanup activities from 70% of walking surfaces, parking lots, and handicap accesses and to plow, salt, and sand all internal LaRC roads based on requirements and time frame negotiated with the Emergency Preparedness Officer (EPO). The Contractor shall update the Snow Removal Plan each year by November 30<sup>th</sup>.

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3.1.11.7 The Contractor shall provide support to include the preventive maintenance of Government-owned shop equipment in the fabrication facilities (Buildings 1225, 1232, 1238, 1237) that includes, but is not limited to, the equipment listed in Appendix 3.32, *Fabrication Technology (FT) Machinery Inventory*.

3.1.11.8 The Contractor shall perform the LaRC Duty Officer function to coordinate support services and resolve facility related problems 24 hours per day, 7 days a week, in accordance with Appendix 3.35, *NASA Langley Duty Officer's Handbook*. During normal Center business hours, Duty Officer functions are limited to validating alarms, coordinating with Fire Department and Langley AFB personnel, and other related responsibilities. During each work shift, the Duty Officer shall electronically document and post all activities, contacts, and actions taken in a Duty Officer's logbook format that is accessible to the Government. The Duty Officer shall be responsible for:

- a. Maintaining lockout hardware and NASA Langley Form 496, *Lockout/Tagout Records*, for use after hours and for facilities that do not maintain hardware and record forms
- b. In an emergency, apply an administrative lock, where necessary and post in a log book
- c. Notifying the appropriate FC of any lock placed in their facility and transfer responsibility to that FC. This will normally be done at the beginning of the next duty day.

3.1.11.9 The Contractor shall monitor the electrical power provided to LaRC and ensure that the power consumption of large research facilities is within allocated limits between the hours of 7:00am and 10:00pm on normal business days. The Contractor shall follow established priorities and guidelines (Appendix 3.24, *Power Dispatcher Duties and Load Shedding Guide*), and ensure LaRC does not exceed the electrical power consumption limit contracted with Dominion Virginia Power (thereby preventing severe financial penalties to the Government).

### **3.2 INSTRUMENT SERVICES**

#### **3.2.1 Scope of Services**

The Contractor shall repair, modify, assemble, calibrate, and maintain Measurement and Test Equipment (M&TE) in accordance with the instrument manufacturers' and LaRC specifications identified below. Of the approximately 46,000 devices, approximately 3,000 are classified as Category 1,, approximately 17,000 are classified as Category 2, and approximately 26,000 devices are classified as Category N. Categories are defined in LMS-CP-0506, *Selection, Calibration, Use, Control, Recall, Procurement, and Storage of Measuring and Test Equipment (M&TE)*. Work includes, but is not limited to, instrumentation, metrology technical support, operation of the Metrology Information System (MIS), and logistics.

##### **3.2.1.1 Annual Metrology Plan**

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The services described in this SOW section are quantified and ordered per the Annual Metrology Plan (AMP). The AMP will be reviewed quarterly and adjustments made as LaRC business requirements vary.

The Contractor shall develop, submit, and maintain an AMP that defines the approach to meet the metrology requirements for the upcoming Fiscal Year (FY) considering the metrology requirements of this SOW and additional requirements as may be provided by the Government. The purposes of the AMP are to (1) anticipate the annual activities expected to support the metrology program at NASA LaRC the Contractor is required to support for the upcoming FY, (2) develop an approach that optimizes performance consistent with the metrology requirements, (3) achieve flexibility and adaptability to meet evolving mission requirements and business environment changes.

An effective plan shall direct funding to achieve the best utilization of resources. The Contractor shall work closely with the Government to understand the LaRC-specific requirements for the ROME contract that shall be reflected by the Contractor in the AMP. The Government and Contractor will continuously collaborate and coordinate on changes to the metrology requirements to ensure a clear understanding of the Government's needs, the division of roles and responsibilities, and the content that will be included in the AMP.

### 3.2.1.1.1 Objectives and Content of the AMP

The AMP shall detail the Contractor's overall approach to achieve the Center's goals, objectives, and timetables in the performance of metrology program. The plan shall reflect the most efficient approach, given anticipated funding/contract value limitations, to support the LaRC metrology program in a cost effective and productive manner. The plan shall be developed in coordination with the Government requiring organization(s) to arrive at the most efficient solution to meet customer requirements.

The AMP shall include, but not be limited to, the following:

- a. Delineate the overall approach to achieve the Center's goals, objectives, and timetables in the performance of the LaRC metrology program
- b. Document the Government and Contractor roles and responsibilities critical to managing and conducting the metrology program effectively
- c. Identify the impacts of requirements not funded and recommended alternatives to satisfy those requirements, including incremental solutions that may be feasible. Alternatives shall include critical timelines for accomplishment.
- d. Develop and maintain metrics that assess the overall health and condition of the LaRC metrology program and an indication of how well the Center is progressing toward established goals.

### 3.2.1.1.2 Approach and Milestones for the AMP



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The Contractor shall submit the AMP to the center Metrology Officer and CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments/specific requirements within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall be effective October 1<sup>st</sup> and be finalized by approval of the CO no later than September 30<sup>th</sup>. The Contractor shall maintain this contract deliverable and continuously update the AMP based on fluctuations in the Government's requirements. Due to the Contract Year (CY) and FY being different, the AMP shall clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations.

### 3.2.1.2 Industrial Instrumentation

The Contractor shall perform maintenance, repair, testing and verification of industrial instrumentation equipment and shall tag the instrumentation with a verification sticker to indicate when the work was performed and next due date. Work shall be performed in accordance with industry standards, applicable specifications, and Industrial Instrumentation Operations Procedure Plan (Reference Section 3.1.5.5.22). Equipment includes, but is not limited to, industrial controls, recorders, digital indicators, measuring systems, and industrial pressure, temperature, and level transmitters. Building 1188 (Oxygen Cleaning Shop) will be made available for the Contractor's use. NOTE: Industrial controls are not part of the calibration system and are not categorized in the MIS unless specifically requested by a Designated User. Industrial controls are maintained in the CMMS database and are normally used to establish approximate conditions that are then accurately monitored, as needed by Category 1 or 2 M&TE.

### 3.2.2 Administrative Services

3.2.2.1 The contractor shall perform instrumentation calibration and repair services for not-to-exceed 6,000 instrument calibrations and/or repairs annually (including GFE calibration equipment) unless directed by the CO. Calibration support shall only be performed for a requester or its organization when financial Work Breakdown Structure (WBS) information is furnished to the Contractor in advance of the request and prior designation by the organizational unit has been made for the requester. The Contractor shall provide a monthly report on all instrument usage by organization to the organizational unit receiving the service.

3.2.2.2 The Contractor shall perform LaRC Metrology Representative (MetRep) services as defined in LAPD 8730.1, *Metrology and the Control of Measuring and Test Equipment*, and LMS-CP-0506 for facilities detailed in the AMP.

3.2.2.3 The Contractor shall maintain calibration procedures on-line and hard copy maintenance manuals at the Contractor's work area and shall provide LaRC with an electronic index of calibration procedures in the OME Virtual Library within 6 months of contract implementation date. The Contractor shall ensure the electronic index is

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updated when procedures are changed or added. These procedures and manuals shall be the property of the Government and shall be delivered to the CO at the conclusion of contract.

3.2.2.4 The Contractor shall document, in the MIS all calibration and/or repair Instrument Work Orders (IWO). IWO is used for instrumentation calibration and repair. IWO initiation shall occur when the item arrives at the Contractor's facility. For on-site service work, IWO initiation shall occur when a service call is received. The Contractor shall respond to the priority requested by the customer based on the required completion date, which typically ranges from 1 to 30 business days. When a required completion date is not provided, the default completion date shall be 10 business days. The information for all IWOs shall include, but not be limited to: equipment identification, customer name, initiation date, priority, service requested, required completion date, and job order number

3.2.2.5 Every instrument serviced shall have a unique bar-coded Metrology Control Number (MCN) assigned and shall have a record maintained in the MIS documenting all repairs and calibrations. For instrumentation service, the Contractor shall:

- a. Notify the Metrology Officer associated user and Metrology Representatives when M&TE calibrations have been impacted by the use of out-of-tolerance calibration standards
- b. Notify the COTR when repairs are estimated to exceed forty percent (40%) of the replacement cost of an instrument for a decision on whether the unit should be repaired or replaced.
- c. Enter all customer completed feedback ratings and comments into a summary report and forward to the COTR. The contractor shall immediately investigate any "unsatisfactory" evaluations and review corrective action with the COTR.

3.2.2.6 The Contractor shall arrange for the instrument manufacturer or authorized representative to provide repair of defective instrumentation that is currently under warranty or that fails initial inspection and acceptance tests.

3.2.2.7 Calibration recall intervals shall be established based on manufacturer's recommendations or the Metrology Officer's recommendations if there are no manufacturer recommendations. Calibration intervals may be adjusted based on a reliability analysis referenced in section 3.2.5.3.

3.2.2.8 Metrology Information System (MIS): The Contractor shall use the MIS to track, report, and store service history and metrology related data for work performed under the contract. The MIS shall provide the COTR with oversight, tracking and update/change authorization to all information entered into the MIS database for monitoring daily incoming and outgoing IWO activity and updating MCN records information. Services shall include, but are not limited to:

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- a. The Contractor shall operate, update records, and provide reports to the COTR as required. At the conclusion of each month, an IWO completion report containing the records for all IWO's completed during that month shall be submitted in accordance with Appendix 1.9. The Contractor shall provide file transfer from the MIS to the ISTP. The Contractor shall utilize the IWO completion report to calculate the average timeliness score utilizing the timeliness formula references in Appendix 3.26, *Metrology Program Evaluation Plan*. The results shall be submitted to the COTR for review including a graphical summary displaying the monthly scores for the current contract period.
- b. The Contractor shall review, update, and maintain M&TE records for all data provided by users and/or Metrology Representatives in support of the Center Metrology Program as defined in LMS-CP-0506.
- c. Any changes to the functional capabilities of the MIS shall be approved by the LaRC Metrology Officer prior to implementation of any changes.

3.2.2.9 The Government will furnish the special test equipment listed in Exhibit D to be used in the repair and calibration of M&TE by the Contractor. The Contractor shall develop and follow a GFE maintenance program, which maintains the GFE in accordance with FAR clause 52.245-1, Government Property. The Contractor shall submit a GFE maintenance program for CO approval within 30 days of contract implementation date and update annually. The Contractor shall document in the MIS all maintenance work performed on M&TE GFE.

3.2.2.10 The Contractor shall perform functions as outlined in LMS-CP-0506 to ensure compliance with the LaRC instrument recall program. The Contractor shall track M&TE calibration due dates and notify the Metrology Officer, users, and metrology representatives as defined in LMS-CP-0506. The Contractor shall provide email notification to the Metrology Officer, users and metrology representatives on all Category 1 and 2 items found to be out-of-tolerance.

### 3.2.3 Instrument Services

The Contractor shall perform calibration and repair of M&TE and be in compliance with NPD 8730.1, *Metrology and Calibration*, with the exception to allow the use of a 4:1 Test Accuracy Ratio (TAR) instead of uncertainty analysis for all measurements, where applicable. Uncertainty analysis as described in ISO 17025 shall be performed for all measurements where the 4:1 ratio cannot be achieved.

#### 3.2.3.1 Instrument Services – Calibration

3.2.3.1.1 All calibrations shall adhere to NPD 8730.1. The Contractor shall follow additional guidelines applicable to LaRC as defined in LAPD 8730.1 *and* LMS-CP-0506. Services shall include, but are not limited to:

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- a. The Contractor shall record the before and after adjustment readings and provide the user with the final calibration data whenever a Category 1 instrument requires calibration and if requested by the user for a Category 2 item.
- b. The Contractor shall prepare and affix the appropriate NASA LaRC or CO approved calibration label to each instrument serviced. Where relevant, seals shall be affixed on calibrated instruments so as to inhibit or detect unauthorized entry into the device.
- c. The Contractor shall participate in the NASA Measurement Assurance Programs (MAP) as outlined in the "Safety and Mission Assurance Metrology and Calibration Technical Program Plan". (This Plan is updated annually and will be provided to the Contractor by the LaRC Metrology Office. The most current version of this Plan shall be maintained in the Virtual Library.) MAP is a technique by which the user measures, using well-defined procedures, an artifact (item or instruments with an associated metrology calibration history) sent by the MAP's "pivot" lab. After comparing the artifact to local laboratory standards, the participant assigns it a characteristic value. The pivot laboratory then compares the participants' results to the pivot laboratory's own measurement results for that artifact. The participating laboratory receives a report stating the systematic and random error components of its measurement process.

3.2.3.1.2 The Contractor shall provide routine and emergency off/on-site calibration services for M&TE when requested as defined in LMS-CP-0506. The Contractor shall document in the IWO all work performed on-site and enter it into the MIS. Timeliness requirements for routine calibrations shall be performed in accordance SOW Section 3.2.2.4. Timeliness requirements for emergency calibrations shall be performed in accordance with SOW Section 3.1.5.4.1.

3.2.3.1.3 The Contractor shall perform end-to-end calibration of facility measurement systems when requested.

3.2.3.1.4 The Contractor shall provide annual calibration for fabrication equipment in accordance with the calibration specifications listed in Appendix 3.34, *Fabrication Technology Calibration Specifications*.

### 3.2.3.2 Instrument Services – Repair

3.2.3.2.1 The Contractor shall provide routine and emergency off/on-site repair when requested by the customer. Timeliness requirements for routine repairs shall be performed in accordance SOW Section 3.2.2.4. Timeliness requirements for emergency repairs shall be performed in accordance with SOW Section 3.1.5.4.1.

3.2.3.2.2 The Contractor shall notify the user of the repair estimate and obtain the user's approval for the repair prior to performing the repair.

### 3.2.4 Logistics Services

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The Contractor shall provide a pickup and delivery service for all standards and instruments requiring repair or calibration. This service shall be to and from NASA facilities, other local support services Contractor facilities, and occasionally remote facilities such as National Institute of Standards and Technology (NIST). When notified, the Contractor shall use a receipt method to identify instruments submitted for service and as subsequent evidence that the item(s) have been returned after service and return delivery has been completed. The Contractor may use the existing pickup and return receipt method (Langley Form (LF) 145 and LF 162) or may implement its own with COTR approval. The Contractor shall initiate task tracking and documentation and shall perform the following:

- a. Receive and visually inspect each instrument and initiate an IWO for each instrument submitted for service.
- b. Provide, prepare, and affix a MCN to all instruments received for service and update MIS records. Generate a return shipping document and attach it to the equipment to be dispatched
- c. An IWO shall be used to authorize acceptance testing, adjustment, calibration, fabrication, repair or environmental testing of M&TE
- d. Provide information in the MIS so that the customer of the work order can obtain details and tracking information for all IWO submitted for service
- e. Track and monitor all equipment returned for warranty, acceptance, rejects, repair parts, and/or factory/vendor repairs/calibration until it is returned to the Contractor's facility

### 3.2.5 Instrument Application Services

3.2.5.1 The Contractor shall provide Metrology Technical services in support of maintenance, calibration, and repair of M&TE. These services contribute to the integrity of measurements, and involve the design of tests and methods by which the measurement and comparisons are made and analyses of the tests result. Metrology technical services include, but are not limited to:

- a. Consultation regarding measurement practices, instrument application and providing specialized calibration capabilities, as required
- b. Oversight and management of the development, modification, validation, and documentation of required calibration procedures including software programs

3.2.5.2 The Contractor shall perform fabrication services for racking and stacking equipment, design and fabrication of unique test devices, setups, fixtures, accessories, and equipment, including software development for automated test calibration stands.

3.2.5.3 The Contractor shall perform M&TE End-of-Period-Reliability (EOPR) reliability analysis and recommend changes to calibration intervals and/or accuracy tolerances that will assist the Government in meeting specified reliability targets. Any changes to intervals or tolerances shall be approved by the LaRC Metrology Office prior to implementation.

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### 3.2.6 Metrology Office Support Services

3.2.6.1 The Contractor shall provide support to the Metrology Office in the execution of LAPD 8730.1.

3.2.6.2 The contractor shall participate in the annual meetings of the NASA Metrology Calibration Working Group (MCWG).

### **3.3 RESEARCH DATA & FACILITY AUTOMATION SYSTEMS SERVICES**

The Contractor shall provide on-site services for Data Acquisition Systems (DAS) and Facility Automation Systems (FAS) including maintenance and repair, configuration management, systems administration, and documentation. The Contractor shall also provide support for NASA IT initiatives and mandates in accordance with Section 5.0.4.

#### 3.3.1 Data Acquisition Systems (DAS) Maintenance and Repair

The Contractor shall provide on-site hardware and software maintenance and repair of systems used for data acquisition and data reduction in scientific research and support facilities. The Contractor shall maintain and repair data acquisition systems deployed in the facilities, including associated systems including, but not limited to the data reduction systems, real-time display systems, imaging systems, systems for storing and archiving research data and test information (e.g. aeroCOMPASS), and their interfaces (e.g., FAS, facility instrumentation, and operator panels). The Contractor shall perform all required maintenance including hardware/software diagnosis and repairs, minor enhancements, and hardware/software upgrades to current revision levels, when required. The Contractor shall perform all maintenance and repair on-site, when practical, to minimize system downtime. The Contractor shall also maintain custom hardware and software that has been designed to handle digital input/output interfaces to instruments that include, but are not limited to Ruskas, Mensors, and digital control panels. Timeliness and priority requirements for maintenance and repairs are defined in SOW Section 3.1.5. Documentation requirements are defined in SOW Section 3.3.3. All DAS Maintenance and Repair shall be performed in accordance with the Annual DAS/FAS Plan (ADFP) (Reference Section 3.3.5).

##### 3.3.1.1 Data Systems Configuration Management

The Contractor shall develop, maintain and execute documented procedures for identifying, maintaining, controlling, status accounting/recording, auditing, backing up, restoring, and disposing of Configuration Items (CI) for all facilities that include DAS. Refer to CMMS for a Representative List of Facility Data Acquisition Systems. CI includes hardware, software, documentation, and drawings. The Contractor shall comply with all applicable LMS Procedures for configuration management (including LMS-CP-5529, *Software Configuration Management Planning for Low, High, and*

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*Critical-Control Software*, LMS-CP-5528, *Software Planning Development, Acquisition, Maintenance and Operations* and the *DAS Software Configuration Management Plan*, which is located and maintained in the OME Virtual Library).

3.3.1.1.1 The Contractor shall initially use the existing configuration management (CM) and quality control process (currently using the tool CMSynergy). These tools and processes may be integrated with the overall enterprise architecture (Reference Section 5.2) in the future. The Contractor shall ensure that access to CI is controlled and that all CI changes/modifications are universally correct, traceable, reusable, and at the same revision level (for similar systems). Data records from any subcontractor involved in implementing the CM process shall be considered CI accountable to the Contractor. The Contractor shall, within 90 calendar days of contract implementation date, review, update, and submit to the CO for approval a *DAS Software Configuration Management Plan*.

3.3.1.1.2 The Contractor shall maintain the master configuration controlled data (i.e., the controlled source) in a secure facility that meets the Government's requirements for certification and accreditation for IT systems (including protection from fire, water, unauthorized access and other hazards) as stated in Section 5.3.7.4 along with data records of all hardware and software revisions/modifications and traceable histories back to Government official requests. All CM records shall be organized, and maintained in such a way that they are readily retrievable. The Contractor shall ensure protection/backup from catastrophic failure, with recovery/restoration to full service requiring no more than 4 hours down time after all hardware has been successfully restored.

3.3.1.1.3 The Contractor shall maintain a master list of DAS configuration items identifying the revision status of software, hardware, documents, and related data (e.g., acceptance test inputs and results, comparison data, simulation data). The Contractor shall perform quarterly auditing, with the results (quality records) provided to the CO, to ensure that configuration management processes and procedures are being followed. The quality records shall be made available to the CO for evaluation upon request. The Contractor shall perform quarterly testing of its backup and recovery/restoration capability on representative systems, with the results provided to the CO.

3.3.1.1.4 The Contractor shall place all DAS under CM as they are utilized in the course of performing OME and IT services under this contract. The CO may waive this requirement for an individual DAS per procedures described in the DAS Software Configuration Management Plan which is contained in the Virtual Library and CM controlled.

### 3.3.2 Data Acquisition Systems Administration

The Contractor shall provide DAS administration support services including, but not limited to, operating system software maintenance, technical support and consulting,

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performance measurements and tuning, systems integration, and access control associated with all supported and developed system(s) software.

3.3.2.1 The Contractor shall provide system administration for all supported facility data acquisition and associated systems to include, but not be limited to, the following requirements:

- a. Perform all required planning, associated training, and testing of operating system software releases prior to implementation.
- b. Diagnose operating system software failures; formulate and execute bypass procedures; communicate diagnostic findings to the appropriate vendor; receive, test, and apply fixes; and record the changes in the configuration management system.
- c. Formulate, test, and apply fixes for all in-house developed and maintained software.
- d. Document and track operating system software failures and impacts in a problem reporting system.
- e. Provide technical support, consulting, and coordination to ensure orderly system implementation, integration, and operation of operating system software.
- f. Conduct performance analyses and tuning on each of the operating system software components and implement changes to meet performance requirement.
- g. Provide updates to the current licensed and installed system software for all applicable systems. These updates shall also include corrective action and enhancements to system software.
- h. Acquire and maintain reference documentation and/or arrange for reference services appropriate to accomplishing the operating system software maintenance function.
- i. Implement all configuration management and security controls mandated by NASA or requested by NASA LaRC users (for example, developing or contributing to the development of IT security plans for DAS). See Section 5.3 for prevailing IT policy, guidelines, and mandates. Ensure that system maintenance functions do not adversely impact security controls.
- j. Administer user accounts and provide password services as required. The Contractor shall collect, analyze, and report relevant information regarding the management of system access to the CO.
- k. Notify the CO of all vendor supplied software releases, updates, and patches/fixes when they become available. Provide an assessment of the efforts and impacts of their implementation and a recommendation whether or not to implement.
- l. Develop a schedule and perform backups of operating systems, applications software, user areas, data areas, and all other system storage as determined by the facility DAS (or FAS) CM plan or configuration item lists for the supported systems. Backups shall be tested periodically to validate that system restoration can be accomplished from backup media.



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- m. Monitor system logs and audit trails/records for abnormal system activity, security breaches, and system failure messages. Report anomalies and provide remedy as required for supported facilities and systems.

### 3.3.3 Data Acquisition Systems Documentation

The Contractor shall provide to the CO complete and formal data systems documentation (e.g. user guides, technical design manuals). The Contractor shall provide all documentation in accordance with NPR 7150.2, *NASA Software Engineering Requirements*. The Contractor shall establish and maintain documented procedures to control all documents and data that relate to the requirements of the NASA standards including to the extent applicable, documents of external origin such as standards and NASA drawings.

3.3.3.1 The Contractor shall maintain electronic documentation records (e.g. requirements change request history, work breakdown structure and costs, approval dates) associated with past and current requests. The Contractor shall establish and maintain acceptance test plans and procedures to document and verify that the Contractor's products and deliverables meet the specified work requirements. The Contractor shall provide the documents and data in the type of media specified by the request. The Government project manager issuing the request will review the documents and data, and approve for adequacy.

3.3.3.2 The Contractor shall establish, maintain and make readily available a master list of DAS configuration items identifying the revision status of documents and data (to preclude the use of invalid and/or obsolete documentation). The Contractor's documentation control process shall ensure that:

- a. The appropriate as-built documents (e.g., system drawings, network drawings, technical/architectural descriptions, requirements/design documents, site notebooks, users/operators guides, maintenance logs) are available or easily accessible at all locations where operations essential to the effective functioning of the quality system are performed. These documents shall be finalized and approved by the CO, or designee, before the initiating request or work effort is closed.
- b. Invalid and/or obsolete documents are promptly removed from all points of issue or use, or otherwise assured against unintended use.
- c. Any obsolete documents retained for legal and/or knowledge-preservation purposes are suitably identified.
- d. Changes to documents and data shall be reviewed and approved by the same functions/organizations that issued the original request or that performed the original review and approval, unless specifically designated otherwise. The Contractor shall provide the designated functions/organizations pertinent background information upon which to base their review and approval. Where practicable, the nature of the change shall be identified in the document or the appropriate attachments.

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- e. Procedures are established, maintained, and applied for the identification, verification, configuration management, storage, and quick access to required hardware and software documentation. Where appropriate, the Contractor shall establish and maintain documented procedures for identifying CIs by suitable means traceable to their quality acceptance sign-offs/approvals for software and hardware, including verification and validation activities that occur during all stages of development, implementation, acceptance testing, delivery/installation, maintenance/support, decommissioning and removal.

### 3.3.4 Facility Automation Systems (FAS) Maintenance and Repair

The Contractor shall provide on-site hardware and software maintenance and repair of systems used for facility automation in scientific research and support facilities (approximately 500 systems). The contractor shall perform all required maintenance, including, but not limited to, hardware/software diagnosis and repairs, hardware/software upgrades to current revision levels, troubleshooting of problems, performing corrective changes to existing closed-loop control and automation systems, as required. The Contractor shall recommend, develop, and implement enhancements to the facility automation systems to enhance the operating performance, reliability, efficiency, and test capabilities. Maintenance and repair shall also apply to all processors and microprocessors, PLC/PAC based systems, servo controllers, control panels, safety interlocks, electromechanical interfaces, instrumentation, and interfaces to the data systems. The Contractor shall perform all maintenance and repair on-site, when practical, to minimize system downtime. Timeliness and priority requirements for maintenance and repairs are defined in SOW Section 3.1.5. Documentation requirements are defined in SOW Section 3.3.4.3. The Contractor shall work closely with each Facility Safety Head to ensure that system safety requirements are satisfied and documented. All FAS Maintenance and Repair shall be in accordance with the Annual DAS/FAS Plan (ADFP) (Reference Section 3.3.5).

#### 3.3.4.1 Facility Automation Systems Configuration Management

The Contractor shall develop, maintain and execute documented procedures for identifying, maintaining, controlling, status accounting/recording, auditing, backing up, restoring, and disposing of Configuration Items (CI). CI includes hardware, software, documentation, and drawings. The Contractor shall comply with all applicable LMS Procedures for configuration management (including LMS-CP-5529, *Software Configuration Management Planning for Low, High, and Critical-Control Software*, LMS-CP-5528, *Software Planning Development, Acquisition, Maintenance and Operations*, Chapter 5 of LPR 1740.4, *Facility Systems Safety and Configuration Management*, and the FAS Software Configuration Management Plan). The FAS Software Configuration Management Plan shall be CM controlled, updated at least annually, and the current version shall be posted to the Virtual Library.

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3.3.4.1.1 The Contractor shall document hardware in the facility Configuration Management On-Line (CMOL) system, Engineering Drawing Files (EDF) or Virtual Library, as appropriate, and software in an approved (by the CO or designee) configuration management system (e.g., CMSynergy). These tools may be integrated with the overall enterprise architecture (Reference Section 5.2) in the future. The Contractor shall ensure that access to a Configuration Item (CI) is controlled and that all CI changes/modifications are correct, traceable and processed. Data records from any subcontractor involved in implementing the CM process shall be treated as CI accountable to the Contractor.

3.3.4.1.2 The Contractor shall maintain the master configuration controlled data (i.e. the controlled source) in a secure facility that meets the Government's requirements for certification and accreditation for IT systems (including protection from fire, water, unauthorized access, and other hazards) as stated in Section 5.3.7.4 along with data records of all hardware and software revisions/modifications and traceable histories back to the Government official requests. All CM records shall be organized and maintained in such a way that they are readily retrievable. The Contractor shall ensure protection/backup from catastrophic failure, with recovery/restoration to full service requiring no more than 4 hours of down time after all hardware has been successfully restored.

3.3.4.1.3 The Contractor shall maintain a master list of FAS configuration items identifying the revision status of software, hardware, documents, and related data (e.g., acceptance test inputs and results, comparison data, simulation data). The Contractor shall perform quarterly auditing, with the results (quality records) provided to the CO, to ensure that configuration management processes and procedures are being followed. The quality records shall be made available to the CO for evaluation upon request. Contractor shall perform quarterly testing of its backup and recovery/restoration capability on representative systems, with the results provided to the CO.

3.3.4.1.4 The contractor shall place all FAS under CM as such FAS are utilized in the course of performing OME and IT services under this contract. The CO may waive this requirement for individual FAS per procedures described in the FAS Software Configuration Management Plan.

### 3.3.4.2 Facility Automation Systems Administration

The Contractor shall provide FAS administration support services including, but not limited to, operating system software maintenance, technical support and consulting, computer resource performance measurements and tuning, systems integration, and access control associated with all supported and developed system(s) software.

3.3.4.2.1 The Contractor shall provide system administration for all supported facility automation and associated systems to include, but not be limited to, the following requirements:

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- a) Perform all required planning, associated training, and testing of operating system software releases prior to implementation.
- b) Diagnose operating system software failures; formulate and execute bypass procedures; communicate diagnostic findings to the appropriate vendor; receive, test, and apply fixes; and record the changes in the configuration management system.
- c) Formulate, test, and apply fixes for all in-house developed and maintained software.
- d) Document and track operating system software failures and impacts in a problem reporting system.
- e) Provide technical support, consulting, and coordination to ensure orderly system implementation, integration, and operation of operating system software.
- f) Conduct performance analyses and tuning on each of the operating system software components and implement changes to meet performance requirement.
- g) Provide updates to the current licensed and installed system software for all applicable systems as required. These updates shall also include corrective action and enhancements to system software.
- h) Acquire and maintain reference documentation and/or arrange for reference services appropriate to accomplishing the operating system software maintenance function.
- i) Implement all configuration management and security controls mandated by NASA or requested by the LaRC user (for example, developing or contributing to the development of IT security plans for FAS). See Section 5.3 for prevailing IT policy, guidelines, and mandates. Ensure that system maintenance functions do not adversely impact security controls.
- j) Administer user accounts and provide password services as required. The Contractor shall collect, analyze, and report relevant information regarding the management of system access to the CO.
- k) Notify the CO of all vendor supplied software releases, updates, and patches/fixes when they become available. Provide an assessment of the efforts and impacts of their implementation and a recommendation whether or not to implement.

### 3.3.4.3 Facility Automation Systems Documentation

The Contractor shall provide to the CO complete and formal automation systems documentation (e.g. user guides, technical design manuals). All documentation shall be provided in accordance with NPR 7150.2. The Contractor shall establish and maintain documented procedures to control all documents and data that relate to the requirements of the NASA standards including to the extent applicable, documents of external origin such as standards and NASA drawings.

3.3.4.3.1 The Contractor shall maintain electronic documentation records (e.g. requirements change request history, work breakdown structure and costs, approval dates) associated with past or current requests. The Contractor shall establish and maintain acceptance test plans and procedures to document and verify that the Contractor's products and deliverables meet the specified work requirements. The Contractor shall provide the documents and data in the type of media specified by the

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request. The Government project manager issuing the request will review the documents and data, and approve for adequacy.

3.3.4.3.2 The Contractor shall establish, maintain and make readily available a master list of FAS configuration items identifying the revision status of documents and data (to preclude the use of invalid and/or obsolete documentation). The Contractor's documentation control process shall ensure that:

- a. The appropriate as-built documents (e.g., system drawings, network drawings, technical/architectural descriptions, requirements/design documents, site notebooks, users/operators guides, maintenance logs) are available or easily accessible at all locations where operations essential to the effective functioning of the quality system are performed. These documents shall be finalized and approved by the CO, or designee, before the initiating request or work effort is closed
- b. Invalid and/or obsolete documents are promptly removed from all points of issue or use, or otherwise assured against unintended use
- c. Any obsolete documents retained for legal and/or knowledge-preservation purposes are suitably identified
- d. Changes to documents and data shall be reviewed and approved by the same functions/organizations that issued the original request or that performed the original review and approval, unless specifically designated otherwise. The Contractor shall provide the designated functions/organizations pertinent background information upon which to base their review and approval. Where practicable, the nature of the change shall be identified in the document or the appropriate attachments
- e. Procedures are established, maintained, and applied for the identification, verification, configuration management, storage, and quick access to required hardware and software documentation. Where appropriate, the Contractor shall establish and maintain documented procedures for identifying CIs by suitable means traceable to their quality acceptance sign-offs/approvals for software and hardware, including verification and validation activities that occur during all stages of development, implementation, acceptance testing, delivery/installation, maintenance/support, decommissioning and removal

### 3.3.5 Annual DAS/FAS Plan (ADFP)

The services described in this SOW section are quantified and ordered per the ADFP. The ADFP will be reviewed quarterly and adjustments made as LaRC business requirements vary.

The Contractor shall develop, submit, and maintain an ADFP that defines the approach to meet the DAS/FAS requirements for the upcoming Fiscal Year (FY) considering the requirements of this SOW and additional requirements as may be provided by the Government. The purposes of the ADFP are to (1) anticipate the annual DAS/FAS activities at NASA LaRC that the Contractor is required to support for the upcoming FY,

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(2) develop an approach that optimizes performance consistent with the DAS/FAS requirements, and (3) achieve flexibility and adaptability to meet evolving mission requirements and business environment changes.

An effective plan will direct funding to achieve the best utilization of resources. The Contractor shall work closely with the Government to understand the LaRC-specific requirements for the ROME contract that shall be implemented by the Contractor in the ADFP. The Government and Contractor will continuously collaborate and coordinate on changes to the DAS/FAS requirements to ensure a clear understanding of the Government's needs, the division of roles and responsibilities, and the content that will be included in the ADFP.

### 3.3.5.1 Objectives and Content of the ADFP

The ADFP shall detail the Contractor's overall approach to achieve the Center's goals, objectives, and timetables in the performance of DAS/FAS requirements. The plan shall reflect the most efficient approach, given anticipated funding/contract value limitations, to support the LaRC DAS/FAS requirements in a cost effective and productive manner. The plan shall be developed in coordination with the Government requiring organization(s) to arrive at the most efficient solution to meet customer requirements.

The ADFP shall include, but not be limited to, the following:

- a. Delineate the overall approach to achieve the Center's goals, objectives, and timetables in the performance of the LaRC DAS/FAS requirements
- b. Document the Government and Contractor roles and responsibilities critical to managing and conducting the DAS/FAS requirements effectively
- c. Identify the impacts of requirements not funded and recommended alternatives to satisfy those requirements, including incremental solutions that may be feasible. Alternatives shall include critical timelines for accomplishment.
- d. Develop and maintain metrics that assess the overall health and condition of the LaRC DAS/FAS and an indication of how well the Center is progressing toward established goals.

### 3.3.5.2 Approach and Milestones for the ADFP

The Contractor shall submit the ADFP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments/specific requirements within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall be effective October 1<sup>st</sup> and shall be finalized by approval of the CO no later than September 30<sup>th</sup>. The Contractor shall maintain this contract deliverable and periodically update the ADFP based on fluctuations in the Government's requirements. Due to the Contract Year (CY) and FY being different, the ADFP shall

clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations.

#### **4.0 ENGINEERING**

Engineering work consists of a wide variety of engineering services and projects, including traditional engineering designs, as well as other engineering related products, such as fabrication of research equipment, implementation of the Construction of Facilities (CoF) program, development of instrumentation and data acquisition systems, and operation of facility documentation libraries.

##### **4.0.1 Types of Engineering Work**

The Contractor shall perform the following types of engineering work:

- a. General Engineering Services (SOW 4.1): Engineering-related work, which supports the day-to-day operations of the Center. On-demand engineering services are initiated through Work Requests (WR)
- b. Engineering Projects (SOW 4.2): Engineering-related work needed to complete stand-alone designs or construction and development projects. Engineering projects are initiated through individual Task Orders (TO) in accordance with Section 1.4.6.

##### **4.0.2 Goals and Objectives**

The Contractor shall achieve the following goals and objectives in the performance of the engineering services and projects:

- a. Improve engineering responsiveness to research operations. Provide timely and effective response to tactical engineering requests. Tactical engineering is defined in 4.1.1
- b. Improve engineering work quality. Provide accurate and complete documents
- c. Bring order to the disparate/overlapping documentation management systems. Ensure consistent use of the CMOL across OME & IT and verify all critical documents are up-to-date
- d. Utilize improved technologies to complete engineering work. Make all submittals electronically to the OME Virtual Library and convert existing hard copy documentation to electronic format. Promote the utilization of improved technologies, including, but not limited to: Geographic Information System (GIS), electronic access to documentation, and standard OME & IT software products
- e. Improve the quality, timeliness, and cost effectiveness of engineering projects. Complete all engineering projects in accordance with the cost, schedule and performance objectives of the individual project management plans

## **4.1 GENERAL ENGINEERING SERVICES**

General Engineering services include the following recurring activities:

- a. Tactical Engineering Services
- b. Facilities Configuration Management Services
- c. Pressure System Recertification Services
- d. Drawing File Services
- e. Specification Services
- f. Library Services

### **4.1.1 Tactical Engineering Services**

The Contractor shall provide engineering services to support facility maintenance and research operations at LaRC. This work includes, but is not limited to, on-site field consultation, analyses, preparation of design modifications, and field verification of drawings. This work may involve troubleshooting of mechanical equipment, controls hardware and software; retuning of mechanical, fluid, and electrical control systems; or resolving other engineering problems. The focus of this effort is for small, quick response type, sustaining engineering activities. These services will be initiated with a Work Request. Tactical engineering support shall be limited to an average cost of \$50,000 per month and shall not exceed \$600,000 per contract year. The Contractor shall inform the CO on a quarterly basis if this monthly average, which shall be calculated each quarter based on the work for that quarter and all prior quarters in the contract year, and/or annual average are expected to be exceeded. Only the CO can officially increase the yearly limit and will notify the Contractor accordingly. First priority for tactical engineering support shall be provided the LaRC Utility Systems, NTF LN2 Plant, Compressor Station NTF, 14x22, TDT, 8' HTT, and UPWT unless otherwise directed by the CO. A monthly summary report of all tactical engineering services shall be posted to the OME Virtual Library.

#### **4.1.1.1 Field Consultation**

The goals of field consultation services are to minimize unscheduled facility downtime and provide effective and safe solutions to key facility maintenance and operations personnel. For field consultation issued through TC, the Contractor shall respond in accordance with the TC provisions (Reference Section 3.15.). All other service requests shall be completed within the timeframes negotiated with the requestor.

#### **4.1.1.2 Analyses**

The Contractor shall complete verification analyses in support of repair functions related to maintenance activities or operations. The analyses shall be comprehensive enough to adequately demonstrate the acceptable working parameters of the components, systems, or equipment. The Contractor shall also perform analyses for the purposes of validation and/or verification of facilities and collateral equipment. Should the analysis



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indicate that the system, component, or facility is deficient, the Contractor shall submit a ROME Integrator request to address the problem. The Contractor shall also develop plans for replacing equipment with high operating or maintenance costs and submit these plans to the CO for approval. All analysis documentation shall be submitted to the requestor and attached to the work request.

### 4.1.1.3 Design Modifications

The Contractor shall prepare and submit all design modifications related to tactical engineering, including updating drawings and all other facility records. Work shall be accomplished in accordance with the standards and guidelines given in Section 4.2.4.3.1, including obtaining all necessary drawing approvals per Section 4.2.4.3.1.11. The Contractor shall field verify all updated drawings. The Contractor shall update the CMMS to reflect any changes to the current equipment records. If changes to drawings in the CMOL are required, the Contractor shall redline the drawings and submit a Change Notification Sheets (CNS) in accordance with the CM procedures identified in Section 4.1.2.2. The Contractor shall submit proposed design modifications to the requestor and attach to the work request.

### 4.1.1.4 Field Verification of Drawings

The Contractor shall prepare and submit a plan, including a detailed milestone schedule, to complete field verification of all drawings in the Facility Configuration Management (FCM) system that are Configuration Controlled Documents (CCD) within the first five years of the contract. Once this Field Verification Plan is approved, the Contractor shall verify the accuracy of drawings in the field in accordance with this plan. If discrepancies are found, the Contractor shall redline the drawings and submit a CNS in accordance with the CM procedures identified in Section 4.1.2.2. The plan shall be limited to field verification of existing Configuration Controlled Documents to the NTF, 14x22' Subsonic Tunnel, the TDT, the LaRC High Voltage Power Distribution systems and the 8' HTT, and UPWT (listed in priority order), unless approved by the CO. The Contractor shall also field verify drawings for any facility modification as these projects are completed. The Field Verification Plan shall be updated and re-submitted annually for approval by the CO.

### 4.1.2 Facilities Configuration Management (FCM) Services

#### 4.1.2.1 FCM General Requirements

The Contractor shall provide FCM services in accordance with the processes described in LMS-CP-4710, *Configuration Management for Facilities*, and LMS-CP-4890, *Construction and Change Assurance for High Risk Facilities*, including, but not limited to:

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- a. Processing of CNS for facilities in the NASA LaRC High-Risk Configuration Management Program (HRCMP), as defined in Figure 1-1 of LPR 1740.4, *Facility System Safety Analysis and Configuration Management*
- b. Upload changes in Laboratory Equipment/ Procedures (CLEP) for facilities in the NASA LaRC Laboratory Risk Evaluation Program (LREP), as defined by LPR 1740.4 into the CMOL program
- c. Participating in the Annual Safety and Configuration Management Meetings for each of the facilities in the HRCMP and the LREP
- d. Processing of Asbestos Configuration Management Program (ACMP) Change Sheets
- e. Scheduling and participating in operational procedure demonstrations for each of the facilities required by OSMA and processing document changes
- f. Processing of Pressure System Documents (PSD) per Section 4.1.3.1
- g. CNS processing for facilities in the NASA LaRC HRCMP shall be listed in priority order and a CM plan developed and submitted for Government review.

### 4.1.2.2 Configuration management On-Line (CMOL) System

The Contractor shall use the CMOL system, described in Appendix 4.1, *Overview and Description of CMOL*, and Appendix 5.1, *OME IT Systems*, to access the FCM data and to initiate changes. LPR 1740.4 describes each of the configuration management activities and can be used to obtain additional information about the processes. The Contractor shall document all system changes via the CNS process for safety evaluation, review, and approval. Upon approval by the CO and implementation of system changes, the Contractor shall perform the following functions:

- a. Review documentation associated with the approved facility changes and ensure that all affected configuration-controlled documentation is identified and redlined. This includes, but is not limited to, the Safety Analysis Reports (SARs), Standard Operating Procedures (SOPs), Emergency and/or Administrative Procedures, Checklists, and Drawings
- b. Make the necessary changes to the documentation under configuration control in CMOL. The Contractor shall interface with the NASA SMAO to implement configuration-controlled documentation changes required by SMAO, assisted by the independent Safety office contractor. This work includes but is not limited to, the following updates:
  - 1. Checklists, SOPs, SAR, Pressure System Documents (PSD), ACMP and other applicable documents
  - 2. Hard copy and AUTOCAD drawings. Ensure that requisite drawings have been field verified
  - 3. Update raster images using a raster editing program
  - 4. Pressure System Database of components for pressure systems
- c. Obtain Project Manager (PM), Facility Coordinator, Facility Safety Head, LaRC Safety Manager, and other approval signatures on the updated working

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master documents, per LMS-OP-5686, *Facility Systems Engineering Project Document Control*

- d. Distribute working master copies of the documents to the facilities. The Facility Safety Head will determine the point of distribution and the number of copies to be distributed by the Contractor in each facility
- e. Update CMOL system to reflect the document changes required by the CNS, close the CNS, add the new or revised documentation into the CMOL system, and move obsolete or outdated documents to the historical archive
- f. Return completed sets of the updated documentation to Engineering Drawing Files for microfilming and designate outdated documents as obsolete or superseded

### 4.1.2.3 Change Notification Sheet (CNS) Processing

The CNS process tracks changes to configuration controlled documentation for facilities in the HRCMP. The Contractor shall process CNS forms in accordance with LMS-CP-4890, *Construction and Change Assurance for High Risk Facilities*. The CNS process shall also be used to track changes to the Pressure Systems Configuration Management (PSCM) database.

### 4.1.2.4 Change in Laboratory Risk Evaluation Program Processing

The Change in Laboratory Equipment/Procedures (CLEP) process tracks changes to facilities and apparatus in the Lab Risk Evaluation Program (LREP). The Contractor shall process and submit CLEP forms in accordance with LPR 1740.4, *Facility Systems Safety Analysis and Configuration Management*.

### 4.1.2.5 Participating in Annual Safety and Configuration Management Meetings

For each of the facilities in the HRCMP and the LREP, the Contractor shall participate in the SMAO Annual Safety and Configuration Management Meetings with personnel representing the research community, operations, and Facility Systems Engineering. The Contractor shall, at a minimum, address:

- a. Status of any action items assigned to the Contractor at the last Annual Safety and Configuration Management meeting
- b. Risk assessment status
- c. Any problem areas with regard to configuration management
- d. Any known facility plans
- e. Status of any outstanding CNS
- f. Review CNS actions processed since last meeting

### 4.1.2.6 Asbestos Configuration Management Program (ACMP) Change Sheet Processing

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Information on facilities with asbestos and related documents has been placed in CMOL to assist in planning facility renovations or modifications, which may potentially disturb this material. The Contractor shall generate and submit an ACMP Change Sheet any time work is planned in a facility with asbestos or sampling is performed which identifies new areas of asbestos. The Contractor shall, at a minimum:

- a. Generate and process ACMP Change Sheets in CMOL System
- b. Update the appropriate facility ACMP Plan to note area of removal of asbestos or the newly identified asbestos

### 4.1.2.7 Scheduling Operational Procedure Demonstrations and Processing Documentation Changes

The Contractor shall conduct annual standard operating procedure demonstrations in each of the high-risk facilities (referenced in LPR 1740.4, *Facility Systems Safety Analysis and Configuration Management*). The purpose of the operating procedure demonstrations is to ensure that facilities are maintaining their configuration-controlled documentation to match the physical state of their facilities and ensure that operators are familiar with and using the procedures. The Contractor shall, at a minimum:

- a. Schedule the procedure demonstrations in each of the high risk facilities in the HRCMP with the operation managers and/or facility managers and ensure the demonstrations are performed at a time that will not adversely impact research within the facilities but when facility personnel can be available to support the demonstration
- b. Conduct a “live demonstration” of facility operations or a “walk through” or “dry-run” if live demonstration is not possible for facilities for which the Contractor has operational responsibilities and red line operating procedures as required
- c. Participate in the “live demonstration” of facility operations or a “walk through” or “dry-run” if live demonstration is not possible for facilities for which the Contractor does not have operational responsibilities and red line operating procedures as required
- d. Initiate any required CNS to update applicable procedures upon completion of the demonstration
- e. When procedure demonstrations are completed, prepare, maintain, submit, and place records of the demonstration in the OME Virtual Library

### 4.1.3 Pressure System Recertification Services

The Contractor shall perform recertification services in accordance with the requirements in NASA STD 8719.17, *NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PVS)*, and LPR 1710.42, *Safety Program for the Maintenance of Ground-Based Pressure Vessels and Pressurized Systems* (See CMOL

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Pressure System Documents (PSD) for current list of Pressure Systems in LaRC's Recertification Program). The Contractor shall maintain and update all pressure systems documentation using the CNS procedures identified in 4.1.2.2. The Contractor shall utilize CMOL for maintaining all pressure systems documentation.

The Contractor shall develop and prepare a monthly report documenting the progress against the yearly plan of preventive maintenance tasks for the verification of relief valves and pressure gages. The Contractor shall include a short narrative with the report summarizing the work progress and highlighting any issues requiring Government action. The Contractor shall conduct a quarterly meeting with the Standard Practice Engineer for Pressure Systems, the Chairman of the Pressure Systems Committee (see LAPD 1150.2, *Councils, Boards, Panels, Committees, Teams, and Groups*), and a representative from the SMAO to review progress of the entire recertification effort for the calendar year.

In addition to the requirements in LPR 1710.42, the Contractor shall, at a minimum:

- a. Utilize the matrix at Appendix 4.10, *RECERT Priority Matrix*.
- b. When the initial 10% NDE conducted during Phase 1 indicates the presence of rejectable conditions, the Contractor shall develop an IDIQ proposal for conducting up to 100% NDE and for performing the necessary repairs to restore the system's integrity
- c. Document the rationale for the selected inspection areas and the selected NDE inspection techniques used in each in-service inspection plan.
- d. For all findings resulting from Phase 3 inspections which require emergency repairs, and where the estimated cost is less than \$50,000, the Contractor shall initiate a maintenance Service Request in the ROME Integrator to resolve the findings utilizing the priority matrix at Appendix 4.10.

### 4.1.3.1 Pressure Systems Configuration Management (PSCM)

The Contractor shall provide timely drafting and CM support to maintain configuration controlled documents generated by the Recertification program, including Pressure Systems Documents (PSD) and Inspection Plans (IP).

The Contractor shall utilize American Society of Nondestructive Testing certified inspectors and the NDE techniques described in Section V of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code when conducting non-destructive examinations of welds and high stress areas. Minimum qualifications for NDE personnel are given in Appendix 1.7, *Worker Qualifications*. The Contractor shall follow the requirements in LPR 1710.5, *Ionizing Radiation*, in conducting radiographic examinations.

Acceptance criteria for non-destructive examinations shall be in accordance with the applicable national consensus codes and the applicable requirements of CID 1710.40, *Langley Research Center Pressure Systems Handbook*, LPR 1710.41, *Langley*

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*Research Center Standard for the Evaluation of Socket and Branch Connection Welds*, and LMS-TD-5569, *Performing Visual Inspections*. The Contractor shall submit all radiographic examination interpretation sheets and radiographic film to the CO for final approval.

The Contractor shall provide storage and security for all existing and future radiographic film of high-pressure systems. Radiographic film shall be stored for a minimum of 5 years from the date of approval by the CO. Radiographic examination Interpretation Reports shall be stored permanently. The Contractor shall store documentation in electronic format to the greatest extent possible.

All new drawings and sketches shall be generated and maintained using the Autodesk AutoCAD drafting software. All drawings shall be maintained in CMOL using the AutoCAD drafting software.

### 4.1.4 Reserved

### 4.1.5 Drawing File Services

The Contractor shall maintain the Engineering Drawing Files located at LaRC Building 1130T2, in accordance with LPR 7320.1, *Engineering Drawing System*. Drawing Files Service Requests will be initiated by contacting the Customer Service Desk or by walk-in requests. Government and Contractor personnel will use this service. The Contractor shall, at a minimum:

- a. Convert hard copy and/or aperture cards to electronic file storage and retrieval system
- b. File and retrieve original drawings and aperture cards
- c. Reproduce and distribute copies of drawings according to schedule negotiated with requester
- d. Perform minor maintenance per manufacturer's specifications and contact vendor when machines require repair or service
- e. Attend semi-annual NASA Engineering Drawing System Committee meetings in accordance with LPR 7320.1 to provide information on capabilities and respond to user issues. Provide drawing files system data when required
- f. Receive and prepare LaRC records (such as shipping documents, inventory control records, safety reports, model books, purchase orders, and vouchers) for microfilming, inventory contents, package for shipment, and store pending transfer to Federal Records Center or destruction per LPR 1440.7, *Langley Research Center (LaRC) Records Management Procedural Requirements* (This work shall only be performed through utilization of IDIQ procedures in accordance with contract terms and conditions unless directed by the CO.).
- g. Actively participate in developing on-line access to drawing and to modernize the drawing retrieval and storage process

#### 4.1.6 Specification Services

The Contractor shall operate and maintain the Government's SpecsIntact system or another Contractor provided specification package, if approved by the CO, for the preparation of construction specifications. SpecsIntact is the Government's automated system for preparing standardized facility construction specifications. Work shall be initiated using a WR issued through the Customer Service Desk. The Contractor shall provide specification services for both Contractor projects and other NASA projects at LaRC. The Contractor shall extract and assemble construction contract specifications. The work includes generation of draft specifications from Langley Master Specifications, and proofreading and producing final versions of specifications or CO-approved alternative specification packages. Incidental typing to produce final specifications shall be required. Data sheets and other technical specification attachments will be included as necessary. The Contractor shall operate a specification services office and maintain the SpecsIntact Master (Langley Master Specifications), which has been edited for Langley specific information current and available for use. The office shall be operated for a total, not to exceed, of 20 hours a week (between the hours of 7:00 am – 5:00 pm), Monday through Friday. The Contractor shall negotiate schedules for specification services with the CO and provide an after-hours repository for delivery of documents. When not staffed, the specification services office shall be secured. The Contractor shall actively participate in developing improvements to the specification system.

#### 4.1.7 Facility Documentation Library Services

All documentation in the facility libraries (4.1.7.1 through 4.1.7.3) shall belong to the Government and remain in the facility libraries at contract end. Documentation Libraries shall be operated for a total of (not to exceed) 20 hours per week for the facilities listed in these paragraphs, except the 8-Ft. High Temperature Tunnel which shall be operated 40 hours per week. Hours of operation shall be commensurate with the requirements at the facilities. When not staffed, all libraries shall be secured and revised hours of operation shall be posted and communicated to Government personnel as appropriate.

##### 4.1.7.1 Engineering Library Support Services

The Contractor shall operate the Engineering Library and provide documentation library support. Access to the engineering files shall be provided 24 hours per day, seven days per week. The contractor shall, at a minimum:

- a. Maintain the existing construction records system, incorporate new data to expand the engineering file database, and respond to customer requests for service or assistance
- b. Provide engineering contract records to the requestor and establish new engineering contract files and electronic media cross reference records
- c. Prepare closed out contracts for conversion to historical records after receipt of the contract close out memorandum from the Office of Procurement
- d. Post updated technical references in the Engineering Library

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- e. Facilitate the processing of project submittal records for ROME and other Contractors at LaRC using the new electronic submittal process, discussed in Section 5.1.2. All submittals shall be provided in the original and "PDF" formats. During the transition period to electronic submittals and for other Contractors, the Contractor shall process hard copy submittals, in accordance with LMS-OP-5687, *Facility Systems Engineering Processing of Contract Submittals*
- f. The Contractor shall provide document library cataloging and filing services in support of engineering projects across the Center for a total of 20 hours per week. These library services shall be performed in Building 1229.
- g. Provide an afterhours repository for documentation for the Engineering Library Support Service located in building 1229.

### 4.1.7.2 Documentation Libraries for NTF and 8' HTT

The Contractor shall operate the document libraries located at the National Transonic Facility (NTF), Building 1236 (20 hours per week) and the 8-Foot High Temperature Tunnel (8' HTT), Building 1265 (20 hours per week). Access to the libraries shall be provided 24 hours per day, 7 days per week. The Contractor shall, at a minimum:

- a. Issue the latest copies of all procedures for test runs to the Test Director and Principal Investigator
- b. Maintain an electronic inventory of all library documents
- c. Track and control library contents for check-in and check-out
- d. Ensure that all supporting facility drawings are filed in Engineering Drawing Files, Building 1130T2 at LaRC
- e. Receive and record information on all Problem Failure Reports (PFR) and Task/Test Requests (TTR)
- f. Populate existing databases with information from PFR and TTR. Ensure that required signatures are obtained when a TTR or PFR is initiated and prior to closure
- g. File originals of TTR and PFR in the document library
- h. Provide TTR close-out tracking and signature approvals
- i. Promote the use of electronic TTR and PFR form submittals and tracking (currently on FileMakerPro program)

### 4.1.7.3 Documentation Libraries for Specified Facilities

The Contractor shall, as required by the Government, create new and maintain existing documentation libraries

consisting of hard copy operation, maintenance, and engineering technical documentation, and maintain these documentation libraries throughout the contract period for the specified facilities. The Contractor shall develop a system for checking out documents and maintaining document control. Before, during and after the knowledge capture period for the specified facilities, the Contractor shall provide documentation library cataloging and filing services at Transonic Dynamics Tunnel and 14 x 22 for a total of 20 hours for each facility per week. Library and documentation



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services shall be modeled on the 8-Ft High Temperature Tunnel, Building 1265, documentation library approach. The Contractor shall, at a minimum:

- a. Move the existing documentation to a centralized location at each facility, as specified by the respective Facility Managers, by the end of the facility's knowledge capture period. Currently, each facility has existing documentation scattered throughout the facility.
- b. Catalog the existing documentation, file the information, and implement a sign-in/sign-out procedure by the end of the facility's knowledge capture period.
- c. Provide computers at each site for access to the OME Virtual Library by the end of the facility's knowledge capture period
- d. File all new hard copy technical documentation generated from engineering projects, maintenance work, or any other activity into each facility's documentation library, except for configuration management information, which is filed in the CMOL system within 10 business days of receiving information
- e. Provide a common filing system for documentation at all five facilities

### **4.1.8 Annual Engineering Plan (AEP)**

The services described in this SOW section are quantified and ordered per the Annual Engineering Plan (AEP). The AEP will be reviewed quarterly and adjustments made as LaRC business requirements vary.

The Contractor shall develop, submit, and maintain an AEP that defines the approach to meet the base (i.e. Section 4.1) engineering requirements for the upcoming Fiscal Year (FY) considering the engineering requirements of this SOW and additional requirements as may be provided by the Government. The purposes of the AEP are to (1) anticipate the annual activities expected to support the base engineering services at NASA LaRC the Contractor is required to support for the upcoming FY, (2) develop an approach that optimizes performance consistent with the engineering requirements, (3) achieve flexibility and adaptability to meet evolving mission requirements and business environment changes.

An effective plan shall direct funding to achieve the best utilization of resources. The Contractor shall work closely with the Government to understand the LaRC-specific requirements for the ROME contract that shall be reflected by the Contractor in the AEP. The Government and Contractor will continuously collaborate and coordinate on changes to the base engineering requirements to ensure a clear understanding of the Government's needs, the division of roles and responsibilities, and the content that will be included in the AEP.

#### **4.1.8.1 Objectives and Content of the AEP**

The AEP shall detail the Contractor's overall approach to achieve the Center's goals, objectives, and timetables in the performance of the base engineering services. The plan shall reflect the most efficient approach, given anticipated funding/contract value

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limitations, to support the LaRC engineering needs in a cost effective and productive manner. The plan shall be developed in coordination with the Government requiring organization(s) to arrive at the most efficient solution to meet customer requirements.

The AEP shall include, but not be limited to, the following:

- a. Delineate the overall approach to achieve the Center's goals, objectives, and timetables in the support of the LaRC engineering services requirements
- b. Document the Government and Contractor roles and responsibilities critical to managing and conducting the engineering services effectively
- c. Identify the impacts of requirements not funded and recommended alternatives to satisfy those requirements, including incremental solutions that may be feasible. Alternatives shall include critical timelines for accomplishment.

### 4.1.8.2 Approach and Milestones for the AEP

The Contractor shall submit the AEP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments/specific requirements within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall be effective October 1<sup>st</sup> and be finalized by approval of the CO no later than September 30<sup>th</sup>. The Contractor shall maintain this contract deliverable and continuously update the AEP based on fluctuations in the Government's requirements. Due to the Contract Year (CY) and FY being different, the AEP shall clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations.

## **4.2 ENGINEERING PROJECTS**

The CO will issue Task Orders (TO) for the pre-project planning, design, and/or construction of new institutional and research facilities or facility upgrades (Reference Section 1.4.6). For construction projects, the designs may be generated by NASA, by the Contractor, or by other Contractors. The Contractor shall provide project management for engineering projects. Project management includes, but is not limited to, planning and coordination required to ensure that assigned projects are expedited and accomplished in a safe manner, with appropriate checks and balances ensuring that appropriate approvals are obtained, and that the Facility Coordinator and Facility Safety Head are involved with work accomplished in the facility. Project management guidelines are given in Appendix 4.6, *Best Practices Model for Facility Work*, and described in more detail in NPR 8820.2F, *Facility Project Requirements*. The Contractor shall complete these duties for the project planning, design, construction, and activation phases of selected projects. Occasionally, work will be issued for other NASA Centers or Government Agencies. All designs shall conform to the applicable codes for such work, unless specified in individual TO. Projects will be required in the following areas:

### 4.2.1 Institutional Facilities and Utility Systems

Institutional facilities and utility systems are land, buildings, laboratories, other structures and facilities, steam, water, electrical power distribution, and other systems that supply the entire Center. This type of work is very similar to what is found in industrial plants or commercial facilities. Work will include the following disciplines:

#### 4.2.1.1 Civil, Structural, and Architectural Systems

The Contractor shall design and build civil, structural, and architectural systems. The designs shall include functional and environmental relationships, economy in construction and maintenance, and considerations for health and safety while providing the flexibility necessary to permit future expansion. The work shall include, but not be limited to, site selection, utility development, civil work, selection and use of materials and structural framing systems. Designs shall be compatible with clear space and span requirements, applicable fire protection classification, foundation conditions, architectural treatment guides, and consideration of climate conditions and structural design loads for the specific facility and location. Designs shall incorporate appropriate energy efficiency and sustainable design elements (See Section 4.2.4.3.1.4).

#### 4.2.1.2 Mechanical Systems

The Contractor shall design and build heating, plumbing, fire protection, ventilating, and air conditioning mechanical systems. The air conditioning systems shall provide year-round automatic temperature control. The design of the systems shall be based on a study of air conditioning requirements, extent of control required, appearance of appurtenances in occupied spaces, type of cooling source, nature of occupancy, building structure, and any other factors peculiar to the project. Special attention shall be given to the incorporation of energy conservation features such as an enthalpy control for economizer cycle, timers for night setback and weekend shutdown.

#### 4.2.1.3 Electrical Systems

The Contractor shall design and build electrical systems for projects including power, lighting, fire alarm, grounding, controls, communications, and associated systems necessary for the operation of facilities.

### 4.2.2 Research Facility Systems

Research facility systems are wind tunnels, testing laboratories, simulators, and other facilities that are used for research testing purposes. These systems involve the following disciplines:

#### 4.2.2.1 Mechanical Equipment and Systems

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4.2.2.1.1 The Contractor shall provide design and fabrication related engineering services for specialized mechanical research equipment and systems. Components include, but are not limited to, precision mechanisms and mechanical drives; hydraulic, pneumatic, and electric actuators; mechanical structures, including machine frames, static and dynamic support structures for machinery; walled structures; vacuum and pressure vessels; heat transfer devices; and integrated systems. Components will be subjected to a variety of environments including cryogenic and elevated temperatures, which may require active heating or cooling subsystems. Additional environments which require application of specialized knowledge include, but are not limited to: high pressures, oxygen and hydrogen rich environments, specialty gases and fluids, high vibration and noise, and a full range of aerodynamic flow conditions ranging from low-subsonic to hypersonic speeds.

4.2.2.1.2 The Contractor shall provide designs, fabrication, and/or repair of research equipment and related systems per applicable standards and constraints. The Contractor's responsibilities will include, but are not limited to: purchase of materials, components, and subsystems; machining of structural and mechanical components; assembly of components, subsystems, and systems; quality control inspection of materials, components, subsystems, and systems; performance demonstrations; and updates of as-built drawings.

4.2.2.1.3 The Contractor shall provide precision machining of complex contoured and mating surfaces, validation of contours, welding of structural and pressurized components, non-destructive examination and specialized processing. Materials will include common engineering materials as well as difficult to fabricate aerospace materials. Completed components and systems will include, but not be limited to, model support, injection, and positioning systems; wind tunnels and components; flow survey devices; structural test systems, and robotics. Fabrication and machining of test articles are not included in this contract.

4.2.2.1.4 The Contractor shall provide documentation for mechanical equipment and system engineering design and analyses, material certification, fabrication procedures, verification of as-fabricated mechanical properties, testing, and demonstration of functional performance. When specified in the TO, the Contractor shall provide specialized design and analyses including solid modeling, finite element structural and thermal analysis, mechanism simulation, and fracture mechanics. Specialized design and analyses may require proficiency with contractor-owned software programs such as FLUENT, FLUENT/UNS, PATRAN, NASTRAN, Pro/Engineer, Pro/Mechanica, MathCAD, Maple, Matlab, and Mathematica, or other similar COTS programs.

### 4.2.2.2 Fluid Systems and Components

4.2.2.2.1 The Contractor shall provide designs, fabrications, and/or repairs, of specialized research fluid systems and equipment. Components will include, but not be limited to, specialized valves, piping, heat exchangers, dryers, separators, compressors, filters, blowers, vacuum pumps, refrigeration systems, instrumentation, and control

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systems. Components and systems will handle conditions ranging from hard vacuum to high pressures, cryogenic to elevated temperatures, and specialty gases. The Contractor shall design components, systems, and fluids involving such subjects as thermodynamics, fluid and gas mechanics, material compatibility, and safety precautions required for high energy systems. Completed equipment and systems will include, but not be limited to: high-speed and low-speed wind tunnels, plasma jets, thermal systems, high vacuum systems, cryogenic systems, gas systems, process heat exchangers, heavy gas reclamation systems, research support utilities, and associated control systems.

4.2.2.2.2 The Contractor shall provide fabrication and installation of equipment and related systems per completed final designs and applicable standards. The Contractor shall provide components and subsystems; fabrication of pressure vessels, heat exchangers, and specialized components; assembly of all components and subsystems; subsystem checkout; and updates to drawings and documentation to reflect as-built and assembled configurations. All facility modifications will require complete documentation of engineering design and analyses, material and component certification, fabrication and cleaning procedures, as-fabricated and assembled configuration, and demonstration of functional performance. When specified in the TO, the Contractor shall provide specialized analyses including, but not limited to, computational fluid mechanics, piping flexibility, and process control simulation. These analyses may require proficiency with Contractor-owned software programs such as CAESAR II, PULS, AutoPIPE, and other similar systems.

### 4.2.2.3 Electrical and Control Systems

The Contractor shall provide designs, fabrications, hardware, software coding, installation, testing, and documentation updates to reflect as-built configuration for facility electrical systems and facility automation and control systems. Facility electrical systems include, but are not limited to, high and low voltage electrical distribution systems, wind tunnel drive systems, heater power supplies, and other electrical system components. Development of Facility Control and Automation Systems is included in Section 4.2.3.1. Control system support includes the application of these developed systems or use of standard controls technologies in the construction of integrated research facilities systems.

### 4.2.2.4 Special Safety Engineering Projects

The Contractor shall provide support for systems safety engineering for LaRC Facilities Configuration Management program (Section 4.1.2). The Contractor shall identify, assess, and control hazards to personnel and equipment associated with the construction, modification, and operation of research facilities at LaRC; perform hazard analyses on a wide range of systems, including, but not limited to, high-pressure, cryogenic, high temperature, hydraulic, and high speed; when requested, perform special safety and facility assurance projects such as updating/developing safety

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handbooks, perform special safety studies, and perform reliability analysis on a research facility and/or equipment.

### 4.2.2.5 Drafting Projects

The Contractor shall provide general drafting services. The Contractor shall provide new drawings and revisions to existing drawings from engineering sketches and redline markups for electrical, piping, architectural, civil engineering and mechanical disciplines. The Contractor shall perform manual and electronic drafting. Manual drafting consists of revisions to existing drawings not in an electronic format. The Contractor shall match lettering style line weight, symbols, and detail configurations with the content of the original drawing and shall deliver the completed product within the schedule specified for each TO. Drawing sets include, but are not limited to, electrical metering drawings, substation switching diagrams, panel location plans, one-line electrical plans and other similar sets. Information for updating these drawing sets will be provided by the Government or shall be obtained by the Contractor through field investigations. The Contractor shall provide computer-aided drafting using AutoCAD and Pro/Engineer software. Computer-aided (electronic) drafting shall consist of preparing new drawings and revising existing drawings. New drawings shall conform to design standards in Section 4.2.4.3.1.1 unless otherwise specified by the TO. The Contractor shall provide electronic drawings that conform to the specified standard and shall deliver the completed product within the schedule specified for each TO. The Contractor shall perform quality control checks and reviews on all Contractor-generated new drawings and on revisions to existing drawings before submission to the Government.

### 4.2.3 Technology Development Support Projects

The Contractor shall provide technology development support services in the following areas: Facility Automation System (FAS) Development, Data Acquisition System (DAS) Development, Instrumentation Systems Development, and Test Technique Development. The Contractor shall ensure that the security of developed systems is in accordance with Section 5.

#### 4.2.3.1 Facility Automation and Control System Support

The Contractor shall develop FAS that provide repeatable, precise, stable, multi-variable control of facility parameters and automation of operator functions.

##### 4.2.3.1.1 Development of New Facility Automation and Control Systems

The Contractor shall develop new FAS, applying engineering life cycle practices from concept through system delivery. This includes, but is not limited to, generating automation system requirements specifications, analyzing existing field conditions relative to requirements; designing, implementing, and verifying control applications; system simulations, and commissioning automation systems. Typical systems involve operator workstations networked with embedded microcomputers that evoke responses

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in field equipment directly or through analog/digital controllers. FAS typically employ real-time operating systems at the microcomputer level to ensure deterministic responses to time-critical input events. In some cases, FAS are PLC/PAC, which provide primary safety functions or support automatic staging up and down of primary systems (such as fan drives) and auxiliary systems. The Contractor shall also modify and upgrade the communication systems between various FAS and DAS computer systems, as specified in the work request.

4.2.3.1.1.1 The Contractor shall have the capability of implementing software using cross-development and self-hosted computer-based tools (e.g. compilers, linkers, loaders, debuggers, translators, and graphical user interface builders) to create facility control and operator interface applications. Example development environments include, but are not limited to: Experimental Physics and Industrial Control System (EPICS), RSLogix and LabVIEW. EPICS is a software development and run-time environment originated by the Department of Energy. RSLogix is a commercially available PLC/PAC programming environment. LabVIEW is a commercially available, graphical programming environment, which is compatible with EPICS. Software, which supports automation of operator functions, will involve prototyping and development of operator display layouts with special consideration for ease of use and visual ergonomics. Coding of controls application software in a high level language, such as C, C++, or FORTRAN is required, including real-time software development.

4.2.3.1.1.2 The Contractor shall perform Configuration Management (CM) of Facility Automation Systems in accordance with LPR 1740.4, *Facility System Safety Analysis and Configuration Management*, Chapter 5. LPR 1740.4 includes requirements to perform software projects in accordance with LMS-CP-5528, *Software Planning, Development, Acquisition, Maintenance and Operations*, and LMS-CP-5529, *Software Configuration Management Planning for Low-, High-, and Critical-Control Software*. IT Security shall be in accordance with NPR 2810.1A, *Security of Information Technology*.

### 4.2.3.1.2 Enhancements of Existing Facility Automation and Control Systems

The Contractor shall recommend, develop, and implement improvements to the facility automation systems that enhance operating performance, reliability, efficiency, and test capability. The Contractor shall coordinate with the Facility Safety Head to satisfy all facility specific safety requirements. The Contractor shall document hardware in the facility Configuration Management On-Line (CMOL) system, EDF, and VL as appropriate, and software in a configuration management system (currently using the tool CMSynergy). (Reference sections 2.1.9 and 3.3.4.1.)

### 4.2.3.1.3 Evaluation of Commercial Facility Automation and Control Systems

The Contractor shall evaluate new and commercially available hardware and operating system platforms, software development tools, and commercial applications that are suitable for use in LaRC research facility automation and control system projects. Evaluation includes, but is not limited to, bench testing of new hardware and software,

risk analysis, and mitigation plans with regard to specific automation and control system applications. The Contractor shall report finding in accordance with the work request requirements.

#### 4.2.3.1.4 Development of PLC/PAC-based Safety and Interlock Systems

The Contractor shall develop PLC/PAC-based safety and interlock systems. Development consists of engineering life cycle practices applied from concept through delivery of a system. This includes, but is not limited to, generating safety and interlock requirements specifications; analyzing existing field conditions relative to requirements; designing, implementing, and verifying new and modified interlock logic; and commissioning new systems.

#### 4.2.3.1.5 Enhancement of PLC/PAC-based Safety Interlock Systems

Enhancements are performed under Section 3.3.4, Facility Automation Systems (FAS) Maintenance and Repair. The Contractor shall enhance existing PLC/PAC-based safety and interlock systems. Enhancements include incremental improvements to existing systems in order to improve performance or maintainability.

#### 4.2.3.1.6 Control System Simulations

The Contractor shall develop facility simulations, devise control strategies, and implement, verify, and validate control algorithms. Facility simulation includes, but is not limited to, generation of linear and non-linear mathematical models of facility plant equipment using digital simulation programs such as Matlab and Simulink; validation of mathematical models using facility operational data; and characterization of facility processes. Related activities include, but are not limited to, development of control strategies based on conventional methods and newer technologies such as fuzzy logic and neural networks; implementation and verification of control algorithms suitable for the target hardware; and validation of actual hardware and software components prior to installation at the facility

#### 4.2.3.2 Data Acquisition Systems (DAS) Development Support

The Contractor shall perform work in the following areas: Design, Furnish, and Install DAS; Modify and Upgrade DAS; Analysis of Measurement Data; Support Off-Site DAS; On-Site DAS and Instrumentation Systems Operations; Documentation of Hardware and Software Configurations, System Operational Procedures, Test Procedures and Results; and Training. The Contractor shall provide user training for the systems and services for all applications, products and services delivered. This training shall include user and operational training on DAS. Newly developed software and enhancements to existing software shall be in accordance with the Langley processes for LMS-CP-5528, *Software Planning, Development, Acquisition, Maintenance, and Operations*, and for



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LMS-CP-5532, *Software Acquisition Planning*. Software Configuration Management shall be in accordance with LMS-CP-5529, *Software Configuration Management Planning for Low-, High-, and Critical-Control Software*. IT Security shall be in accordance with NPR 2810.1A, *Security of Information Technology*.

### 4.2.3.2.1 Design, Furnish, and Install Data Acquisition Systems

The Contractor shall design, furnish, and install DAS and associated interfaces to instrumentation. The designs shall include the delivery of design documentation to all specified levels (e.g., detail design level) and standards, inclusive of acceptance and integration/test plans. The Contractor shall verify the correct operation and performance level of the delivered systems and all other affected systems, in accordance with applicable test/integration plans and schedules. The Contractor shall perform DAS simulations as requested to validate designs and implementations.

### 4.2.3.2.2 Modify and Upgrade Data Acquisition Systems

The Contractor shall modify and upgrade DAS and associated DAS interfaces to instrumentation. System upgrades and modifications include the submittal of design documentation to all specified levels (e.g., detail design level), standards, and integration/test plans. The Contractor shall verify the correct operation and performance level of the delivered systems and all other affected systems in accordance with applicable test/integration plans and schedules. The Contractor shall also modify and upgrade the communication systems between various DAS and FAS computer systems as specified in work requests.

### 4.2.3.2.3 Analysis of Measurement Data

The Contractor shall perform data analysis of aeronautical, acoustics, and structural test data. The Contractor shall analyze research data according to stated or derived research specifications and shall optimize all data analysis processes for cost effectiveness and accuracy. The Contractor shall submit to the CO or designee complete documentation of the analysis of data to include, but not limited to: data records, processes, calculation/equations, calibrations, results, and methods used for verifying data accuracy and for determining measurement uncertainty. The Contractor shall establish and maintain documented procedures to control, calibrate, and maintain equipment and systems required to perform the data analysis function.

### 4.2.3.2.4 Off-site Data Acquisition Systems Support and Analysis

The Contractor shall perform data acquisition systems development, operation, calibration, data analysis, hardware/software maintenance, configuration control, and upgrades for off-site research measurement systems and instrumentation. Examples include support of acoustics field test vans for aircraft noise studies, development and implementation of data and instrumentation systems for other NASA Centers, data systems for atmospheric sciences flight studies from NASA Wallops Island, Va. and

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data systems for tire test studies on cars and vans at NASA Wallops Island, Va. The Contractor shall provide support for associated instrumentation systems and special analysis software that will be developed, operated, and maintained in the field.

### 4.2.3.3 Instrumentation Systems Development Support

The Contractor shall support NASA in the development of new Instrumentation Systems at NASA-LaRC.

#### 4.2.3.3.1 Application of Sensors, Transducers, and Instruments

The Contractor shall design, fabricate, select, assemble, install, test, calibrate and verify correct operation of Sensors, Transducers, and Instruments (STI) required to meet research instrumentation requirements, in accordance with manufacturer approved procedures and LMS-CP-0506, *Selection, Calibration, Use, Control, Recall, Procurement, and Storage of Measuring and Test Equipment (M&TE)*. Test article balances and balance calibrations are not included in this contract.

#### 4.2.3.3.2 Evaluation of Measurement Requirement for Sensors, Transducers, Instruments, and Data Acquisition Systems

The Contractor shall evaluate measurement and test requirements obtained from meetings with research customers, user-specifications, and work requests that define the research test objectives for STI and DAS. The Contractor shall synthesize these requirements and submit recommendations to the CO for the best STI and DAS solutions. Recommendations may require tradeoff analyses and cost/benefits comparisons. Recommendations may require analyses of measurement error and measurement uncertainty. The Contractor's recommendations shall be written and in accordance with specified NASA documentation standards (NASA Software Hardware Documentation Standard (<http://satc.gsfc.nasa.gov/assure/docstd.html>)). The Contractor shall provide the most effective, reliable, and accurate recommendations to accomplish this work element.

#### 4.2.3.4 Test Techniques Development Support

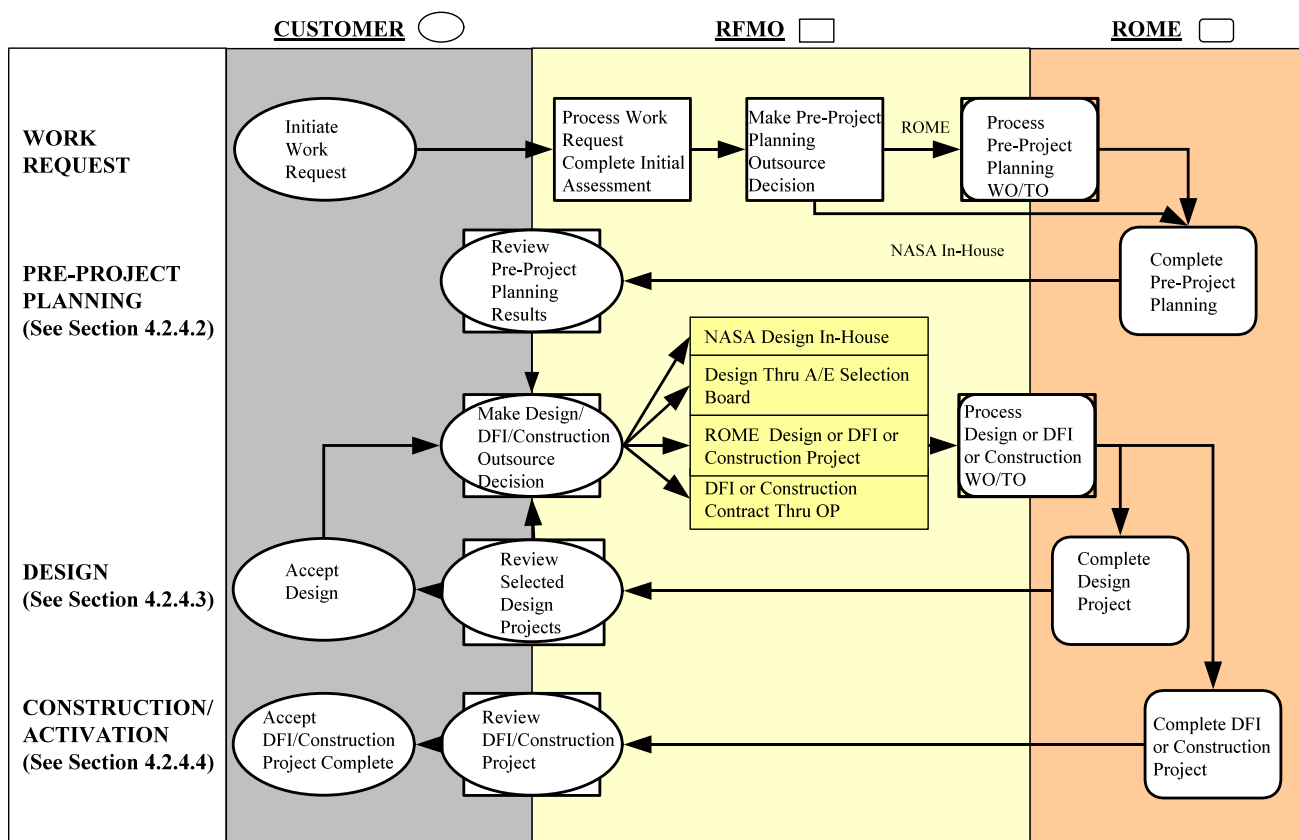
The Contractor shall support NASA to provide advanced engineering and experimental systems development expertise for the design and implementation of specialized instrumentation system prototypes for special test techniques. Such work will require feasibility studies, conceptual through detailed design, prototype development, integration and adaptation of prototypes to existing systems, development of test and calibration procedures, operation/application of prototypes and procedures, and analysis of results. Data collection and analysis shall be to the level required for publication of formal papers. This work applies to areas such as advanced data systems architecture development, optical systems development, sensor/system calibration techniques development, acoustic measurement techniques, temperature

and pressure sensitive paint technologies, and general sensor development in support of new testing capabilities.

#### 4.2.4 Project Work Flow and Guidelines

The following chart shows the phases of engineering work, interfaces, and procurement options available to the Government in completing various project phases. Engineering workflow follows LMS-CP-5620, *Facility Systems Engineering Process*. This chart is used to demonstrate how the ROME Contractor will be involved in the project work and is for illustrative purposes only.

### Engineering Project Flow Diagram



Reference Facility Systems Engineering Process LMS-CP-5620

#### 4.2.4.1 Project Phases

4.2.4.1.1 Facility related projects are subdivided into Pre-Project Planning, Design, and Construction Phases. A TO will be used to initiate work for project phases on turnkey design, furnish and install (DFI) projects. For most projects, the Contractor will initially complete the pre-project planning phase of work. Work in the pre-project planning phase includes development of project management plans, requirements documents,

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conceptual designs, special studies, cost estimates, project implementation plans, acquisition plans and preliminary engineering reports. The Government may decide to by-pass pre-project planning for small projects if the work is clear and well defined in the work statement. After this pre-project planning phase of work is complete, the Government will make a decision as to how to proceed with the design and build phases. There are four options:

- a. Utilize NASA's in-house staff to perform engineering and design work (ROME Contractor not involved with design phase)
- b. Utilize the LaRC Architect/Engineering (A/E) Board to select an independent A/E to complete the engineering and design work (ROME Contractor not involved with design phase)
- c. Issue the ROME Contractor a TO to complete a design, DFI, or construction project
- d. Issue a separate DFI or construction project through the Office of Procurement (ROME Contractor not involved with DFI or construction phase)

### 4.2.4.2 Pre-Project Planning

Pre-project planning is the preliminary work needed to identify and expand engineering requirements and project management information. Pre-project planning includes the development of: project management plans, requirements documents, conceptual designs, special studies, Project Definition Rating Index (PDRI) assessments, cost estimates, project implementation schedules, acquisition plans, preliminary engineering reports (PER), and project requirements and conceptual design reviews.

4.2.4.2.1 Project Management Plan (PMP): When specified in the TO, the Contractor shall prepare a PMP in accordance with LMS-OP-5689, *Facility Systems Engineering Project Management Plan Development*. The PMP shall include all the information and supporting documentation needed to manage and control the budget, costs, and technical performance, including product assurance and risk management plans. The PMP shall include a work breakdown structure with the resources, schedule, and dependencies of all work elements identified. The Contractor shall tailor implementation of the PMP to the specific needs of the project consistent with the project size, complexity, criticality, and risk.

4.2.4.2.2 Requirements Documents: The Contractor shall complete requirements documents in accordance with LMS-OP-5688, *Facility Systems Engineering Requirements Document Development*. The Contractor shall derive project requirement from information supplied by the Government. Project requirements shall be based on analysis of system requirements with respect to subsystem and integrated systems concepts, cost, schedule, benefit, risk, feasibility, operability, sustainability, maintainability, reliability, and related considerations.

4.2.4.2.3 Conceptual Designs: The Contractor shall obtain data upon which to develop design concepts; perform preliminary analyses and studies; and prepare sketches,

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diagrams, layout plans. The Contractor shall perform site visits and field investigations during the pre-project planning phase to verify site conditions and project documentation. For selected projects, the Contractor shall complete Project Definition Rating Index (PDRI) assessments (See Appendix 4.7, *Project Definition Rating Index, April 2000*) during the pre-project planning phase.

4.2.4.2.4 Special Studies: The Contractor shall perform engineering analyses including feasibility studies, technology assessments, trade-off studies, third-party reviews, and failure analyses. The Contractor shall prepare reports, which document studies and analyses, and provide formal and informal briefings to NASA as specified in the TO.

4.2.4.2.5 Cost Estimates: During the pre-project planning phase, the Contractor shall prepare budget cost estimates for each project. The cost estimates shall be in an electronic spreadsheet format. The accuracy of the cost estimate shall be consistent with the phase of work. For pre-project planning the budget estimate shall be between 0% and + 40% (estimate on high side) of the construction cost. The cost estimate shall include risk factors at each subsystem level to account for expected cost increases due to such factors as lack of design maturity and technical challenges. The Contractor shall identify known risks. Unless otherwise directed by the CO, the Contractor shall include in the budget estimate the following adders for Construction of Facilities (CoF) projects: (1) 3% per year compounded annually for cost escalation adjustment from the date of the cost estimate to the mid-point of construction, (2) 5% for construction contingencies applied to the cost estimate and cost escalation adjustment, and (3) 8% for Supervision, Inspection, and Engineering Services applied to the cost estimate, cost escalation adjustment and construction contingency.

4.2.4.2.6 Project Implementation Schedules: The Contractor shall prepare project implementation schedules using Microsoft Project software. The project schedules shall cover all phases of work, and individual task durations shall be commensurate with the overall project duration. The schedule shall utilize predecessor and successor logic and shall identify the critical path. The schedule milestones shall be consistent with the NASA mission critical targets as specified in the TO.

4.2.4.2.7 Acquisition Plans: The Contractor shall make recommendations for acquisition of the design, construction and activation phases of the project, which are customized for the funding type, funding year, and implementation strategy provided by NASA. The final pre-project planning budget and schedule shall be consistent with this overall acquisition strategy.

4.2.4.2.8 Preliminary Engineering Reports: The Contractor shall prepare Preliminary Engineering Reports (PER) for designated projects in accordance with NPR 8820.2F, *Facility Project Requirements*. Each PER shall provide the basis for preparing final design, specifications, and cost estimates for implementation of planned projects.

4.2.4.2.9 Project Requirement and Conceptual Design Reviews: The Contractor shall complete Project Requirements Reviews (PRR) and Conceptual Design Reviews

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(CoDR) in accordance with LAPD 7000.2, *Review Program for Langley Research Center (LaRC) Facility Projects*, LMS-CP-5621, *Facility Systems Engineering Project Review*, and LMS-OP-5694, *Facility Systems Engineering Project Review Requirements*. The number of design reviews will vary with the size of the project and technical complexity. The Contractor may be requested to organize, provide review panel members, and lead independent design reviews for selected institutional projects. Each TO will specify the number, timing, and the type of design reviews required. In addition to scheduled formal reviews, ad-hoc reviews may be held as needed.

4.2.4.2.10 Environmental Review: The Contractor shall complete the Environmental Project Planning Form (Langley Form 461) for each major engineering project (e.g. facility construction or rehabilitation project, disposal or acquisition of real property) and coordinate with NASA's Environmental office regarding environmental considerations during pre-project planning. NEPA documents (e.g. Environmental Assessments or Environmental Impact Statements) are not completed under this contract, but the Contractor shall provide project information needed for these assessments to be done.

### 4.2.4.3 Design

#### 4.2.4.3.1 General Guidelines

The Contractor shall complete preliminary and final designs, in accordance with LMS-CP-5620, *Facility Systems Engineering Process*, and the following guidelines.

4.2.4.3.1.1 Design Codes, Standards, and Guidelines: All designs, material selections, drawings, specifications, and other documentation produced under this contract shall conform to nationally accepted codes and standard practices. This shall include NPR 8820.2F, *Facility Project Requirements*, and LPR 7320.1, *Engineering Drawing System*. The Contractor shall incorporate codes analysis to verify that all applicable NASA and national consensus codes are followed. Deviations from code compliance shall be clearly documented in writing and submitted. The preparation and revision of engineering drawings shall be in accordance with ASME Y14.100, *Engineering Drawing Practices*, ASME Y14.24, ASME Y14.34M, ASME Y14.35M, as supplemented by Appendix 4.8, *Mechanical Drafting Standards*. Facility systems software development shall be in accordance with the requirements of IEEE/EIA 12207.0, *Standard for Information Technology – Software Life Cycle Processes*, and LMS-CP-5528, *Software Planning, Development, Acquisition, Maintenance, and Operations*. The Contractor shall visit the project site as necessary to fully understand constraints and verify existing conditions for each project. Where appropriate, the CO will include specific standards and requirements in each TO. All drawings shall be computer-generated in the current release of AutoCAD and metric or English units shall be used as directed in TO.

The Contractor shall also comply with the following basic design considerations:

- a. Requirements: The design shall be based on the actual functional and technical requirements established by the TO

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- b. Scope Limitations: The design shall stay within the approved project scope
- c. Budgetary Limitations: The design shall be accomplished so that the facility can be built and made functional within the approved budget. The use of additive or deductive alternate items may be allowed and shall be coordinated with the CO before they are included in the design and solicitation documents
- d. Construction Timing: The start date, duration, and completion date of the project shall meet the program milestones identified in the TO. In addition, the construction schedules must be coordinated with the research facility operation schedules
- e. Operability/Maintainability: The design shall consider and include features that foster effective and efficient facility operation and maintenance
- f. Constructability: The design drawings and specifications shall be appropriately detailed for what is to be built
- g. Master Plan: The design sitting and layout shall conform to the approved Center Master Plan and take advantage of existing utilities and accesses
- h. Geographical Location/Orientation: The design shall take into consideration seismic, wind, flood, heating/cooling, and other relevant environmental factors

4.2.4.3.1.2 Preliminary and Final Design Review: The Contractor shall complete preliminary design reviews (PDR) and final (critical) design reviews (CDR) in accordance with LAPD 7000.2, *Review Program for Langley Research Center (LaRC) Facility Projects*, LMS-CP-5621, *Facility Systems Engineering Project Review*, and LMS-OP-5694, *Facility Systems Engineering Project Review Requirements*. The number of design reviews varies with the size of the project and technical complexity. The Contractor may be tasked to organize, provide review panel members, and lead independent design reviews for selected institutional projects. Each TO will specify the number, timing, and the type of design reviews required. In addition to scheduled formal reviews, ad-hoc reviews may be held as needed.

4.2.4.3.1.3 Designs Involving Asbestos Removal: For design work involving asbestos removal, the Contractor shall use an Asbestos Project Designer (See Appendix 1.7, *Worker Qualifications*).

4.2.4.3.1.4 Energy Efficient Designs: For new construction and rehabilitation of existing buildings, the Contractor shall comply with the energy efficiency requirements set for in 10 CFR 434, *Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings*, and NPR 8570.1, *Energy efficiency and Water Conservation*. The Contractor shall provide written certification that designs meet or exceed the energy performance standards of 10 CFR 434.

4.2.4.3.1.5 Electrical Power System Analysis Software: For LaRC's electrical power distribution systems, the Contractor shall use the Electrical Transient Analyzer Program (ETAP) software developed by Operation Technology, Inc. (OTI). The Contractor shall utilize ETAP to maintain the electrical distribution system model for LaRC and also provide short circuit analysis, protective device coordination studies, arc flash hazard

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analysis, analysis of harmonic and power quality issues, and the study of transient events.

4.2.4.3.1.6 PDRI: When specified in the TO, the Contractor shall use the *Project Development Rating Index* (PDRI) process, presented in Appendix 4.7, *Project Definition Rating Index, April 2000*, to evaluate the readiness of NASA facility projects to proceed to construction. The Contractor shall use this tool three times during the project design: (a) during pre-project planning (b) at the beginning of the preliminary design phase, and (c) at the end of the preliminary design phase.

4.2.4.3.1.7 Design for Reliability: LaRC uses Reliability Centered Maintenance (RCM) for system reliability (Reference Section 3.1.11.3). To facilitate this strategy, the Contractor shall incorporate into all new designs adequate provisions for servicing and maintenance. Designs shall not include components or features, which are not needed or are costly to maintain. Provisions shall be made for required maintenance and for easy removal and replacement of mechanical, electrical, and other equipment. Rooms shall be sized and the equipment located to provide adequate clear space for maintenance operations. Valves, controls, and similar items in concealed areas shall be readily accessible. Rotating equipment shall include provisions for mounting vibration-monitoring instrumentation and equipment. For critical systems, the Contractor shall conduct a reliability analysis, identifying the critical failure points and incorporate appropriate design parameters to prevent and/or reduce systems failure.

4.2.4.3.1.8 Building Layering Standards: The Contractor shall use the Appendix 4.9, *Building Layering Convention*, in order standardize AutoCAD products.

4.2.4.3.1.9 Electronic Submittal Process: The Contractor shall initiate and use the OME Virtual Library (VL) for all submittals. Unless otherwise specified or agreed to by the CO, the Contractor shall post all submittals and reports in both PDF and their native format, with access to both formats provided for each submittal or report.

4.2.4.3.1.10 Designs Approved by Professional Engineers: The Contractor shall use Professional Engineers registered or licensed in the United States to prepare or supervise all engineering designs and analyses generated in this contract (See Appendix 1.7, *Worker Qualifications*). The Contractor shall use Professional Engineers registered or licensed in the United States to stamp new drawings when directed in individual task orders.

4.2.4.3.1.11 Drawing Approvals: Final drawings shall be checked and approved by the Contractor and have included therein all corrections from reviews before submitting to the Government for signing. The Contractor shall obtain signatures for the final drawings in accordance with LMS-OP-5686, *Facility Systems Engineering Project Document Control*, before any fabrication, construction, or facility modification work can begin. The Contractor shall obtain comments from the approvers at the earliest possible point in the development of plans, specifications, and drawings involving facility modifications, renovations, additions, or new facilities.



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4.2.4.3.1.12 Stormwater Runoff Design: For development or redevelopment projects with a footprint that exceeds 5,000 square feet, the Contractor shall comply with the Energy Independence and Security Act (EISA) Section 438 (42 USC 17094). The Contractor shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature rate, volume, and duration of flow.

### 4.2.4.3.2. Preliminary Design

The Contractor shall develop preliminary drawings and analyses; identify long-lead items; refine cost estimates (accuracy between 0% and +20% of construction cost) and develop schedules; develop detailed plans for completion of final design; and develop initial plans for procurement, fabrication, installation, integrated systems testing, and activation of designed systems. The Contractor shall prepare and deliver presentations at Preliminary Design Reviews (PDR) as specified in TO.

### 4.2.4.3.3. Final Design

The Contractor shall produce final designs that conform to NPR 8820.2F, *Facility Project Requirements*, and specific requirements provided in the TO. Brand name or equal product specifications shall provide salient characteristics by which "equals" can be evaluated. Merely specifying a manufacturer's part number or equal will not be acceptable. The Contractor shall check all engineering calculations and drawings and shall so indicate by signing the respective documents. The Contractor shall prepare and deliver presentations at Critical Design Reviews and Specification Reviews as indicated in TO. Final designs shall include the following documents necessary for the system development:

4.2.4.3.3.1 Drawings: Drawings shall be accurate and complete. The Contractor shall follow the guidelines and obtain the necessary reviews and approvals per Section 4.2.4.3.1.11.

4.2.4.3.3.2 Engineering Analyses: Engineering analyses shall be accurate, complete, and signed. The Contractor shall verify by analysis all performance requirements for designed facilities, equipment and systems. Analyses shall be separated by discipline.

4.2.4.3.3.3 Catalog Data and Other Supporting Technical Information: Manufacturer supplied data shall be provided with selected equipment used in the design clearly identified.

4.2.4.3.3.4 Procurement Specifications: Specifications generated shall be accurate and complete, and reflect the customer needs.

4.2.4.3.3.5 Detailed Cost Estimates: The accuracy shall be between 0% and +10% of construction cost. The estimate shall be based on a bottoms-up exercise, including

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material take-offs and detailed labor estimates. See 4.2.4.2.5 for more information about cost adders.

4.2.4.3.3.6 Verification and Validation Plans: Final designs shall include inspection and testing plans, which identify the critical inspection and testing points for the project.

4.2.4.3.3.7 Construction/Activation Schedules: See 4.2.4.2.6 for more information on project implementation schedules.

4.2.4.3.3.8 Final Report: The final report shall include a comprehensive summary of scope of work, rationale for design decisions, and design documentation.

### 4.2.4.4 Construction

The Contractor shall perform construction services as directed by the Government in TOs. Construction work includes both Institutional Facilities and Utility Systems and Research Facility Systems.

#### 4.2.4.4.1 Construction Management

The Contractor shall provide Construction Management services for construction work performed under this Contract, as well as for work performed by other NASA Contractors, when directed by the CO. The extent of construction management duties for each project will be specified in the individual TO. The Contractor shall coordinate with NASA PM during the pre-construction and construction phases by reviewing and making appropriate recommendations regarding specifications and contract drawings, shop drawings, submittals, schedules, cost estimates, safety plans, engineering changes, and tests. The Contractor shall prepare installation plans, coordinate site work with cognizant facility personnel, and maintain up-to-date project-related drawings. Prior to issuing its solicitation for subcontract work, the Contractor shall provide support to evaluate requests for information (RFI) and plan/manage pre-construction conferences. After the construction subcontract award, the Contractor shall review contract documentation and correspondence required for effective subcontract administration. The Contractor shall process technical submittals from its subcontractors in accordance with LMS-OP-5687, *Facility Systems Engineering Processing of Contract Submittals* and resolve technical problems uncovered during the construction process, including both design errors and differing site conditions. The Contractor shall evaluate sub-contractor claims, review and attest to the reasonableness of the subcontractor's schedule and cost estimates, and make recommendations to the CO for action, in accordance with LMS-OP-5692, *Facility Systems Engineering Procedures for Processing RFCs and EFDCs*. The Contractor shall coordinate with inspectors to ensure proper inspection services are being accomplished. The Contractor shall regularly brief the NASA PME on the current project status. The Contractor shall monitor the progress of the construction contract compared to plan, and make recommendations to the NASA PME on when and how to take corrective actions. After construction, the Contractor shall complete as-built

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documentation of all work for which it is responsible, including all subcontracted work; conduct a walk-through inspection ensuring all work is complete; complete closeout documentation per LMS-OP-5693, *Facility Systems Construction Contract Closeout Process*; and complete performance evaluations per LMS-OP-5695, *Facility Systems Performance Evaluation and Closeout*.

### 4.2.4.4.2 Construction Work

The Contractor shall construct institutional facilities and utility systems and fabricate and assemble research equipment and related system per final designs and applicable standards. Responsibilities shall include but not be limited to: purchases of materials, components, and subsystems; machining of structural and mechanical components; assembly of all components needed for system validation; and modifications to design drawings and affected facility drawings to reflect as-built conditions. The Contractor shall also fabricate electrical systems including, but not limited to, purchase of components and subsystems; electronic systems integration; fabrication of control consoles; fabrication of cabling, assemblies, and all components needed for system interface to new and existing facility hardware; quality control inspection of components, assemblies, subsystems, and systems; and modifications to design drawings and affected facility drawings to reflect as-built conditions.

### 4.2.4.4.3 Facility Systems Software Implementation

The Contractor shall furnish all software necessary to provide fully operational research systems. Responsibilities include, but are not limited to: preparation of software implementation plans; purchase of operating systems, device drivers, network drivers, development tools, software configuration management tools, and diagnostic tools; development of applications for operator interfaces, automatic test sequencing, process control and monitoring, data acquisition and logging, inter-system data transfer, performance monitoring, and troubleshooting aids; prototyping of screen layouts; integration of application software programs; establishing appropriate priorities and execution speeds for application programs in order to achieve required data throughout, operator display update rates, and input response times; testing of software on both development system and target hardware for conformance to specifications; and documentation of source code and procedures required to rebuild, modify, an install application software. The Contractor shall implement the Configuration Management (CM) of Facility Automation and Control Systems in accordance with LPR 1740.4, *Facility System Safety Analysis and Configuration Management*, Chapter 5.

### 4.2.4.4.4 Installation

The Contractor shall install research equipment and systems in accordance with specified designs and standard practices. The Contractor shall provide all technical support and project coordination necessary to complete installations. The Contractor shall remove existing equipment and associated wiring and cables; install new equipment; interconnect new equipment with power sources, field devices, and other

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research equipment; perform initial power-up of newly installed equipment; confirm proper operation of new research equipment and affected subsystems; and provide complete documentation of new systems including operator's manuals, software manuals, maintenance manuals, system test results, and as-built drawings.

### 4.2.4.4.5 Component/Sub-System Verification

Once installation is complete, the Contractor shall verify the operation of equipment and related system components or sub-systems. Responsibilities include, but are not limited to: tests, which show compliance with requirements (e.g. power-on/off, emergency cutoff, load capacity, and range of motion); and demonstration of manual operation to facility users. The Contractor shall verify target electronic hardware and software functions prior to installation. Responsibilities include, but are not limited to, system power-up; software installation on target hardware; verification testing using simulation hardware/software to confirm appropriateness of software/hardware design and control schemes; and demonstrations of operational interfaces and general system operations to facility personnel and research customers. The Contractor shall prepare and deliver presentations at Integrated System Reviews (ISR) in accordance with LAPD 7000.2, *Review Program for Langley Research Center (LaRC) Facility Projects*, LMS-CP-5621, *Facility Systems Engineering Project Review*, LMS-OP-5694, *Facility Systems Engineering Project Review Requirements*, and as specified in the TO.

### 4.2.4.4.6 System Integration and Activation

The Contractor shall perform integration, testing, and activation of research systems and components. The Contractor shall plan, conduct, and document integrated system tests. Responsibilities include, but are not limited to, developing comprehensive test procedures; performing system level checkout of all affected facility operations; diagnosing, correcting, and repeating failed test items; documenting test results in formal reports; and tuning control systems to achieve required system performance. The Contractor shall provide research systems activation. Responsibilities include, but are not limited to, preparing and conducting training for facility and maintenance personnel; collecting and analyzing system operational data in order to compare with design requirements and recommend performance enhancement measures; and providing technical support with 24-hours of notification of need. The Contractor shall prepare and deliver presentations at Operational Readiness Reviews (ORR) in accordance with LAPD 7000.2, LMS-CP-5621, LMS-OP-5694, *Facility Systems Engineering Project Review Requirements*, and as specified in the TO. The Contractor shall complete all documentation requirements, including completion of as-built drawings, operations and maintenance manuals and test reports. The Contractor shall enter all new equipment data and maintenance instructions into the CMMS database.

### 4.2.4.4.7 Demolition

The Contractor shall perform demolition and removal of selected institutional and research facilities and equipment as specified in individual TOs. Demolition work is

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expected to increase in the future as facilities continue to age and reach the end of their life cycles, and maintenance of closed facilities take a larger portion of the overall maintenance budget. To assist NASA in meeting the recycling goals established in Executive Order 13423, the contractor shall, to the maximum extent practicable, reuse, recycle, or compost debris resulting from construction, demolition or major renovation projects.

### 4.2.5 Construction of Facilities Program

LaRC's Construction of Facilities (CoF) program provides for the design and execution of all institutional and programmatic facilities projects including discrete (over \$10M) and minor (between \$1M and \$10M) construction, renovation and repair. The CoF program also manages the demolition of facilities. CoF project requirements are developed through a process involving stakeholders both internal and external to the Center Operations Directorate (COD) to ensure alignment with the NASA HQ Facilities Engineering Directorate (FED) established guidelines and requirements. The annual CoF budget is established through an Agency-level competitive process. LaRC historically is awarded funding at the \$10-20M level. In addition, COD will manage a facilities recapitalization budget of approximately \$215M over a 5-years period from FY13-17.

CoF institutional requirements are reviewed and prioritized annually to ensure that high mission impact projects of critical importance to the Center are submitted to HQ for consideration. Programmatic facilities requirements are identified during Mission Directorate program planning and coordinated through COD ensuring facility availability to the missions when required.

The Contractor shall support all phases (design, procurement, construction, activation, project closeout) of CoF projects tasked to the ROME contract. Each CoF project tasked to the ROME contract will be issued through a TO. The Contractor shall execute CoF projects in accordance with NPR 8820.2F, *Facility Project Requirements*, and within the schedules and budgets defined in each projects individual TO SOW. The Contractor shall meet monthly with the NASA LaRC CoF Program Manager to review the status of active projects and discuss future work. Any TO that is not a design/build effort may present an Organization Conflict of Interest (OCI). The Contractor shall abide by the requirements of the OCI Avoidance Plan (Exhibit O) and submit to the CO an OCI Mitigation Plan for any TO that is not a design/build type effort and which is a construction effort for which the Contractor previously complete the design.

## **5.0 INFORMATION TECHNOLOGY**

In support of OME, Information Technology (IT) activities, the Contractor shall support Center implemented Agency mandates and initiatives (Section 5.0.4), implementation of new IT systems (Sections 5.1 and 5.2), maintenance and operations of a defined set of IT systems (Section 5.3), and IT IDIQ projects (Section 1.4.6). IT is defined as the set

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of multiple applications, infrastructure hardware and software components, documents, and customer services that support the OME business processes and customers. The Contractor shall support the OME IT Systems listed in Appendix 5.1, *NASA LaRC OME IT Systems*.

### 5.0.1 Description of Information Technology Work

The Contractor shall perform the following IT work:

- a. Support during Center-wide IT projects: Provide the necessary leadership and skills to support Center project teams during concept studies, project planning and initiation. This support shall include, but is not limited to, participation in working groups, planning meetings, special interest groups, data calls, telephone and video conferences, impact assessments and training sessions. The Government requirements are defined in Section 5.0.4, below.
- b. Specific Product Delivery: Deliver Government OME systems and consolidate hardware and software. The Government requirements are defined in Section 5.1, below.
- c. System Consolidation and Enterprise Architecture: Provide leadership and skills necessary to consolidate systems, identify and define the Enterprise Architecture, and align OME IT with LaRC OME business goals and objectives (Reference Section 1.2). The Government requirements are defined in Section 5.2, below.
- d. General IT Support Services: Deliver routine operational services, provide training and consulting services, develop and deliver technology plans and reviews, and perform documentation and configuration management. The Government requirements are defined in Section 5.3, below. In addition, the Contractor shall remediate actual and potential IT work stoppages and perform IT work. Information Technology Projects: Perform discrete IT projects, conduct studies, develop business cases and white papers, and deliver IT products and services

### 5.0.2 Information Technology Goals and Objectives

The Contractor shall:

- a. Ensure no interruption of the customer's daily use of OME IT Systems.
- b. Ensure data is secure and information is accurate and accessible to the OME and IT customers.
- c. Ensure IT meets the needs of all OME customers and supports the OME contract goals (Reference Section 1.2).
- d. Eliminate data and functional redundancy between applications.
- e. Conduct marketing, training and perform change management to internal LaRC IT users until such time the users demonstrate proficient use of new IT products and/or upgrades to existing IT products.

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- f. Ensure technology projects are planned, organized, well documented, and meet schedule, cost, and project goals and objectives.
- g. Reduce IT costs either through a reduction in real dollars spent or an increase in Government productivity through improved information quality and expediency, and/or timely availability of decision-making information.
- h. Ensure communication with IT customers is effective and timely.
- b) Ensure OME IT Systems are maintained in compliance with Federal IT security policies, procedural requirements, processes, standards and guidance.

### 5.0.3 Use of Available IT Resources

The Contractor shall make the best use of Agency's tools, LaRC Enterprise Technology Architecture and Software, and the OME IT Systems hardware and software when planning product development, improvements, and/or procurements. Non-use of available products and resources shall require justification on the part of the Contractor and approval by the CO.

### 5.0.4 NASA Information Technology Mandates & Initiatives

The Agency has been tasked through various Federal regulatory, legislative, and Executive guidance to place increased emphasis on the strategic management and transformation of information and information technology. This transformation is imperative to effectively realize the vision of the Agency. The Contractor shall have knowledge of NASA policies and procedures as they relate to the strategic direction of the Agency with respect to information and information technology. The Contractor shall also gain expertise to be capable of supporting the mandates impacting the OME IT Systems. Agency initiatives and mandates include, but are not limited to: NASA Enterprise Architecture, NASA Identity Management Infrastructure [NASA's implementation of Homeland Security Presidential Directive HSPD-12], Data Center Consolidation and NASA Active Directory. System solutions delivered and maintained under this contract shall utilize and be fully compatible with technology solutions implemented by NASA to the maximum extent possible. The Contractor shall participate in and support LaRC teams during concept studies, planning and preliminary design phases. The Contractor shall assess the impact to OME IT Systems and provide an impact assessment to the CO at the completion of the initiation phase. The Government will communicate specific IT Mandates and Initiatives through the COD Information Technology Capital Plan.

## **5.1 PRODUCT SERVICE AND DELIVERY**

The Contractor shall deliver, install and provide support for the products and services described herein. The Contractor shall provide the project management and technical skills necessary to manage and complete each project, deploy a completed product, and provide long-term product support. The Contractor shall carry out all projects in accordance with LMS-CP-5528, *Software Planning Development, Acquisitions Maintenance and Operations*, and LMS-CP-5529, *Software Configuration Management*

*Planning for Low-, High-, and Critical Control Software.* The Contractor shall provide and maintain a Software Project Management Plan (SPMP) for each project described herein. The Contractor shall augment each SPMP to include a project schedule with milestones and deliverables, estimated costs, required purchases and potential infrastructure changes, a security assessment, prototype designs, and a product acceptance test plan that shall include a customer usability-testing component. In addition, the Contractor shall conduct marketing, training and perform change management for each product in order to promote product availability and facilitate acceptance among Government customers. The Contractor shall submit SPMP to the CO and receive CO approval prior to starting work. The Government will communicate specific IT products and services requirements through the COD Information Technology Capital Plan.

#### 5.1.1 Work Order Tracking System

The Contractor shall provide for use by the Government a Work Order Tracking System (currently known as the Integrator). The Government will use the Integrator to request and track the products and services available through this contract from the Contractor. The Integrator shall remain inside the LaRC firewall, accessible only from machines utilizing the NASA IP address space as well as CO authorized off-site machines. This system shall be maintained in accordance with Section 5.3. The system shall meet the following minimum requirements:

- a. Automate entry and tracking of the Government's Indefinite Delivery Indefinite Quantity (IDIQ) Task Order (TO) process (Reference Contract Section H.19)
- b. Entry and tracking of OME and IT Work Requests (WR)
- c. Designation of Trouble Call (TC) and Repair in accordance with Section 3.1.5
- d. Service type (i.e. TC/TO) upgrade and down grade (e.g. TC emergency to TC routine) and service type switching (e.g. TC to TO)
- e. Capture funding source (e.g. Government Purchase Card (PCard), Purchase Request (PR)) and validate and process payments via Government PCard
- f. Automated routing, review, and approval (electronic signature) of requests including automated status notifications (e.g. email) to impacted customers and service providers
- g. Attachment of supporting documentation to records including, but not limited to, linking to external support documents (e.g. drawing in engineering drawing files, documents in the OME Virtual Library)
- h. Automated tracking of Contractor performance milestones and deliverables
  - i. Actual and budgeted cost tracking
- j. Support for the customer feedback requirements identified Section 1.4.1.2, Contractor Performance Management and Assessment
- k. Integrate with existing facility-related work tracking and processing systems (e.g. MAXIMO, FMO, EMIT), eliminating the need for the duplicate entry of information into both the Integrator and current existing work tracking and processing systems
- l. Grouping by building (e.g. identify all outstanding trouble calls for B1268A)



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- m. Dynamic reporting and graphing
- n. Dynamic generation of data files in comma-delimited (CSV) format, available for download

### 5.1.2 OME Virtual Library (OME VL)

The Contractor shall provide for use by the Government an OME Virtual Library. The Library shall be a centralized, single point of access through which the Government and Contractor shall post and retrieve OME reports and submittals pertaining to work performed on this contract. It shall remain inside the LaRC firewall, accessible only from machines utilizing the NASA IP address space as well as CO authorized off-site machines. The system will continue to provide document workflow, electronic routing and approval, communicate posting of and changes to documents to impacted customers via system-generated email, and continue to provide an automated email notification to submittal owners when reports and submittals are posted. This system shall be maintained in accordance with Section 5.3. The system shall meet the following minimum requirements:

- a. Posting and retrieval of multiple document formats (e.g. Microsoft Word and Excel, PDF, AutoCAD) documents
- b. Creation and ownership of document libraries by the Government with ownership and control assigned to "library owners"
- c. Rapid search and retrieval of documents. Allow for the entry of multiple search criteria including, but not limited to, one or more keywords, all or a portion of the title, project number, date or date range generated, owner, and/or category
- d. Document security at both the group and user (individual) level and down to the Document version control
- e. Links to other LaRC document repositories (e.g. CMOL, Facility Libraries [Reference Section 4.1.7], LaRC Technical Library)
- f. Document workflow; electronic routing and approval
- g. Transfer or sharing of ownership down to the document level
- h. Communicate posting of and changes to documents to impacted customers via system-generated email. The OME Virtual Library shall issue an automated email to report to submittal owners when reports and submittals are posted. The email contents shall contain a link that will take the report owner directly to either a single report (if only one) or to a web page containing a list of available reports (if more than one).
- i. Document check-in and checkout
- j. Track late report submittals and communicate, via email, late deliveries to the Government report owner. Access to all late delivery information shall be limited to Government personnel designated by the COTR.
- k. The Contractor shall install and maintain an electronic schedule of reports and submittals in the OME Virtual Library. The schedule shall be organized by function (e.g. OME&IT), report owner and title, project number and title,

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delivery schedule (e.g. daily, monthly, semiannual) last date of delivery and next scheduled date of delivery. The Contractor shall automate the maintenance of the schedule, last delivery date and next date of delivery shall change as reports and submittals are posted. Manual manipulation of these dates by the Contractor is not acceptable.

### **5.2 SYSTEM CONSOLIDATION AND ENTERPRISE ARCHITECTURE**

The Contractor shall enhance the performance and usability of the Government's OME IT Systems (Reference Appendix 5.1) through consolidation of existing and new systems. The Contractor shall create IT synergy through consolidation and integration, best use of existing standards, commonalities among existing OME IT products, and the introduction of new technologies. The Contractor shall ensure the resulting architecture and product set does not result in a single monolithic system, but rather a consolidation of existing IT assets and an implementation that maximizes use of Agency Tools and aligns OME IT with the OME business processes.

An Enterprise Architecture (EA) is a strategic information asset that identifies the Lines of Business (LoB) for the Agency: the services in support of the LoB; the information, technologies, and systems necessary to create and perform services; and the transitional processes for implementing new services, technologies, or systems in response to the changing needs of the Agency. This new framework feeds into the IT security planning processes with the LoB being used as the impetus for how security categorization is performed during early planning of a new technology enabled project in COD. The contractor shall align these EA principles into the information system security planning life cycle process.

The Contractor shall maintain the OME Enterprise Architecture in accordance with NASA NPR 2830.1, *NASA Enterprise Architecture Procedures*. The OME EA shall be compatible with NASA's Enterprise Architecture framework. To ensure alignment with the Agency's strategy and regulatory requirements, the Contractor shall:

- a. Ensure the OME EA support/priority organization functions
- b. Simplify or redesign work processes to reduce cost and improve effectiveness
- c. Demonstrate a positive return on investment
- d. Ensure that the proposed systems/ application reduce risks
- e. Promote strategic use of emerging technology
- f. Improve interoperability
- g. Leverage existing systems more effectively
- h. Ensure that EA planning integrates with COD's IT Governance framework

### **5.3 GENERAL IT SUPPORT SERVICES**

General IT support services are defined as the recurring and routine services applicable to supporting the OME IT Systems listed in Appendix 5.1, and the web sites listed in the

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NASA System for Tracking and Registering Applications and Websites (STRAW) (<http://straw.nasa.gov/>). The Contractor shall perform these services in order to maximize operational and functional efficiency, maintain data quality and security, and minimize interruptions to IT products and services. The Contractor shall perform these services in accordance with the current or developed operational procedures called for in Section 5.3.8.2. The Contractor shall provide all management, technical and customer service skills required to accomplish General IT Support Services.

The Contractor shall provide long-term support for all new and/or upgraded products and services resulting from work performed with in Sections 5.0, 5.1, and 5.2. The Contractor shall improve the quality of technology performance and assist the Government in determining the best use of its available technologies. The Contractor shall recommend areas of improvement during technology reviews (Reference Section 5.3.14).

The Contractor shall operate, maintain and support the OME IT Systems during normal business hours of the CSD (Reference Section 1.4.1.1.2). Systems designated as critical in Appendix 5.1 shall be supported 24 hours, 7 days per week.

### 5.3.1 IT Administrative Services

The Contractor shall provide information technology administrative services for the OME IT Systems, including but not limited to: system administration, security administration, database administration, web administration, and application environment administration. The Contractor shall integrate administrative support of the OME IT System's hardware, software and databases and ensure no adverse impact to the overall performance of the OME IT Systems occurs. The Contractor shall also coordinate with the Outsourcing Desktop Initiative for NASA (ODIN) contractor to ensure OME systems do not adversely impact the performance of LaRC network. This support shall be performed in accordance with the requirements of NPR 2810.1.

#### 5.3.1.1 Reserved

5.3.1.2 The Contractor shall provide system database administrative services, including, but not limited to: database engine software, data models, upgrades and the installation of new databases and elements that allow for information to be modified and extracted from the databases. The Contractor shall ensure the efficiency and reliability of multiple database engines through proactive monitoring procedures, quality management of disk space allocations, performance of consistency checking, and monitoring logical and recovery logs. Based on the configuration of the file server and the existing and projected database workload, the Contractor shall configure the database engine to optimize performance of database applications while minimizing effects on the rest of the file-server workload. The Contractor shall ensure database availability for nightly data loads from external systems identified in Appendix 5.1. The Contractor shall also maintain a comprehensive repository of database information in the OME Virtual Library, including but not limited to: a current copy of data models, a list of database

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owners and corresponding contact information, security information, and all licensing and maintenance information.

5.3.1.3 The Contractor shall provide web administrative services including, but not limited to, web server software, web development products and libraries, remote connectivity services, script processing, and the development and maintenance of web sites. .

5.3.1.4 The Contractor shall provide application environment administrative services, including, but not limited to: OME IT Systems application development and production software, and third-party server and client products supporting the functionality and/or development of OME IT Systems. The Contractor shall also install and test new application environments at the request of the CO. All new and existing websites and applications shall be submitted and managed through the Agency's application approval tracking tool, currently known as STRAW.

### 5.3.2 Application Management

The Contractor shall manage and operate the OME IT Systems. The Contractor shall ensure the services provided by the systems are not interrupted and the systems perform as designed. The Contractor shall modify the OME IT Systems to conform to changes in hardware and software infrastructure, comply with new policy or guidelines impacting design and/or performance, correct data, correct software errors and/or enhance or improve the functional capability of the application. The Contractor shall also modify system interfaces, generate reports, and/or extract data as requested by the Government through IT Work Requests (Reference Section 5.3.11).

5.3.2.1 The Contractor shall optimize the performance, execution, and security of the applications through database and system tuning, management of access privileges, optimal use of triggers and stored procedures, data modeling, and data base design and structure. The Contractor shall assess the impact of system hardware, software, and Database Management Systems (DBMS) modifications to application performance and customer usage needs prior to scheduling and implementing modifications. The Contractor shall also ensure accurate and correct performance of applications following all modifications.

5.3.2.2 The Contractor shall develop and practice procedures that ensure the accuracy and quality of the data collected through or loaded into the OME IT Systems. The Contractor shall enter or load data as required for routine system support.

5.3.2.3 The Contractor shall plan and manage the evolution of the OME IT Systems. The Contractor shall present to the CO recommendations for product upgrades, service improvements and solutions to user requirements or CO requests.

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5.3.2.4 All documentation, data, and commercial and Contractor developed or procured software, shall be owned by the Government and shall reside on Government-owned computers. Exceptions require written permission from the CO.

### 5.3.3 Hardware Management

The Contractor shall manage the hardware to support the applications listed in Appendix 5.1. The Contractor shall repair and/or replace hardware components as necessary to ensure operability of the covered equipment or to return the covered equipment to a fully operational status. The Contractor shall minimize repair or replacement time caused by hardware failures. The Contractor shall perform all repairs on-site unless otherwise approved by the CO. The Contractor shall communicate the impact of the failure to affected customers within 30 minutes of completing the repair.

5.3.3.1 The Contractor shall monitor hardware performance and diagnose hardware problems or failures. The Contractor shall log all repairs into the IT Services Log (Reference Section 5.3.8.1) and communicate on-going repair status to the customer until the repair is complete and operations are restored to their pre-failure performance levels. Repair or replacement parts shall meet or exceed Original Equipment Manufacturer's standards.

5.3.3.2 The Contractor shall follow NPR 1600.1, *NASA Security Program Procedural Requirements*, when excessing components containing sensitive data.

5.3.3.3 The Contractor shall reload or restore any files and/or data that are contained on a replaced or failing component. The Contractor shall verify the system meets or exceeds the performance of the system prior to system failure.

5.3.3.4 The Contractor shall use LaRC internal network (LARCNet) without modification or enhancement unless the CO's written approval is obtained. The Contractor shall provide a high-speed data link (minimum T-1 capability) to connect the Contractor's offsite facility to the Government's LaRCNET Local Area Network (LAN) if off-site equipment is required. The data line shall be Ethernet compatible.

### 5.3.4 Account Management

The Contractor shall manage all system, database, and application software individual and group accounts, to ensure the proper level of access control to the applications, data, and systems are maintained. The Contractor shall issue user accounts and passwords following the procedures set forth by the NASA system owner and in compliance with NPR 2810.1A.

5.3.4.1 The Contractor shall maintain an electronic list of active and disabled accounts by component (e.g. system, database, DBMS, and application) in the associated application or system. The Contractor shall make the list available only to personnel designated by the CO.

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5.3.4.2 The Contractor shall document user account management procedures as required in Section 5.3.8.2.

5.3.4.3 The Contractor shall provide support for maintaining account information in the Agency provided application tool, currently known as NAMS.

### 5.3.5 Updates and Upgrades

The Contractor shall monitor the availability of updates and/or upgrades for supported equipment and software and the availability of new equipment and system software. The Contractor shall interface with vendors to obtain software patches and procure software and/or hardware updates and upgrades from vendors.

5.3.5.1 The Contractor shall recommend hardware and/or software updates and/or upgrades, taking into consideration cost, schedule, performance, other system components, and the impact on other service elements and users of the system. The Contractor shall present recommendations to the CO for review and approval prior to installing any hardware and/or software. The Contractor shall conduct complete and thorough testing to ensure all OME IT Systems perform as anticipated following updates and upgrades. The Contractor shall record all updates and upgrades in the IT Services Log (Reference section 5.3.8.1).

5.3.5.2 The Contractor shall minimize system downtime due to the installation of upgrades and updates. When feasible, the Contractor shall perform upgrades and updates outside of Normal Operating Hours. The Contractor shall inform impacted customers of scheduled system upgrades and improvements at least 2 business days prior to their occurrence and ensure system downtime does not adversely impact customer requirements for systems access.

### 5.3.6 Performance Monitoring and Backup/Restore Services

The Contractor shall minimize interruptions to the OME IT Systems. The Contractor shall monitor systems and web sites using automated monitoring and notification technologies in order to identify service interruptions, degradation in performance, security breaches, and/or loss of functionality. In the event of an interruption, degradation, or breach, the Contractor shall diagnose the problem, assess the impact, identify repair requirements, and identify any loss of data or reduction of data quality. The Contractor shall categorize the situation as emergency or urgent and initiate an IT Work Request (Reference Section 5.3.11). The Contractor shall notify impacted customers and the CO within 1 hour of detection, and record the incident in the IT Services Log (Reference Section 5.3.8.1).

5.3.6.1 The Contractor shall backup and restore the OME IT Systems (e.g. system files, databases, documents). Backup and restore requirements are stated in the system's IT Security Plan and/or Contingency Plan. If the system does not have a plan or the plan

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does not address backup requirements, backups shall occur daily unless otherwise indicated in Appendix 5.1. Following any restore, the Contractor shall verify the restored component (e.g. system, database, document) meets or exceeds the performance and data quality of the component prior to failure. The Contractor shall maintain schedule of system and database backups in the OME Virtual Library. The Contractor shall identify backup and restore failures and/or problems at the weekly IT Status Meetings.

5.3.6.2 The Contractor shall archive and restore the database instances and logical logs. The Contractor shall ensure no data loss, and that hardware, software, and processes function as documented and data quality and integrity is maintained. The Contractor shall conduct semiannual archive and restore tests and post the results of the tests to the OME Virtual Library within 5 days following their completion.

### 5.3.7 Policy and Guidelines

The Contractor shall maintain OME IT Systems and applications in accordance with the current versions of the following policy and guidelines residing in NASA Online Directives (<http://nodis3.gsfc.nasa.gov>):

- a. NPR 2810.1, *Security of Information Technology*
- b. LMS-CP-5909, *Web Site Development, Deployment, Maintenance and Removal*
- c. NPR 2800.1, *Managing Information Technology*
- d. NASA-STD-2804, *Minimum Interoperability Software Suite*
- e. NASA-STD-2805, *Minimum Hardware Configurations*
- f. NASA Standard Operating Procedures, handbook or guidelines
- g. NASA Section 508 Standard  
([http://www.nasa.gov/accessibility/section508/sec508\\_standards.html](http://www.nasa.gov/accessibility/section508/sec508_standards.html))

5.3.7.1 The Contractor shall maintain a schedule for, initiate, and conduct Annual Policy and Guideline Compliance Review of all the OME IT Systems. The Contractor shall assess the impact of new and/or updates to Government policy and guidelines within 30 calendar days of their release. The Contractor shall present review findings to the CO and also post findings to the OME Virtual Library within 10 business days following the completion of the review. The CO will issue IT Service Requests (Reference Section 5.3.11) to support actions and initiatives resulting from Contractor review findings and recommendations.

5.3.7.2 Prior to accessing the OME IT Systems, the Contractor's personnel shall successfully complete the NASA Basic IT-Security Awareness training. The Government will provide the Contractor access to the IT Security Awareness Computer Based Training Program available through the NASA web site (<https://saturn.nasa.gov>). The Contractor shall post the NASA security training certification spreadsheet resulting from the training to OME Virtual Library and shall continue to participate in NASA's annual IT-Security Awareness Training program. In accordance with NFS clause 1852.204-76, Security Requirements for Unclassified Information Technology Resources, the Contractor shall report to the CO the number of Contractor employees

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required to complete NASA's annual IT-Security Awareness Training Program and the actual number of Contractor employees successfully completing the program. The Contractor shall justify less than a 100% Contractor employee participation rate and shall present to the CO a solution to remediate Contractor employee participation problems and achieve the metric.

5.3.7.3 The System Administrator (SA) and Information System Security Officer (ISSO) shall perform all duties and responsibilities in compliance with NPR 2810.1.

5.3.7.4 The Contractor shall support the information security assessment process for OME IT Systems in accordance with NPR 2810 (Reference Appendix 5.1). The security assessment process spans the information systems life cycle beginning with defining, documenting, and implementing the security requirements outlined in NPR 2810.1 and NIST SP 800-53 with revisions and continuing until the system is retired. Specific security assessment work to be performed by the Contractor includes, but is not limited to:

5.3.7.4.1 Analysis and design of baseline security controls with implementation of security controls as defined in NIST SP 800-53. Assess and implement revised controls within six months of the published revision.

5.3.7.4.2 Update an information system security plan for any new system implemented by the Contractor. Maintain the currency of existing system security plans for those systems the Contractor is tasked to manage.

5.3.7.4.3 Conduct a self-assessment following the NIST SP 800-53 "Guide for Assessing the security Controls in Federal Information Systems" annually. All vulnerabilities identified by the self-assessment shall be used to quantify the risk to system integrity, confidentiality, and availability and the generation of a risk assessment report. The Contractor shall develop a Plan of Action and Milestones report for mitigating all risks identified by the self-assessment. The self-assessment, risk assessment and plan of action and milestones shall be provided to the NASA LaRC Computer Security Official (CSO) for review.

5.3.7.4.4 Manage the day-to-day security operations of the OME IT systems. All Government policies, procedures and processes shall govern the operations.

5.3.7.5 Contractor computers outside the NASA IP address space shall connect to the NASA IP address space via the LaRC Virtual Private Network (VPN). The Government will sponsor Contractor VPN accounts as required by the contractor in performance of their official contract duties. VPN accounts shall be granted to United States citizens only.

5.3.7.6 The Contractor shall assess damage from security threats and breaches within 30 minutes of detection, resolve within 1 hour of detection, and document in the IT Services Log (Reference Section 5.3.8.1) within 1 business day of detection. The



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Contractor shall respond to security threats and breaches as defined in LMS-CP-5549, *Responding to Reports of Information Technology Security (ITS) Incidents and Inappropriate Activity*. The Contractor shall report all security threats and breaches to the CO and the LaRC Computer Security Office (CSO) via telephone and/or encrypted email within 2 hours of detection.

### 5.3.8 IT Documentation

The Contractor shall develop and maintain IT documentation including, but not limited to, documentation for commercial products, reports, procedures, logs, schedules, plans, meeting minutes and actions, licensing and maintenance agreements. The Contractor shall post all documents to the OME Virtual Library and notify the CO of their delivery.

#### 5.3.8.1 IT Services Log

Within 30 calendar days from the contract implementation date, the Contractor shall install and maintain an IT Services Log. In addition to the usage requirements identified in Section 5.0 through 5.3, the IT Services Log shall contain, at a minimum, a record of service and system interruptions, scheduled maintenance and upgrades, hardware replacements, upgrades, disposal, and security breaches and threats. The log shall be searchable via keyword entry and shall provide the capability to append comments to log records.

#### 5.3.8.2 IT Operational Procedures

Within 1 year from the contract implementation date, the Contractor shall create/update and maintain operational procedures addressing the support areas identified below. The Contractor shall utilize existing procedures, writing new procedures only when either none exist or the current procedures are obsolete. Operational procedures shall be incorporated into the Contractor's ISO program. The Contractor shall initiate and conduct an annual review of the procedures and present findings to the CO. The Contractor shall support Government actions and initiatives resulting from Contractor findings. The Contractor shall maintain procedures that at a minimum address:

- a. System Administration
- b. Database Administration
- c. IT Security Management
- d. IT Hardware Management
- e. IT Application Management
- f. System User Account Management
- g. IT Configuration Management
- h. IT Application Testing Procedures
- i. Mirroring of CMOL and CMMS Systems

#### 5.3.8.3 Licensing and Maintenance Agreements

The Contractor shall manage all licensing and maintenance agreements pertaining to this contract for the Government. Within 6 months from the contract implementation date, the Contractor shall create and maintain an inventory of all licensing and maintenance agreements pertaining to the OME IT Systems. The inventory list shall include, but is not limited to, hardware and software products, vendor contract information, supported applications and systems, date and costs of renewal. The Contractor shall notify the CO of all renewal deadlines and costs and provide the CO with a copy of all documentation required to accomplish the renewal. Subject to the availability of funds, the Government will fund all necessary maintenance and licensing renewal costs. .

#### 5.3.8.4 IT Documents and Software Library

Within 6 months from the contract implementation date, the Contractor shall create and maintain a central IT Library of IT-related hardcopy documents and software media. The Contractor shall maintain an electronic register of the IT-Library contents. At a minimum, the register contents shall be searchable by keywords, media title, media category (e.g. database, asset management, configuration), and media owner.

#### 5.3.9 Configuration Management

5.3.9.1 The Contractor shall provide Configuration Management (CM) for the OME IT Systems. The Contractor shall utilize the current CMS products identified in Appendix 5.1 until such time the IT Configuration Management System (IT-CMS) is installed. The Contractor shall migrate to the IT-CMS. The Contractor shall perform CM services in compliance with LMS-CP-5529. The Contractor CM support shall include, but not be limited to:

- a. Gather, process, and respond to customer change requests for the OME IT Systems
- b. Identify risk and impact associated with change requests
- c. Maintain testing procedures for software systems and components
- d. Maintain a current inventory of hardware and software products and versions
- e. Provide CM technical support including, but not limited to, retrieval and delivery of CM-related documents and data, facilitate CM approval of documents, and CM document and data quality review services

5.3.9.2 The Contractor shall participate on the CMMS Software Configuration Control Board (SCCB), the DAS SCCB, the FAS SCCB, and other Configuration Control Boards (CCBs) as required for the configuration management of supported systems.

#### 5.3.10 Consultation and Training

The Contractor shall provide IT consultation and training and shall utilize the Customer Services Management Center (CSMC) (Reference Section 1.4.1) to coordinate and manage customer requests for these services. IT consultation and training services shall include, but are not limited to:

- a. Assistance on basic product use including self-help interfaces
- b. Design, develop, revise and distribute training materials
- c. Schedule classes, register students (using the LaRC online registration system <https://saturn.nasa.gov>), arrange class logistics, market classes to targeted audiences, validate training effectiveness, and provide information for input into Government student records
- d. Design, develop, and support Computer Based Training (CBT) as appropriate
- e. Assist the Government in defining training requirements and recommending commercial and/or contractor training courses to satisfy the requirements
- f. Participate on Government teams and working groups as requested by the CO
- g. Provide on-site customer visits to discuss requirements for new, or upgrades to, existing OME contract related products and/or services

#### 5.3.11 IT Work Requests

The Contractor shall respond to and support work resulting from IT Work Requests. During normal business hours, the Contractor shall begin work on emergency IT Work Requests within 30 minutes of IT Work Request receipt. Outside of normal business hours, the Contractor shall begin work on emergency IT Work Requests within 2 hours of IT Work Request receipt. For an IT Work Request other than emergency, the Contractor shall make contact with customers initiating an IT Work Request within 1 business hour of receipt to advise the customer regarding a plan of action to complete the IT Work Requests. IT Work Requests, include, but are not limited to:

- a. Resolve actual OME work stoppages caused by a loss of OME IT System functionality
- b. Resolve potential OME work stoppages caused by degradation in the performance of the OME IT Systems
- c. Resolve IT problems that place LaRC personnel or IT resources at risk
- d. Report Development
- e. Data Extraction and correction
- f. System changes and software bug repairs
- g. Policy compliance reviews

5.3.11.1 In the event of a work stoppage, the Contractor shall provide immediate work-arounds to bring the OME IT Systems back online and to performance levels existing

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prior to any problems. The Contractor shall communicate the impact of the service loss and repair to affected customers within 1 hour following service restoration and shall apply permanent repairs, if required, outside of LaRC's normal business hours (Reference Section 1.3.9).

### 5.3.12 Reserved

### 5.3.13 Technology Reviews

The Contractor shall monitor emerging technologies and industry best practices and recommend to the CO possible infusion into or replacement of existing technologies, business processes and procedures, and/or the installation of new technologies or processes. The Contractor shall also review the Government's use and the configuration of the OME IT Systems and present recommendations for improvement to the CO. The Government will issue IT Work Requests (Reference Section 5.3.11) to support actions and initiatives resulting from Contractor recommendations.

5.3.13.1 The Contractor shall perform Technology Reviews on an annual basis. At the reviews, the Contractor shall provide handouts, present recommendations, facilitate discussion, and record minutes and actions. The Contractor shall accompany all finding recommendations with a description, statement of added value, assessment of industry best practices, cost and schedule, risk assessment, and an assessment of impact to customers. Within 10 business days following the Technology Review presentation, the Contractor shall post all documents associated with the review and the presentation to the OME Virtual Library. The Contractor shall track all actions resulting from the review until they are either completed or cancelled. The Government will issue IT Work Requests (Reference Section 5.3.11) and/or task orders (Reference Section 1.4.6) to support projects and/or initiatives resulting from Contractor recommendations. The contractor shall perform reviews with consideration given to the following strategies:

Contractor recommendations to improve IT products, services and support including recommendations for the consolidation of existing services and products  
Contractor cost reduction and performance improvement strategies

Cost projections to complete all work defined in the Technology Reviews, broken down by work item and fiscal year

5.3.13.2 The Contractor shall relate all recommendations to the IT Business Goals and Objectives identified in Section 5.0.2. Each recommendation shall be accompanied by a strategy to implement it. The strategy shall not exceed 2 pages and shall include a statement of recommendation, goals and objectives, potential issues/problems, risk assessment, required purchases or development, and cost and schedule to implement. The Government will issue IT Work Requests (Reference Section 5.3.11) and/or task orders (Reference Section 1.4.6) to support projects and/or initiatives resulting from Contractor recommendations.

**5.3.14 Agency Identity Management Infrastructure [HSPD-12] Implementation**

The Contractor shall ensure applications and systems acquired or developed for NASA are designed, developed, and implemented with the capability to use FIPS 201 identification credentials and methods. The Contractor shall migrate existing applications and systems to use FIPS 201 identification credentials and methods following NASA's HSPD-12 Implementation Plan.

**5.3.15 Annual Information Technology Plan (AITP)**

The services described in this SOW section are quantified and ordered per the Annual Engineering Plan (AITP). The AITP will be reviewed quarterly and adjustments made as LaRC business requirements vary.

The Contractor shall develop, submit, and maintain an AITP that defines the approach to meet the information technology (IT) requirements for the upcoming Fiscal Year (FY) considering the IT requirements of this SOW and additional requirements as may be provided by the Government. The purposes of the AITP are to (1) anticipate the annual activities expected to support the IT services at NASA LaRC the Contractor is required to support for the upcoming FY, (2) develop an approach that optimizes performance consistent with the IT requirements, (3) achieve flexibility and adaptability to meet evolving mission requirements and business environment changes.

An effective plan shall direct funding to achieve the best utilization of resources. The Contractor shall work closely with the Government to understand the LaRC-specific requirements for the ROME contract that shall be reflected by the Contractor in the AITP. The Government and Contractor will continuously collaborate and coordinate on changes to the IT requirements to ensure a clear understanding of the Government's needs, the division of roles and responsibilities, and the content that will be included in the AITP.

**5.3.15.1 Objectives and Content of the AITP**

The AITP shall detail the Contractor's overall approach to achieve the Center's goals, objectives, and timetables in the performance of the IT services. The plan shall reflect the most efficient approach, given anticipated funding/contract value limitations, to support the LaRC IT needs in a cost effective and productive manner. The plan shall be developed in coordination with the Government requiring organization(s) to arrive at the most efficient solution to meet customer requirements.

The AITP shall include, but not be limited to, the following:

- a. Delineate the overall approach to achieve the Center's goals, objectives, and timetables in the support of the LaRC IT services requirements
- b. Document the Government and Contractor roles and responsibilities critical to managing and conducting the IT services effectively

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- c. Identify the impacts of requirements not funded and recommended alternatives to satisfy those requirements, including incremental solutions that may be feasible. Alternatives shall include critical timelines for accomplishment.

### 5.3.15.2 Approach and Milestones for the AITP

The Contractor shall submit the AITP to the CO on an annual basis with quarterly updates or as otherwise directed by the CO. The Contractor shall submit the plan in advance of the upcoming FY, but no later than August 1<sup>st</sup>. The Government will provide comments/specific requirements within 30 calendar days after plan submission. The Contractor shall submit the final plan within 15 calendar days after Government comments. The Plan shall be effective October 1<sup>st</sup> and be finalized by approval of the CO no later than September 30<sup>th</sup>. The Contractor shall maintain this contract deliverable and continuously update the AITP based on fluctuations in the Government's requirements. Due to the Contract Year (CY) and FY being different, the AITP shall clearly delineate the upcoming FY and correlate to the CY to ensure traceability to the contract values and funding limitations.

## EXHIBIT C - CONTRACT DOCUMENTATION REQUIREMENTS

**A. Initial Baseline Financial Management Report** -- The Contractor shall prepare a time-phased baseline financial management report for Contract Line Item Number (CLIN) 2, detailing by month, how you plan to incur costs for the first 12-month interval of the total 10-year contract period, utilizing the minimum reporting categories in Paragraph B.7. The report shall be prepared and submitted in accordance with instructions set forth on the reverse side of the 533Q form and NASA Policy and Guidelines (NPG) 9501.2, "NASA Contractor Financial Management Reporting." The initial 533Q shall be submitted within 30 business days after the effective date of contract.

Financial baseline reports for each of the remaining 12-month contract year intervals shall be submitted within 10 business days of the anniversary of the effective date of this contract for CLINs 1-3. The total estimated cost and direct labor hours reflected in the baseline report shall equal the contract values for the total contract period. The report shall be updated, as required, during the contract performance by submission of revised pages for approval of the Contracting Officer. The financial baseline report shall be revised each time a contract modification is executed which increases or decreases the contract estimated cost, for a reason other than an overrun. The report shall not be revised to include overrun costs.

See Paragraph B.7 below for minimum reporting categories.

**B. Monthly Financial Management Report (NF533M)** -- The contractor shall comply with NFS 1852.242-73, "NASA Contractor Financial Management Reporting" by monthly submission of NF533M. The form shall be prepared and submitted in accordance with the instructions set forth on the reverse side of the form and NASA Procedural Requirement (NPR) 9501.2, "NASA Contractor Financial Management Reporting". Additionally, the requirements below apply to this report:

1. The report is due not later than the 10th business day following the close of the Contractor's accounting period being reported.
2. Columns 8.a and 8.b shall be completed using estimates (forecasts) for the succeeding two months.
3. It is NASA's goal to improve the integrity of its financial data. Since NASA uses the Contractor's estimate for the current month (column 8a of the 533M) as accrued costs in its monthly financial statements, it is important that this estimate be the Contractor's best projection of the actual costs to be reported in column 7a of the subsequent month's 533M.

Therefore, each NF533M shall include a narrative explanation for variances exceeding +-5 percent between estimated dollars shown in the prior month and actual dollars shown in the current month at the contract level. (For example, the estimated dollars shown for June in column 8a. in the May 533M and the actual June dollars shown in column 7a. in the June 533M.) Accuracy of financial reporting will be evaluated as part of the annual performance evaluation.

4. NF533M reports shall be submitted for any cost-type IDIQ issued under CLIN 4.2 of the contract.
5. The minimum reporting categories specified below shall be included in column 6 of this report. Categories may be changed upon approval of the Contracting Officer depending on the accounting system of the Contractor.

Hours:

Direct Labor Hours

Overtime Hours

**Total Direct Labor Hours**

Labor:

Direct Labor \$'s

Overtime \$'s

**Subtotal Direct Labor \$'s**

Fringe

Overhead(s)

**Total Direct Labor \$'s**

Other Directs Costs:

Subcontracts (by major subcontractor)

Labor Hours

Subcontracting Labor Dollars

ODCs (as listed below)

**Subtotal Subcontracting \$'s**

Other Subcontracts

Material and Supplies

Equipment

Training

Other ODCs

**ODC subtotal**

**Subtotal Direct Labor and ODCs**

**G&A**

Total Est. Cost

Total Incentive/Fixed Fee

**Total Cost Plus Incentive Fee (CLINs 1/3) / Fixed Fee (CLIN 2)**

**CPFF IDIQ (CLIN 4.2):**

Total Est. Cost

Fixed Fee

**Total CPFF IDIQ**

**Total CPIF/CPFF plus CPFF IDIQ**

**Fixed Price (CLIN 4.1) Total\***

\*NF533M reporting by category is not required for Fixed Price (FP) IDIQ. However, the total value of all FP IDIQ task orders shall be shown on the Summary 533M to reflect total value of contract (i.e. estimated cost, incentive/fixed fee, and IDIQ cost and fixed price elements of the contract.)

NOTE: The sum of the total hours and dollars of all detailed financial reports shall equal the total hours and dollars shown in the Summary 533M report for the total contract.

Detailed Financial Management Reports (533M)--Utilizing the reporting categories as stated above for the Monthly Financial Management Report, additional detailed 533M reports segregated by



CLIN SOW sections and subsections (e.g. 2.1.1.1. Operations Management) as indicated below shall be provided:

Contract Management, Operations, Maintenance, Engineering, Information Technology

In addition, the breakdown of costs by the SOW sections and subsections listed above shall also be reported for the following facilities:

8' HTT, 14 x 22, NTF, TDT, Unitary

A separate detailed 533M report is also required for all cost-type Task Orders greater than \$100K. The total shall be reflected in the Summary 533M to reflect total contract value.

**C. Blanket Task Order Reporting** -- The contractor shall submit a monthly report by the 10<sup>th</sup> business day of the month following the month being reported for all Blanket Task Orders. This report shall include, for each blanket task order, a brief description of the job, the total labor hours expended for that job, the dates of performance, the facility, and any other information that provides insight into each job. This report shall also contain a tabulation of the hours utilized under each blanket task order and a projection of the known work that is forthcoming under each blanket task order.

**D. Monthly Progress Review Report** -- The Contractor shall submit monthly reports reflecting contract status, noting all technical and business areas in which effort is being directed and indicating the status of work within these areas. Reports shall be in narrative form, brief and informal in content. These reports shall include:

1. A narrative statement of work progress/accomplished during the report period.
2. A statement of current and potential problem areas and proposed corrective action.
3. A discussion of work to be performed during the next report period.

**E. Annual Report** -- The Contractor shall submit an annual report that summarizes significant achievements during the year, including lessons learned, and documents and summarizes the results of the entire contract work. The final report shall include sufficient detail to comprehensively explain the results achieved under the contract. (NTE 10 pages.)

**F. Annual Information Technology (IT) Security Training Report** -- The purpose of this report is to obtain confirmation that IT security training for contractor employees required NFS clause 1852.204-76 Security Requirements for Unclassified Information Technology Resources, has been completed by all individuals required to do so. NASA requires that this annual training be completed by 100% of the appropriate employees no later than June 30<sup>th</sup> of each year. Accordingly, the Contractor shall submit a report that includes the information listed below to the Contracting Officer no later than June 30<sup>th</sup> of each calendar year, so long as the period of performance of the contract has not expired prior to June 30<sup>th</sup>.

Report Content: (1) the number of employees requiring IT security training in accordance with the contract clause (i.e., in accordance with NPR 2810.1, which requires such training for all "employees who have access to NASA computer systems and networks that process, store, or transmit information"); (2) the number of those employees in item (1) that have completed the annual training as of June 30<sup>th</sup>; (3) whether the NASA on-line training system was used (use of the

NASA on-line system is optional); and (4) a plan of action with milestones to reach 100% in item (2) if that level has not been achieved by June 30th.

**G. Accident/Incident Safety Reports** -- The Contractor shall submit accident/incident reports to the LaRC Safety and Mission Assurance Office (SMAO) within 10 business days after the end of each month. The Safety Report shall include the number of employees, hours worked on the contract, number of fatalities, lost time cases, restricted work day cases, number of lost/restricted work days, OSHA recordable incidents and first aid cases relative to the past month. NOTE: The NASA LaRC SMAO has developed a web-based system entitled Contractor Monthly Accident Reporting (CMAR) located at <http://cmar.larc.nasa.gov/login.cfm>. If you choose to submit your information electronically via CMAR, no additional hard-copy reports are required.

**H. Notice of Violation Response** -- The Contractor shall respond to any Notice of Violation (NOV) issued for safety violations to the prime and/or its subcontractors within three business days of issuance. The response shall include the cause for violation; mitigation of impact, if applicable; and planned prevention of recurrence. Response shall be submitted to the issuer of the NOV and SMAO.

**I. Security Implementation Plan for Unclassified Information Technology Resources** - The Contractor shall submit the Security Implementation Plan required by contract clause NFS 1852.204-76 no later than 30 calendar days after award for Government approval.

**J. Conformable Wage Rate Agreement** -- Within 15 business days after the effective date of the contract, the Contractor shall submit a report confirming conformable wage rate agreement as this subject is addressed in the FAR clause 52.222-41, "Service Contract Act of 1965, as amended," for those individuals employed by the Contractor who are covered by the Service Contract Act, but are not listed in Exhibit J. Register of Wage Determinations and Fringe Benefits.

**K. Collective Bargaining Agreements** -- The Contractor shall provide the Contracting Officer with copies of any collective bargaining agreements, and amendments thereto, which arise during the course of the contract and which apply to Contractor employees assigned to the contract.

**L. NASA Property in the Custody of Contractors (NASA FORM 1018)** -- The Contractor shall submit the NASA Form 1018 no later than October 15<sup>th</sup> of each year in accordance with NFS 1852.245-73, "Financial Reporting of NASA Property in the Custody of Contractors."

**M. Documentation for Transferring Property to the Government** -- In accordance with NFS 1852.245-71, Installation-Accountable Government Property, accountability for that property which is acquired for the Government under this contract shall be passed to the Government using the following procedure:

The transfer of accountability shall be initiated by the Contractor submitting a Requisition and Invoice/Shipping Document, DD Form 1149, accompanied by a copy of the Contractor's applicable purchasing and receipt document for the property. The Contractor shall insert both the Contractor's Subcontract/Purchase Order number and the Government contract number on the DD Form 1149 under the "Federal Stock Number, Description, and Coding of Material and/or Services" block.

For purchases of supplies and materials, a quarterly report shall be submitted within 30 calendar days after the end of each calendar-year quarter (that is, not later than January 30, April 30, July 30, and October 30). For equipment purchases, the DD 1149 shall be submitted within five business days after acceptance of each item of equipment by the Contractor. Receipt by the Contractor of a copy of the DD Form 1149 signed by the Government relieves the Contractor of

accountability for the property specified on that form.

**N. Subcontracting Reports**

a. The Contractor shall submit the data for both the Standard Form 294, Subcontracting Report for Individual Contracts, and Standard Form 295, Summary Subcontractor Report, electronically using Electronic Subcontract Reporting System (eSRS). Access to eSRS can be found at: <http://www.esrs.gov/>

b. The Contractor shall submit an SDB Participation Report in accordance with the Section I FAR Clause 52.219-25, "Small Disadvantaged Business Program -- Disadvantaged Status and Reporting". This report shall be submitted within 30 calendar days after the end of each contract year.

**O. Quality System Documents (ISO 9001)** -- The Contractor shall submit the following ISO-compliant documents in accordance with contract clause H.11, ISO 9001:2000 Certification/Registration Requirements Quality Management System (Certified at Award) (LaRC 52.246-99), no later than nine months from the effective date of contract:

1. Quality System Manual

2. Quality System Procedures - These procedures shall address: (1) contract and subcontract management, (2) customer requirement review and execution, (3) task management, including work order generation and processing, (4) document control, (5) handling of customer supplied product, (6) corrective, preventive, and continuing improvement action systems, (7) training of employees, (8) customer satisfaction/performance measurement and (9) design control.

**P. Federal Contractor Veterans Employment Report** -- In compliance with Clause 52.222-37, Employment Reports on Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans, the Contractor shall submit the Federal Contractor Veterans Employment Reports (VETS-100) as required by this clause.

**Q. Evidence of Insurance** -- The Contractor shall submit evidence annually of the insurance coverage, required by the NASA Clause 1852.228-75, "Minimum Insurance Coverage" (i.e., a Certificate of Insurance or other confirmation), to the Contracting Officer prior to performing under this contract. The Contractor shall also present such evidence to the Contracting Officer prior to commencement of performance under any options exercised, if applicable.

**R. (a) Interim New Technology Report** -- After the first anniversary date of the contract, the Contractor shall submit an annual list of reportable items, certify that all reportable items have been disclosed (or that there are no such inventions), and certify that the procedures required by paragraph (e)(1) of the NFS clause 1852.227-70, New Technology, have been followed. This report is due by March 31 of each year.

**(b) Final New Technology Report** -- The Contractor shall submit a list of reportable items or certify that there were no such reportable items, and list all subcontracts at any tier containing a patent rights clause or certify that there were no such subcontracts as set forth in NFS 1852.227-70, New Technology. This report is due within 3 months after completion of the contracted work.

**(c) Invention disclosure reporting** -- The Contractor shall disclose each reportable item under the contract as set forth in NFS 1852.227-70, New Technology. The electronic or paper

version of NASA Form 1679, Disclosure of Invention and New Technology (Including Software) may be used for this reporting. Both the electronic and paper versions of this form may be accessed at <http://invention.nasa.gov>. Disclosures are required within two months after the inventor discloses it in writing to Contractor personnel who are responsible for the administration of the New Technology clause.

**S. Recycled Content Annual Purchasing Report**

The Contractor shall collect annual purchasing data detailing the total amounts of EPA-designated categories and products procured and used in performance of this contract during the preceding reporting period. The Recycled Content Annual Purchasing Report data must be entered into the NASA Environmental Tracking System (NETS) (<http://netsdata.grc.nasa.gov>) by November 1st for purchases during the preceding fiscal year (October 1 through September 30). The contractor will be granted access to NETS after contract award. The Recycled Content Annual Purchasing Report template will be provided by the Contracting Officer. If the contract ends prior to November 1st, data must be entered at the end of the contract period of performance.

**T. Contractor Handling of Data Plan** --In accordance with Clause H-15, Handling of Data, the contractor shall deliver a plan no later than 30 calendar days after contract award addressing policies and procedures for handling contract data.

**U. GFP Rental Use Itemization** --The contractor shall prepare a quarterly itemization detailing the items of GFP used for non-Government work during the preceding month. The report shall contain a summary of hours for each piece of equipment used for other than Government work. The report shall also detail the actual benefit to the Government for the reporting period, e.g. reduced overall contract costs.

**V. Monthly Government Purchase Card (PCard) Summary** -- For all Government PCard Orders made in accordance with Clause G.7, Government Purchase Card (PCard) (applicable to CLIN 4.3), the Contractor shall submit a monthly report that provides the following for all orders placed during the reporting period (the reporting period is the same as that for the NF533M requirements): Date of Order, Period of Performance of the Order, Order Amount, Name of PCard Holder, Integrator Tracking Number, and Short Description of Order. The monthly report shall track the total amount of all orders placed and state which orders have been completed and billed for the month in addition to cumulative totals for all PCard orders. This information shall be submitted in conjunction with the NF533M.

**W. Safety and Health Plan** -- Per 1852.223-70(j) of the contract, the contractor is required to continually update the Safety and Health Plan when necessary (e.g., requirement change, safety regulation change, safety incident impact). The Contractor shall submit a revised Plan for Contracting Officer approval no later than 30 days after the affect of a change or incident.

**X. On and Near-Site Staffing Report** -- The contractor shall submit a report which includes the number of on-site and near- site Work Year Equivalents (WYE's) performing work on the contract, broken down by skill category. An initial report shall be submitted within 30 calendar days from the effective date of the contract. Subsequent updated reports are due quarterly, on January 1, April 1, July 1 and October 1 of each year.

These reports shall be e-mailed to the following:  
[larc-dl-contractorwye@mail.nasa.gov](mailto:larc-dl-contractorwye@mail.nasa.gov)  
The subject line for the e-mail should be "Contractor WYE".

"On-site" WYE's include the time worked by prime contractor and subcontractor employees on this contract whose primary duty station is on-site at Langley Research Center, whether such employees charge direct or indirect in the contractor's or subcontractor's accounting systems (e.g., management and administrative staff may charge their time to an "indirect" account, but the time worked by such individuals shall still be counted in the on-site WYE).

"Near-site" WYE's include the time worked by prime contractor and subcontractor employees on this contract whose primary duty station is within 50 miles of LaRC, whether such employees charge direct or indirect in the contractor's or subcontractor's accounting systems. Work performed on local college campuses shall not be considered "near site" WYE's.

The contractor shall use the number of hours in its productive work year to compute the number of WYE's to be reported.

The contractor shall break out the On-site and Near-site WYE by skill category using the following categories: Scientist, engineer, technician, administrative professional, and clerical.

## **II. DOCUMENT DISTRIBUTION REQUIREMENTS**

A. Unless otherwise specified elsewhere in this contract, reports and other documentation shall be submitted F.O.B. destination as specified below, addressed as follows:

National Aeronautics and Space Administration Langley Research Center  
Attn: (See Below), Mail Stop (See Below), Contract NNL04AA03B  
Hampton, VA 23681-2199

B. The following letter codes designate the recipients of reports and other documentation which are required to be delivered prepaid to Langley Research Center by the Contractor:

A--Contract Specialist, Mail Stop 126  
B--Contracting Officer Technical Representative, Mail Stop 223  
C--New Technology Representative, Mail Stop 401  
D--Financial Management, LaRC-DL-NF533@mail.nasa.gov  
E-- Safety and Mission Assurance Office, Mail Stop 421  
F- Contractor Labor Relations Officer, Mail Stop 144  
G--Reserved  
H--Patent Counsel, Mail Stop 141  
I--Industrial Property Office, Mail Stop 377  
J--Small Business Specialist, Mail Stop 134  
K--Center Information Technology Security Manager (CITSM), Mail Stop 164  
L--According to instructions on form  
M--As required by Task Order  
N--Reserved  
O--Langley Management System Project Office, Mail Stop 438  
P--Reserved  
Q--Reserved  
R--On and Near-Site Staffing Report, larc-dl-contractorwye@mail.nasa.gov  
S--Recycled Content Annual Purchasing Report, <http://netsdata.grc.nasa.gov>

C. The following are the distribution requirements for reports and other documentation required to be delivered f.o.b. destination. The numeral following the letter code specifying the number of copies to be provided:

**LETTER CODE AND DOCUMENT: DISTRIBUTION**

<b>Document Letter</b>	<b>Document</b>	<b>Distribution Code and Quantity*</b>
A	Initial Baseline Financial Management Report	A-1, B-1, D-1 (Via Email)
B	Monthly Financial Management Report (NF533M)	A-1, B-1, D-1 (Via Email)
C	Blanket Task Order Reporting	A-1, B-1, M-1
D	Monthly Progress Review Report	A-1, B-1
E	Annual Report	A-1, B-1
F	Annual Information Technology (IT) Security Training Report	A-1, B-1, K-1
G	Accident/Incident Safety Reports	A, 1, B-1, E-1, or in accordance with CMAR website
H	Notice of Violation Response	A-1, B-1, E-1, issuer of NOV
I	Security Implementation Plan for Unclassified Information Technology Resources	A-1, B-1, K-1
J	Conformable Wage Rate Agreement	A-1, B-1, F-1
K	Collective Bargaining Agreements	A-1, B-1, F-1
L	NASA Property in the Custody of Contractors (NASA FORM 1018)	A-1, B-1, I-1, L
M	Documentation for Transferring Property to the Government	A-1, B-1, I-1, L
N	Subcontracting Reports	A-1, J-1, and in accordance with the eSRS website
O	Quality System Documents (ISO 9001)	A-1, B-1, O-1
P	Federal Contractor Veterans Employment Report	A-1, L
Q	Evidence of Insurance	A-1
R(a)	Interim New Technology Report	A-1, B-1, C-1, H-1
R(b)	Final New Technology Report	A-1, B-1, C-1, H-1
R(c)	Invention Disclosure Reporting	A-1, B-1, C-1, H-1, L
S	Recycled Content Annual Purchasing Report	S-1
T	Contractor Handling of Data Plan	A-1
U	GFP Rental Use Itemization	A-1, B-1
V	Monthly Government PCard Summary	A-1, B-1
W	Safety and Health Plan	A-1, B-1, E-1
X	On and Near-Site Staffing Report	A-1, R-1

\*A copy of all reporting shall be maintained in the ROME Virtual Library in addition to the above distribution requirements. Additionally, submission of all reporting by electronic means (e.g email) shall be utilized to the maximum extent possible.

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IAGP	37323	MICROSCOPE	PRIOR SCIENTIFIC INST UNI	NONE (VERIFIED)	NONE (VERIFIED)	\$1,695	1	1209T	100	Y			1-May-05	08/01/1992	1996	6650
IAGP	37651	VIDEO CAMERA CONTROL UNIT	TOSHIBA AMERICA, INC.	IKM41MA	22512945	\$1,320	1	1236	TUNN	N	Coast, Linda	1-May-05	03/31/1992	Inventory 07	1996	5836
IAGP	37652	VIDEO CAMERA CONTROL UNIT	TOSHIBA AMERICA, INC.	IKM41MA	19511718	\$1,320	1	1236	TUNN	N	Coast, Linda	1-May-05	03/31/1992	Inventory 07	1996	5836
IAGP	37653	VIDEO CAMERA CONTROL UNIT	TOSHIBA AMERICA, INC.	IKM41MA	19511725	\$1,320	1	1236	TUNN	N	Coast, Linda	1-May-05	03/31/1992	Inventory 07	1996	5836
IAGP	37887	COMPUTER SWITCHER	BLACK BOX CATALOG	SW724A-R2	9602-12665	\$1,200	1	1236	220	N		1-May-05	02/29/1992		1996	7025
IAGP	38121	TRANSPORT, MAGNETIC TAPE	ANDATACO	X80CB31	GB00038109	\$1,136	1	1215	109A	N	Steam Plant	1-May-05	05/30/1992		1996	7025
IAGP	38591	STROBELIGHT	COMPUTATIONAL SYSTEMS INI	A44481	6446003	\$2,985	1	1209T	404	Y		1-May-05	12/12/1992		1996	6625
IAGP	38592	PROBE, TEMPERATURE	COMPUTATIONAL SYSTEMS INI	AS10A1	1071	\$1,950	1	1209T	404	Y		1-May-05	12/12/1992		1996	6650
IAGP	38615	LASER HEAD	COMPUTATIONAL SYSTEMS INI	B8210-01	649155	\$7,000	1	1209T	108	Y	Bert Sawyer	1-May-05	01/08/1993		1996	5860
IAGP	38616	LASER HEAD	COMPUTATIONAL SYSTEMS INI	B8210-02	649155	\$7,000	1	1209T	108	Y	Bert Sawyer	1-May-05	01/08/1993		1996	5860
IAGP	52871	PERSONAL COMPUTER	STANDARD BRAND PRODUCTS	286	12115	\$1,915	1	1221C	203	N		1-May-05	10/31/1983		1987	7021
IAGP	52926	PROCESSOR COMMUNICATIONS MODULE	GOULD, INC.	3921	5961	\$1,318	1	1221C	203	N		1-May-05	11/30/1983		1987	6685
IAGP	52927	MEMORY MODULE	GOULD, INC.	M907	5643	\$1,318	1	1221C	203	N		1-May-05	11/30/1983		1987	7025
IAGP	52928	PROCESSOR CONTROL MODULE	GOULD, INC.	C916AS984A116	7128 49444	\$1,318	1	1221C	203	N		1-May-05	11/30/1983		1987	6685
IAGP	52929	INPUT OUTPUT MODULE	GOULD, INC.	5901	2817	\$1,318	1	1221C	203	N		1-May-05	11/30/1983		1987	7025
IAGP	52930	POWER SUPPLY	AS-930-007	3481	\$2,125	1	1221C	203	N			1-May-05	11/30/1983		1987	6130
IAGP	52931	INPUT OUTPUT CHASSIS	GOULD, INC.	AS-P453-612	16008	\$1,515	1	1221C	203	N		1-May-05	11/30/1983		1987	7025
IAGP	53036	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	251	\$26,880	1	1148	104	N	D Jegley - NASA	1-May-05	11/30/1983		1987	6625
IAGP	53801	PUMP, HYDRAULIC	GREENLEE TOOL CO	960M3	K516142EB	\$1,881	1	1187	100	Y		1-May-05	05/01/1984		1988	4320
IAGP	55203	LINE PRINTER	PRINTRONIX	P6040	109753	\$4,839	1	1236	117	N		1-May-05	04/30/1984		1988	7025
IAGP	55377	TRAILER, TANK	MILITARY SPECIFICATIONS	2330 754 0508	LEF NA-1832	\$1,278	1	1233	N1832	Y		1-May-05	09/30/1957		N/A	N/A
IAGP	55762	CALIBRATOR, PRESSURE/TEMP	ROCHESTER INSTRUMENT SYS	CL6100	1287007	\$2,875	1	1215	101	N	Steam Plant	1-May-05	06/02/1984		1988	6625
IAGP	56578	OSCILLOSCOPE, PORTABLE	TEKTRONIX INC	2215	8021583	\$1,344	1	1188	102	Y		1-May-05	06/25/1986		1988	6625
IAGP	56581	OSCILLOSCOPE, PORTABLE	TEKTRONIX INC	221	8020950	\$1,344	1	1188	102	Y		1-May-05	06/25/1986		1988	6625
IAGP	58297	TABLE, LABORATORY	ISLES INDUSTRIES INC	ESLD363696DSS	35L48LMWF	\$1,051	1	1188	102	Y		1-May-05	10/02/1984		1988	6640
IAGP	58368	CONTAINER, STORAGE	KAWASAKI FUJI SEIKI CO	SD020498	KCD10-2	\$2,190	1	1130T	CON11	N		1-May-05	10/27/1984		1988	8140
IAGP	58420	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	0-259658	DA4A15885	\$2,990	1	1130T	CONK2	N		1-May-05	11/06/1984		1988	8140
IAGP	59425	MICRO AUTO FILLER	WINGLO CORP	418606	158625	\$1,925	1	1188	102	Y		1-May-05	01/23/1985		1989	6730
IAGP	59541	GENERATOR, GASOLINE, PORTABLE	HONDA MOTOR CO LTD	EK2200	EA2-1006999	\$1,285	1	1199	SHOP	Y		1-May-05	03/13/1985		1989	6115
IAGP	59565	CRANE, FLOOR	RUGER EQUIP INC F-STRATTO	1P18A	85627955	\$2,600	1	1202	119	Y		1-May-05	04/27/1985		1989	3950
IAGP	59904	CALIBRATOR, PRESSURE	EATON CORP CONTROLS DIV	UPC5200AA	A1029	\$13,500	1	1188	102	Y	Ed Lindonen	1-May-05	01/08/1985		1989	6625
IAGP	60176	TESTER, CIRCUIT BREAKER	GENERAL ELEC CO SUPPLY C	TYRNE	100	\$1,900	1	1188	100	Y		1-May-05	10/02/1985		1989	6625
IAGP	61514	SAW, MASONRY	FEDERAL-MOGUL CORP	P51421	33033	\$1,798	1	1292	SHED	Y		1-May-05	09/04/1985		1989	3895
IAGP	61529	WORK STATION, OFFICE	LIBERTY INDUSTRIES INC	45033060	5206	\$2,556	1	1188	100	Y		1-May-05	10/23/1985		1989	7110
IAGP	61606	DRILL, MAGNETIC, PORTABLE	HOUGEN MFG INC	10915	2288	\$1,947	1	1187	100	Y		1-May-05	09/21/1985		1989	3413
IAGP	61624	MEGGER	AVO BIDDLE INSTRUMENTS FM	BM1	R-1362	\$3,527	1	1188	100	Y		1-May-05	10/02/1985		1989	6625
IAGP	61640	MOTOR DRIVE	RIGID LTD	300	7820184	\$1,240	1	1187	100	Y		1-May-05	10/09/1985		1989	6110
IAGP	61658	PRINTER, ADP	HEWLETT-PACKARD CO	2934A	2844AS2596	\$1,739	1	1215	109A	N	Steam Plant	1-May-05	04/23/1985		1989	7025
IAGP	61658	PRINTER	HP	2934A	2844AS2596	N/A	1	1215	101	N	Steam Plant	1-May-05	03/31/1985		1989	7025
IAGP	61809	RESISTANCE, BOX, DECADE	SHALLTRONX CORP	6860	1595	\$1,140	1	1188	100	Y		1-May-05	04/27/1985		1989	6625
IAGP	61916	CALIBRATOR, PRESSURE	ROSEMONT INC OF EMERSON	268	25477	\$1,188	1	1188	102	Y		1-May-05	05/07/1985		1989	6625
IAGP	138060	CABINET, GARMENT STOR, ULTRACLN	CLEAN ROOM PRODUCTS INC	DGS3283	86115	\$1,583	1	1188	100	Y		1-May-05	01/11/1983		1987	7105
IAGP	138148	GENERATOR, DIESEL	KOHLER CO ENGINE PLANT DIV	80R022101	32744	\$15,533	1	1199	N1586	Y		1-May-05	03/08/1983		N/A	N/A
IAGP	138446	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	620600	SM000140	\$19,008	1	1148	104	N	D Jegley - NASA	1-May-05	12/31/1982		1987	6625
IAGP	138473	SHOE CLEANER	ULTRA-CLEAN PRODUCTS CO	2000A1400VA	4915	\$1,235	1	1188	100	Y		1-May-05	01/12/1983		1987	6520
IAGP	138590	CALIBRATOR, PRESSURE	JOFA INC	P03350	63209	\$2,850	1	1199	T175	Y		1-May-05	01/19/1983		1987	6685
IAGP	138606	INTERFACE UNIT, ADP	MOORE PRODUCTS CO	320	15738119	\$2,100	1	1188	100	Y		1-May-05	01/19/1983		1987	7025
IAGP	138934	LENS, MOTOR DRIVEN	VICON INDUSTRIES INC	V16-160AC	20472	\$1,125	1	12848	118	N		1-May-05	02/12/1983		1987	6760
IAGP	139359	CLEANER, VACUUM	MILFISK OF AMERICA INC	17166	6591616	\$1,189	1	1297	100	Y		1-May-05	03/16/1983		1987	7810
IAGP	139918	CLEANER, SEWER	ELECTRIC EEL MFG CO INC	C	29319C	\$1,440	1	1289	100	Y		1-May-05	04/13/1983		1987	4610
IAGP	140089	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	160	\$3,840	1	1148	104	N		1-May-05	05/31/1983		1987	6625
IAGP	140095	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	183	\$3,840	1	1148	104	N		1-May-05	05/31/1983		1987	6625
IAGP	140693	PRINTER, ADP	HEWLETT-PACKARD CO	2932A	2714A39132	\$1,839	1	1215	101	N	Steam Plant	1-May-05	05/06/1983		1987	7025
IAGP	140694	PRINTER, ADP	HEWLETT-PACKARD CO	2932A	2714A39134	\$1,839	1	1215	101	N	Steam Plant	1-May-05	05/06/1983		1987	7025
IAGP	141913	LOCATOR, FAULT, CABLE	HIPOTRONICS INC	CF70/25-12C	17546	\$9,200	1	1188	100	Y		1-May-05	07/14/1983		1987	6625
IAGP	142828	PNEUMATIC HOIST	JET EQUIPMENT & TOOLS	JET SERIES	8100744	\$1,754	1	1247E	100	Y		1-May-05	07/31/1983		1987	3950
IAGP	143460	CANON USA MICROGRAPHICS E	CANON USA MICROGRAPHICS E	33107	3540890	\$1,228	1	1188	100	Y		1-May-05	05/01/1983		1987	6625
IAGP	143707	THERMOMETER, INFRARED	CYCLOPS33	20001035	\$2,650	1	1209T	403	Y			1-May-05	10/05/1983		1987	6685
IAGP	144014	WASHER, PRESSURE	GRACO INC F-GRACO LUBER	800087	A171	\$2,300	1	1292	broken	Y		1-May-05	09/29/1983		1987	4940
IAGP	144087	CONTAINER, SHIPPING & STORAGE	MID ATLANTIC CONTAINER CO	NONE	NONE	\$1,100	1	1289	CONX	Y		1-May-05	09/24/1983		1987	8115
IAGP	144219	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	0010-464918-0	\$1,993	1	1292	CONX	Y		1-May-05	10/27/1983		1987	8120
IAGP	144510	MONITOR, TRANSMISSION	SCIENTIFIC-ATLANTA INC	10038	87	\$2,500	1	1215	101	N	AI Mignogna	1-May-05	02/07/1984		1988	7025
IAGP	144513	PRINTER, ADP	STAR MICRONICS	DP8340	2100 7100 1240	\$11,000	1	1215	101	N	AI Mignogna	1-May-05	02/07/1984		1988	7025
IAGP	144514	POWER SUPPLY	STAR MICRONICS	AD8340	220087502740	\$5,000	1	1215	101	N	AI Mignogna	1-May-05	02/07/1984		1988	6130
IAGP	219651	TEST SET, PROTECTIVE RELAYS	AVO MULTI-AMP CORP/MULTI-	SR76A	36267-001/1	\$5,245	1	1188	100	Y	J Falcone	1-May-05	10/20/1981		1985	6625
IAGP	258192	LASER PRINTER	HEWLETT-PACKARD	2566A	255016241	\$2,637	1	1236	125	Y		1-May-05	12/31/1976		1986	7025
IAGP	258198	CALIBRATOR, PRESSURE	JOFA INC	P03350	55163	\$2,600	1	1199	113	Y		1-May-05	04/14/1982		1986	6685
IAGP	258421	SWAGING MACHINE	EATON CORP LEBOW PRODUCT	4350-00553	7858	\$1,163	1	12848	118	Y		1-May-05	04/30/1982		1986	3446
IAGP	258588	GENERATOR, SIGNAL	DYNATECH NEVADA F-EXACT I	502DA	30670	\$1,010	1	1199	100	Y		1-May-05	12/08/1979		1983	6625
IAGP	258889	CAMERA, TELEVISION	SONY CORP	AVCO1	51157	\$1,136	1	12848	118	N		1-May-05	05/26/1982		1986	5820
IAGP	259513	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	288413-0	\$1,400	1	1223	CONX	Y		1-May-05	08/14/1982		1986	8140
IAGP	259514	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	200263-3	\$1,400	1	1199	YARD	Y		1-May-05	08/14/1982		1986	8140
IAGP	280010	CALIBRATOR, THERMOCOUPLE	PROMAC CONTROLS INC	DHT820-1	80J0876	\$2,060	1	1188	102	Y		1-May-05	06/25/1986		1985	6625
IAGP	280221	TESTER, DIELECTRIC, LIQUID	HIPOTRONICS INC	OC60A	4459	\$1,350	1	1233A	SHED	Y		1-May-05	02/10/1981		1985	6630
IAGP	282413	SOURCE, CURRENT	AVO MULTI-AMP CORP/MULTI-	PA3500K	85-1793	\$1,615	1	1274	100	Y		1-May-05	05/28/1981		1985	6625
IAGP	284670	CRANE, HYDRAULIC	MAYO CO F-GALION ALLSTEEL	80	C80-GH-6178L	\$31,789	1	1199	N1582	Y		1-May-05	04/27/1971		N/A	N/A
IAGP	284706	PNEUMATIC HOIST	GARDNER-DENVER MINING & O	862V40L	NONE	\$1,334	1	1247H	TOWER	Y		1-May-05	07/31/1969		1973	3950
IAGP	284707	PNEUMATIC HOIST	GARDNER-DENVER MINING & O	862V40L	NONE	\$1,334	1	1247H	TOWER	Y		1-May-05	08/31/1969		1973	3950
IAGP	284716	SWAGING MACHINE	CRANE RESISTOFLUX DEFENSE	R21935												



IAGP	427597	MILLING MACHINE	KEARNEY & TRECKER F-GORTC	I22	NONE	\$7,832	1	1199	111A	Y	Lee Jordan	1-May-05	01/18/1979	1979	3417	
IAGP	427600	LATHE, ENGINE	SPRINGFIELD MACHINE TOOL	S	64022	\$16,400	1	1199	113	Y	Lee Jordan	1-May-05	10/31/1960	1964	3416	
IAGP	427603	PRESS, HYDRAULIC	OWATONNA TOOL CO DBA OT	NONE	1010	\$2,358	1	1199	113	Y	Lee Jordan	1-May-05	09/27/1973	1977	3444	
IAGP	427727	BUILDING, PORTABLE	PORTA-FAB OF F-KEENE CORP	88	NONE	\$3,325	1	1187	100	Y		1-May-05	12/10/1971	1975	5410	
IAGP	427735	VACUUM PUMP	SARGENT-WELCH SCIENTIFIC	1402B	111136	\$1,040	1	1198	CONX	Y		1-May-05	04/10/1979	1983	4310	
IAGP	428035	GAUGE, THICKNESS	SONIC INSTRUMENTS INC	502	791222	\$2,325	1	1187	100	Y		1-May-05	03/29/1975	1979	5210	
IAGP	428036	EG AND G TORQUE SYSTEMS	EG AND G TORQUE SYSTEMS	5222	\$5,950	\$5,950	1	1187	100	Y	Lee Jordan	1-May-05	10/16/1975	1979	5210	
IAGP	428055	PIPE PREPARATION SYSTEM	MACHINE TECH F-WILMONT FL	6208	15409-01	\$5,888	1	1187	100	Y		1-May-05	07/26/1975	1979	5110	
IAGP	428088	TESTER, CIRCUIT BREAKER	GENERAL ELECTRIC CO SUPPLY C	TAK-TS2	E80211	\$2,374	1	1188	100	Y		1-May-05	05/28/1976	1980	6625	
IAGP	428094	SAW, BAND	GROB INC	THROAT DEPTH24IN	NONE	\$1,380	1	1284B	118	Y	Steam Plant	1-May-05	06/29/1970	1974	3405	
IAGP	428110	CALIBRATOR, TRANSDUCER, PORTBL	SCIENTIFIC COLUMBIC INC	1369C	1365	\$3,610	1	1215	101	N		1-May-05	04/26/1976	1976	6625	
IAGP	428116	RECORDER, CHART, STRIP	ESTERLINE-ANGUS INSTRUMEN	222633	A801C	\$1,837	1	1187	100	Y		1-May-05	09/23/1978	1982	5410	
IAGP	429015	FUEL TANK TRUCK	INTERNATIONAL HARVESTER	1724818	BHB19841	\$13,544	1	1215	N1871	Y		1-May-05	02/28/1977	1981	2320	
IAGP	429812	PULLER, GEAR HYD/HAND	SEALED POWER CORP	IP55317	6481	\$4,732	1	1293B	106	Y		1-May-05	12/18/1973	1977	5120	
IAGP	429877	TESTER, TRANSFORMER	AVO BIDDLE INSTRUMENTS FM	ITR	2234	\$1,110	1	1188	100	Y		1-May-05	09/30/1964	1968	6625	
IAGP	429884	TESTER, DIELECTRIC, LIQUID	HPOTRONICS INC	OC60A MODIFIED	17252212	\$1,130	1	1233A	SHED	Y		1-May-05	03/06/1974	1978	6530	
IAGP	429928	ROOM, PORTABLE	INDUSTRIAL ACOUSTICS CO I	1050	NONE	\$5,116	1	1215	106	Y	Steve Bolman	1-May-05	12/10/1971	1975	5410	
IAGP	462306	SANDBLAST MACHINE	TRINITY TOOL CO.	40X40SL/BP	11876-7	\$1,228	1	1247E	100	Y		1-May-05	03/31/1973	1977	4940	
IAGP	462314	TEST SET, PROTECTIVE RELAYS	AVO MULT-AMP CORP/MULTI-	SK75	24996	\$6,028	1	1188	100	Y		1-May-05	03/11/1975	1979	6625	
IAGP	462443	TRUE RMS VOLT-METER	TSI	106	17877	\$1,484	1	1236	220	N	Czamecki, Mike	1-May-05	07/31/1973	1977	6625	
IAGP	463938	MOTOR GENERATOR SET	CATERPILLAR TRACTOR CO	3304	4810232	\$22,055	1	1199	N1854	Y		1-May-05	03/04/1972	N/A	N/A	
IAGP	463940	MOTOR GENERATOR SET	CATERPILLAR TRACTOR CO	3304	4810158	\$22,055	1	1199	N1855	Y		1-May-05	03/04/1972	N/A	N/A	
IAGP	466697	POWER SUPPLY	HEWLETT PACKARD	62748	2031A05436	\$1,200	1	1236	222	N	Good, Linda	1-May-05	11/30/1977	Inventory 07	1981	6130
IAGP	467180	TELEVISION CAMERA	DAGE-MTI INC.	VC68X875/60	106	\$2,045	1	1236	301C	N	Good, Linda	1-May-05	04/30/1978	Inventory 07	1982	5820
IAGP	467183	TELEVISION CAMERA	DAGE-MTI INC.	NC68X875	153	\$2,301	1	1236	301C	N	Good, Linda	1-May-05	01/31/1979	Inventory 07	1983	5820
IAGP	468435	CALIBRATOR, VOLTAGE	FLUKE CORP	5200A	63901	\$3,915	1	1215	109	N	Steam Plant	1-May-05	09/30/1969	1973	6625	
IAGP	470740	METER, VIBRATION	SPM INSTRUMENTS AB	43A MODIFIED	716186	\$1,575	1	1199	113	Y		1-May-05	07/05/1975	1979	6625	
IAGP	470758	SAW, BAND	ARMSTRONG-BLUM MFG CO	MAVEL8	140619	\$4,619	1	1215	100	Y		1-May-05	07/31/1969	1983	4405	
IAGP	470789	LOCKFORMER CO	20	206248	\$2,635	1	1198	100	Y			1-May-05	12/20/1977	1981	3449	
IAGP	472999	SURFACE PLATE, GRANITE	COLLINS MICROFLAT CO	48X96X12IN	NONE	\$1,585	1	1188	100	Y		1-May-05	09/30/1962	1966	5220	
IAGP	527495	TESTER, DEAD WEIGHT	MANFIELD INDUSTRIES INC	T130	6237	\$1,093	1	1284B	118	Y		1-May-05	07/22/1970	1974	6685	
IAGP	527679	HYDRAULIC TEST STATION	GOODYEAR TECHNOLOGY LABORA	7905	1001	\$17,500	1	1188	118	Y		1-May-05	05/31/1965	1969	5210	
IAGP	527680	RECORDER, CHART, STRIP	HONEYWELL INC AEROSPACE I	153019	E2193919001	\$1,195	1	1284B	118	Y		1-May-05	01/31/1964	1968	6625	
IAGP	527681	INDICATOR, PRESSURE	DRESSER INDUSTRIES INC	711	52796	\$2,075	1	1284B	118	Y		1-May-05	05/06/1977	1981	6685	
IAGP	527682	INDICATOR, PRESSURE	DRESSER INDUSTRIES INC	711A	52-2793	\$1,250	1	1284B	118	Y		1-May-05	03/01/1977	1981	6685	
IAGP	527686	SWAGING MACHINE	ENERPAC F-BLACKHAWK INF D	PEM2021	OC5132	\$6,470	1	1284B	118	Y		1-May-05	09/02/1972	1976	3446	
IAGP	527692	TESTER, DEAD WEIGHT	AMTEC INC	R100	13407	\$1,350	1	1284B	118	Y		1-May-05	10/31/1978	1982	6685	
IAGP	527693	TESTER, DEAD WEIGHT	MANFIELD INDUSTRIES INC	T130	6238	\$1,093	1	1284B	118	Y		1-May-05	07/22/1970	1974	6685	
IAGP	529618	TRUCK, TANK, DIESEL	CHRYSLER CP HAMTRAMCK	CT800	R81HZ5T004128	\$44,307	1	1199	N1652	Y		1-May-05	11/11/1971	1975	2320	
IAGP	533031	CALIBRATOR, THERMOCOUPLE	PRMAC CONTROLS INC	DH7820	8C80239	\$2,060	1	1188	102	Y		1-May-05	06/25/1986	1983	6685	
IAGP	548134	CONTROLLER, PROGRAMMABLE, DCTL	MOORE PRODUCTS CO	3552A2 1NN	NONE	\$1,600	1	1188	100	Y		1-May-05	05/31/1980	1984	6685	
IAGP	548148	OIL FILTER/TRANSFER UNIT	SCHROEDER BROTHERS CORP	NONE	NONE	\$1,347	1	1187	100	Y		1-May-05	11/19/1980	1984	4330	
IAGP	548149	OIL FILTER/TRANSFER UNIT	SCHROEDER BROTHERS CORP	NONE	NONE	\$1,347	1	1187	100	Y		1-May-05	11/19/1980	1984	4330	
IAGP	549169	GAS MONITOR	GASTECH, INC.	1220A	84122	\$1,350	1	1277	CX18	N		1-May-05	06/30/1980	1984	6665	
IAGP	549239	SPEC. ANALYZER	SINO SOKKI	CF 929	40306487	\$20,065.00					Tom Baxter	1-May-05	05/07/1980	1984	3740	
IAGP	549570	SPRAYER, CHEMICAL	ROTOTECH	800	NONE	\$1,987	1	1187	100	Y		1-May-05	05/07/1980	1984	3740	
IAGP	801159	ANALYZER, GAS	MINE SAFETY APPLIANCES CO	MINGARDI	NONE	\$716	1	1188	102	Y		1-May-05	10/04/1988	1992	6630	
IAGP	801451	CALIBRATOR, PRESSURE	EATON CORP CONTROLS DIV	ORONISA	AZ751	\$2,516	1	1188	102	Y		1-May-05	07/09/1988	1992	6685	
IAGP	801505	OXYGEN MONITOR	GASTECH, INC.	OX91	9321149	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	801690	CRIMPING TOOL	BURNDY CORP	L792M317	\$1,240	1	1188	100	Y			1-May-05	10/06/1988	1992	5180	
IAGP	801728	MAGNETIC TAPE RECORDER	SUN MICRO SYSTEMS, INC.	4540NT	LAA34310	\$1,539	1	1236	211	Y		1-May-05	09/30/1988	1992	7025	
IAGP	801729	MAGNETIC TAPE RECORDER	SUN MICRO SYSTEMS, INC.	4540NT	LAA24402	\$1,539	1	1236	220	N		1-May-05	09/30/1988	1992	7025	
IAGP	801923	TELEVISION CAMERA	KPM1U	K2091077	\$1,236	\$1,236	1	1236	TUNN	N		1-May-05	10/31/1988	1992	5820	
IAGP	802021	VIDEO CAMERA	SONY CORP. OF AMERICA	XC999	13014	\$1,205	1	1236	TUNN	N		1-May-05	02/28/1989	1993	5820	
IAGP	802085	VIDEO CAMERA	SONY CORP. OF AMERICA	XC999	13122	\$944	1	1236	TUNN	N		1-May-05	02/28/1989	1993	5820	
IAGP	802125	OXYGEN MONITOR	GASTECH, INC.	OX91	9321111	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802128	OXYGEN MONITOR	GASTECH, INC.	OX91	9321114	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802129	OXYGEN MONITOR	GASTECH, INC.	OX91	9321115	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802130	OXYGEN MONITOR	GASTECH, INC.	OX91	9321117	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802132	OXYGEN MONITOR	GASTECH, INC.	OX91	9321119	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802133	OXYGEN MONITOR	GASTECH, INC.	OX91	9321120	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802134	OXYGEN MONITOR	GASTECH, INC.	OX91	9321141	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802136	OXYGEN MONITOR	GASTECH, INC.	OX91	9321143	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802137	OXYGEN MONITOR	GASTECH, INC.	OX91	9321144	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802140	OXYGEN MONITOR	GASTECH, INC.	OX91	9321149	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802141	OXYGEN MONITOR	GASTECH, INC.	OX91	9321150	\$640	1	1236	125	Y	Neft, Roy	1-May-05	05/31/1989	Inventory 07	1993	6630
IAGP	802221	TELEVISION CAMERA	HITACHI LTD.	KP-MIU	3014081	\$738	1	1236	TUNN	N		1-May-05	04/30/1989	1993	5820	
IAGP	802222	TELEVISION CAMERA	KP-MIU	3014091	\$738	1	1236	TUNN	N			1-May-05	04/30/1989	1993	5820	
IAGP	802894	TELEVISION CAMERA	ELMO MANUFACTURING CORP.	MN401E	922383	\$1,583	1	1236	248	N		1-May-05	09/30/1989	1993	5820	
IAGP	803350	MICROSCOPE	PEAK OPTICAL	SHOP MICRO	NONE (VERIFIED)	\$640	1	1209T	100	Y		1-May-05	04/02/1990	1994	6550	
IAGP	803650	TELEVISION CAMERA	HITACHI LTD.	KP-MIU	4059737	\$870	1	1236	TUNN	N		1-May-05	05/31/1990	1994	5820	
IAGP	846276	POWER SUPPLY	BEST POWER TECHNOLOGY INI	FC5KVA	CK501630	\$5,491	1	1215	109	N	Al Monogna	1-May-05	07/04/1985	1989	6130	
IAGP	846410	PRESSURE BIASING NETWORK	PRESSURE SYSTEMS, INC.	7808-PCU	153	\$1,495	1	1236	222	N	Czamecki, Mike	1-May-05	06/30/1985	Inventory 07	1989	6685
IAGP	846457	PRESSURE BIASING NETWORK	PRESSURE SYSTEMS, INC.	7808-PCU	153	\$1,495	1	1236	222	N	Czamecki, Mike	1-May-05	06/30/1985	Inventory 07	1989	6685
IAGP	846615	MULTIPLEXER	GANDALF DATA, INC.	GLM518	1462	\$640	1	1236	220	N		1-May-05	07/31/1985	1989	7025	
IAGP	846621	MULTIPLEXER	GANDALF DATA, INC.	GLM518	1482	\$640	1	1236	222	N		1-May-05	07/31/1985	1989	7025	
IAGP	846622	MULTIPLEXER	GANDALF DATA, INC.	GLM518	1481	\$640	1	1236	119	N		1-May-05	07/31/1985	1989	7025	
IAGP	846923	INDICATOR, PRESSURE, DIGITAL	EATON CORP CONTROLS DIV	UPS3000ACC	A1385	\$1,795	1	1188	102	Y		1-May-05	10/24/1985	1989	6685	
IAGP	847053	TEST SET, PROTECTIVE RELAYS	AVO MULT-AMP CORP/MULTI-	35200	60612-001/1	\$2,195	1	1188	100	Y		1-May-05	08/29/1985	1989	6625	
IAGP	847098	PLOTTER GRAPHICS	HOUSTON	DMP-61	618007-10135	\$3,284.00										
IAGP	847223	CONTROLLER, PRESSURE	EATON CORP CONTROLS DIV	KM1000-1	A1382	\$5,885	1	1188								

IAGP	1084482	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	446	\$3,840	1	1236	220	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084483	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	451	\$3,840	1	1236	220	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084484	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	620601	434	\$21,008	1	1236	220	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084485	DATA ACQUISITION CONTROLLER	NEFF INSTRUMENT CORP.	620520AK	282	\$11,232	1	1236	220	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084486	EQUIPMENT RACK	NEFF INSTRUMENT CORP.	500004	384	\$2,400	1	1236	220	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084785	WRENCH, HYDRAULIC, TORQUE	HYTORC DIV. UNEX CORP.	HY1X1	NONE	\$2,351	1	1187	100	Y			1-May-05	07/26/1986	1990	4940	
IAGP	1084790	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300	14581	\$23,900	1	1221C	203	N			1-May-05	02/28/1987	1991	6625	
IAGP	1084898	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	484	\$3,840	1	1148	104	N			1-May-05	03/31/1987	1991	6625	
IAGP	1084925	MICROSCOPE	MILLIPORE CORP.	7610000	9040045	\$2,246	1	1188	100	Y			1-May-05	04/01/1987	1991	6650	
IAGP	1085190	DISK DRIVE UNIT	HEWLETT-PACKARD CO	C2213A	3117A14329	\$7,575	1	1215	109A	N	Steam Plant		1-May-05	04/18/1987	1991	7025	
IAGP	1085195	EXPANDER, INPUT/OUTPUT	HEWLETT-PACKARD CO	98568A	612AA68340	\$1,849	1	1215	101	N	Steam Plant		1-May-05	04/18/1987	1991	5999	
IAGP	1085792	PLOTTER, GRAPHICS	HEWLETT-PACKARD CO	75508	3050A15343	\$2,769	1	1215	101	N	Steam Plant		1-May-05	06/10/1987	1991	7025	
IAGP	1085812	COMPUTER, MICRO	HEWLETT-PACKARD CO	985744	6129A61390	\$18,823	1	1215	109A	N	Steam Plant		1-May-05	06/09/1987	1991	7021	
IAGP	1086230	PUMP, AIR	WILDEN PUMP AND ENGINEER	M2K7/TF/KT	216161	\$1,195	1	1188	100	Y			1-May-05	07/14/1987	1991	4310	
IAGP	1086428	FUME HOOD	FISHER SCIENTIFIC CO	93608Q	NONE	\$3,489	1	1188	100	Y			1-May-05	08/11/1987	1991	4240	
IAGP	1086756	DISK DRIVE UNIT	IMPRES TECHNOLOGY	F300	30849	\$1,599	1	1199	101	N			1-May-05	06/30/1987	1991	7025	
IAGP	1086808	DISPLAY UNIT	HEWLETT-PACKARD CO	98785A	3020J36282	\$5,422	1	1215	109A	N	Steam Plant		1-May-05	07/02/1987	1991	7025	
IAGP	1087407	COMPUTER	DELL	316LT	OCT3B	\$1,973.00	1					5485					
IAGP	1087408	COMPUTER	DELL	316LT	OCT3C	\$1,973.00	1					5486					
IAGP	1087409	COMPUTER	DELL	316LT	OCT3E	\$1,973.00	1					5487					
IAGP	1088577	CONTAINER, SHIPPING	MILITARY SPECIFICATIONS	NONE	206561-C	\$2,695	1	1279	CONX	Y			1-May-05	09/29/1987	1991	8140	
IAGP	1088969	ICE MAKING MACHINE	MANITOWOC CO INC	800	920162318	\$2,414	1	1292	100	Y			1-May-05	10/02/1987	1991	4110	
IAGP	1089234	ICE PONT REFERENCE	KATE INSTRUMENTS, INC.	K170-24C	111175	\$2,333	1	1236	118	N			1-May-05	10/31/1987	1991	6685	
IAGP	1089338	DIGITAL PRESSURE GAUGE	RUSKA INSTRUMENTS	6220	44136	\$4,420	1	1236	248	N	Czamecki, Mike		1-May-05	11/30/1987	Inventory 07	1991	6685
IAGP	1089339	DIGITAL PRESSURE GAUGE	RUSKA INSTRUMENTS	6220	43963	\$4,420	1	1236	248	N	Czamecki, Mike		1-May-05	11/30/1987	Inventory 07	1991	6685
IAGP	1089403	DIGITAL PRESSURE GAUGE	RUSKA INSTRUMENTS	6220	44278	\$4,425	1	1236	220	N	Czamecki, Mike		1-May-05	12/31/1987	Inventory 07	1992	6685
IAGP	1089737	TEST INSTRUMENT, SLAVE DC	DOBLE ENGINEERING CO	F2410	101002976	\$4,500	1	1188	100	Y			1-May-05	11/20/1987	1991	6625	
IAGP	1089738	TEST INSTRUMENT, CONVERTIBLE	DOBLE ENGINEERING CO	F2010	10100386	\$1,090	1	1188	100	Y	Bert Sawyer		1-May-05	11/20/1987	1992	6625	
IAGP	1089739	CONTROLLER, MINI	DOBLE ENGINEERING CO	F2010	89106616	\$1,400	1	1188	100	Y			1-May-05	11/20/1987	1991	6625	
IAGP	1089791	TRUCK, FORKLIFT	TCM AMERICA INC.	FCG15N7T	A44701085	\$13,436	1	1187	N1043	Y	Hoye, Brad		1-May-05	11/19/1987	N/A	N/A	
IAGP	1089967	PUMP, AIR	WILDEN PUMP AND ENGINEER	M4K1-TF-KT	231923	\$2,100	1	1188	100	Y			1-May-05	12/08/1987	1991	4310	
IAGP	1090499	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	620601	441	\$23,880	1	1236	220	N			1-May-05	01/31/1988	1992	7025	
IAGP	1090500	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	620600	356	\$44,048	1	1236	220	N			1-May-05	01/31/1988	1992	6625	
IAGP	1091405	PUMP, BOOSTER	TELEDYNE SPRAGUE ENGINEER	S486JN100	S-486-JN-100-014-92	\$2,048	1	1188	102	Y			1-May-05	03/03/1988	1992	4310	
IAGP	1091934	TANK UNIT, DECON. APPARATUS	FISHER CO INC	NONE	NONE	\$7,140	1	1188	100	Y	Lee Jordan		1-May-05	03/22/1988	1992	4230	
IAGP	1091935	TANK UNIT, DECON. APPARATUS	FISHER CO INC	NONE	NONE	\$7,140	1	1188	100	Y	Lee Jordan		1-May-05	03/22/1988	1992	4230	
IAGP	1091937	TANK UNIT, DECON. APPARATUS	FISHER CO INC	NONE	NONE	\$13,193	1	1188	100	Y	Lee Jordan		1-May-05	12/20/1987	1991	4230	
IAGP	1091938	TANK UNIT, DECON. APPARATUS	FISHER CO INC	NONE	NONE	\$13,193	1	1188	100	Y	Lee Jordan		1-May-05	12/20/1987	1991	4230	
IAGP	1091939	TANK UNIT, DECON. APPARATUS	NORTHLAND STAINLESS INC	NONE	NONE	\$11,665	1	1188	100	Y	Lee Jordan		1-May-05	12/20/1987	1991	4230	
IAGP	1091940	TANK UNIT, DECON. APPARATUS	NORTHLAND STAINLESS INC	NONE	NONE	\$11,665	1	1188	100	Y	Lee Jordan		1-May-05	12/20/1987	1991	4230	
IAGP	1092574	DISPLAY UNIT	VIEWSONICS INC	TX2013MV	3214901475	\$1,775	1	1199	103	Y			1-May-05	05/14/1988	1992	7025	
IAGP	1092868	TRANSMITTER, INTERFACE	MOORE PRODUCTS CO	15965-665	114437	\$1,349	1	1188	102	Y			1-May-05	05/10/1988	1992	6685	
IAGP	1093286	DISK DRIVE UNIT	SUN MICRO SYSTEMS, INC.	571	215F0006	\$3,571	1	1236	220	N			1-May-05	05/31/1988	1992	7025	
IAGP	1093288	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	91460X0883	\$1,628	1	1236	241	Y			1-May-05	05/31/1988	1992	7025	
IAGP	1093289	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	91460X0883	\$1,628	1	1236	241	Y			1-May-05	05/31/1988	1992	7025	
IAGP	1155901	PRINTER, ADP	SEIKO INSTRUMENTS INC	CH5500S	24J73900	\$5,099	1	1199	216	N			1-May-05	08/18/1988	1992	7025	
IAGP	1156024	MINI COMPUTER	MODULAR COMPUTER SYSTEM	9008-4	88JF22012	\$102,175	1	1236	220	N			1-May-05	05/31/1988	1992	7021	
IAGP	1156025	MINI COMPUTER	MODULAR COMPUTER SYSTEM	9008-4	88JF22012	\$97,650	1	1236	220	N			1-May-05	05/31/1988	1992	7025	
IAGP	1156026	DISPLAY UNIT	LINK TECHNOLOGIES	MCS	08H1060002	\$520	1	1236	220	N			1-May-05	05/31/1988	1992	7025	
IAGP	1156027	DISPLAY UNIT	LINK TECHNOLOGIES	MCS	08H1060076	\$520	1	1236	220	N			1-May-05	05/31/1988	1992	7025	
IAGP	1156030	MINI COMPUTER	MODULAR COMPUTER SYSTEM	9008-4	88JF22011	\$96,680	1	1236	220	N			1-May-05	05/31/1988	1992	7021	
IAGP	1156031	DISPLAY UNIT	LINK TECHNOLOGIES	MCS	08H1080201	\$520	1	1236	221	N			1-May-05	05/31/1988	1992	7025	
IAGP	1156302	TEMPERATURE CONTROLLER	WEGAND DIV EMERSON ELEC	4634	66237	\$1,188	1	1188	100	Y	Lee Jordan		1-May-05	05/28/1988	1992	4940	
IAGP	1156450	DISTILLATION UNIT, FREON	BARON-BLAKESLEE	MR830LE	62337	\$17,165	1	1188	100	Y	Lee Jordan		1-May-05	08/24/1988	1992	4620	
IAGP	1156654	CALIBRATOR, MULTIPURPOSE	PROMAC CONTROLS INC	DHT740	74LB0059	\$1,740	1	1188	102	Y			1-May-05	09/20/1988	1992	6625	
IAGP	1156707	CALIBRATOR, MULTIPURPOSE	PROMAC CONTROLS INC	DHT740	74LB0057	\$1,740	1	1188	102	Y			1-May-05	09/20/1988	1992	6625	
IAGP	1157112	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	92200X0506	\$2,900	1	1236	242	Y			1-May-05	08/31/1988	1992	7025	
IAGP	1157113	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	235M5199	\$5,399	1	1236	241	Y			1-May-05	08/31/1988	1992	7021	
IAGP	1157115	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	235M4189	\$5,399	1	1236	117	Y			1-May-05	08/31/1988	1992	7021	
IAGP	1157116	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	92200X0504	\$3,900	1	1236	220	N			1-May-05	08/31/1988	1992	7025	
IAGP	1157119	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	236M0050	\$5,399	1	1236	242	Y			1-May-05	08/31/1988	1992	7025	
IAGP	1157123	DISK DRIVE UNIT	SEAGATE TECHNOLOGY	ST41200N	TJ600384	\$2,312	1	1236	221	N			1-May-05	08/31/1988	1992	7025	
IAGP	1157132	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	92200X0499	\$3,900	1	1236	220	N			1-May-05	08/31/1988	1992	7025	
IAGP	1157133	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	235M4138	\$5,399	1	1236	241	Y			1-May-05	08/31/1988	1992	7021	
IAGP	1157134	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	235M3933	\$5,399	1	1236	240	Y			1-May-05	08/31/1988	1992	7021	
IAGP	1157135	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	236M0632	\$5,399	1	1236	220	N			1-May-05	08/31/1988	1992	7021	
IAGP	1157236	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	236M0723	\$8,097	1	1236	220	N			1-May-05	09/30/1988	1992	7021	
IAGP	1157237	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-46	236M0759	\$8,097	1	1236	242	Y			1-May-05	09/30/1988	1992	7021	
IAGP	1157305	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDW1962	91520M1397	\$600	1	1236	220	N			1-May-05	09/30/1988	1992	7025	
IAGP	1157417	DISK DRIVE UNIT	MOUNTAINGATE DATA SYSTEM	MOB-DS2100CH	122071	\$2,664	1	1236	220	N			1-May-05	09/30/1988	1992	7025	
IAGP	1157648	DISK DRIVE UNIT	MOUNTAINGATE DATA SYSTEM	MOB-DS2100CH	122070	\$2,664	1	1236	220	N			1-May-05	09/30/1988	1992	7025	
IAGP	1157730	MODEM, COMMUNICATIONS	FALCON SYSTEMS INC	2004AM	A1220043080	\$598	1	1215	103	Y			1-May-05	10/12/1988	1992	5895	
IAGP	1157951	SYSTEM PROCESSOR	PRESSURE SYSTEMS, INC.	8400	285	\$7,759	1	1221C	203	N			1-May-05	10/31/1988	1992	6685	
IAGP	1157952	REMOTE PROCESSOR	PRESSURE SYSTEMS, INC.	8404	148	\$6,000	1	1221C	125	N			1-May-05	10/31/1988	1992	6685	
IAGP	1157953	SCANNER DIGITIZER UNIT	PRESSURE SYSTEMS, INC.	8425	306	\$4,000	1	1221C	203	N			1-May-05	10/31/1988	1992	7025	
IAGP	1157954	SCANNER DIGITIZER UNIT	PRESSURE SYSTEMS, INC.	8425	308	\$4,000	1	1221C	203	N			1-May-05	10/31/1988	1992	7025	
IAGP	1157955	SCANNER INTERFACE	PRESSURE SYSTEMS, INC.	8415	300	\$1,500	1	1221C	126	N			1-May-05	10/31/1988	1992	7025	
IAGP	1157956	SCANNER INTERFACE	PRESSURE SYSTEMS, INC.	8415	272	\$1,500	1	1221C	124	N			1-May-05	10/31/1988	1992	7025	
IAGP	1157957	PRESSURE CALIBRATION UNIT	PRESSURE SYSTEMS, INC.	8432	724	\$6,050	1	1221C	126	N			1-May-05				

IAGP	1254511	VIDEO CASSETTE RECORDER	JVC INDUSTRIES, INC.	BR-5605UB	6810627	\$1,794	1	1236	220	N		1-May-05	02/28/1989	1993	5836	
IAGP	1254512	VIDEO CASSETTE RECORDER	JVC INDUSTRIES, INC.	BR-5605UB	6810640	\$1,794	1	1236	220	N		1-May-05	02/28/1989	1993	5836	
IAGP	1254513	VIDEO CASSETTE RECORDER	JVC INDUSTRIES, INC.	BR-5605UB	6810641	\$1,794	1	1236	220	N		1-May-05	02/28/1989	1993	5836	
IAGP	1254514	VIDEO CASSETTE RECORDER	JVC INDUSTRIES, INC.	BR-5605UB	6810647	\$1,794	1	1236	220	N		1-May-05	02/28/1989	1993	5836	
IAGP	1255219	CALIBRATION STANDARD	WAVETEK CORP.	4800	26206-1	\$10,754	1	1236	220	N		1-May-05	05/31/1989	1993	6625	
IAGP	1255220	CALIBRATION STANDARD	WAVETEK CORP.	4800	26207-1	\$10,754	1	1236	220	N		1-May-05	05/31/1989	1993	6625	
IAGP	1255286	LINE PRINTER	PRINTRON	9501-2	810199	\$9,964	1	1236	220	N		1-May-05	05/31/1989	1993	6625	
IAGP	1255433	SCOPMETER, DIGITAL	FLUKE CORP	97	DM75-40257	\$1,771	1	1215	101	N	Steam Plant	1-May-05	05/04/1989	1993	6625	
IAGP	1255618	MAGNETIC TAPE RECORDER	ANDATA CO, INC.	X150A51JX252X	BA067715	\$761	1	1236	220	N		1-May-05	04/30/1989	1993	7025	
IAGP	1256038	PERSONAL COMPUTER	APPRO INTERNATIONAL, INC.	486/DX/33	482901	\$2,470	1	1236	220	Y		1-May-05	07/31/1989	1993	7021	
IAGP	1256210	MINI COMPUTER	MODULAR COMPUTER SYSTEM	9088-2	DB6-N22033	\$75,590	1	1148	104	N	D Jegley - NASA	1-May-05	05/31/1989	1993	7021	
IAGP	1256414	WASHING MACHINE, GLASSWARE	LAFACON CORP	4420465	9306141444	\$3,928	1	1188	100	Y		1-May-05	07/14/1989	1993	6640	
IAGP	1256450	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	144	326F00006	\$14,690	1	1236	211	Y		1-May-05	06/30/1989	1993	7021	
IAGP	1256854	CHAMBER, TEMPERATURE	WYLE LABORATORIES	C106-3600	222	\$1,000	1	1188	102	Y		1-May-05	10/07/1972	1976	6685	
IAGP	1257128	DISPLAY UNIT	SONY CORP. OF AMERICA	C0M20365	7002405	\$4,590	1	1236	220	N		1-May-05	07/31/1989	1993	7025	
IAGP	1257234	DISPLAY UNIT	NEC TECHNOLOGIES	JC2141UMA	37022233A	\$2,316	1	113072	203	Y		1-May-05	07/21/1989	1993	7025	
IAGP	1257267	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	NONE	\$2,508	1	1156	CONX	Y		1-May-05	08/22/1989	1993	8145	
IAGP	1257410	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	Mar-36	135M0598	\$4,800	1	1236	221	N		1-May-05	07/31/1989	1993	7021	
IAGP	1257411	MAGNETIC TAPE RECORDER	SUN MICRO SYSTEMS, INC.	411	14400199	\$796	1	1236	241	Y		1-May-05	07/31/1989	1993	7025	
IAGP	1257563	TEMPERATURE RECORDER	OMEGA ENGINEERING, INC.	R0250-06T	EA090C002	\$2,828	1	1241	202	Y		1-May-05	09/30/1986	1990	6685	
IAGP	1257626	RECORDER, CHART, STRIP	YOKOGAWA CORP OF AMERICA	75022-02-RS232C/MJ	NONE	\$5,105	1	1188	100	Y	Ed Lindoren	1-May-05	11/01/1989	1993	6625	
IAGP	1258082	PERSONAL COMPUTER	IBI SYSTEMS, INC.	SP5100	1020	\$16,475	1	1236	220	N		1-May-05	08/31/1989	1993	7021	
IAGP	1258083	POWER SUPPLY	IBI SYSTEMS, INC.	SP5100EXP	1019	\$1,000	1	1236	220	N		1-May-05	08/31/1989	1993	6130	
IAGP	1258216	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	447	3373160	\$4,723	1	1236	220	N		1-May-05	08/31/1989	1993	7021	
IAGP	1258503	GENERATOR, GASOLINE, PORTABLE	HONDA MOTOR CO LTD	E56500	1065169	\$2,849	1	1188	107	Y		1-May-05	10/11/1989	1993	6115	
IAGP	1258950	PERSONAL COMPUTER	MIDWEST MICRO	ELITE486	NONE (VERIFIED)	\$2,296	1	1241	202	Y		1-May-05	10/31/1989	1993	7021	
IAGP	1259923	VOLTMETER	SPECTRAL DYNAMICS	SD112-1	416	\$3,294.00										
IAGP	1260878	CLEANER, ULTRASONIC	SONIC SYSTEMS INC.	D11734	11732-0394	\$43,890	1	1188	100	Y	Lee Jordan	1-May-05	02/27/1990	1994	4940	
IAGP	1260879	GENERATOR	SONIC SYSTEMS INC.	4010	NONE (VERIFIED)	\$2,500	1	1188	100	Y		1-May-05	02/27/1990	1994	6630	
IAGP	1260987	CONTAINER, STORAGE	DEPT OF ARMY US ARMY GENE	NONE (VERIFIED)	NONE (VERIFIED)	\$5,000	1	11307	CONX	N	Carol Herbert	1-May-05	03/23/1990	1994	8140	
IAGP	1260988	CONTAINER, STORAGE	DEPT OF ARMY US ARMY GENE	NONE (VERIFIED)	NONE (VERIFIED)	\$5,000	1	11307	CONX	N	Carol Herbert	1-May-05	03/23/1990	1994	8140	
IAGP	1260989	CONTAINER, STORAGE	DEPT OF ARMY US ARMY GENE	NONE (VERIFIED)	NONE (VERIFIED)	\$5,000	1	11307	CONX	N	Carol Herbert	1-May-05	03/23/1990	1994	8140	
IAGP	1261099	CLEANER, ULTRASONIC	SWEN SONIC CORP	1007	1001	\$8,000	1	1188	100	Y	Lee Jordan	1-May-05	03/07/1990	1994	4940	
IAGP	1261153	DISPLAY UNIT	COMPAQ COMPUTER CORP	NONE	4172601B292	\$1,084	1	1198	100	Y		1-May-05	06/29/1990	1994	7025	
IAGP	1261160	CART, TRANSPORT	SWELDECT INC	SW2	NONE	\$1,580	1	642	SWGR	Y		1-May-05	01/18/1986	1989	8140	
IAGP	1261161	CART, TRANSPORT	SWELDECT INC	SW2	NONE	\$1,580	1	642	SWGR	Y		1-May-05	01/18/1986	1989	8140	
IAGP	1261267	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	447	407E0095	\$5,465	1	1236	220	N		1-May-05	02/28/1990	1994	7021	
IAGP	1261747	PUMP, AIR	WILDEN PUMP AND ENGINEER	M4-KT-TF-TK-T	418311	\$2,398	1	1188	100	Y		1-May-05	04/14/1990	1994	4310	
IAGP	1262127	GRINDING MACHINE	CINCINNATI ELECTRICAL TOO	101	248995	\$6,097	1	1199	113	Y	Steve Nelson	1-May-05	05/16/1990	1994	3419	
IAGP	1262132	SAW, TABLE	DELTA INT'L MACH'RY F-POW	34-790A	2661	\$3,357	1	1292	100	Y		1-May-05	05/16/1990	1994	3405	
IAGP	1262271	CONTROLLER, REMOTE TRANSMITTER	SCIENTIFIC ATLANTA INC	RTC1032B	13156	\$3,500	1	1215	109	Y	Steam Plant	1-May-05	06/06/1990	1994	5820	
IAGP	1262403	CABINET, GAS	SAFETY STORAGE INC	2	2595811	\$1,137	1	1233	YARD	Y		1-May-05	06/27/1990	1994	5410	
IAGP	1262413	CABINET, GAS	SAFETY STORAGE INC	2	2596176	\$1,137	1	642	YARD	Y		1-May-05	06/27/1990	1994	5410	
IAGP	1262608	TEST SET, CIRCUIT BREAKER	DOBLE ENGINEERING CO	TRB-100	39400483	\$14,400	1	1188	100	Y	Steve Bolman	1-May-05	07/05/1990	1994	6625	
IAGP	1262814	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	INBU268144	CDS-23	\$2,190	1	11307	CON10	N		1-May-05	10/27/1984	1988	8140	
IAGP	1262815	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	NONE	\$2,190	1	11307	CON13	N		1-May-05	11/06/1984	1988	8140	
IAGP	1262816	CONTAINER, SHIPPING	MILITARY SPECIFICATIONS	NONE	NONE	\$1,375	1	11307	CONX5	N		1-May-05	08/13/1983	1987	8140	
IAGP	1262817	CONTAINER, SHIPPING	MILITARY SPECIFICATIONS	2681245	NONE	\$1,000	1	11307	CONX4	N		1-May-05	12/17/1981	1985	8140	
IAGP	1262842	CONTAINER, STORAGE	DEPT OF ARMY US ARMY GENE	NONE (VERIFIED)	NONE (VERIFIED)	\$5,000	1	11307	CONX	N	Carol Herbert	1-May-05	03/23/1990	1994	8140	
IAGP	1262847	PUMP, SEWAGE	EASON TECHNOLOGIES	120EW840	921012112-10	\$2,000	1	1187	CONEX	Y		1-May-05	08/25/1990	1994	4320	
IAGP	1262895	TANK TRAILER	AIR PRODUCTS AND CHEMICAL	2330-710-2497	NONE	\$44,340	1	1160	N1818	Y		1-May-05	05/31/1963	1967	2330	
IAGP	1263231	COMPUTER, MICRO	GATEWAY 2000	40X33	2256308	\$3,034	1	1215	101	N	Steam Plant	1-May-05	04/25/1990	1994	7021	
IAGP	1263232	DISPLAY UNIT	GATEWAY 2000	M013-7075446	1215	\$1,500	1	1215	109	N	Al Mignogna	1-May-05	04/25/1990	1994	7021	
IAGP	1263235	COMPUTER, MICRO	GATEWAY 2000	CB486SX25	940300569	\$3,000	1	1215	109A	N	Al Mignogna	1-May-05	04/25/1990	1994	7021	
IAGP	1263237	CABINET, COMPUTER	HEWLETT-PACKARD CO	29431G	2516A04226	\$389,657	1	1215	109	N	Al Mignogna	1-May-05	04/25/1990	1994	7025	
IAGP	1263238	TRANSPORT, MAGNETIC TAPE	HEWLETT-PACKARD CO	7980A	3132A60859	\$22,200	1	1215	109	N	Al Mignogna	1-May-05	04/25/1990	1994	7025	
IAGP	1263239	DISPLAY UNIT	HEWLETT-PACKARD CO	C1306A	3132A22072	\$121	1	1215	109	N	Al Mignogna	1-May-05	04/25/1990	1994	7025	
IAGP	1263255	MODEM, COMMUNICATIONS	MOTOROLA COMMUNICATIONS	V33Z LCD RM1 6M	13270	\$1,000	1	1215	109	N	Al Mignogna	1-May-05	04/25/1990	1994	5895	
IAGP	1263359	COMPRESSOR, AIR	DAVEY COMPRESSOR CO	12M12SRDPO	38743	\$7,388	1	1156	N1630	Y		1-May-05	08/14/1990	1994	4310	
IAGP	1263650	TESTER, TRANSFORMER	AVO BIDDLE INSTRUMENTS FM	247250	2043	\$4,600	1	1188	100	Y		1-May-05	11/17/1990	1994	6625	
IAGP	1263651	DETECTOR, IMPULSE, ELECTROMAG	AVO BIDDLE INSTRUMENTS FM	65113	8318	\$1,170	1	1188	100	N		1-May-05	11/17/1990	1994	4940	
IAGP	1263737	DEGREASER	BETTER ENGINEERING MFG IN	N200P	11066	\$9,234	1	1199	113	Y	Lee Jordan	1-May-05	10/12/1990	1994	4940	
IAGP	1263848	DISPLAY UNIT	SONY CORP. OF AMERICA	461	SSJ434A171	\$1,000	1	648	107	N		1-May-05	07/31/1990	1994	7025	
IAGP	1264202	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE (VERIFIED)	NONE (VERIFIED)	\$2,200	1	1199	CONX	Y		1-May-05	09/22/1990	1994	8145	
IAGP	1264387	TRUCK, FORKLIFT	CATERPILLAR TRACTOR CO	RT100	16J01069	\$73,455	1	1199	N1396	Y	Steve Nelson	1-May-05	10/05/1990	1994	3930	
IAGP	1264441	TESTER, HIGH VOLTAGE, DC	HIPOTRONICS INC	860P	M9410045	\$4,500	1	1188	100	Y		1-May-05	10/10/1990	1994	6625	
IAGP	1264442	TESTER, HIGH VOLTAGE, AC	HIPOTRONICS INC	760-2HVT	M9410046	\$2,900	1	1233	Shed	Y		1-May-05	10/10/1990	1994	6625	
IAGP	1422519	TEST SET, CIRCUIT BREAKER	AVO MULT-AMP CORP/MULTI-ACR CORP-F-NATIONAL CASH	CB8160	98094-001/1	\$34,016	1	1188	100	Y	J Falcone	1-May-05	10/24/1990	1994	6625	
IAGP	1422684	COMPUTER, MICRO	NEC TECHNOLOGIES INC DIV	9035	15-29142152	\$16,205	1	1215	109	N	Al Mignogna	1-May-05	10/19/1990	1994	7021	
IAGP	1422685	DISPLAY UNIT	NEC TECHNOLOGIES INC DIV	JC1731VMA3	4705487AD	\$1,230	1	1199	101	N		1-May-05	10/19/1990	1994	7025	
IAGP	1423028	PRINTER, ADP	EPSON AMERICA INC	LQ870	40U1071802	\$594	1	1215	109	N	Steam Plant	1-May-05	11/27/1990	1994	7025	
IAGP	1423031	PRINTER, ADP	EPSON AMERICA INC	LQ870	40U1071789	\$594	1	1215	109	N	Steam Plant	1-May-05	11/17/1990	1994	7025	
IAGP	1423433	CONTROL PANEL	GALMER CO INC	CP4-40-41C	94-1234	\$2,436	1	1188	107	Y		1-May-05	01/03/1991	1994	6130	
IAGP	1423493	SANDBLAST MACHINE	UNIVERSAL EQUIPMENT MFG C	3650C51	2670	\$2,685	1	1199	113	Y		1-May-05	01/02/1991	1995	4940	
IAGP	1423497	POWER UNIT, HYDRAULIC WRENCH	HYTORC DIV UNEX CORP	SST10	704038	\$3,711	1	1187	100	Y		1-May-05	02/28/1987	1991	4940	
IAGP	1423501	DETECTOR, LEAK, ULTRAPHONIC	NEOVISION INC	101	A021046	\$2,294	1	1289	100	Y		1-May-05	01/16/1991	1995	6635	
IAGP	1423939	PAN TILT UNIT	AMERICAN DYNAMICS	AD1218BCP	6251	\$1,038	1	1236	TUNN	N	Good, Linda	1-May-05	12/31/1990	Inventory 07	1994	5836
IAGP	1423940	PAN TILT UNIT	AMERICAN DYNAMICS	AD1218BCP	605	\$1,038	1	1236	248	N	Good, Linda	1-May-05	12/31/1990	Inventory 07	1994	5836
IAGP	1423941	PAN TILT UNIT	AMERICAN DYNAMICS	AD1218BCP	6124	\$1,038	1	1236	243	N	Good, Linda	1-May-05	12/31/1990	Inventory 07	1994	5836
IAGP	1423942	PAN TILT UNIT	AMERICAN DYNAMICS	AD1218BCP	6062	\$1,038	1	1236	TUNN	N</						

IAGP	1428239	TEST INSTRUMENT, CONVERTIBLE	DOUBLE ENGINEERING CO	F2250	129500211	\$18,300	1	1188	100	Y	Bert Sawyer	1-May-05	02/25/1992	1996	6625	
IAGP	1428780	THERMOMETER, INFRARED	MIKRON INSTRUMENT CO INC	M103	1089	\$1,745	1	1188	102	Y		1-May-05	04/24/1992	1996	6685	
IAGP	1428785	PERSONAL COMPUTER	PERSONAL SOURCES, INC.	PSV2	NONE (VERIFIED)	\$2,218	1	1256	222	N		1-May-05	04/30/1992	1996	7066	
IAGP	1428831	DISPLAY UNIT	MAG TECHNOLOGY CO	DX17T	MH2754361666	\$759	1	1215	101	N	Steam Plant	1-May-05	05/12/1992	1996	7025	
IAGP	1428903	DISPLAY UNIT	SONY CORP	CPD20SF2	21131153	\$1,768	1	1275	103	Y		1-May-05	05/15/1992	1996	7025	
IAGP	1429240	COMPUTER, MICRO	GOVERNMENT MICRO RESOURC	MMT-REM2000	313	\$2,200	1	1215	113	Y		1-May-05	06/06/1992	1996	7021	
IAGP	1429584	OHMMETER, DIGITAL	AVO BIDDLE INSTRUMENTS CO	247001	247001	\$3,100	1	1188	100	Y		1-May-05	06/23/1992	1996	6865	
IAGP	1429625	DRILL PRESS	WILTON CORP WILTON TOOL C	52-12301	13145	\$17,739	1	1199	111A	Y	Lee Jordan	1-May-05	07/04/1992	1996	3413	
IAGP	1430563	FILTRATION UNIT, BETA CART	DIAGNETICS INC	BC100-2G3LV4WMV	96207-1	\$2,564	1	1187	100	Y		1-May-05	08/06/1992	1996	4330	
IAGP	1430753	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14664	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430754	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14666	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430755	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14662	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430756	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14665	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430757	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14668	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430769	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14655	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430770	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14663	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430771	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14660	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430772	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14654	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430773	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14656	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1430774	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14659	\$2,784	1	1148	104	N		1-May-05	08/31/1992	1996	6625	
IAGP	1431003	PROBE, TEMPERATURE	COMPUTATIONAL SYSTEMS INI	S10	64609	\$1,950	1	1209T	403	Y		1-May-05	08/01/1992	1996	6650	
IAGP	1431004	COUNTER, PARTICLE, OIL	COMPUTATIONAL SYSTEMS INI	BS101	1027	\$13,496	1	1209T	100	Y		1-May-05	08/01/1992	1996	6635	
IAGP	1431022	POWER SUPPLY	PRIOR SCIENTIFIC INST UNI	BS15M	832	\$1,000	1	1209T	100	Y		1-May-05	08/01/1992	1996	6130	
IAGP	1431023	ANALYZER, OIL	COMPUTATIONAL SYSTEMS INI	S100-2	1404	\$2,500	1	1209T	100	Y		1-May-05	08/11/1992	1996	6630	
IAGP	1431545	COMPUTER, MICRO	GOVERNMENT MICRO RESOURC	MMT-REM2000	6838	\$2,490	1	1199	122	Y		1-May-05	09/11/1992	1996	7021	
IAGP	1431547	COMPUTER, MICRO	GOVERNMENT MICRO RESOURC	MMT-REM2000	6847	\$2,490	1	1215	109A	N	Al Mignogna	1-May-05	09/11/1992	1996	7021	
IAGP	1431551	COMPUTER, MICRO	GOVERNMENT MICRO RESOURC	MMT-REM2000	6849	\$2,490	1	1199	101	Y		1-May-05	09/11/1992	1996	7021	
IAGP	1431634	DETECTOR, LEAK, ULTRASONIC	U E SYSTEMS INC	UP2000	21243	\$3,596	1	1114	200	Y		1-May-05	09/12/1992	1996	6635	
IAGP	1431636	ULTRASONIC LEAK DETECTOR	UE SYSTEMS, INC.	UP2000	21297	\$3,596	1	1247E	200	Y		1-May-05	08/31/1992	1996	6625	
IAGP	1431638	DETECTOR, LEAK, ULTRASONIC	U E SYSTEMS INC	UP2000	21264	\$3,596	1	1209T	403	Y		1-May-05	09/12/1992	1996	6635	
IAGP	1431703	TELEMETRY MODULE	E. F. JOHNSON CO.	DL3420	34200R296A50737	\$1,270.00	1							6449		
IAGP	1431704	TELEMETRY MODULE	E. F. JOHNSON CO.	DL3420	34200R296A50740	\$1,270.00	1							6462		
IAGP	1431705	TELEMETRY MODULE	E. F. JOHNSON CO.	DL3420	34200R296A50746	\$1,270.00	1							6463		
IAGP	1431706	TELEMETRY MODULE	E. F. JOHNSON CO.	DL3420	34200R296A50739	\$1,270.00	1							6464		
IAGP	1431707	TELEMETRY MODULE	E. F. JOHNSON CO.	DL3420	34200R296A50738	\$1,270.00	1							6448		
IAGP	1431859	DRILL, CORE	MILWAUKEE ELECTRIC TOOL C	4130-4079	NONE (VERIFIED)	\$1,839	1	1292	SHED	Y		1-May-05	09/30/1992	1996	3413	
IAGP	1604842	MONITOR, TELEVISION	SONY CORP	FDL-X40	501147	\$2,500	1	1247D	118	Y		1-May-05	03/17/1993	1997	5820	
IAGP	1604843	CAMERA, INFRARED	FLIR SYSTEMS-BOSTON INC N	PM250	16739	\$51,500	1	1209T	403	Y		1-May-05	03/17/1993	1997	6720	
IAGP	1604991	DISK DRIVE UNIT	ANDATACO, INC.	S31X437JX255X	S33721-073	\$1,684	1	1286	242	N		1-May-05	03/31/1993	1997	7025	
IAGP	1611012	DISK DRIVE UNIT	FALCON SYSTEMS INC	304-4	QJ06393517	\$1,339	1	1239	211	N		1-May-05	06/30/1993	1997	7025	
IAGP	1611015	DISK DRIVE UNIT	FALCON SYSTEMS INC	304-4	QJ0764339	\$1,339	1	1236	211	N		1-May-05	06/30/1993	1997	7025	
IAGP	1611362	MAGNETIC TAPE RECORDER	SUN MICRO SYSTEMS, INC.	611	73404950	\$1,969	1	1236	241	N		1-May-05	08/31/1993	1997	7025	
IAGP	1612030	LENS, INFRARED, TELESCOPE	FLIR SYSTEMS-BOSTON INC N	08419-201	NONE (VERIFIED)	\$7,350	1	1209T	403	Y	Steve Bolman	1-May-05	04/02/1994	1998	6760	
IAGP	1613239	WIRE LABEL PRINTER	BRADY, W. H. CO.	L52000	12362	\$1,205	1	1236	122	Y		1-May-05	05/31/1995	1999	7490	
IAGP	1613262	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-64HD	64521A	\$10,364	1	1236	248	N		1-May-05	08/31/1995	1999	6685	
IAGP	1613264	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-64HD	64521A	\$10,364	1	1236	248	N		1-May-05	08/31/1995	1999	6685	
IAGP	1636308	GAUGE, PRESSURE	DRESSER INDUSTRIES INC	PH	42174	\$1,595	1	1284B	118	Y		1-May-05	03/22/1996	2000	6685	
IAGP	1636557	INFRARED CAMERA	HUPFMAN, C.E. ENTERPRISES	5604LPH	NONE (VERIFIED)	\$725	1	1236	TUNN	N		1-May-05	07/31/1996	2001	6685	
IAGP	1637152	HYDROMETER	ANTON PARR K G	DMA35N	505024	\$1,995	1	1188	100	Y		1-May-05	07/29/1997	2001	6685	
IAGP	1739411	COMPUTER, MICRO, PORTABLE	INTERNATIONAL BUSINESS MA	2625	R6G23BXVG4	\$2,399	1	1188	100	Y	J Falcone	1-May-05	09/11/1992	1996	7021	
IAGP	1739629	PAN TILT UNIT	PRO-FOUR VIDEO PRODUCTS, I	11008R	NONE (VERIFIED)	\$1,615	1	1236	TUNN	N	Coast, Linda	1-May-05	10/31/1992	Inventory 07	1996	5836
IAGP	1739731	PRINTER, PLOTTER	CALCOMP, INC.	533667-PS	53366716013	\$4,405	1	1236	242	Y		1-May-05	10/31/1993	1997	7025	
IAGP	1739752	ANALYZER, RESISTANCE/SURGE	BAKER INSTRUMENT CO	AWA12000	58	\$25,000	1	1188	100	Y	J Bunch	1-May-05	11/24/1992	1996	6625	
IAGP	1739821	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE (VERIFIED)	TOLLU287850	\$1,324	1	1199	CONX	Y		1-May-05	12/12/1992	1996	8140	
IAGP	1739822	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE (VERIFIED)	IT017	\$1,324	1	1199	CONX	Y		1-May-05	12/12/1992	1996	8140	
IAGP	1740339	CART, FILTRATION (OIL)	COMO INDUSTRIAL EQUIPMENT	4884	122	\$2,920	1	1187	100	Y		1-May-05	12/18/1992	1996	8140	
IAGP	1741015	ANALYZER, LASER	COMPUTATIONAL SYSTEMS INI	B8000DC	648015	\$2,495	1	1209T	100	Y		1-May-05	01/08/1993	1996	6650	
IAGP	1741658	RESCUE SYSTEM, CONFINED SPACE	WGM SAFETY CORP MILLER EQ	7A25243	80665V	\$2,589	1	1199	111	Y		1-May-05	04/02/1993	1997	4240	
IAGP	1741681	PERSONAL COMPUTER	NATIONAL AERONAUTICS AND	NONE	NONE (VERIFIED)	\$8,243	1	1236	220	N		1-May-05	03/31/1993	1997	7021	
IAGP	1741692	DISPLAY UNIT	MAG TECHNOLOGY CO., LTD.	YEO711-02	MA59G40039	\$618	1	1236	220	N		1-May-05	03/31/1993	1997	7025	
IAGP	1741694	DISPLAY UNIT	MAG TECHNOLOGY CO., LTD.	YEO711-02	MA59G80098	\$618	1	1236	220	N		1-May-05	03/31/1993	1997	7025	
IAGP	1741697	COMPUTER, MICRO	DTK CO INC F-VELTRI FRANK	P166	N73198036	\$975	1	1275	103	Y		1-May-05	04/15/1993	1997	7021	
IAGP	1741706	DISPLAY UNIT	ADC INTERNATIONAL	21HLR	SR53401681	\$947	1	1199	104	Y		1-May-05	04/15/1993	1997	7025	
IAGP	1741709	DISPLAY UNIT	ADC INTERNATIONAL	21HLR	SR53401616	\$947	1	1199	101A	Y	M Cole	1-May-05	04/15/1993	1997	7025	
IAGP	1741710	DISPLAY UNIT	ADC INTERNATIONAL	21HLR	SR53401613	\$947	1	1199	101	Y		1-May-05	04/15/1993	1997	7025	
IAGP	1741715	PLOTTER/GRAPHICS	CALCOMP INC A LOCKHEED CC	24163-001	9709720010	\$905	1	1199	216	Y		1-May-05	04/15/1993	1997	7025	
IAGP	1741765	MONITOR, GAS	INDUSTRIAL SCIENTIFIC COR	LTX310	9702015-066	\$1,377	1	1215	115	Y		1-May-05	04/24/1993	1997	6665	
IAGP	1741862	TABLE, VIBRATION, ISOLATION	TERRA UNIVERSAL INC.	1570-B1-2	1570-B1-23905711	\$2,258	1	1188	100	Y		1-May-05	02/17/1994	1997	6640	
IAGP	1742393	FILTER UNIT	SHARP CONTROLS COMPANY	L085-10916	226420	\$1,114	1	1187	100	Y		1-May-05	04/01/1993	1997	4320	
IAGP	1742410	READER/PRINTER, MICROFILM	MINN MINING & MFG	737474	664AGF	\$17,371	1	1130T	200	Y	Carol Herbert	1-May-05	04/28/1993	1997	6730	
IAGP	1742424	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14473	\$2,900	1	1148	104	N		1-May-05	03/31/1993	1997	6625	
IAGP	1742425	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	620100	1685-009-0	\$4,000	1	1148	104	N		1-May-05	03/31/1993	1997	6625	
IAGP	1742426	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	620300AB	14473	\$2,900	1	1148	104	N		1-May-05	03/31/1993	1997	6625	
IAGP	1742508	SUPERMICRO COMPUTER	SUN MICRO SYSTEMS, INC.	A14	713170A	\$15,746	1	1236	242	Y		1-May-05	03/31/1993	1997	7021	
IAGP	1742511	SUPERMICRO COMPUTER	SUN MICRO SYSTEMS, INC.	A14	7131701	\$15,746	1	1236	242	Y		1-May-05	03/31/1993	1997	7021	
IAGP	1742661	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	226419F	\$2,003	1	1199	113	Y		1-May-05	05/05/1993	1997	4320	
IAGP	1742662	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	226419C	\$2,003	1	1187	100	Y		1-May-05	05/05/1993	1997	4320	
IAGP	1742663	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	226419B	\$2,003	1	1187	100	Y		1-May-05	05/05/1993	1997	4320	
IAGP	1742664	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	226419A	\$2,003	1	1187	100	Y		1-May-05	05/05/1993	1997	4320	
IAGP	1742665	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	2264190	\$2,003	1	1187	100	Y		1-May-05	05/05/1993	1997	4320	
IAGP	1742666	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L085-1032AW-KN	2264198	\$2,										

IAGP	1874056	PERSONAL COMPUTER	MICRON ELECTRONICS	ANCHORAGE233M-MT	977783	\$2,263	1	1265	110	Y		1-May-05	07/31/1993	1997	7021	
IAGP	1874539	HIGH END GRAPHICS WORKSTATION	SUN MICRO SYSTEMS, INC.	A12	736FC32F	\$4,838	1	1148	202	Y		1-May-05	08/31/1993	1997	7021	
IAGP	1874605	SUPERMICRO COMPUTER	SUN MICRO SYSTEMS, INC.	A14	736FC154	\$11,363	1	1236	220	N		1-May-05	08/31/1993	1997	7021	
IAGP	1874913	PERSONAL COMPUTER	APPLE COMPUTER, INC.	MS433	X87360MYAD	\$3,461	1	1236	241	Y		1-May-05	09/30/1993	1997	7021	
IAGP	1875229	ACOUSTIC VAN	GMC	W4500	4KDC4B1R31J8037	\$25,814.00	1									
IAGP	1875611	COMPUTER, MICRO	STAR GATE COMPUTERS	NONE (VERIFIED)	123868	\$1,200	1	1209	200	N		1-May-05	11/16/1993	1997	7021	
IAGP	1875638	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L320AKWZ	231198	\$2,493	1	1187	100	Y		1-May-05	12/08/1993	1997	4320	
IAGP	1875639	CART, FILTER, OIL	SHARP CONTROLS COMPANY	L320AKWZ	231198-A	\$2,493	1	1187	100	Y		1-May-05	12/08/1993	1997	4320	
IAGP	1875688	PERSONAL COMPUTER	DELL ELECTRONICS, INC.	MMS	CBWGR	\$2,097	1	1236	232	Y		1-May-05	11/30/1993	1997	7021	
IAGP	1875740	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	72-2040RK	P78005	\$1,200	1	1236	117	N	Neff, Roy	1-May-05	12/31/1993	1998	6665	
IAGP	1875897	COMPUTER, MICRO	A-OPEN	B083	NONE (VERIFIED)	\$1,673	1	1215	103	Y		1-May-05	01/01/1994	1997	7021	
IAGP	1875913	PRINTER, ADP	LEXMARK INTL, INC.	OPTRA S1250	T1K5976	\$1,299	1	1209T	404	Y		1-May-05	01/01/1994	1997	7025	
IAGP	1875985	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$7,487	1	1209T8	806	N		1-May-05	12/31/1993	1997	7021	
IAGP	1875989	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$6,256	1	1216T	200	N		1-May-05	12/31/1993	1997	7021	
IAGP	1875990	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$6,256	1	1209T8	800	N		1-May-05	12/31/1993	1997	7021	
IAGP	1875991	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1216T	200	N		1-May-05	01/01/1994	1997	7021	
IAGP	1875995	PERSONAL COMPUTER	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1209T	800	N		1-May-05	12/31/1993	1997	7021	
IAGP	1875997	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1209T8	800	N		1-May-05	01/01/1994	1997	7021	
IAGP	1875998	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1209T8	801	N		1-May-05	12/31/1993	1997	7021	
IAGP	1876001	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1209T8	808	N		1-May-05	12/31/1993	1997	7021	
IAGP	1876002	COMPUTER, MICRO	GMR	MASTER SERIES 2000	NONE (VERIFIED)	\$4,706	1	1209T8	808	N		1-May-05	12/31/1993	1997	7021	
IAGP	1876013	DISPLAY UNIT	SONY CORP. OF AMERICA	GDM20SE2T	2166276	\$1,890	1	1130T2	203	Y		1-May-05	12/31/1993	1997	7025	
IAGP	1876546	PUMP, CENTRIFUGAL	GORMAN-RUPP CO THE	14C2F140	804338	\$6,725	1	1156	N0013	Y		1-May-05	02/18/1994	1996	4320	
IAGP	1876814	DISPLAY UNIT	GATEWAY 2000	VIVITRON1100	711080316	\$700	1	1236	122	Y		1-May-05	03/31/1994	1997	7025	
IAGP	1876955	TESTER, AMPLIFIER	IRS POWER ENGINEERING	IRS-NASAKAD	0038-898	\$33,735	1	1236	100	Y	J Bunch	1-May-05	03/19/1994	1998	6625	
IAGP	1876957	GENERATOR, SIGNAL	IRIS POWER ENGINEERING	NONE (VERIFIED)	0038-PG98	\$3,085	1	1209T	100	Y		1-May-05	03/19/1994	1998	6625	
IAGP	1877382	PRINTER, ADP	HEWLETT-PACKARD CO	AR3-1AV	USCD071237	\$779	1	1199	104	Y		1-May-05	04/19/1994	1998	7025	
IAGP	1877384	DISPLAY UNIT	HEWLETT-PACKARD CO	PA1251V01D	2853091-3	\$1,395	1	1188	400	Y		1-May-05	05/07/1994	1998	7025	
IAGP	1877392	COMPUTER, MICRO, PORTABLE	TOSHIBA AMER INC INFO SYS	S1400481G02	NONE (VERIFIED)	\$5,000	1	1188	100	Y		1-May-05	01/29/1991	1995	6625	
IAGP	1877393	TEST SET, CIRCUIT BREAKER	WESTINGHOUSE ELEC DISTRIB	TT51	230	\$5,000	1	1188	100	Y	J Falone	1-May-05	01/29/1991	1995	6625	
IAGP	1877394	GENERAL ELEC CO SUPPLY C	TT51	653	\$5,000	1	1188	100	Y			1-May-05	01/29/1991	1995	6625	
IAGP	1877395	TEST SET, CIRCUIT BREAKER	CUTLER-HAMMER INC POWER E	DS	AS031712-1	\$5,000	1	1188	100	Y		1-May-05	01/29/1991	1995	6625	
IAGP	1877396	TESTER, AMPERE	WESTINGHOUSE ELEC DISTRIB	NONE (VERIFIED)	S1400481G03-2	\$5,000	1	1188	100	Y		1-May-05	01/29/1991	1995	6625	
IAGP	1877397	TEST SET, CIRCUIT BREAKER	CUTLER-HAMMER INC POWER E	DS	AS70924-3	\$5,000	1	1188	100	Y	J Falone	1-May-05	01/29/1991	1995	6625	
IAGP	1877398	TESTER, AMPERE	WESTINGHOUSE ELEC DISTRIB	NONE (VERIFIED)	S1400481G03-1	\$5,000	1	1188	100	Y		1-May-05	01/29/1991	1995	6625	
IAGP	1877400	TEST SET, CIRCUIT BREAKER	GENERAL ELEC CO SUPPLY C	TVMS	TVMS590	\$5,000	1	1188	100	Y	J Falone	1-May-05	01/29/1991	1995	6625	
IAGP	1877407	PERSONAL COMPUTER	DTK CO INC F-VELTRI FRANK A	QUINN57	B981000068	\$808	1	1241	202	Y		1-May-05	04/30/1994	1998	7021	
IAGP	1877415	PRINTER, ADP	HEWLETT-PACKARD CO	1P-C4213A	USCH048479	\$778	1	1188	103	Y		1-May-05	05/26/1994	1998	7025	
IAGP	1877420	TESTER, CIRCUIT BREAKER	GENERAL ELEC CO SUPPLY C	TVMS	NONE (VERIFIED)	\$5,000	1	1188	100	Y	J Falone	1-May-05	12/31/1990	1995	6625	
IAGP	1877487	RECORDER, SIGNAL DATA	AMPROBE INSTRUMENT DIV OF	779M2AD	NONE (VERIFIED)	\$1,995	1	1188	101	Y		1-May-05	07/12/1994	1998	6625	
IAGP	1877574	ULTRASONIC MEASUREMENT SYSTEM	COMPUTATIONAL SYSTEMS INC	8700000	818051	\$4,215	1	1209T	403	Y		1-May-05	05/18/1994	1998	6625	
IAGP	1877805	MACHINERY FAULT SIMULATOR	DESIGN ASSISTANCE CORP	203	128	\$5,580	1	1209T	407	Y	Bert Sawyer	1-May-05	06/03/1994	1998	6625	
IAGP	1877841	DISPLAY UNIT	HITACHI MFG CO	CM630S111	T7F008311	\$501	1	1215	103	Y		1-May-05	06/10/1994	1998	7025	
IAGP	1877878	SIGNAL CONDITIONER	NEFF INSTRUMENT CORP.	ULTRA60	819F-C76F	\$12,364	1	1236	220	N	Edlow, Ralph	1-May-05	05/31/1994	1998	6695	
IAGP	1877884	PERSONAL COMPUTER	SUN MICRO SYSTEMS, INC.	GDM501OPT	9805KH2493	\$1,279	1	1236	220	N		1-May-05	05/31/1994	1998	7021	
IAGP	1877886	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDM501OPT	9805KH2495	\$1,279	1	1236	220	N		1-May-05	05/31/1994	1998	7025	
IAGP	1877887	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDM90W10	9746K40192	\$3,000	1	1236	220	N		1-May-05	05/31/1994	1998	7025	
IAGP	1878266	PERSONAL COMPUTER	NATIONAL AERONAUTICS AND	NONE (VERIFIED)	NONE (VERIFIED)	\$5,737	1	1236	220	Y		1-May-05	07/31/1994	1998	7021	
IAGP	1878413	PRINTER, ADP	HEWLETT-PACKARD CO	6P	USCH058792	\$782	1	1199	109	Y	Dennis Leggett	1-May-05	08/04/1994	1998	7025	
IAGP	1878414	PRINTER, ADP	HEWLETT-PACKARD CO	6P	USCH058803	\$782	1	1199	122	Y		1-May-05	08/04/1994	1998	7025	
IAGP	1878435	LABELING MACHINE, KEYBOARD	BRADY W H CO	LC100K	4C0020681	\$3,247	1	1292	114	Y		1-May-05	09/23/1994	1998	3540	
IAGP	1878628	CLEANING MACHINE	GRAYMILLS CORP	TEMPREST105	K98	\$3,367	1	1188	100	Y		1-May-05	07/23/1994	1998	4940	
IAGP	1878786	HYDRAULIC PUMP	ENERPAC	PUM12008	E1396C	\$1,662	1	1236	115	Y		1-May-05	07/31/1994	1998	4320	
IAGP	1879260	VISCOSITY, DIGITAL	COMPUTATIONAL SYSTEMS INC	B0052DV	8260026	\$3,146	1	1209T	100	Y		1-May-05	09/20/1994	1998	6630	
IAGP	1879352	PRINTER, LASER	HP	C4087A	USC8023192	\$2,975	1	1209T8	800	N		1-May-05	09/01/1994	1998	7025	
IAGP	1879650	COMPUTER, MICRO	GMR	MMT-REM2000	0807	\$4,848	1	1209T8	800	N		1-May-05	10/01/1994	1998	7021	
IAGP	1879860	EVALUATOR, TEST SET	PDMA CORP	5220	563	\$35,550	1	1209T	100	Y	J Bunch	1-May-05	11/08/1994	B1188 per NEMS	1998	4910
IAGP	1879937	PERSONAL COMPUTER	NATIONAL AERONAUTICS AND	NONE (VERIFIED)	NONE (VERIFIED)	\$1,804	1	1236	220	N		1-May-05	10/31/1994	1998	7021	
IAGP	1880039	COMPUTER, MICRO	HEWLETT-PACKARD CO	SEDD052DAT	US68414387	\$4,245	1	1215	109A	N	Steam Plant	1-May-05	12/14/1994	1998	7021	
IAGP	1880040	COMPUTER, MICRO	HEWLETT-PACKARD CO	SEDD052DAT	US68321240	\$4,245	1	1215	109A	N	Steam Plant	1-May-05	12/14/1994	1998	7021	
IAGP	1880041	COMPUTER, MICRO	HEWLETT-PACKARD CO	MDL8180L	US68444692	\$8,515	1	1215	109	N	Steam Plant	1-May-05	12/14/1994	1998	7021	
IAGP	1880042	COMPUTER, MICRO	HEWLETT-PACKARD CO	MDL8180L	US68445250	\$8,515	1	1215	109A	N	Steam Plant	1-May-05	12/14/1994	1998	7021	
IAGP	1880043	STACKER, HYDRAULIC	MOBILE PALLET TRUCK INC	705A	10388	\$2,106	1	1188	100	Y		1-May-05	01/04/1995	1999	3990	
IAGP	1880044	COMPUTER, MICRO	INTEVA INC ADVANCED TECH	P8300	5001801296	\$1,130	1	1215	109A	N	Steam Plant	1-May-05	01/04/1995	1999	7021	
IAGP	1880045	COMPUTER, MICRO	INTEVA INC ADVANCED TECH	P8300	5001801297	\$1,130	1	1209	101	N		1-May-05	01/04/1995	1999	7021	
IAGP	1880046	COMPUTER, MICRO	INTEVA INC ADVANCED TECH	P8300	5001801298	\$1,130	1	1215	109	N	Al Mionogna	1-May-05	01/04/1995	1999	7021	
IAGP	1880049	COMPUTER, MICRO	A-OPEN	WIN9X100N	84002765JK	\$1,060	1	1209T4	300	Y	J Falone	1-May-05	01/06/1995	1999	7021	
IAGP	1880050	COMPUTER, MICRO	COMPAQ COMPUTER CORP	1235K6/266	1VB8V88H0JK	\$1,500	1	1299T	300	Y		1-May-05	01/11/1995	1999	7021	
IAGP	1880063	RECORDER, SIGNAL DATA	AMPROBE INSTRUMENT DIV OF	DM1	NONE (VERIFIED)	\$2,000	1	1188	102	Y		1-May-05	01/18/1995	1999	6625	
IAGP	1880064	TESTER, TRANSFORMER	VANGUARD	AFRT01D	11062	\$2,500	1	1188	100	Y		1-May-05	01/18/1995	1999	6625	
IAGP	1880090	DISPLAY UNIT	HEWLETT-PACKARD CO	A4575A	JP85227891	\$696	1	1215	109	N	Al Mionogna	1-May-05	02/10/1995	1999	7025	
IAGP	1880091	DISPLAY UNIT	HEWLETT-PACKARD CO	A4575A	JP85227892	\$696	1	1215	109A	N	Steam Plant	1-May-05	02/10/1995	1999	7025	
IAGP	1880093	COUNTER, PARTICLE	NET ONE INC	980200060	44378	\$4,000	1	1188	100	Y		1-May-05	02/16/1995	1999	6635	
IAGP	1880094	MEGGER	AVO BIDDLE INSTRUMENTS FM	218650	NONE (VERIFIED)	\$4,535	1	1188	100	Y		1-May-05	02/16/1995	1999	6625	
IAGP	1880099	CONTAINER, SHIPPING	MILITARY SPECIFICATIONS	267-020-9	8FTX87FX20FT	\$1,000	1	1130T	CONX1	N		1-May-05	05/24/1981	1985	8140	
IAGP	1880100	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE	NONE	\$2,190	1	1130T	CON12	N		1-May-05	11/06/1984	1988	8140	
IAGP	1880101	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	NONE (VERIFIED)	A1C-08540PK	\$2,175	1	1130T	CON14	N		1-May-05	10/04/1981	1985	8140	
IAGP	1880102	CONTAINER, STORAGE	HYUNDAI PRECISION AMERICA	IEAU454677	HD-1A196	\$2,275	1	1130T	CON15	N		1-May-05	04/01/1993	1997	8140	
IAGP	1880103	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	IEAU413784	EAA10-06RW	\$2,275	1	1130T	CON16	N		1-May-05	04/01/1993	1997	8140	
IAGP	1880362	COMPUTER, MICRO	A-OPEN	P8350	84610360JK	\$1,058	1	1215	114	Y		1-May-05	01/13/1995	1998	7021	
IAGP	1880363															



IAGP	1881377	DISPLAY UNIT	DELL ELECTRONICS, INC.	D1226H	59119-055T	\$700	1	1265	110	Y	1-May-05	03/31/1995	1999	7025
IAGP	1881415	CONTAINER, STORAGE	MILITARY SPECIFICATIONS	TN7012	2345M5652783	\$2,350	1	<b>1279</b>	<b>CONX</b>	Y	1-May-05	04/05/1983	1987	8115
IAGP	1881540	COMPUTER, MICRO	MICRON	SE46B24TX	163404-90	\$2,405	1	1209T	800	N	1-May-05	06/01/1995	1999	7021
IAGP	1881789	DISPLAY UNIT	SONY CORP	GM500PS	7032873	\$1,099	1	1275	103	Y	1-May-05	08/16/1995	1999	7025
IAGP	1881848	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDM19628	9135CY3064	\$3,900	1	1236	220	N	1-May-05	08/31/1989	1993	7025
IAGP	1881849	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDM19628	9311DX0866	\$4,446	1	1236	220	N	1-May-05	09/30/1988	1992	7025
IAGP	1882356	DISK DRIVE UNIT	IMPEDENT INC.	DS1180J210	95180J0210	\$2,040	1	1236	220	N	1-May-05	07/31/1995	1999	7025
IAGP	1882524	FIBERSCOPE	OLYMPUS AMERICA, INC.	1F65X1-13	MB900021	\$11,800	1	1236	123	Y	1-May-05	05/31/1995	1999	6650
IAGP	1882753	PERSONAL COMPUTER	APPLE COMPUTER, INC.	M5183	XB9233TCGH	\$1,805	1	1146	218	Y	1-May-05	08/31/1995	1999	7021
IAGP	1882835	LASER PRINTER	HEWLETT PACKARD	C4253A	USB88131720	\$1,384	1	1236	HALL	Y	1-May-05	08/31/1995	1999	7025
IAGP	1883182	COMPUTER, MICRO	DELL	6F8UX	510918	\$2,344	1	1130T2	203	N	1-May-05	10/01/1995	1999	7021
IAGP	<b>1883756</b>	PERSONAL COMPUTER	DTK CO INC F-VELTRI FRANK #	NONE (VERIFIED)	B981000086	\$882	1	1241	202	Y	1-May-05	06/30/1994	1998	7021
IAGP	1883994	PERSONAL COMPUTER	DELL ELECTRONICS, INC.	DCM	BME0X	\$1,860	1	1130T2	203	N	1-May-05	12/31/1995	2000	7021
IAGP	1884319	PERSONAL COMPUTER	DELL ELECTRONICS, INC.	MMP	G33UY	\$2,204	1	<b>1212</b>	<b>210</b>	Y	1-May-05	03/31/1996	2000	7021
IAGP	1884368	DISPLAY UNIT	KDS COMPUTERS INC	VS21E	1292031359	\$675	1	1199	114	Y	1-May-05	03/16/1996	2000	7025
IAGP	1884598	PERSONAL COMPUTER	TECHNOLOGY DISTRIBUTION N	TNBP1820ATXMTM	510918	\$2,344	1	1236	220	N	1-May-05	02/29/1996	2000	7021
IAGP	1884996	PERSONAL COMPUTER	DELL	WCP	4DALH	\$4,036	1	1209	1500	N	1-May-05	05/01/1996	2000	7021
IAGP	1885139	PERSONAL COMPUTER	MICRON ELECTRONICS	S1854T-PII533	2269328-00	\$1,574	1	1265	110	Y	1-May-05	04/30/1996	2000	7021
IAGP	1885217	PRINTER PLOTTER	HP	C4704A	S501C32010	\$10,118	1	1209T8	800	N	1-May-05	05/01/1996	2000	7025
IAGP	1885227	PRINTER, LASER	TEKTRONIC	Z780	J2002C9	\$5,728	1	1209T8	800	Y	1-May-05	05/01/1996	2000	7025
IAGP	1885681	DISPLAY UNIT	APPLE COMPUTER, INC.	M4868	WR019211H0	\$1,709	1	1236	208	Y	1-May-05	06/30/1996	2000	7025
IAGP	1885769	WATER FILTRATION SYSTEM	SONO-TEK CORP	AWC1-12-S1	326-00	\$10,299	1	1198	100	Y	1-May-05	07/09/1996	2000	4610
IAGP	1885802	DISK STORAGE UNIT	PERIPHERAL PARTS SUPPORT II	BT8100541	98328-5823	\$1,775	1	1250T	505	N	1-May-05	06/30/1996	2000	7025
IAGP	2008627	PRINTER/PLOTTER	HEWLETT PACKARD	C31988	ES80425895	\$7,495	1	1236	101	Y	1-May-05	08/31/1996	2000	7025
IAGP	2009020	DISPLAY UNIT	HITACHI LTD.	CM811U PWS	H0G000169	\$959	1	1236	125	Y	1-May-05	08/31/1996	2000	7025
IAGP	2009082	DISPLAY UNIT	SUN MICRO SYSTEMS, INC.	GDM16628	91430Y2117	\$600	1	1236	220	N	1-May-05	09/30/1988	1992	7025
IAGP	2009211	COMPUTER, MICRO	DELL COMPUTER CORP F-PC'S	MMS	80LD108	\$1,196	1	1247D	118	Y	1-May-05	10/05/1996	2000	7021
IAGP	2009234	ANALYZER, ACOUSTIC EMISSION	ENERGY EFFICIENCY SYSTEMS	AC500	3300190	\$17,000	1	1235	112	Y	1-May-05	08/31/1992	1992	6635
IAGP	2009361	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132895	\$1,719	1	1236	222	N	1-May-05	09/30/1996	<i>Inventory 07</i>	6130
IAGP	2009362	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132894	\$1,719	1	1236	222	N	1-May-05	09/30/1996	<i>Inventory 07</i>	6130
IAGP	2009363	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132896	\$1,719	1	1236	222	N	1-May-05	09/30/1996	<i>Inventory 07</i>	6130
IAGP	2009364	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132893	\$1,719	1	1236	222	N	1-May-05	09/30/1996	<i>Inventory 07</i>	6130
IAGP	2009566	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132902	\$1,719	1	1236	222	N	1-May-05	10/31/1996	<i>Inventory 07</i>	6130
IAGP	2009567	POWER SUPPLY	KEPCO, INC.	JOE100-5M	132906	\$1,719	1	1236	222	N	1-May-05	10/31/1996	<i>Inventory 07</i>	6130
IAGP	2009573	HYGROMETER	EDGE TECHNOLOGIES	DEWPRME II	26372	\$9,500	1	1236	IH	N	1-May-05	10/31/1996	2000	6685
IAGP	2009637	PERSONAL COMPUTER	LP MM TOWER	GATEWAY 200	10321640	\$2,436	1	648	109	N	1-May-05	07/31/1994	1998	7021
IAGP	2009720	MINI COMPUTER	SUN MICRO SYSTEMS, INC.	E450 (SERVER)	039H3045	\$2,916	1	1236	211	Y	1-May-05	06/30/1996	2000	7021
IAGP	2009724	DISK DRIVE UNIT	UNKNOWN (VERIFIED)	NONE (VERIFIED)	NONE (VERIFIED)	\$2,197	1	1236	211	N	1-May-05	09/30/1996	2000	7025
IAGP	2009728	LASER PRINTER	HEWLETT PACKARD	C4253A	USB88361962	\$1,459	1	1236	220	N	1-May-05	09/30/1996	2000	7025
IAGP	2009729	LASER PRINTER	HEWLETT PACKARD	C4089A	JPHCD16387	\$2,909	1	1236	220	N	1-May-05	09/30/1996	2000	7025
IAGP	2091707	CONTAINER, MICRO	NEELAB INSTRUMENTS, INC.	RTE111	RT1057018	\$2,625	1	1236	2228	Y	1-May-05	02/28/1997	2001	6640
IAGP	2098112	COMPUTER, MICRO, PORTABLE	DELL COMPUTER CORP F-PC'S	PIOL	1W-0791UH-12800-132	\$19,550	1	1209T	406	Y	1-May-05	05/22/1997	2001	7021
IAGP	2098113	INTERFACE UNIT	PDMA CORP	A186506342	01020379ED	\$4,500	1	1209T	406	Y	1-May-05	05/22/1997	2001	7025
IAGP	2098268	BRAKE, HAND	DRES AND KRUMP MFG CO	S0816	320566	\$2,700	1	1198	100	Y	1-May-05	12/14/1977	1981	3441
IAGP	2098297	PUMP, GAS	TEEL INDUSTRIAL	FP953	31990-04	\$2,910	1	1156	YARD	Y	1-May-05	04/14/1989	1993	4320
IAGP	2098298	CONTAINER, SHIPPING	TRAILMOBILE INC OF PULLMA	NONE	NONE	\$2,975	1	12848	YARD	Y	1-May-05	05/08/1985	1989	8140
IAGP	2098747	DISPLAY UNIT	NEC TECHNOLOGIES, INC.	FP955	S1451224ZA	\$547	1	1146	218	Y	1-May-05	06/30/1997	2001	7025
IAGP	2098926	CELLCORDER	ALBERCORP	1000-021	CLC200-01-220	\$5,670	1	1188	100	Y	1-May-05	07/29/1997	2001	6625
IAGP	2099039	COMPUTER, MICRO	ABS	MATRIX	10003810	\$1,004	1	1209	100	N	1-May-05	07/31/1997	2001	7021
IAGP	2100065	RESCUE SYSTEM, AERIAL	WGM SAFETY CORP MILLER EQ	70-400	305	\$1,625	1	1199	107	Y	1-May-05	10/11/1989	1993	4240
IAGP	2100467	TEST SET, PROTECTIVE RELAYS	AVO MULTI-AMP CORP/MULTI-	SR98-1/60	108010017	\$7,000	1	1209	100	Y	1-May-05	02/24/1998	2002	6625
IAGP	2100568	COMPUTER, MICRO, PORTABLE	DELL COMPUTER CORP F-PC'S	PIOL1	4RT4911	\$5,800	1	1209	100A	Y	1-May-05	03/28/1998	<i>B1188 per NEMS</i>	7021
IAGP	2101592	LINE STRIPPER, TRAFFIC Note Broken	GRACO INC F-GRACO LIBER	2311132	529-106	\$2,387	1	1292	100	Y	1-May-05	12/11/1996	1999	6625
IAGP	2101651	POWER ANALYZER	DRANETZ TECHNOLOGIES F-DR	PA4300	430EXA048	\$9,230	1	1188	100	N	1-May-05	06/27/1998	2002	6625
IAGP	2101986	SCANNER, COMPUTER	POLYSCAN	182188	\$30,426	1	1130T2	205	N	1-May-05	06/30/1998	2002	7025	
IAGP	2101987	PRINTER/PLOTTER	IMATION ENTERPRISES CORP	K66-2	660200486	\$11,000	1	1130T2	205	N	1-May-05	06/30/1998	2002	7025
IAGP	2101988	COMPUTER, MICRO	DELL ELECTRONICS, INC.	8889P1	20210004	\$2,200	1	1236	205	N	1-May-05	06/30/1998	2002	7025
IAGP	2101989	SCANNER, COMPUTER	IMATION ENTERPRISES CORP	K7550	7552201357	\$12,720	1	1130T2	205	N	1-May-05	06/30/1998	2002	7021
IAGP	2102332	PERSONAL COMPUTER	DELL ELECTRONICS, INC.	DHM	8L5WS11	\$1,953	1	1236	240	Y	1-May-05	07/31/1998	2002	7021
IAGP	2102810	ADP PRINTER	HEWLETT PACKARD	C8521A	JBP8P15298	\$3,825	1	1130T2	203	N	1-May-05	08/31/1998	2002	7025
IAGP	2104698	COMPUTER, MICRO	XI COMPUTER CORP	NONE (VERIFIED)	21518	\$2,413	1	<b>1216T</b>	<b>200</b>	N	1-May-05	07/31/1998	2002	7021
IAGP	2105343	GAS MONITOR	RKI INSTRUMENTS, INC.	72-2016RK	PR77003	\$2,900	1	1236	220	N	1-May-05	09/30/1993	<i>Inventory 07</i>	1997
IAGP	2105344	GAS MONITOR	RKI INSTRUMENTS, INC.	72-2016RK	PR77002	\$2,900	1	1236	123	N	1-May-05	09/30/1993	<i>Inventory 07</i>	1997
IAGP	3022249	COMPUTER, LAPTOP	TOSHIBA	PS4600GUKYH	4213801PU	\$1,993	1	1209	105	N	1-May-05	07/31/1997	2001	7021
IAGP	3022250	COMPUTER, LAPTOP	NETLUX	3002	NB009F5P13	\$2,099	1	1209	142	N	1-May-05	12/01/1995	1999	7021
IAGP	3048028	TRUCK, TANK	INTERNATIONAL HARVESTER	4800	1HTSEWNBH83328	\$85,000.00	1	1198	MACOS	N				
IAGP	322148	ANALYZER, LOGIC	DOLCH INSTRUMENTS	64300	DAK1250679	\$14,335.00	1	1221B						
IAGP	1288914	SAW, BAND	NORTHFIELD FOUNDRY	NIA	940265-C	\$ 10,498.00	1	1169	101	Y				
IAGP	A000253	DIGITAL HYGROMETER THERMOMETER	OMEGA ENGINEERING, INC.	RH411	99317	\$350	1	1235	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A000305	DIFFERENTIAL AMPLIFIER	PACIFIC SCIENTIFIC CO.	70A-2-A17	1820111	\$650	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A000306	DIFFERENTIAL AMPLIFIER	PACIFIC SCIENTIFIC CO.	70A-2-A17	1820101	\$650	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A000307	DIFFERENTIAL AMPLIFIER	PACIFIC SCIENTIFIC CO.	70A-2-A17	1820105	\$650	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A000308	DIFFERENTIAL AMPLIFIER	PACIFIC SCIENTIFIC CO.	70A-2-A17	1820102	\$650	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A000311	DIFFERENTIAL AMPLIFIER RACK	PACIFIC SCIENTIFIC CO.	R10ACV	941101	\$615	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A001194	THERMOCOUPLE SELECTOR	FLUKE CORP.	Y2001	3925045	\$350	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A001260	POWER SUPPLY	HEWLETT PACKARD	62038	6K1451	\$450	1	<b>1236</b>	<b>220</b>	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A001348	POWER SUPPLY RACK CHASSIS	DATA CHECK CORP.	1801	1068	\$750	1	<b>1236</b>	<b>220</b>	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A001488	CHANNEL PREAMPLIFIER PCB	NEFF INSTRUMENT CORP.	D22107F	7231874	\$650	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A001489	CHANNEL PREAMPLIFIER PCB	NEFF INSTRUMENT CORP.	D22107F	440693	\$1,500	1	1236	248	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A002126	INSIDE MICROMETER	S-T INDUSTRIES, INC.	10-0090-00	NTF01	\$450	1	1236	125	Y	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A002127	MICROMETER	S-T INDUSTRIES, INC.	02-0852-14	NTF03	\$450	1	1236	125	Y	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A002128	MANDREL MICROMETER	S-T INDUSTRIES, INC.	05-0006-04	MO6-282	\$450	1	1236	125	Y	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A002155	TEMPERATURE CONTROLLER	SHIMADEN CO., INC.	SR17	SC175VNI50	\$650	1	<b>1236</b>	<b>220</b>	N	1-May-05	NONE	<i>Inventory 07</i>	NONE
IAGP	A002694	PRESSURE TRANSDUCER	DEWECO	8507C-5	F84									

IAGP	A005015	ACCELEROMETER	ENDEVCO	2271A	GL58	\$950	1	1236	301C	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6680
IAGP	A005016	ACCELEROMETER	ENDEVCO	2271A	GL95	\$950	1	1236	301C	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6680
IAGP	A005217	DIGITAL HYGROMETER/THERMOMETER	OMEGA ENGINEERING, INC.	RH411	H0909362	\$352	1	1236	220	N	Czamecki, Mike	1-May-05	09/30/1988	Inventory 07	NONE	6685
IAGP	A005273	ACCELEROMETER	PCB PIEZOTRONICS, INC.	309M42	4493	\$579	1	1236	301C	N	Czamecki, Mike	1-May-05	09/30/1988	Inventory 07	NONE	6680
IAGP	A005274	ACCELEROMETER	PCB PIEZOTRONICS, INC.	309M42	4494	\$579	1	1236	301C	N	Czamecki, Mike	1-May-05	09/30/1988	Inventory 07	NONE	6680
IAGP	A005275	ACCELEROMETER	PCB PIEZOTRONICS, INC.	309M51	4491	\$779	1	1236	301C	N	Czamecki, Mike	1-May-05	09/30/1988	Inventory 07	NONE	6680
IAGP	A005486	SCANNER JUNCTION UNIT	PRESSURE SYSTEMS, INC.	6413	118	\$2,000	1	1236	220	N	Czamecki, Mike	1-May-05	01/31/1989	Inventory 07	NONE	6685
IAGP	A005744	RANDOM NOISE GENERATOR	GENRAD, INC.	1390B	5826	\$650	1	1236	212	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A005745	CONSTANT CURRENT SOURCE	HEWLETT PACKARD	6181C	1915A01100	\$995	1	1236	135	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6130
IAGP	A005746	BCPA	WYLE LABORATORIES, INC.	N/A	NONE	\$750	1	1236	212	N		1-May-05	06/30/1989	Inventory 07	NONE	6625
IAGP	A006399	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-64	64112	\$10,489	1	1236	210	N	Czamecki, Mike	1-May-05	06/30/1989	Inventory 07	NONE	6685
IAGP	A006401	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-64	64114	\$10,489	1	1236	210	N	Czamecki, Mike	1-May-05	06/30/1989	Inventory 07	NONE	6685
IAGP	A006402	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-64	64115	\$10,489	1	1236	210	N	Czamecki, Mike	1-May-05	06/30/1989	Inventory 07	NONE	6685
IAGP	A006892	PORTABLE OSCILLOSCOPE	IWATSU INSTRUMENTS, INC.	SS5702	92242029	\$401	1	1236	109B	Y	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A006893	POWER SUPPLY	HEWLETT PACKARD	6203B	5K1474	\$650	1	1236	109B	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6130
IAGP	A011129	POWER SUPPLY	HEWLETT PACKARD	6443B	1930A02029	\$750	1	1236	222	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6130
IAGP	A011695	NTF AOA PACKAGE	LANGLEY RESEARCH CENTER	NFT202	2	\$2,000	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6680
IAGP	A012780	HYGROMETER SENSOR	EG & G, INC.	S809R	S809R	\$5,000	1	1247E	100	N		1-May-05	11/30/1993	Inventory 07	NONE	6685
IAGP	A013108	TORQUE WRENCH	SNAP ON TOOLS CORP.	QC2R100	298100978	\$150	1	1236	222B	Y	Guthrie, Paul	1-May-05	02/28/1994	Inventory 07	NONE	6635
IAGP	A013110	TORQUE WRENCH	SNAP ON TOOLS CORP.	QC2R200	397300466	\$75	1	1236	222B	Y	Guthrie, Paul	1-May-05	02/28/1994	Inventory 07	NONE	6635
IAGP	A013111	TORQUE WRENCH	SNAP ON TOOLS CORP.	QC2R1000	198201816	\$150	1	1236	222B	Y	Guthrie, Paul	1-May-05	02/28/1994	Inventory 07	NONE	6635
IAGP	A013669	NTF AOA PACKAGE	LANGLEY RESEARCH CENTER	NFT114	1	\$3,000	1	1236	248	N	Czamecki, Mike	1-May-05	07/31/1994	Inventory 07	NONE	6610
IAGP	A014065	ELECTRONIC BALANCE	ACCULAB	V1200	974EBD039	\$265	1	1236	118	Y	Branch, Josh	1-May-05	NONE	Inventory 07	NONE	6670
IAGP	A014248	DISPLAY UNIT	GATEWAY 2000	PNV14VC	T938B0696	\$400	1	1215	101A	N	Steam Plant	1-May-05	09/30/1987	Inventory 07	NONE	7025
IAGP	A014249	DISPLAY UNIT	NEC TECHNOLOGIES	5FGE	4990117LA	\$400	1	1215	109	N	Steam Plant	1-May-05	10/31/1990	Inventory 07	NONE	7025
IAGP	A014250	DISPLAY UNIT	NEC TECHNOLOGIES	5FGE	4990161LA	\$400	1	1215	109	N	Steam Plant	1-May-05	10/31/1990	Inventory 07	NONE	7025
IAGP	A014251	MAGNETIC TAPE RECORDER	COLORADO MEMORY SYSTEMS	250MB	361509	\$290	1	1215	109	N	Steam Plant	1-May-05	01/31/1991	Inventory 07	NONE	7025
IAGP	A014252	CHARACTER READER	EPSON AMERICA, INC.	L810P080A	4480908	\$1,104	1	1215	101A	N	Steam Plant	1-May-05	10/31/1989	Inventory 07	NONE	7025
IAGP	A014717	DISPLAY UNIT	INFOTEL	333N2000U2	\$400	1	1241	202	Y			1-May-05	10/31/1989	Inventory 07	NONE	7025
IAGP	A017142	ANALOG/DIGITAL CONVERTER	NEFF INSTRUMENT CORP.	90023023	151	\$6,500	1	1148	104	N		1-May-05	05/31/1983	Inventory 07	NONE	6625
IAGP	A019468	CURRENT PROBE	FLUKE CORP.	EY8100	3675261	\$250	1	1236	110	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019469	MULTIMETER	TRIPLETT CORP.	631	3472	\$550	1	1236	125	N		1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019470	SIGNAL CONDITIONER	ENDEVCO	2775A	CC54	\$650	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019471	SIGNAL CONDITIONER	ENDEVCO	2775A	CC80	\$650	1	1236	122	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019472	SIGNAL CONDITIONER	ENDEVCO	2775A	CC83	\$650	1	1236	122	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019474	SIGNAL CONDITIONER	ENDEVCO	2775A	CC87	\$650	1	1236	122	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	A019476	POWER SUPPLY	HEWLETT PACKARD	6443B	1142A02330	\$650	1	1236	220	N		1-May-05	NONE	Inventory 07	NONE	6130
IAGP	A022946	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	OX-94	9X4010464	\$395	1	1236	123	Y	Neff, Roy	1-May-05	10/31/1995	EXCESS	NONE	6630
IAGP	A022972	GAS DETECTOR	GASTECH, INC.	OX95	9845046	\$475	1	1236	123	Y	Neff, Roy	1-May-05	10/31/1995	EXCESS	NONE	6665
IAGP	A022973	GAS DETECTOR	GASTECH, INC.	OX95	9844118	\$475	1	1236	123	Y	Neff, Roy	1-May-05	10/31/1995	EXCESS	NONE	6665
IAGP	A023598	DIGITAL MULTIMETER	FLUKE CORP.	77-2	5128015	\$144	1	1262	103	Y		1-May-05	03/31/1989	Inventory 07	NONE	6625
IAGP	A023599	DIGITAL MULTIMETER	FLUKE CORP.	77	52280220	\$138	1	1258	200	Y		1-May-05	02/28/1987	Inventory 07	NONE	6625
IAGP	A028389	TORQUE WRENCH	SNAP ON TOOLS CORP.	QC2R200	600200180	\$100	1	1236	248	Y	Good, Linda	1-May-05	NONE	Inventory 07	NONE	6635
IAGP	A028390	TORQUE WRENCH	SNAP ON TOOLS CORP.	QC2R200	600400890	\$100	1	1236	248	Y	Good, Linda	1-May-05	NONE	Inventory 07	NONE	6635
IAGP	A028671	HYGROMETER SENSOR	EDGE TECHNOLOGIES	3C10208	06499	\$85	1	1236	103	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6635
IAGP	C000603	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A01	\$995	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000604	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A02	\$995	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000605	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A03	\$150	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000606	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A04	\$150	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000607	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A05	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000608	OXYGEN MONITOR	GASTECH, INC.	1621	NONE	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000609	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A07	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000610	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A08	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000611	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A09	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000612	OXYGEN MONITOR	GASTECH, INC.	1621	NONE	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000613	OXYGEN MONITOR	GASTECH, INC.	1621	NONE	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000614	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B02	\$150	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000615	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A13	\$350	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000616	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A14	\$350	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000617	OXYGEN MONITOR	GASTECH, INC.	1621	NONE	\$525	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000618	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22A16	\$250	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000619	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B11	\$995	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000620	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B12	\$525	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000621	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B13	\$525	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000622	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B14	\$525	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000623	OXYGEN MONITOR	GASTECH, INC.	1621	AE 36015	\$525	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000624	OXYGEN MONITOR	GASTECH, INC.	1620	AE 36001	\$150	1	1236	220	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000625	OXYGEN MONITOR	GASTECH, INC.	1620	NONE	\$150	1	1236A	100	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000626	OXYGEN MONITOR	GASTECH, INC.	1620	AE 36A01	\$525	1	1236A	100	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000627	OXYGEN MONITOR	GASTECH, INC.	1621	NONE	\$250	1	1235	103	N		1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000628	OXYGEN MONITOR	GASTECH, INC.	1620	AE 3502	\$250	1	1235	103	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000631	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-13	\$150	1	1242B	100	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000632	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-12	\$525	1	1242	301	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000633	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-11	\$525	1	1242	106	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000634	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-10	\$525	1	1242	106	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000635	OXYGEN MONITOR	GASTECH, INC.	1621	D-8	\$500	1	1242	106	N		1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000636	OXYGEN MONITOR	GASTECH, INC.	1621	D-7	\$250	1	1242	106	N		1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000637	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-16	\$525	1	1242	106	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000638	OXYGEN MONITOR	GASTECH, INC.	1621	D-5	\$250	1	1242	100	N		1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000639	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-4	\$525	1	1242	101W	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000640	OXYGEN MONITOR	RKI INSTRUMENTS, INC.	PIONEER	D-3	\$525	1	1242	101E	N		1-May-05	NONE	Inventory 07	NONE	6630
IAGP	C000641	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22B04	\$150	1	1236	109B	N	Neff, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C000642	OXYGEN MONITOR	GASTECH, INC.	1621	D-1	\$										

IAGP	C002368	TORQUE WRENCH	UTICA PRECISION TOOL CO., IN	TS-30	NTF-33	\$295	1	1236	125	Y	Goldstein, Andy	1-May-05	NONE	Inventory 07	NONE	6635
IAGP	C002369	TORQUE WRENCH	UTICA PRECISION TOOL CO., IN	TS-30	NTF-34	\$295	1	1236	122	Y		1-May-05	NONE	EXCESS	NONE	6635
IAGP	C002652	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22809	\$500	1	1236	220	N	Neft, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C002653	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22810	\$500	1	1236	220	N	Neft, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C002654	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22C09	\$500	1	1236	220	N	Neft, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C002655	OXYGEN MONITOR	GASTECH, INC.	1621	AE 22C10	\$500	1	1236	220	N	Neft, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C003267	MICROMETER	S-I INDUSTRIES, INC.	02-051-114	NTF-12	\$250	1	1236	122	Y	Goldstein, Andy	1-May-05	NONE	Inventory 07	NONE	5210
IAGP	C003476	DC POWER SUPPLY	HEWLETT PACKARD	6113A	1928A01640	\$715	1	1236	248	N	Czamecki, Mike	1-May-05	12/31/1976	Inventory 07	NONE	6130
IAGP	C003477	DC POWER SUPPLY	HEWLETT PACKARD	6113A	1928A01652	\$715	1	1236	248	N	Czamecki, Mike	1-May-05	12/31/1976	Inventory 07	NONE	6130
IAGP	C003482	DC POWER SUPPLY	HEWLETT PACKARD	6113A	1928A01651	\$715	1	1236	220	N	Czamecki, Mike	1-May-05	01/31/1977	Inventory 07	NONE	6130
IAGP	C003483	DC POWER SUPPLY	HEWLETT PACKARD	6113A	1928A01647	\$715	1	1236	220	N	Czamecki, Mike	1-May-05	05/31/1977	Inventory 07	NONE	6130
IAGP	C003837	OXYGEN MONITOR	GASTECH, INC.	0X82	0X1157	\$525	1	1236	220	Y	Neft, Roy	1-May-05	NONE	Inventory 07	NONE	6665
IAGP	C003838	OXYGEN MONITOR	GASTECH, INC.	0X82	0X1158	\$525	1	1241	201	Y		1-May-05	07/31/1981		NONE	6665
IAGP	C003841	OXYGEN MONITOR	GASTECH, INC.	0X82	0X1156	\$525	1	1236	117	Y	Neft, Roy	1-May-05	07/31/1981	Inventory 07	NONE	6665
IAGP	C003842	OXYGEN MONITOR	GASTECH, INC.	0X82	0X1155	\$525	1	1236	117	Y	Neft, Roy	1-May-05	07/31/1981	Inventory 07	NONE	6665
IAGP	G073691	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	6205000	281	\$13,592	1	1221C	203	N		1-May-05	01/31/1986		1990	6625
IAGP	G073693	DATA ACQUISITION SYSTEM	NEFF INSTRUMENT CORP.	6206000	397	\$42,048	1	1221C	203	N		1-May-05	01/31/1986		1990	6625
IAGP	G073694	INPUT ASSEMBLY EXPANDER	NEFF INSTRUMENT CORP.	6206001	358	\$26,880	1	1221C	203	N		1-May-05	01/31/1986		1990	6625
IAGP	G073696	SIGNAL CONDITIONER	MODULAR COMPUTER SYSTEM	9013-4	NONE	\$8,370	1	1236	220	N		1-May-05	01/31/1986		1990	7035
IAGP	G074137	TERMINAL, DATA PROCESSING	INTECOLOR CORP.	8815	629697	\$3,715	1	1215	101	N	Al Mignogna	1-May-05	04/03/1986		1990	7025
IAGP	G074138	TERMINAL, DATA PROCESSING	INTECOLOR CORP.	8815	630198	\$3,715	1	1215	109A	N	Al Mignogna	1-May-05	04/03/1986		1990	7025
IAGP	G074460	SIMULATOR, SIGNAL, FLOW	ENDRESS & HAUSER, INC.	ZK6000	80982	\$2,000	1	1188	102	Y		1-May-05	04/26/1986		1990	6680
IAGP	G074764	MONITOR, TELEVISION	MATSUSHITA ELEC INDUS CO	CT2010Y	FA0140279	\$521	1	1199	111	Y		1-May-05	05/16/1986		1990	5820
IAGP	G074856	FILING SYSTEM	KARDEX SYSTEMS INC	NONE	SERIES80	\$14,067	1	1130T	203	N	Carol Herbert	1-May-05	05/13/1986		1990	7460
IAGP	G074856	FILING SYSTEM	KARDEX SYSTEMS INC	SERIES80	NONE	\$14,067	1	1130T2	203	N	duplicate of line 755	1-May-05	04/30/1986		1990	7460
IAGP	G074948	WRENCH, HYDRAULIC, TORQUE	HYTORC DIV. UNEX CORP.	HY5XL	NONE	\$6,033	1	1187	100	Y	Lee Jordan	1-May-05	07/12/1986		1990	4940
IAGP	G074987	COMPOSING MACHINE	MERLIN MACHINE CORP.	2580	JL001-1716	\$1,037	1	1236	101	Y		1-May-05	07/31/1986		1990	7430
IAGP	G075585	TEST SET	SIEMENS CORP	PT5A	90202014	\$12,208	1	1188	102	Y		1-May-05	01/29/1986		1990	6625
IAGP	G075608	INDICATOR, PRESSURE, DIGITAL	EATON CORP CONTROLS DIV	UPS3000EA	1818	\$1,699	1	1188	102	Y		1-May-05	06/26/1986		1990	6685
IAGP	G075609	INDICATOR, PRESSURE, DIGITAL	EATON CORP CONTROLS DIV	UPS3000BC	1817	\$1,699	1	1188	102	Y		1-May-05	06/26/1986		1990	6685
IAGP	G075912	DIAPHRAGM, PUMP	WILDEN PUMP AND ENGINEER	M1 SST-TF/TF/ST	140449	\$4,027	1	1188	100	Y		1-May-05	06/27/1986		1990	4310
IAGP	G076356	PUMP, AIR	WILDEN PUMP AND ENGINEER	MRK1-TF/TF/KT	153662	\$1,188	1	1188	100	Y		1-May-05	08/01/1986		1990	4310
IAGP	G076441	PERSONAL COMPUTER	INDUSTRIAL COMPUTER SOURC	7515-33H05	90052202	\$3,050	1	1236	220	N		1-May-05	07/31/1986		1990	7025
IAGP	G076442	PERSONAL COMPUTER	INDUSTRIAL COMPUTER SOURC	7515	90052201	\$12,106	1	1236	220	N		1-May-05	08/31/1986		1990	7025
IAGP	G076443	PERSONAL COMPUTER	INDUSTRIAL COMPUTER SOURC	7515	90052203	\$19,912	1	1236	220	N		1-May-05	07/31/1986		1990	7025
IAGP	G077526	LINE PRINTER	PRINTRONIX	P8012	904747	\$10,084	1	1236	220	N		1-May-05	08/31/1986		1990	7025
IAGP	G078055	FILING SYSTEM	KARDEX SYSTEMS INC	LK580M	18577	\$13,879	1	1130T2	203	N	Carol Herbert	1-May-05	08/28/1986		1990	7460
IAGP	G078055	FILING SYSTEM	KARDEX SYSTEMS INC	LK580M	18577	\$13,879	1	1130T2	203	N	duplicate of line 754	1-May-05	07/31/1986		1990	7460
IAGP	G078108	OVEN, DRYING	HENKEL INC.	K1000	NONE	\$1,879	1	1223	100	Y		1-May-05	10/02/1986		1990	4430
IAGP	G079082	LASER PRINTER	HEWLETT PACKARD	LASERJET II	3033A47366	\$1,595	1	1236	125	Y		1-May-05	10/31/1986		1990	7025
IAGP	G079321	OSCILL OSCOPRE	HITACHI DENSHI LTD.	V-209	58678	\$1,262	1	101		Y		1-May-05	10/31/1986		1990	6625
IAGP	G079853	FLIGHT BUGGY	SCHROEDER BROTHERS CORP	HF82KEV1.5	6572	\$1,145	1	1187	100	Y		1-May-05	01/27/1987		N/A	N/A
IAGP	G079870	SIGNAL CONDITIONER	MODULAR COMPUTER SYSTEM	9013-6	NONE	\$3,000	1	1236	220	N		1-May-05	11/30/1986		1990	7025
IAGP	G079873	WELDER, HELIARC	LINCOLN ELECTRIC CO	TG300/300	777027	\$2,371	1	1212C	209	Y		1-May-05	01/21/1987		1991	3431
IAGP	L018757	ANALYZER, INSULATION	DOBLE ENGINEERING CO	M4100	99400318	\$7,680	1	1188	100	Y		1-May-05	11/21/1996		2000	6625
IAGP	L018758	CONTROLLER, COMPUTER MICRO	DOBLE ENGINEERING CO	M4200	129300077	\$6,000	1	1188	100	Y		1-May-05	11/21/1996		2000	6625
IAGP	M033957	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-32	32810	\$5,000	1	1236	248	N		1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M094664	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-48	48153	\$7,000	1	1236	117	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M094909	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-48	48131	\$7,000	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M095084	CALIBRATION SUPPLY PCB	NEFF INSTRUMENT CORP.	90023039	145	\$1,500	1	1148	104	N		1-May-05	NONE	Inventory 07	NONE	6625
IAGP	M095433	ACCELEROMETER	PCB PIEZOTRONICS, INC.	309M42	3349	\$450	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6680
IAGP	M095489	DIGITAL MULTIMETER	FLUKE CORP.	77-8N	54161234	\$75	1	1236	248	Y	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6625
IAGP	M095622	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-48	48160	\$7,000	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M095707	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-32	321369	\$5,000	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M095734	VACUUM GAUGE	TELEDYNE HASTINGS INSTRUM	VT-6A	131	\$350	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M095737	VACUUM GAUGE	TELEDYNE HASTINGS INSTRUM	VT-6A	129	\$350	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M095755	VACUUM GAUGE	TELEDYNE HASTINGS INSTRUM	VT-6A	134	\$1,249	1	1236	248	N	Czamecki, Mike	1-May-05	02/28/1979	Inventory 07	NONE	6685
IAGP	M095823	CALIBRATION SUPPLY PCB	NEFF INSTRUMENT CORP.	90023039	5000104	\$1,500	1	1148	104	N		1-May-05	11/30/1995		NONE	6625
IAGP	M095980	VACUUM GAUGE	TELEDYNE HASTINGS INSTRUM	VT-6A	130	\$350	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M098165	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-48	48047	\$7,000	1	1236	248	N	Czamecki, Mike	1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M098272	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-32	32587	\$5,000	1	1236	248	N	Czamecki, Mike	1-May-05	05/31/1990	Inventory 07	NONE	6685
IAGP	M098412	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-32	32220	\$5,000	1	1236	248	N	Czamecki, Mike	1-May-05	07/31/1990	Inventory 07	NONE	6685
IAGP	M098414	ESP MODULE	PRESSURE SYSTEMS, INC.	ESP-32	32223	\$5,000	1	1236	248	N	Czamecki, Mike	1-May-05	07/31/1990	Inventory 07	NONE	6685
IAGP	M099330	HYGROMETER	EG & G, INC.	300	11967	\$750	1	1247E	100	N		1-May-05	NONE	Inventory 07	NONE	6685
IAGP	M099569	OMEGA METER/THERMOMETER PROBE	OMEGA ENGINEERING, INC.	H91	T7	\$350	1	1236	220	Y	Goldstein, Andy	1-May-05	09/30/1988	Inventory 07	NONE	6685
IAGP	N/A	SAW, BAND	ARMSTRONG	MARVEL 8	81193	\$1,268.00	1	1189	101	Y	Q Pakko - NASA			Inventory 07	8/1297E per NEMS	
IAGP	N/A	COMPUTER, MICRO	COMPAQ	833 MHZ	N/A	N/A	1	1215	101	N	Steam Plant	1-May-05	N/A		N/A	N/A
IAGP	N/A	COMPUTER, MICRO	GATEWAY	166 MHZ	N/A	N/A	1	1215	101	Y		1-May-05	N/A		N/A	N/A
IAGP	NONE	TYPEWRITER	PANASONIC KX-E400	N/A	N/A	\$100	1	1130T2	202	Y		1-May-05	N/A		N/A	N/A
IAGP	NONE	TYPEWRITER (2)	IBM	N/A	N/A	\$100	1	1130T2	206/208	Y		1-May-05	N/A		N/A	N/A
IAGP	NONE	MICROFICHE/JACKET READER	REALISTIC	N/A	N/A	\$150	1	1130T2	200	Y		1-May-05	N/A		N/A	N/A
IAGP	NONE	CONTINUOUS FEED PRINTER (FOR APERTURE)	EPSON FX-2180	N/A	N/A	\$1,500	1	1130T2	203	N		1-May-05	N/A		N/A	N/A
IAGP	NONE	HEADPHONES	TELEX	CS-75	NONE	\$100.00	1								1512	
IAGP	NONE	HEADPHONES	TELEX	CS-75	NONE	\$100.00	1								1513	
IAGP	NONE	HEADPHONES	PLANTRONICS	SUPRA	NONE	\$100.00	1								1514	
IAGP	NONE	HEADPHONES	PLANTRONICS	SUPRA	NONE	\$100.00	1								1515	
IAGP	NONE	HEADPHONES	PLANTRONICS	SUPRA	NONE	\$100.00	1								1516	
IAGP	NONE	HEADPHONES	PLANTRONICS	SUPRA	NONE	\$100.00	1								1517	
IAGP	NONE	HEADPHONES	PLANTRONICS	SUPRA	NONE	\$100.00	1								1518	
IAGP	NONE	MODEM	E. F. JOHNSON CO.	9600	32950A276A02092	\$100.00	1								6467	
IAGP	NONE	MODEM	E. F. JOHNSON CO.	9600	32950A276A02096	\$100.00	1								6447	
IAGP	NONE	MODEM	E. F. JOHNSON CO.	9600	32950A276A02091	\$100.00	1								6465	
IAGP	NONE	MODEM	E. F. JOHNSON CO.	9600	32950A276A02094	\$100.00	1								6466	
IAGP	NONE	MODEM	E. F. JOHNSON CO.	9600	32950A276A02095	\$100.00	1									



**Exhibit F—RESERVED**

## EXHIBIT I—CONTRACT SECURITY CLASSIFICATION

<b>DEPARTMENT OF DEFENSE</b> <b>CONTRACT SECURITY CLASSIFICATION SPECIFICATION</b> <i>(The requirements of the DoD Industrial Security Manual apply to all aspects of this effort)</i>				<b>1. CLEARANCE AND SAFEGUARDING</b> a. FACILITY CLEARANCE REQUIRED <b>SECRET</b> b. LEVEL OF SAFEGUARDING REQUIRED <b>SECRET</b>	
<b>2. THIS SPECIFICATION IS FOR: (X and complete as applicable)</b>			<b>3. THIS SPECIFICATION IS: (X and complete as applicable)</b>		
<b>X</b>	a. PRIME CONTRACT NUMBER <b>NNL04AA03B</b>		<b>X</b>	a. ORIGINAL (Complete date in all cases) Date (YYMMDD) <b>04/01/28</b>	
	b. SUBCONTRACT NUMBER			b. REVISED (Supersedes all previous specs)	Revision No. Date (YYMMDD)
	c. SOLICITATION OR OTHER NUMBER	Due Date (YYMMDD)		c. FINAL (Complete Item 5 in all cases)	Date (YYMMDD)
<b>4. IS THIS A FOLLOW-ON CONTRACT?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes complete the following Classified material received or generated under _____ (Preceding Contract Number) is transferred to this follow-on contract					
<b>5. IS THIS A FINAL DD FORM 254?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes complete the following In response to the contractor's request dated _____, retention of the identified classified material is authorized for the period of _____.					
<b>6. CONTRACTOR (Include Commercial and Government Entity (CAGE) Code)</b>					
a. NAME, ADDRESS, AND ZIP CODE		b. CAGE CODE	c. COGNIZANT SECURITY OFFICE (Name, Address, and Zip Code)		
<b>SVERDRUP TECHNOLOGY, INC.</b> <b>600 WILLIAM NORTHERN BLVD.</b> <b>TULLAHOMA, TN 37388</b>		<b>07486</b>	<b>DEFENSE SECURITY SERVICE</b> <b>BLDG 3216, LITTLE JOHN RD</b> <b>REDSTONE ARSENAL, AL 35898</b>		
<b>7. SUBCONTRACTOR</b>					
a. NAME, ADDRESS, AND ZIP CODE		b. CAGE CODE	c. COGNIZANT SECURITY OFFICES (Name, Address, and Zip Code)		
<b>8. ACTUAL PERFORMANCE</b>					
a. LOCATION		b. CAGE CODE	c. COGNIZANT SECURITY OFFICE (Name, Address, and Zip Code)		
<b>NASA LANGLEY RESEARCH CENTER</b> <b>HAMPTON, VA 23681-2199</b>		<b>N/A</b>	<b>N/A</b>		
<b>9. GENERAL IDENTIFICATION OF THIS PROCUREMENT</b>					
<b>RESEARCH OPERATIONS, MAINTENANCE ENGINEERING AND RELATED INFORMATION TECHNOLOGY (ROME) CONTRACT</b>					
<b>10. THIS CONTRACT WILL REQUIRE ACCESS TO:</b>		YES	NO	<b>11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:</b>	
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION		<b>X</b>		a. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY	<b>X</b>
b. RESTRICTED DATA			<b>X</b>	b. RECEIVE CLASSIFIED DOCUMENTS ONLY	<b>X</b>
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION			<b>X</b>	c. RECEIVE AND GENERATE CLASSIFIED MATERIAL	<b>X</b>
d. FORMERLY RESTRICTED DATA:			<b>X</b>	d. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE	<b>X</b>
e. INTELLIGENCE INFORMATION:				e. PERFORM SERVICES ONLY	
(1) Sensitive Compartmented Information (SCI)			<b>X</b>	f. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., PUERTO RICO, U.S. POSSESSIONS AND TRUST TERRITORIES	<b>X</b>
(2) Non-SCI			<b>X</b>	g. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER	<b>X</b>
f. SPECIAL ACCESS INFORMATION			<b>X</b>	h. REQUIRE A COMSEC ACCOUNT	<b>X</b>
g. NATO INFORMATION			<b>X</b>	i. HAVE A TEMPEST REQUIREMENT	<b>X</b>
h. FOREIGN GOVERNMENT INFORMATION			<b>X</b>	j. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS	<b>X</b>
i. LIMITED DISSEMINATION INFORMATION			<b>X</b>	k. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE	<b>X</b>
j. FOR OFFICIAL USE ONLY INFORMATION		<b>X</b>		l. OTHER (Specify).	<b>X</b>
k. OTHER (Specify)					

**2. PUBLIC RELEASE.** Any information (*classified or unclassified*) pertaining to this contract shall not be released for public dissemination except as provided by the industrial Security Manual or unless it has been approved for public release by appropriate U.S. Government authority. Proposed public release shall be submitted for approval prior to release

☐

Direct

☒Through (*Specify*):

**NASA LANGLEY RESEARCH CENTER, M/S 126, HAMPTON, VA 23681-2199**

**ATTN: Lisa Harvey, (757) 864-2444**

To the Office of Public Affairs, National Aeronautics and Space Administration, Washington, DC 20546, for review.

\*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

**13. SECURITY GUIDANCE.** The security classification guidance needed for this effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes: to challenge the guidance or classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. (*Fill in as appropriate for the classified effort. Attach, or forward under separate correspondence, any document/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.*)

SECURITY CLASSIFICATION GUIDANCE WILL BE PROVIDED BY THE RESPONSIBLE NASA OFFICIAL PRIOR TO INITIATING CLASSIFIED TASKS ASSOCIATED WITH THIS CONTRACT.

PERFORMANCE OF THE CONTRACT SHALL REQUIRE ACCESS TO CLASSIFIED INFORMATION AT THE LOCATION IDENTIFIED IN SECTION 8 OF THIS DOCUMENT. LIMITED ACCESS AT CLEARED CONTRACTOR FACILITIES OR OTHER AREAS APPROVED BY THE GOVERNMENT MAY BE NECESSARY TO SUPPORT UNIQUE CLASSIFIED SUPPORT EFFORTS.

A LIMITED NUMBER OF ESSENTIAL CONTRACTOR EMPLOYEES WILL REQUIRE A FINAL SECRET PERSONNEL SECURITY CLEARANCE (PCL) UPON IMPLEMENTATION OF EACH PHASE OF THIS CONTRACT. THE GOVERNMENT WILL IDENTIFY TO THE CONTRACTOR THOSE MANPOWER POSITIONS AFFECTED BY THIS REQUIREMENT.

THE CONTRACTOR FACILITY SECURITY OFFICER (FSO) SHALL CERTIFY THE SECURITY CLEARANCE STATUS OF EMPLOYEES SUPPORTING THIS CONTRACT VIA STANDARD VISIT REQUEST SUBMITTED ANNUALLY OR AS REQUIRED TO THE CENTER BADGE AND PASS OFFICE (FAX: 757-864-8299). THE VISIT REQUEST SHALL INCLUDE THE LEVEL OF CLEARANCE, DATE OF ISSUE, INVESTIGATION TYPE AND DATE COMPLETED.

THE NASA LANGLEY RESEARCH CENTER CHIEF OF SECURITY, MAIL STOP 450, HAMPTON, VA 23681-2199 SHALL BE PROVIDED A COPY OF ANY DD FORMS 254 ISSUED TO SUBCONTRACTORS PERFORMING WORK FOR THIS CONTRACT.

**14. ADDITIONAL SECURITY REQUIREMENTS.** Requirements, in addition to ISM requirements, are established for this contract. (*If Yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies the additional requirements. Provide a copy of the requirements to the cognizant security office. Use Item 13 if additional space is needed.*)

☐

Yes

☒

No

**15. INSPECTIONS.** Elements of this contract are outside the inspection responsibility of the cognizant security office. (*If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use Item 13 if additional space is needed.*)

☐

Yes

☒

No

**16. CERTIFICATION AND SIGNATURE.** Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL

**MICHAEL E. REAGAN**

b. TITLE

**INDUSTRIAL SECURITY SPECIALIST**

c. TELEPHONE (*Include Area Code*)

**(757) 864-9470**

d. ADDRESS (*Include ZIP Code*)

**NASA LANGLEY RESEARCH CENTER  
MAIL STOP 450  
HAMPTON, VA 23681-2199**

e. SIGNATURE

Original signed by M. Reagan (see mod 3 folder for original)

**17. REQUIRED DISTRIBUTION**

☒

a. CONTRACTOR

☐

b. SUBCONTRACTOR

☒

c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR

☐

d. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION

☒

e. ADMINISTRATIVE CONTRACTING OFFICER

☒

f. OTHERS AS NECESSARY (PSM)

**NNL04AA03B**  
**EXHIBIT J—REGISTER OF WAGE DETERMINATION AND FRINGE BENEFITS**  
**REVISED MODIFICATION 141**

\*\*\*\*\* THIS WAGE DETERMINATION WAS REPLACED 06/02/2009 \*\*\*\*\*  
 WD 05-2544 (Rev.-9) was first posted on www.wdol.gov on 05/19/2009

\*\*\*\*\*  
 \*\*\*\*\*

REGISTER OF WAGE DETERMINATIONS UNDER	U.S. DEPARTMENT OF LABOR
THE SERVICE CONTRACT ACT	EMPLOYMENT STANDARDS ADMINISTRATION
By direction of the Secretary of Labor	WAGE AND HOUR DIVISION
	WASHINGTON D.C. 20210

Shirley F. Ebbesen	Wage Determination No.: 2005-2544
Director	Revision No.: 9
Division of	Date Of Revision: 05/14/2009
Wage Determinations	

States: North Carolina, Virginia

Area: North Carolina Counties of Camden, Chowan, Currituck, Gates, Pasquotank, Perquimans  
 Virginia Counties of Chesapeake, Gloucester, Hampton, Isle of Wight, James City, Mathews, Newport News, Norfolk, Poquoson, Portsmouth, Southampton, Suffolk, Surry, Virginia Beach, Williamsburg, York

\*\*Fringe Benefits Required Follow the Occupational Listing\*\*

OCCUPATION CODE - TITLE	MINIMUM WAGE RATE
01000 - Administrative Support And Clerical Occupations	
01011 - Accounting Clerk I	13.35
01012 - Accounting Clerk II	15.60
01013 - Accounting Clerk III	17.45
01020 - Administrative Assistant	22.28
01040 - Court Reporter	17.11
01051 - Data Entry Operator I	11.04
01052 - Data Entry Operator II	13.90
01060 - Dispatcher, Motor Vehicle	16.01
01070 - Document Preparation Clerk	12.01
01090 - Duplicating Machine Operator	12.01
01111 - General Clerk I	10.98
01112 - General Clerk II	13.37
01113 - General Clerk III	14.95
01120 - Housing Referral Assistant	19.08
01141 - Messenger Courier	11.45
01191 - Order Clerk I	13.46
01192 - Order Clerk II	17.61
01261 - Personnel Assistant (Employment) I	15.58
01262 - Personnel Assistant (Employment) II	17.42
01263 - Personnel Assistant (Employment) III	19.43
01270 - Production Control Clerk	21.96
01280 - Receptionist	11.77
01290 - Rental Clerk	12.86
01300 - Scheduler, Maintenance	15.30
01311 - Secretary I	15.30

**NNL04AA03B**  
**EXHIBIT J—REGISTER OF WAGE DETERMINATION AND FRINGE BENEFITS**  
**REVISED MODIFICATION 141**

01312 - Secretary II	17.11
01313 - Secretary III	19.08
01320 - Service Order Dispatcher	15.37
01410 - Supply Technician	22.28
01420 - Survey Worker	13.82
01531 - Travel Clerk I	11.04
01532 - Travel Clerk II	11.78
01533 - Travel Clerk III	12.57
01611 - Word Processor I	13.03
01612 - Word Processor II	14.63
01613 - Word Processor III	16.36
05000 - Automotive Service Occupations	
05005 - Automobile Body Repairer, Fiberglass	21.34
05010 - Automotive Electrician	19.12
05040 - Automotive Glass Installer	18.26
05070 - Automotive Worker	18.26
05110 - Mobile Equipment Servicer	16.50
05130 - Motor Equipment Metal Mechanic	20.02
05160 - Motor Equipment Metal Worker	18.26
05190 - Motor Vehicle Mechanic	20.02
05220 - Motor Vehicle Mechanic Helper	15.57
05250 - Motor Vehicle Upholstery Worker	17.36
05280 - Motor Vehicle Wrecker	18.26
05310 - Painter, Automotive	19.12
05340 - Radiator Repair Specialist	17.36
05370 - Tire Repairer	13.37
05400 - Transmission Repair Specialist	20.02
07000 - Food Preparation And Service Occupations	
07010 - Baker	11.24
07041 - Cook I	9.67
07042 - Cook II	10.68
07070 - Dishwasher	7.85
07130 - Food Service Worker	9.13
07210 - Meat Cutter	15.33
07260 - Waiter/Waitress	8.00
09000 - Furniture Maintenance And Repair Occupations	
09010 - Electrostatic Spray Painter	21.23
09040 - Furniture Handler	14.67
09080 - Furniture Refinisher	17.63
09090 - Furniture Refinisher Helper	14.36
09110 - Furniture Repairer, Minor	16.02
09130 - Upholsterer	18.34
11000 - General Services And Support Occupations	
11030 - Cleaner, Vehicles	10.98
11060 - Elevator Operator	10.98
11090 - Gardener	12.92
11122 - Housekeeping Aide	11.92
11150 - Janitor	11.92
11210 - Laborer, Grounds Maintenance	10.78
11240 - Maid or Houseman	8.39
11260 - Pruner	11.63
11270 - Tractor Operator	12.60
11330 - Trail Maintenance Worker	10.78
11360 - Window Cleaner	12.64

**NNL04AA03B**  
**EXHIBIT J—REGISTER OF WAGE DETERMINATION AND FRINGE BENEFITS**  
**REVISED MODIFICATION 141**

12000 - Health Occupations	
12010 - Ambulance Driver	16.84
12011 - Breath Alcohol Technician	15.31
12012 - Certified Occupational Therapist Assistant	22.62
12015 - Certified Physical Therapist Assistant	22.63
12020 - Dental Assistant	14.16
12025 - Dental Hygienist	31.09
12030 - EKG Technician	23.36
12035 - Electroneurodiagnostic Technologist	23.36
12040 - Emergency Medical Technician	16.84
12071 - Licensed Practical Nurse I	13.68
12072 - Licensed Practical Nurse II	15.29
12073 - Licensed Practical Nurse III	17.06
12100 - Medical Assistant	12.25
12130 - Medical Laboratory Technician	15.93
12160 - Medical Record Clerk	12.96
12190 - Medical Record Technician	14.50
12195 - Medical Transcriptionist	14.08
12210 - Nuclear Medicine Technologist	28.82
12221 - Nursing Assistant I	9.46
12222 - Nursing Assistant II	10.14
12223 - Nursing Assistant III	11.06
12224 - Nursing Assistant IV	12.29
12235 - Optical Dispenser	17.47
12236 - Optical Technician	15.08
12250 - Pharmacy Technician	15.75
12280 - Phlebotomist	12.32
12305 - Radiologic Technologist	23.79
12311 - Registered Nurse I	22.15
12312 - Registered Nurse II	27.10
12313 - Registered Nurse II, Specialist	27.10
12314 - Registered Nurse III	32.79
12315 - Registered Nurse III, Anesthetist	32.79
12316 - Registered Nurse IV	39.30
12317 - Scheduler (Drug and Alcohol Testing)	18.26
13000 - Information And Arts Occupations	
13011 - Exhibits Specialist I	20.46
13012 - Exhibits Specialist II	25.36
13013 - Exhibits Specialist III	29.19
13041 - Illustrator I	20.00
13042 - Illustrator II	24.56
13043 - Illustrator III	29.67
13047 - Librarian	32.67
13050 - Library Aide/Clerk	10.41
13054 - Library Information Technology Systems Administrator	22.91
13058 - Library Technician	15.25
13061 - Media Specialist I	16.68
13062 - Media Specialist II	18.66
13063 - Media Specialist III	20.80
13071 - Photographer I	12.66
13072 - Photographer II	16.78
13073 - Photographer III	20.39
13074 - Photographer IV	22.64
13075 - Photographer V	27.40

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13110 - Video Teleconference Technician	15.72
14000 - Information Technology Occupations	
14041 - Computer Operator I	15.19
14042 - Computer Operator II	16.99
14043 - Computer Operator III	18.95
14044 - Computer Operator IV	21.05
14045 - Computer Operator V	23.31
14071 - Computer Programmer I (1)	19.54
14072 - Computer Programmer II (1)	22.34
14073 - Computer Programmer III (1)	27.33
14074 - Computer Programmer IV (1)	
14101 - Computer Systems Analyst I (1)	
14102 - Computer Systems Analyst II (1)	
14103 - Computer Systems Analyst III (1)	
14150 - Peripheral Equipment Operator	15.19
14160 - Personal Computer Support Technician	21.05
15000 - Instructional Occupations	
15010 - Aircrew Training Devices Instructor (Non-Rated)	32.86
15020 - Aircrew Training Devices Instructor (Rated)	39.76
15030 - Air Crew Training Devices Instructor (Pilot)	43.67
15050 - Computer Based Training Specialist / Instructor	32.44
15060 - Educational Technologist	27.73
15070 - Flight Instructor (Pilot)	43.67
15080 - Graphic Artist	22.07
15090 - Technical Instructor	20.89
15095 - Technical Instructor/Course Developer	25.56
15110 - Test Proctor	17.61
15120 - Tutor	17.61
16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations	
16010 - Assembler	8.24
16030 - Counter Attendant	8.24
16040 - Dry Cleaner	10.31
16070 - Finisher, Flatwork, Machine	8.24
16090 - Presser, Hand	8.24
16110 - Presser, Machine, Drycleaning	8.24
16130 - Presser, Machine, Shirts	8.24
16160 - Presser, Machine, Wearing Apparel, Laundry	8.24
16190 - Sewing Machine Operator	11.01
16220 - Tailor	11.77
16250 - Washer, Machine	8.95
19000 - Machine Tool Operation And Repair Occupations	
19010 - Machine-Tool Operator (Tool Room)	21.55
19040 - Tool And Die Maker	23.87
21000 - Materials Handling And Packing Occupations	
21020 - Forklift Operator	14.97
21030 - Material Coordinator	21.96
21040 - Material Expediter	21.96
21050 - Material Handling Laborer	10.63
21071 - Order Filler	10.64
21080 - Production Line Worker (Food Processing)	14.97
21110 - Shipping Packer	13.20
21130 - Shipping/Receiving Clerk	13.20
21140 - Store Worker I	11.98
21150 - Stock Clerk	14.99

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21210 - Tools And Parts Attendant	14.97
21410 - Warehouse Specialist	14.97
23000 - Mechanics And Maintenance And Repair Occupations	
23010 - Aerospace Structural Welder	22.99
23021 - Aircraft Mechanic I	22.03
23022 - Aircraft Mechanic II	22.99
23023 - Aircraft Mechanic III	23.93
23040 - Aircraft Mechanic Helper	16.24
23050 - Aircraft, Painter	20.06
23060 - Aircraft Servicer	18.10
23080 - Aircraft Worker	19.04
23110 - Appliance Mechanic	18.33
23120 - Bicycle Repairer	14.43
23125 - Cable Splicer	22.76
23130 - Carpenter, Maintenance	18.33
23140 - Carpet Layer	18.79
23160 - Electrician, Maintenance	20.86
23181 - Electronics Technician Maintenance I	21.82
23182 - Electronics Technician Maintenance II	22.95
23183 - Electronics Technician Maintenance III	24.11
23260 - Fabric Worker	17.81
23290 - Fire Alarm System Mechanic	19.21
23310 - Fire Extinguisher Repairer	16.18
23311 - Fuel Distribution System Mechanic	20.24
23312 - Fuel Distribution System Operator	16.35
23370 - General Maintenance Worker	17.43
23380 - Ground Support Equipment Mechanic	22.03
23381 - Ground Support Equipment Servicer	18.10
23382 - Ground Support Equipment Worker	19.04
23391 - Gunsmith I	16.18
23392 - Gunsmith II	18.33
23393 - Gunsmith III	19.81
23410 - Heating, Ventilation And Air-Conditioning Mechanic	19.21
23411 - Heating, Ventilation And Air Contditioning Mechanic (Research Facility)	20.05
23430 - Heavy Equipment Mechanic	19.39
23440 - Heavy Equipment Operator	19.21
23460 - Instrument Mechanic	19.12
23465 - Laboratory/Shelter Mechanic	18.86
23470 - Laborer	10.39
23510 - Locksmith	19.08
23530 - Machinery Maintenance Mechanic	20.28
23550 - Machinist, Maintenance	19.21
23580 - Maintenance Trades Helper	14.81
23591 - Metrology Technician I	19.12
23592 - Metrology Technician II	20.04
23593 - Metrology Technician III	20.87
23640 - Millwright	25.36
23710 - Office Appliance Repairer	17.89
23760 - Painter, Maintenance	18.33
23790 - Pipefitter, Maintenance	19.54
23810 - Plumber, Maintenance	18.65
23820 - Pneudraulic Systems Mechanic	19.81
23850 - Rigger	19.93



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23870 - Scale Mechanic	17.94
23890 - Sheet-Metal Worker, Maintenance	19.21
23910 - Small Engine Mechanic	17.94
23931 - Telecommunications Mechanic I	22.72
23932 - Telecommunications Mechanic II	24.91
23950 - Telephone Lineman	22.88
23960 - Welder, Combination, Maintenance	18.92
23965 - Well Driller	19.93
23970 - Woodcraft Worker	19.81
23980 - Woodworker	15.72
24000 - Personal Needs Occupations	
24570 - Child Care Attendant	8.71
24580 - Child Care Center Clerk	13.48
24610 - Chore Aide	7.60
24620 - Family Readiness And Support Services Coordinator	12.72
24630 - Homemaker	14.24
25000 - Plant And System Operations Occupations	
25010 - Boiler Tender	20.80
25040 - Sewage Plant Operator	19.08
25070 - Stationary Engineer	20.80
25190 - Ventilation Equipment Tender	15.80
25210 - Water Treatment Plant Operator	19.08
27000 - Protective Service Occupations	
27004 - Alarm Monitor	16.63
27007 - Baggage Inspector	11.07
27008 - Corrections Officer	17.93
27010 - Court Security Officer	19.60
27030 - Detection Dog Handler	15.31
27040 - Detention Officer	17.93
27070 - Firefighter	17.86
27101 - Guard I	11.07
27102 - Guard II	15.31
27131 - Police Officer I	21.25
27132 - Police Officer II	23.60
28000 - Recreation Occupations	
28041 - Carnival Equipment Operator	10.47
28042 - Carnival Equipment Repairer	10.99
28043 - Carnival Equipment Worker	7.46
28210 - Gate Attendant/Gate Tender	13.72
28310 - Lifeguard	12.22
28350 - Park Attendant (Aide)	15.34
28510 - Recreation Aide/Health Facility Attendant	11.20
28515 - Recreation Specialist	19.01
28630 - Sports Official	12.22
28690 - Swimming Pool Operator	15.63
29000 - Stevedoring/Longshoremen Occupational Services	
29010 - Blocker And Bracer	19.76
29020 - Hatch Tender	19.76
29030 - Line Handler	19.76
29041 - Stevedore I	18.79
29042 - Stevedore II	20.78
30000 - Technical Occupations	
30010 - Air Traffic Control Specialist, Center (HFO) (2)	35.15
30011 - Air Traffic Control Specialist, Station (HFO) (2)	24.13

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30012 - Air Traffic Control Specialist, Terminal (HFO) (2)	26.69
30021 - Archeological Technician I	16.62
30022 - Archeological Technician II	17.30
30023 - Archeological Technician III	22.85
30030 - Cartographic Technician	24.93
30040 - Civil Engineering Technician	22.86
30061 - Drafter/CAD Operator I	17.14
30062 - Drafter/CAD Operator II	19.17
30063 - Drafter/CAD Operator III	21.38
30064 - Drafter/CAD Operator IV	26.30
30081 - Engineering Technician I	16.02
30082 - Engineering Technician II	17.99
30083 - Engineering Technician III	20.54
30084 - Engineering Technician IV	24.93
30085 - Engineering Technician V	30.49
30086 - Engineering Technician VI	36.89
30090 - Environmental Technician	19.88
30210 - Laboratory Technician	18.55
30240 - Mathematical Technician	24.93
30361 - Paralegal/Legal Assistant I	15.19
30362 - Paralegal/Legal Assistant II	18.82
30363 - Paralegal/Legal Assistant III	23.02
30364 - Paralegal/Legal Assistant IV	27.86
30390 - Photo-Optics Technician	24.93
30461 - Technical Writer I	21.00
30462 - Technical Writer II	25.67
30463 - Technical Writer III	31.06
30491 - Unexploded Ordnance (UXO) Technician I	22.34
30492 - Unexploded Ordnance (UXO) Technician II	27.03
30493 - Unexploded Ordnance (UXO) Technician III	32.40
30494 - Unexploded (UXO) Safety Escort	22.34
30495 - Unexploded (UXO) Sweep Personnel	22.34
30620 - Weather Observer, Combined Upper Air Or Surface Programs (2)	21.38
30621 - Weather Observer, Senior (2)	23.16
31000 - Transportation/Mobile Equipment Operation Occupations	
31020 - Bus Aide	11.35
31030 - Bus Driver	14.34
31043 - Driver Courier	13.40
31260 - Parking and Lot Attendant	8.48
31290 - Shuttle Bus Driver	14.22
31310 - Taxi Driver	10.29
31361 - Truckdriver, Light	14.22
31362 - Truckdriver, Medium	15.59
31363 - Truckdriver, Heavy	17.75
31364 - Truckdriver, Tractor-Trailer	17.75
99000 - Miscellaneous Occupations	
99030 - Cashier	8.48
99050 - Desk Clerk	9.00
99095 - Embalmer	22.34
99251 - Laboratory Animal Caretaker I	9.86
99252 - Laboratory Animal Caretaker II	10.47
99310 - Mortician	27.96
99410 - Pest Controller	15.08
99510 - Photofinishing Worker	11.34

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99710 - Recycling Laborer	14.96
99711 - Recycling Specialist	16.88
99730 - Refuse Collector	13.79
99810 - Sales Clerk	10.73
99820 - School Crossing Guard	11.64
99830 - Survey Party Chief	16.64
99831 - Surveying Aide	10.39
99832 - Surveying Technician	15.13
99840 - Vending Machine Attendant	12.92
99841 - Vending Machine Repairer	15.13
99842 - Vending Machine Repairer Helper	12.92

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ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: Life, accident, and health insurance plans, sick leave, pension plans, civic and personal leave, severance pay, and savings and thrift plans. Minimum employer contributions costing an average of \$3.24 per hour computed on the basis of all hours worked by service employees employed on the contract.

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 8 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

THE OCCUPATIONS WHICH HAVE PARENTHESES AFTER THEM RECEIVE THE FOLLOWING BENEFITS (as numbered):

1) COMPUTER EMPLOYEES: Under the SCA at section 8(b), this wage determination does not apply to any employee who individually qualifies as a bona fide executive, administrative, or professional employee as defined in 29 C.F.R. Part 541. Because most Computer System Analysts and Computer Programmers who are compensated at a rate not less than \$27.63 (or on a salary or fee basis at a rate not less than \$455 per week) an hour would likely qualify as exempt computer professionals, (29 C.F.R. 541.400) wage rates may not be listed on this wage determination for all occupations within those job families. In addition, because this wage determination may not list a wage rate for some or all occupations within those job families if the survey data indicates that the prevailing wage rate for the occupation equals or exceeds \$27.63 per hour conformances may be necessary for certain nonexempt employees. For example, if an individual employee is nonexempt but nevertheless performs duties within the scope of one of the Computer Systems Analyst or Computer Programmer occupations for which this wage determination does not specify an SCA wage rate, then the wage rate for that

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employee must be conformed in accordance with the conformance procedures described in the conformance note included on this wage determination.

Additionally, because job titles vary widely and change quickly in the computer industry, job titles are not determinative of the application of the computer professional exemption. Therefore, the exemption applies only to computer employees who satisfy the compensation requirements and whose primary duty consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

2) AIR TRAFFIC CONTROLLERS AND WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordnance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

**\*\* UNIFORM ALLOWANCE \*\***

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or

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local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of \$3.35 per week (or \$.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A link to the Directory may be found on the WHD home page at <http://www.dol.gov/esa/whd/> or through the Wage Determinations On-Line (WDOL) Web site at <http://wdol.gov/>.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C) (vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

- 1) When preparing the bid, the contractor identifies the need for a conformed occupation) and computes a proposed rate).

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2) After contract award, the contractor prepares a written report listing in order proposed classification title), a Federal grade equivalency (FGE) for each proposed classification), job description), and rationale for proposed wage rate), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b) (2) of Regulations 29 CFR Part 4).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour decision to the contractor.

6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.





Jacobs Technology Inc.  
ROME Group  
5 Manhattan Square  
Hampton, Virginia 23666

January 25, 2008

Lisa Harvey, Contracting Officer  
Mailstop 126  
NASA Langley Research Center  
Hampton, VA 23681

Reference: Contract NNL04AA03B

Subject: Collective Bargaining Agreement between Jacobs Technology Inc.,  
and District Lodge 74 International Association of Machinists and  
Aerospace Workers

Dear Ms. Harvey:

Jacobs Technology Inc. is submitting the enclosed Collective Bargaining Agreement between Jacobs Technology Inc. and District Lodge 74 International Association of Machinists and Aerospace Workers as required by Exhibit C (K) Collective Bargaining Agreements, under the referenced contract. This CBA covers the period of February 1, 2008 through January 31, 2012.

Questions concerning the above should be directed to the undersigned at (757) 224-7819.

Sincerely,

A handwritten signature in cursive script that reads 'Deborah Haggerty'.

Deborah Haggerty  
Business Manager  
Jacobs Technology Inc., ROME Group

Enclosure: as stated

Copy:

Gary Stergin, COTR, Mailstop 242  
Contractor Labor Relations Officer, Mailstop 144  
File Copy



# **Collective Bargaining Agreement**

**BETWEEN**

**Jacobs Technology Inc.**

**AND**

**District Lodge 74 International Association of  
Machinists  
and Aerospace Workers**



**February 1, 2008 to January 31, 2012**



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### Preamble

This Agreement is made and entered into as of the 9<sup>th</sup> day of November, 2007, by and between Jacobs Technology Inc., its successors and assigns, hereinafter referred to as the “Company” or “Employer”, and District Lodge 74, International Association of Machinists and Aerospace Workers, AFL-CIO, its successors and assigns, hereinafter referred to as the “Union”.

### Witnesseth:

It is the intent and purpose of the parties to this Agreement to promote and improve all industrial and economic relations between the Company and the employees covered by this Agreement, as set forth in the Agreement covering rates of pay, hours of work and conditions of employment to be observed.

### Article I Recognition

Section 1. The Company recognizes District Lodge 74, International Association of Machinists and Aerospace Workers, AFL-CIO, hereinafter collectively referred to as the “Union”, its successors and assigns, as the sole and exclusive collective bargaining representative for all employees covered by this Agreement as certified by the National Labor Relations board in Case No. 5-RCA-8670.

Section 2. This Agreement shall cover all employees of the Steam Plant, Compressor Plant, Building 1265, and Building 648 as well as any and all future shops and/or plants in the immediate Hampton or Newport News area (twenty-five mile radius) which the Company may operate during the term of this Agreement, or any existing plant, provided the work was previously performed by employees in the Bargaining Unit. The Union agrees to hold the Company harmless in the event of a jurisdictional dispute between any two or more unions in regard to this Section.

## **Article II**

### **Employee Conduct Policy/Progressive Discipline**

**Section 1. Reason for Discipline** - The Company may discipline including suspension, probation and discharge for just cause, including failure of the employee to observe the rules and regulations of the Company or to perform quality work.

**Section 2. Progressive Discipline** - Ordinarily the Company will utilize the progressive discipline procedure outlined in Section 3 of this Article when it finds it appropriate to discipline an employee. Notwithstanding the fact that the Company prefers to utilize progressive discipline, it reserves the right to impose discipline (including suspension, probation or discharge even for the first offense) if in its reasonable judgment the severity of the offense warrants more severe discipline.

**Section 3. Progressive Discipline Procedure** - For violation of the Company rules or regulations or for failure to perform quality work the Company may resort to the following procedure:

- (a) First Violation: Oral warning.
- (b) Second Violation: Supervisor prepares a report citing infraction and employee receives copy with original going into Employee personnel file.
- (c) Third Violation: Suspension of work for up to and including five (5) working days.
- (d) Fourth Violation: If an employee receives a combination of three (3) offenses in twelve (12) months or less, he is subject up to and including discharge and not eligible for rehire.

Any incident of discipline as outlined in this Section 3, paragraphs a and b, that occurred more than twelve (12) months and any incident(s) of discipline as outlined in this Section 3,

paragraphs c and/or d, that occurred more than twenty-four (24) months before the violation in question will not be considered in the progressive discipline process.

Section 4. Rules and Regulations - The Company shall provide each employee and the Union a copy of all rules and regulations. Any amendments or changes to the rules and regulations will be distributed to the employees and the Union five (5) days in advance of their implementation. The Union may request within ten (10) days of receipt of any proposed changes that the Company meet and discuss the impact of such rules provided that the promise to meet and confer will not be interpreted as the interference with the Company's right to promulgate reasonable rules and regulations so long as such rules and regulations do not conflict with the express provisions of this contract.

**Article III**  
**Non-Discrimination**

Section 1. Non-Discrimination - There shall be no discrimination against any employee because of race, national origin, sex, age, or Union membership by either the Company or the Union. The Company and the Union agree to comply with all laws relating to the non-discrimination of and the accommodation of the disabled and this Agreement shall be so interpreted.

Section 2. Harassment - Any employee engaging in sexual harassment, use of inappropriate language or engaging in discriminatory conduct may be subject to immediate discharge. This is to include, but not limited to, displaying any inappropriate pictures, photos and/or comments in the work place.

Harassment includes verbal, physical, and visual conduct that creates an intimidating, offensive or hostile working environment or that interferes with work performance.

Section 3. Pronouns - Wherever the pronouns he, him, or his appear in this Agreement, it is agreed that any such reference shall have equal application to employees irrespective of sex and in no way represents sexual discrimination.



## **Article IV**

### **Management Rights**

**Section 1.** The management of the project and the direction of the work force, including the right to plan, direct and control its operation; to determine the means, methods, processes, materials, and schedules of operations; to determine the location of its business; the right to contract and subcontract for materials, supplies, services and equipment; to determine the continuance of its operation; or operating departments; to establish and require employees to observe its rules and regulations; to hire, lay off or relieve employees from duties; and to suspend, demote, discipline and discharge employees for just cause, are the rights solely of the Employer.

The foregoing enumeration of Employer's rights shall not be deemed to exclude other rights of the Employer not specifically set forth. The Employer, therefore, retains all rights not otherwise specifically limited by this Agreement.

**Section 2.** The Company agrees not to subcontract Bargaining Unit work that will directly cause the termination of Bargaining Unit employees unless directed to do so by its customer, the verification of which will be furnished to the Union upon request. The Company agrees that the Union has the right to represent the employee on all matters concerning conditions of work, wages and other applicable matters as mentioned in the Agreement.

**Section 3.** Government Directive/Drug Testing - The Company shall have the right to establish rules, procedures and regulations to comply with any government directive, including but not limited to, establishing a drug free work place and work force. The Company may also implement a program whereby employees would be tested for drugs (including alcohol) and the failure of the employee to take the test shall be grounds for discipline.

**Article V**  
**Dues Check-Off**

Section 1. The Company agrees, subject to the provision hereof, to deduct Union dues, initiation fees and/or other deductions from the wages of the employees so authorizing the same in writing.

Section 2. The Union shall send a copy of the authorization form, IAM & AW FORM NO. MR01, to the Company as verification in writing of those employees who have made such assignments, together with a statement of the initiation fees, dues and other deductions to be deducted from the pay of such member and the Company agrees to deduct monthly in the amount so certified in respect to each such member from the pay check of such member, following the receipt by the Company of such certification or statement, and shall make such monthly remittance to the Union in one lump sum within ten (10) days after said deductions are made.

Section 3. The Union agrees to indemnify and hold the Company harmless against any and all claims, demands, suites, costs, and/or other forms of liability and expenses that shall arise out of or because of action taken by the Company for the purpose of complying with any provisions of this Article or in reliance upon any list, notice or assignment furnished by the Union under any such provisions.

Section 4. The Union agrees to furnish the Company a copy of the authorization duly signed by each employee authorizing the deduction and properly witnessed.

## Article VI Hours of Work

Section 1. Except as otherwise provided for in this Agreement, the normal work day shall consist of eight (8) hours per day and the normal work week shall consist of forty (40) hours of work per week, Monday through Friday. This provision shall not be construed as guaranteeing any employee a specific number of hours of work per day or per week.

Section 2. Employees assigned to shift work shall be permitted to eat while in a duty status. Should employees work through the normal lunch period due to work requirements, lunch shall be taken at the first available opportunity (half hour unpaid). Should the company (supervisor) require employees to work through the normal lunch period, the employees may be excused at the end of this shift early.

For employees assigned to shift work for the seven (7) day operations in the Steam Plant Facility, the schedule shall normally be as follows:

- (a) First shift                      7:00 a.m. to 3:00 p.m. Monday through Friday
- (b) Second shift                    3:00 p.m. to 11:00 p.m. Wednesday through Sunday
- (c) Third shift                      11:00 p.m. to 7:00 a.m. Saturday through Wednesday
- (d) Swing shift                    7:00 a.m. to 3:00 p.m. Sunday  
    3:00 p.m. to 11:00 p.m. Monday and Tuesday  
    11:00 p.m. to 7:00 a.m. Thursday and Friday
- (e) Floating shift                  7:00 a.m. to 3:00 p.m. Tuesday through Saturday (may be required to cover other shifts within his classification, but shall have two (2) consecutive days of rest)

For employees assigned to shift work for all other areas the schedule shall normally be as follows:

- (a) First shift                      7:00 a.m. to 3:00 p.m. Monday through Friday
- (b) Second shift                    3:00 p.m. to 11:00 p.m. Monday through Friday
- (c) Third shift                      11:00 p.m. to 7:00 a.m. Monday through Friday

Section 3. It is recognized and agreed that the Company may assign employees to work overtime. The Company shall endeavor to give affected employees as much advance notice as possible of the overtime assignments. Due to the nature of shift work and variances in allotted vacation nothing in this article shall be construed to guarantee anyone a specific amount of overtime. The company will maintain an overtime distribution list by classification which will be made available to the union upon request and will be updated monthly. The company reserves the right to schedule emergency overtime as needed without using the list as long as a reasonable attempt is made to contact the next employee on the list. If the next employee to be asked to work overtime on the distribution list turns down the overtime, the employee will be charged for the overtime that was turned down. Nothing contained herein shall preclude the right of the Company to require a shift worker to work overtime when his relief does not show up. All overtime requests will be such that they will not override the NASA policy of no more than 12 hours per day or 60 hours per week without Branch Managers approval. It is understood that the Company has the right to manage its work force and individual schedules to minimize overtime.

Section 4. Overtime paid at one and one-half (1.5) times the regular straight-time hourly rate shall be paid for all hours worked by an employee in excess of eight (8) hours per day. Overtime work performed on the employee's regular scheduled days of rest shall be paid for at the rate of one and one-half (1.5) times the regular straight-time hourly rate.

Section 5. There shall be no duplication or pyramiding of overtime or premium pay under the provisions of this Agreement.

Section 6. In the event it is necessary to call-in an employee to work the Employer agrees that the call-in will result in a minimum of four (4) hours of work or four (4) hours of pay at one and one-half (1.5) times the regular straight-time hourly rate. In addition, any employee called back to work after his regular shift hours shall be promptly excused upon completion of the job, which he was called in to perform.

Section 7. In the event a regular full-time employee reports for work at his scheduled starting time and no work is available, the employee shall be entitled to receive four (4) hours show up time pay, to be paid at the appropriate hourly rate of pay.

Section 8. In the event NASA mandates a reduced workload or work force, then employees not scheduled to work will not be paid for such days unless the Company is reimbursed by NASA.

Section 9. The Company may request an employee or the employee may request the Company that he be allowed to work more than eight (8) hours in a day without overtime compensation. In lieu of overtime compensation pursuant to this Article VI, Section 4, the employee will be given an equal amount of time off in the pay period. (For example, if an employee works ten (10) hours on Monday, he may work six (6) hours on Tuesday) Agreeing to the request hereunder is understood to be voluntary on the employee's part and the Company's part.

## **Article VII**

### **Seniority**

**Section 1.** Seniority shall be defined as the length of continuous service, whether employed by the Company or its predecessor, from the employee's last date of hire, and shall be recognized on a Bargaining Unit wide basis. Steward(s) will be granted preferential seniority on the list. The Steward(s) shall be given preferential seniority provided he/she has been performing the steward duties for six (6) consecutive months and has not less than twelve (12) months seniority.

**Section 2.** The Company shall furnish the Union each six (6) months with an accurate seniority list of all employees in the Bargaining Unit. Such list is to include the name, classification, latest date of hire, wage rate, and home address of record of each employee.

**Section 3.** All employees shall be considered probationary employees for the first ninety (90) calendar days of regular full-time employment. During this period the Supervisor will perform progress reviews with the probationary employee at 30, 60 and 85 day increments. This progress review will be documented and is intended to provide the employee with feedback as to his development into the position. Any decision of the Company to terminate or otherwise discipline a probationary employee shall be final and not subject to the Grievance and Arbitration provisions of this Agreement. Upon satisfactory completion of the probationary period, the employee shall become a regular full-time employee with seniority dating from the date of hire. Relief employees will receive credit for all actual hours worked for the Company at the time the employee is hired. This credit will not apply to leave accrual or any other financial benefit. It is further understood that all full-time employees are eligible for benefits as of their date of hire.

**Section 4.** Classification seniority shall mean the length of accumulated service within a classification.

**Section 5.** In effecting layoffs and recalls, classification seniority shall control where the relative skill and ability of the employee given the job requirements are the same or relatively equal.

Section 6. Seniority shall be canceled and the employee shall be considered terminated upon the happening of any of the following events:

- (a) An employee quits;
- (b) An employee is discharged;
- (c) An employee fails to return to work within five (5) days of notice of recall given by the Company by registered or certified mail;
- (d) An employee is absent for three (3) days without previously notifying the Company, except in cases of extenuating circumstance;
- (e) An employee overstays a leave of absence without notifying the Company, except in cases of extenuating circumstances;
- (f) An employee engaged in other employment during a leave of absence without obtaining prior permission of the Company;
- (g) An employee gives false reasons for obtaining a leave of absence;
- (h) Settlement has been made for total disability;
- (i) An employee has retired;
- (j) An employee has been in layoff status or is absent because of sickness or injury or similar cause for more than twelve (12) months.

Section 7. The seniority of employees promoted or assigned to jobs outside of the Bargaining Unit shall be frozen at the level obtained at the time of such transfer or promotion. In the event such employee returns to the Bargaining Unit within one (1) year, he shall be entitled to whatever rights and privileges his accumulated seniority as of the time of promotion or transfer out of the Bargaining Unit would entitle him without prejudice.

Section 8. It is agreed that each employee shall be credited by classification seniority for the period he has worked in that classification with predecessor contractors at NASA, Langley Research Center.

Section 9. The Union expressly recognizes the need for flexibility in the work force and agrees that an employee in one classification shall not be restricted from doing temporarily the work normally done by an employee in another classification. However, all such assignments shall be made in a fair and equitable manner.

In the event an employee temporarily works in a classification for which the normal rate of pay is higher than the rate of pay received by the employee in his normal classification, he shall receive the higher rate of pay. In the event an employee is assigned work temporarily in a classification lower than his normal classification, he shall receive his regular rate of pay.

Section 10. In making assignments to a permanent job vacancy or a new job, the Company shall give first preference to any currently qualified and eligible employees who apply for the position. A notice of any such vacancy or new job shall be posted on the bulletin board for a period of five (5) working days (during such time vacancy shall be considered temporary). The Company, at the end of such time period shall consider those employees who have submitted a bid notice (the form and content of which the parties shall mutually agree upon) and consistent with the overall requirements of the Company as determined by the Company, shall select and assign the senior employee, if in its opinion the applicant is also qualified and suitable for the job.



Section 11. In the event the Company believes no properly suitable or qualified employee signs such a bid notice for a job opening, it is agreed and understood that the Company may hire a new employee for such job. Any employee who is awarded a job opening is expected to be qualified to perform the tasks of such job following initial break-in instructions and guidance from supervision.

Section 12. Employees assigned or transferred pursuant to this Article shall be given thirty (30) days in which to prove they are capable of performing the duties of the new job in a satisfactory manner. In the event such employees do not satisfactorily meet the requirements of the new job, they shall be returned to their prior position or its equivalent without prejudice. Any employee, upon request, shall be advised in the presence of his Union representative of the specific reasons for not meeting the requirements of the job and any disputes arising there from shall be subject to the grievance procedure.

Employees who are accepted on any bid job and are returned to their former job for failing to meet job requirements shall not be permitted to bid on any job for a period of six (6) months.

Section 13. When a reduction of working forces becomes necessary in the Company's judgment, employees shall be retained by the Company in accordance with the principles of Section 5, according to the number of employees the Company determines is necessary within each classification for the reduced operations contemplated by the Company. Recall of employees shall be accomplished by the same procedure in reverse.

Section 14. Any employee within a particular job classification who is affected by a layoff within his classification may bump, based only on Bargaining Unit seniority, the most junior employee in any like or lower rated classification, but only if qualified to perform the work within such classification.

**Article VIII**  
**Grievance and Arbitration**

Section 1. It is the intent of this Article to establish means for prompt adjustment of working problems and personal grievances at the job level by a conference between the immediate Supervisor and the employee involved, provided a Union representative has been given an opportunity to be present. If not resolved in this informal level, a formal grievance may be filed and processed in accordance with the steps and time limits and mutually agreed upon extensions specified below. For the purpose of this Article, a formal grievance under this Agreement is defined as a written statement by the Union, company, an individual employee or group of employees (hereinafter called "Grievance") claiming a violation of the terms of this written Agreement. Such grievance, to be valid, must specify the Article and Section of the Agreement believed to be violated.

Section 2. Except for payroll adjustments, no grievance shall be filed or processed based on facts or events or omissions within the employee's knowledge, which have occurred more than ten (10) working days before such grievance is filed. Both parties agree to exert an earnest effort to settle such grievances promptly through the following steps:

STEP 1. The employee involved shall first confer with the Manager or his designated representative in order to amicably settle the matter, provided a Union representative has been given an opportunity to be present. The Manager must give his decision within five (5) working days.

STEP 2. Should the grievance not be satisfactorily settled by the discussion outlined in Step 1 above, the Union shall within five (5) working days submit the grievance in writing to the Manager of Human Resources or his representative. Within ten (10) working days after receipt of the written grievance, the Manager of Human Resources or his representative shall either fully satisfy the grievance or meet with the Shop Steward, Business representative or International Representative of the Union and employee, if applicable. The Manager of Human Resources or his representative will render a written decision within five (5) working days after such contact.

STEP 3. If the parties are still unable to settle the grievance, then either party may, within thirty (30) calendar days after a written decision has been given, request the Federal Mediation and Conciliation Service to submit a list of seven (7) impartial arbitrators from which the Company and the Union shall choose one to decide the controversy by the Company first striking one name, and then the Union striking one name, and each party alternately striking one name until only one name remains which shall be designated the arbitrator. The arbitrator shall not have the authority to alter, amend or change the terms or provisions of this Agreement, and his decision shall be limited to the particular grievance in question. The arbitrator's decision shall be rendered in thirty (30) days and shall be final and binding on the parties.

Section 3. The Union and the Company shall equally share the fee of the impartial arbitrator, including any mutually agreed upon services relating to the arbitration proceedings. Either party shall be permitted to call employee witnesses at each and every step of the grievance procedure and no employee whose participation is reasonably necessary as a Union Representative or witness shall suffer any loss of earning as a result of so serving. The Company on demand will produce production, payroll, or other records for the purpose of substantiating the contentions or claims of the parties well in advance of the formal proceeding of the grievance procedure.

Section 4. All time limits prescribed herein may be extended by mutual agreement of the parties. Failure of the Company to respond within the time limits shall constitute a basis for escalating the grievance to the next step. Failure of the Union or employees to process the grievance to the next step within the time limits shall render the grievance invalid.

Section 5. In any case involving discharge or discipline imposed by the Company, back wages, if any are awarded, shall be limited to the amount of wages that employee would otherwise have earned less any unemployment compensation or substitute earnings during the period of discharge or suspension.

Section 6. Failure of the Company to implement the award of the arbitrator within five (5) working days (if it is reasonably possible for the Company to implement) after receipt shall be cause for a recognized work stoppage. No employee participating in such a work stoppage shall be discharged, disciplined, or otherwise subjected to any penalty for participation in such a work stoppage.

**Article IX**  
**Leaves of Absence**

Section 1. When it is necessary for employees to leave their duty for the purpose of attending to their personal business, and provided reasonable notice has been given the Company, employees will be granted leaves of absence without pay, provided the absences do not unduly interfere with the efficient operation of the Company. Such leaves shall not exceed three (3) months but upon written request with Company approval may be extended for additional time. The Company shall be under no obligation to an employee on leave of absence, except to return to work in accordance with the employee's seniority. It is mutually agreed and understood that leaves will not be granted for the purpose of seeking different employment.

Section 2. An employee who is summoned for jury duty, and who actually responds to said summons, will be paid the difference between the amount of money he received for jury duty pay and what he actually would have earned had he worked for the Company during the time he was absent due to jury duty, computed at the employee's regular straight-time rate of either an eight (8) hour day or five days per week. It is understood and agreed that the Company has the right to require satisfactory proof that an employee actually served on the jury panel and the number of days served.

- 1.) Employees on the first and second shifts will not be required to report for work on the day they are required to serve as a juror or appear as a witness. Third shift employees will not be required to report for work on any night prior to reporting for jury duty or appearing as a witness the following day where the workweek starts on Sunday night and on any night following where the workweek starts on Monday morning.
- 2.) An employee on jury duty is expected to work as much of his regularly scheduled shift as his jury duty schedule permits. Those who work on the day shift (starting from 6 a.m. to 10 a.m.) must return to work if released from court in time to reach their workstations at least four hours before their normal quitting time. Those who work on other shifts do not have to report to work on their regular shift that starts on the same calendar day on which they served on jury duty.

Section 3. In case of the death of a member of the immediate family of an employee, the employee shall be granted a maximum of three (3) consecutive workdays off with straight-time pay to attend the funeral and to tend to administrative details. It is understood that an employee must attend the funeral in order to qualify for funeral leave with pay. Verification may be required by the Company. Members of the immediate family shall be the spouse, children, step-children, parent, step-parents, father-in-law, mother-in-law, brothers, sisters, half-brothers, half-sisters, brothers-in-law, sisters-in-law, sons-in-law, daughters-in-law, grandparents, grandparents of spouse, grandchildren whether of natural relationship or legally adopted or under legal guardianship, of the employee.

Section 4.

- (a) The Company agrees to observe all provisions of present law or laws hereafter enacted relating to its obligations to those of its employees who may hereafter leave the service of the Company to enter the Armed Services of the United States.
- (b) Annual military leave, without pay, will be granted employees not to exceed ten (10) working days.

Section 5. When it is necessary for employees to leave their duty for the purpose of attending to Union business other than organizational activities, and provided that reasonable notice has been given to the Company, employees will be granted leaves of absence without pay. Such leaves shall not exceed thirty (30) days, but may be extended for additional time upon written request to the Company, if such further leave is feasible. In no event will Union business leaves be granted to more than two (2) employees during any one month. The Company shall be under no obligation to an employee on Union business leave except to return to work in accordance with the employee's seniority. All such leave requests are further subject to the Company's ability to adequately replace such employee on a temporary basis.

Section 6. An employee granted unpaid leave of absence shall accrue seniority while absent on such leave. All benefits (sick leave, vacation, paid insurance and hospitalization, etc.) shall be suspended during the period of unpaid leave of absence, unless the employee makes arrangements with the Company to keep these benefits in force at the employee's expense.

Section 7. Where the provisions of this Article are in conflict with the Family Medical Leave Act (FMLA), the provisions of the FMLA will control, but shall not be interpreted to be in addition to other time that might be available under this Article.

**Article X**  
**Bulletin Board**

The Company agrees to allow the Union to share the Company bulletin board located in the work area where employees normally check in and out for the use of the Union for posting of matters relating to Union meetings and other Union matters of a non-controversial, non-political nature only. All such notices as posted by the Union shall be signed by an authorized Union representative.

**Article XI**  
**Safety, Health and Sanitation**

Section 1. Health and Safety - It is the desire of the parties to this Agreement to maintain high standards of safety in order to eliminate, occupational injuries and illnesses. The Company agrees to abide by and maintain in its work locations, standards of sanitation, safety, and health in accordance with Federal, State, County, and City laws and regulations issued in pursuance thereof.

- A.) Both the Company and the Union agree to pursue a cooperative agreement with the Occupational Safety and Health Administration (OSHA) to implement a comprehensive safety and health management system and ultimately achieve approval as a Voluntary Protection Program (VPP) site. However, this pursuit will not supersede, replace or interfere with any rights or obligations of either party contained in this agreement, unless prior approval is received from both the Union and Company.
- B.) OSHA Hazard Communication - The Company has the responsibility to inform all employees of any toxic substances to which they may be exposed in the working areas. The Company shall provide training in safe handling practices and emergency procedures. Attendance at this training is mandatory.



Section 2. Safety Committees - The Union shall be entitled to appoint one (1) primary and one (1) alternate to serve on the Safety Committee. The committee shall be comprised of a 50/50 mix of craft to salaried personnel employed by Jacobs Sverdrup and ROME supplier teammates. The committee chair position will alternate annually between craft and salaried personnel.

Section 3. Safety Devices and Personal Protective Equipment - The Company will continue to furnish personal protective equipment and/or devices in particular situations where it is now the practice to do so unless circumstances in such situations change, making the use of such personal protective equipment and/or devices unnecessary. Whenever personal protective equipment is required by the Company, it shall be mandatory for employees to wear such equipment.

Section 4. Safety Report Forms - The Company shall have available at all times a supply of Safety Report Forms for use by employees in reporting alleged unsafe conditions or needed safety corrections in their department. This form shall be used before the Grievance and Arbitration procedure for safety complaints and requests for corrections relative to safety conditions. Copies of forms will be made available to a designated Union Representative upon request. Employees shall submit the forms to; the ROME Safety Office, who will appoint an investigator. The investigator will report back to the employee the results of the investigation and corrective actions (if any) that have been or will be taken. Employees may file anonymous complaints by mail to the following address:

Jacobs Sverdrup ROME Group

Attention: Safety Manager

Anonymous complaints will be dealt with expeditiously, and the results of any investigation and corrective actions taken (if any) will be provided to a Union representative and posted in a public location.

Section 5. Alleged Unsafe Condition - No employee shall be discharged or disciplined for refusing to work on a job or a machine if the refusal is based upon employee's written claim that said job or machine is not safe or will endanger the employee's health until it has been determined that the job or machine is or has been made safe or will not unduly endanger the employee's health. Pending the determination, as set forth in this section, the employee shall be transferred to other available work, which the employee is qualified to perform. When it has been determined that the job or machine is or has been made safe, the employee shall be returned to such job. Then, if the employee continues to refuse to work after the job or machine is determined to be safe, the employee shall be subject to discharge or other disciplinary action. The determination shall be made jointly by the Sr. Manager-Safety and a Union Safety Committee member. If they are unable to agree, the determination shall be made by a Representative of NASA Safety.

Section 6. In the event an employee suffers and injury on the job in the course of his employment and is required to leave work to go to the doctor, he shall be paid for the balance of his shift on the day such injury occurs. If the employee is able to return to work after visiting the doctor, he shall do so and shall be compensated for the time spent at the doctor. Employees involved in accidents/incidents will be drug/alcohol tested.

## **Article XII**

### **Holidays**

**Section 1.** The following holidays or day(s) observed as such shall be paid holidays under this Agreement.

New Year's Day	Thanksgiving Day
President's Day	Labor Day
Memorial Day	Christmas Day
Independence Day	Columbus Day
Veteran's Day	Martin Luther King's Birthday

It is agreed that the phrase "or day(s) observed as such" means the day(s) on which the Government substantially reduces the normal activities at NASA Langley Research Center, the Center is in a "holiday or weekend mode" and the Government employees at NASA Langley Research Center celebrate the holiday.

On days which are not enumerated in paragraph one above, when because of special events or occasions, i.e., administrative holiday, inclement weather or other acts of God, situations restricting operations for short durations, the Government substantially reduces the normal activities at NASA Langley Research Center because of the special occasion or event, the following provisions apply:

- Employees required to work will receive one and one half (1.5) times their normal straight-time pay. The number of employees required will be restricted to the number essential to maintain services.
- Employees required to work will also receive the "administrative" pay that all other employees not working receive up to eight (8) hours at their straight time rate at the direction of the contracting officer.
- Employees scheduled but not required to work will receive holiday pay for the day at the direction of the contracting officer.

Section 2. An employee who is on the active payroll of the Company on a holiday recognized herein and who works his assigned schedule during that workweek, except for being absent without a legitimate reason (such as illness or emergency), shall receive holiday pay at his straight-time pay rate. If an employee is scheduled or required to work on a holiday, but fails to do so, he will receive no holiday pay unless he has legitimate reason for not working.

Section 3. An employee who works on one of the above listed holidays shall be paid at one and one-half (1.5) times his straight-time base pay for all hours worked on the holiday, in addition to any holiday pay to which he may be entitled. It is further understood that employees are entitled to shift differential if applicable.

### Article XIII Personal Leave

Section 1. Personal Leave (PL) Award - PL time will be paid at the employee's straight time rate, not to exceed forty (40) hours per week. Accrued PL may be taken at a time mutually agreeable between the employee and the Company. PL time may be taken as it is accrued, immediately commencing from the employee's date of hire, in increments as small as one (1) hour. PL will not be accrued during periods of layoff, strike, or after the first thirty calendar days of a leave of absence. PL shall accrue as follows:

- A.) Employees currently on the payroll as of October 1, 2004, with less than three (3) years of service shall earn 152 hours of PL per year.
- B.) Employees currently on the payroll as of October 1, 2004, with three (3) years but less than fifteen (15) years service shall earn 208 hours of PL per year.
- C.) Employees currently on the payroll as of October 1, 2004, with fifteen (15) or more years service shall earn 256 hours of PL per year.
- D.) Employees hired on or after October 1, 2004, with less than three (3) years of service shall earn 128 hours of PL per year.
- E.) Employees hired on or after October 1, 2004, with three (3) years but less than fifteen (15) years of service shall earn 168 hours of PL per year.
- F.) Employees hired on or after October 1, 2004, with fifteen (15) years or more of service shall earn 208 hours of PL per year.
- G.) For the purposes of computing PL, paid absences shall be considered as hours worked. Paid absences to be defined as PL and holiday. During periods of short or long term disabilities or Workers' Compensation, no accrual of PL will take place.

Section 2. PL Request - Employees desiring to take PL must receive permission from the Company by 9:00 a.m. the day before the Leave is desired. An employee's request to take leave in amounts equal to or greater than three (3) consecutive days shall be granted if the employee has enough accrued leave and he has given his Supervisor reasonable advance notice of at least five (5) working days and the employee's absence would not unduly hinder the efficiency of the Company. Requests for Leave on an unscheduled basis shall not exceed four (4) times in a

calendar year or thirty-two (32) total hours. It is further understood that employees providing a physicians certification will not have the time counted against his unscheduled amount.

Except as hereinafter provided, employees shall not be required to furnish a medical certificate to substantiate requests for PL, except when the employee calls in three (3) consecutive scheduled work days. In the case of a communicable disease, and in the interest of protecting other employees, the Company may require medical certification of fitness to return to work. In the event of a period of disability, for any reason (injury or illness), a medical certificate, stating employee is fit for duty, will be required prior to returning to work.

Section 3. Any employee having accrued unused leave at the end of the calendar year shall have the privilege of carrying such unused leave forward into the following year. If unused leave is carried forward, a maximum of 240 hours will be permitted.

Employees that request leave as set forth in Section 2 hereof and are denied due to workload requirements shall receive pay in lieu of time off if the employee is not permitted to carry over the time requested to the extent leave was denied.

Section 4. An employee who has PL to his credit but who leaves the service of the Company shall receive pay for such leave.

Section 5. The Company will keep accurate annual leave records of each employee in the Unit. Upon request such records will be made available to the employee or the Union.

Section 6. PL Pay - Payment for PL shall be at the employee's straight time base rate, not to exceed a maximum of eight (8) hours pay for one-day of absence. An employee who takes a disability leave of absence will not receive any PL pay for which he is eligible for any of the days in question unless he makes a written request to Human Resources.

Section 7. Time Charge - Leave time absences shall first be charged to an employee's unused PL balance, upon depletion of such balance any additional sick leave time absences, up to the maximum provided for in Section 1 of this Article, shall be charged against the employee's Legacy Sick Leave balances.

Section 8. PL Payout - Employees, who have a minimum of 120 hours of PL accrued, may request to sell back to the Company up to eighty (80) hours of PL in the calendar year in increments of forty (40) hours. The request(s) may be submitted at any time during the calendar year as long as the employee has a minimum of 120 hours of PL accrued. Amounts paid for PL redemptions are subject to all applicable taxes and deductions, i.e., 401(k). Requests for payouts in the month of December shall be made during the first two (2) pay periods to allow the Company to accomplish year-end-close of its accounting systems.

Section 9. Reserve Credits - An employee who has reserve sick leave credits (Legacy) available will maintain reserve hours available to use after current PL is exhausted. Legacy sick leave is paid out only for qualifying absences and is forfeited upon termination.

Section 10. Maximum Year-end Carryover - Any employee having accrued unused PL at the end of the calendar year shall have the privilege of carrying such unused leave forward into the following year. The maximum hours that can be carried over at calendar year end are 240 hours. With the first accrual of the new year all hours greater than the 240 maximum will be forfeited.

Section 11. Supplementing STD / LTD - Any sick leave currently credited to an employee's Legacy Sick Leave Account, may be used to supplement Short Term or Long Term disability payments, up to a maximum of sixteen (16) hours per work week, however it is understood that PL will be utilized prior to utilizing Legacy Sick Leave.

**Article XIV**  
**No Strike – No Lockout**

The Union agrees that it will not (during the term of this Agreement) cause, permit, threaten or participate in any strike, including the refusal to cross any other labor organization's picket lines, walkout, slow-down, boycott, picketing, work stoppage, refusal to work, or any other interference with the operation, management or functions of the Employer. The Employer agrees it will not lock out employees during the term of this Agreement.

Any employee taking part in or assisting or supporting such picketing or interruption of such operations shall be subject to discipline including discharge.

The Union shall not question the unqualified right of the Company to discipline or discharge employees engaging in, participating in or encouraging such action. It is understood that such action on the part of the Company shall be final upon the Union and its members, and shall in no case be construed as a violation by the Company of any provision of this Contract. Only the issue of fact as to whether or not any particular employee has engaged in, participated in or encouraged any such violation, is subject to the grievance procedure and arbitration.



**Article XV**  
**Union Representation**

Section 1. The Company will recognize one (1) Chief Shop Steward, one (1) Shop Steward and one (1) alternate Shop Steward designated by the Union to the Company in writing. The Shop Steward shall be allowed reasonable time during working hours to investigate complaints, process grievances and meetings with the Company, in connection with his collective bargaining responsibility. The alternate Shop Steward shall assume such duties when the regular Shop Steward is absent.

Section 2. The Company agrees that unit employees who file a complaint or grievance with the Company will not be questioned, in respect hereto, without the presence of a recognized Steward.

Section 3. The Shop Steward shall be allowed reasonable time during working hours to investigate complaints, process grievances and hold meetings with the Company, in connection with his collective bargaining responsibility so long as the Shop Steward shall under no circumstances cause any cessation of work or in any way interfere with the operation of the Company. In carrying out the duties of a Shop Steward it is understood the Shop Steward's duties shall not interfere with his being a productive, contributing and working employee of the Company subject to the normal and usual rules and regulations that apply to all other employees. Shop Steward desiring to leave his work place must first clear the matter with his immediate supervisor.

Section 4. In the event of a layoff, the Shop Steward(s) shall be granted preferential seniority and will be retained without regard to seniority, as long as the Company has work which he is qualified to perform. In the event a recognized Union representative is laid off or terminated (for lack of work he is qualified to perform) he shall be the first recalled when work he is qualified to perform becomes available.

Section 5. Nothing in this Article shall be construed as the right to deny any Business Agent of the IAM & AW, or any International Representative of the IAM & AW, the privilege of processing a grievance on behalf of a unit employee, or to participate in a grievance meeting conducted in accordance with the Grievance Procedure, or in any way to infringe on the right of representatives of the IAM & AW, District Lodge 74, or any steward of the Bargaining Unit, to insure compliance with the Collective Bargaining Agreement, or to fulfill any of their representational obligations under the National Labor Relations Act.

Section 6. The Union shall be free to withdraw a grievance at any step of the Grievance Procedure without prejudice.

Section 7. Employees in the Unit will not be suspended or discharged, without first being given the opportunity for a hearing with the Manager. Such employee shall be afforded the right to be accompanied and represented by the Union during said hearing.

**Article XVI**  
**Unit Work Protection**

Section 1. Unit Work Protection – Employees of the Company, who are excluded from the Bargaining Unit by National Labor Relations Board Certification No. 5-RCA-8670, will be permitted to perform work normally performed by the bargaining unit employees for the following reasons only:

- (a) When instructing or training employees;
- (b) During an emergency or to cover a short period of time when there are no qualified bargaining unit employees available to do the work and the work cannot be performed on an overtime basis.

Section 2. Work normally and historically performed by Bargaining Unit-Employees will not be contracted out or assigned to exclude employees where such action would adversely affect unit employees' employment. Adversely affected, as used in the context of the Article, shall be interpreted to mean: layoff, failure to recall, failure to promote, and the temporary assignment of an excluded employee to work within a classification where qualified employees regularly holding the classification are reasonably available to perform the work.

Section 3. It is recognized by the parties that business reduction situations may occur necessitating a reduction in force. It is not the intent herein to recall employees for temporary increases in work load which will not support full time employment. Should such situations arise the Company will utilize existing personnel to meet peak load conditions. However, it is agreed that where work load commitments will support recall of employees on layoff, such action will be taken.

**Article XVII**  
**Wages and Classifications**

Section 1. The rates of pay shall be those specified in Appendix “A” which is attached hereto and made a part hereof.

Section 2. The manning needs of any classification covered by this Agreement shall be determined solely by the Company. This Agreement will not constitute a guarantee of any particular job or jobs within any particular classification, nor shall it constitute a guarantee of any particular duties or deleting duties from a classification. The principal of equal pay for substantially equal work shall apply as it shall also apply to all employees within a classification.

Section 3. The Company, at its sole option, may implement new classifications and/or job descriptions in light of changed conditions and the Company shall negotiate a wage rate acceptable to the Union for such classifications/job descriptions. This Section does not apply to classifications that exist as of the effective date of this Agreement. Current classifications as of the effective date of the Agreement shall not be reclassified in a manner to create new work. This section is intended only for classifications for new work.

**Article XVIII**  
**Invalidity**

If any Article or Section of this Agreement should be held invalid by operation of law, or by any legal tribunal of competent jurisdiction, or if compliance with or enforcement of any Article of action should be restrained by such tribunal pending a final determination as to its validity, the remainder of this Agreement shall not be affected thereby and shall continue in full force and effect. Upon request of either party, the parties shall negotiate a satisfactory replacement for such invalid provision.

**Article XIX****401(k)**

All regular employees are eligible to participate in the 401(k) Savings Plan effective on their date of employment. Employees may contribute up to 50% of base pay. Employees are immediately 100% vested. Restrictions apply to part-time eligibility.

The Company matches employee contributions at 50% of up to the first 6% an employee contributes of his total gross pay on a weekly basis.

***NOTE: The change to this Section (401(k)) will become effective on the first pay period of calendar year 2008.***

**Article XX****Health & Welfare Benefits**

Section 1. For full-time employees, subject to the exception set forth in Section 3 of this Article XX, the Company shall make the contributions set-forth in Section 2 hereof in order to provide Hospitalization and Medical insurance.

The exact terms of the coverage are those provided pursuant to and as a part of the respective insurance policies and plans.

Should the cost of such benefits exceed the amount contributed by the Company, such excess cost shall be paid by the employee through payroll deductions.

Section 2. The Company shall pay the following cost share of the Blue Cross Blue Shield (BCBS) product per employee per month to provide the coverage set forth in Section 1 hereof:

<u>Effective:</u>	<u>1/1/08</u>	<u>1/1/09</u>	<u>1/1/10</u>	<u>1/1/11</u>	<u>1/1/12</u>
Single coverage	100%	90%	90%	85%	85%
Employee + Spouse	70%	70%	75%	75%	75%
Employee + Child(ren)	70%	70%	75%	75%	75%
Family coverage	70%	70%	75%	75%	75%

Employees choosing the Optima Sentara product (at whatever coverage level they choose) will be credited with the equivalent dollar amount of the BCBS product and the employee is responsible for the outstanding balance. In no event will the employee be given the dollar value in the event the product they choose results in a cost less than the BCBS Company cost share.

***NOTE: It is understood by all parties that the changes in this Section 2 will take effect January 1, 2008.***

Section 3. The cost for the dental coverage will be calculated and deducted from the employees pay on a composite basis, and paid monthly to Delta Dental by the Company.

Section 4. For employees who present to the Company proof of at least employee-only health insurance from another source and who do not elect to have the hospitalization and medical insurance benefit set forth in Section 1 hereof, the Company shall pay \$1.50 per hour up to forty (40) hours per week (2080 hours per calendar year) for paid hours to include hours worked, PL, and holidays.

Section 5. The Company will provide the following insurance programs.

(a) The Company will provide short term disability insurance as follows:

- 60% of basic weekly pay to a maximum of \$1,200 per week.
- Coverage will be from the 8th day of total disability and will extend through the 26th week of such disability.

(b) The Company will provide long term disability insurance as follows:

- 60% of basic monthly pay to a maximum of \$5,000 per month and in accordance with the insurance company schedule provided.
- Coverage will be from the 1st day following 26 weeks of total disability through the date you cease to be totally disabled or in accordance with the insurance company schedule in reference to age.

(c) Life insurance in the amount of \$50,000.00 per employee; (after age 65 there are certain benefit reductions). The Company will offer its supplemental life insurance program to all employees covered by this agreement at the employee's cost for coverage elected.

***NOTE: It is understood by all parties that the changes in this Section 5(c) will take effect January 1, 2008.***

(d) Accidental death & dismemberment policy in the amount of \$50,000.00; (after age 65 there are certain benefit reductions)

Section 6. It is understood that the Company's contracts with insurance carriers provide the benefits contemplated under this Article. Interpretation and application of such contracts shall ultimately rest with the insurance carrier and any dispute there under shall be between the employee and the insurance carrier and not subject to the Grievance Procedure of this Agreement. The Company reserves the right to change insurance carriers so long as the primary benefits are essentially the same.

**Article XXI**  
**General Provisions**

Section 1. Employees within the Bargaining Unit shall be assigned and answerable to, the Supervisor, or in lieu thereof, one (1) individual who shall be designated in writing, who shall be responsible for assigning work, approving absences and initiating disciplinary action. No employee shall be subject to discipline for refusing to carry out instructions of other than his designated Supervisor.

Section 2. As long as NASA requirements include a provision, which requires employees of the Unit to wear uniforms, the Company will pay the cost of furnishing and laundering a change of uniforms per employee per regular working day. In the event NASA requirements in this regard are changed, it is agreed the Company shall have the right to modify the provision of this Section to the extent that NASA shall not be liable to the Company, or the Union, for any cost, which is not a requirement of the Contract between NASA and the Company.

The Company further agrees to make available several sets of rain gear in the form of slickers, hats and boots for field service trips during foul weather. This equipment will be kept in a designated area and will be checked out individually as needed. The employee will be responsible for this equipment while he has it signed out.

Section 3. The Union and the Company recognize the need to be flexible in scheduling the hours of shifts and transfers to different shifts in order to accommodate NASA directed work. In the event of changes due to NASA direction, the Company will endeavor to give a minimum of 5 days notice so long as the NASA direction to the Company is at least 5 days. If the Company gets less than 5 days notice, the Company will give whatever notice it gets.

Section 4. The Employer reserves the right to define the content of a job.

Section 5. Regular part-time employees (those employees regularly scheduled to perform less than forty (40) hours work per week who are not classified as a RPTC Helper) shall be paid pro rata benefits. Part-time employees who are scheduled on an “as needed” basis shall not be



paid benefits. "Benefits," as defined for purposes of this proposal, means personal leave pay, holiday pay, or health and welfare benefits under Article XX. To be covered by disability insurance, an employee must work an average of thirty two (32) hours per week.

**Article XXII**  
**Superseding Effect of Agreement**

It is expressly agreed and understood that the wages, working conditions and fringe benefits provided in this Agreement are in lieu of any and all working conditions and fringe benefits of any kind previously provided by the Company or its predecessor for employees within the Bargaining Unit.

**Article XXIII**  
**Duration**

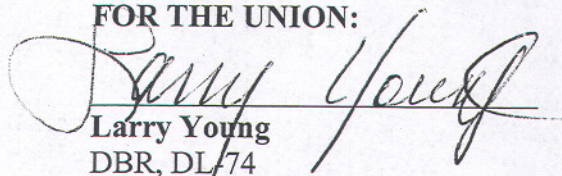
Section 1. This Agreement shall become effective February 1, 2008 (with the exceptions noted within), and shall remain in full force and effect until January 31, 2012, and from year to year thereafter unless either party shall, no more than ninety (90) and at least sixty (60) days prior to any anniversary date hereof, notify the other party of a desire to amend or terminate this Agreement. In the event such notice is given, the parties shall communicate not later than fifteen (15) days after receipt of such notice for the purpose of scheduling negotiations of a new Agreement.

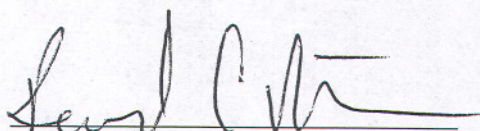
Section 2. No Agreement, waiver, alteration, understanding, variation or modification of any terms or conditions contained herein shall be made by any employee, or group of employees, with the Company and in no case shall it be binding upon the parties hereto unless such Agreement is made and executed in writing between the parties hereto, and the same has been ratified by the Union.

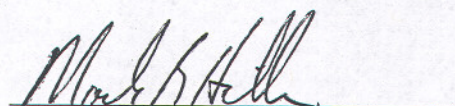
Section 3. The waiver of, or breach of conditions of this Agreement, by either party, shall not constitute a precedent in the future enforcement of all the terms and conditions herein.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement this 9<sup>th</sup> day of November 2008.


**FOR THE UNION:**

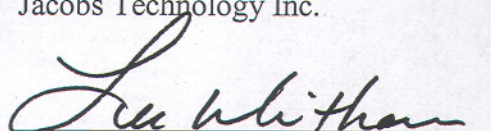
  
**Larry Young**  
DBR, DL 74

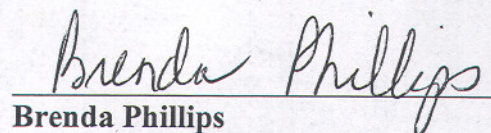
  
**Raynard C. Vinson**  
Chief Shop Steward

  
**Mark R. Hilleren**  
Committee Person

**FOR THE COMPANY:**

  
**Brant Adams**  
VP & GM ROME Group  
Jacobs Technology Inc.

  
**Lee Whitham**  
Director, Human Resources  
Jacobs Technology Inc.

  
**Brenda Phillips**  
HR Manager ROME Group  
Jacobs Technology Inc.

## APPENDIX A

### Wage, Schedule, Environmental and Differential Pay

Section 1. The Company agrees to pay the hourly rate for the following classifications:

	3.00%	2.50%	3.00%	3.25%	3.25%
<b><u>Classification</u></b>	<b><u>2/3/2007</u></b>	<b><u>1/26/2008</u></b>	<b><u>1/31/2009</u></b>	<b><u>1/30/2010</u></b>	<b><u>1/29/2011</u></b>
Stationary Steam Engineer	21.60	22.14	22.80	23.55	24.31
Facilities Maintenance Mechanic	21.60	22.14	22.80	23.55	24.31
Lead Plant Technician	22.35	22.91	23.60	24.36	25.15
Senior Plant Technician	21.60	22.14	22.80	23.55	24.31
Plant Technician	20.53	21.04	21.67	22.38	23.11
Utility Person 3	9.02	9.25	9.52	9.83	10.15
Utility Person 2	0.00	12.00	12.36	12.76	13.18
Utility Person 1	0.00	16.00	16.48	17.02	17.57
<b>(RPTC) Helper</b>	9.02	9.25	9.52	9.83	10.15

Section 2. Shift differential shall be \$1.00 for second shift, 3:00 pm to 11:00 pm and shall be \$2.00 for third shift 11:00 pm to 7:00 am.

Section 3. When any employee is assigned to work the majority of a regular shift falling on a calendar Sunday, the affected employee will be paid at 1.50 times the base rate plus applicable shift differential, if any, for all regular hours worked during the shift.

Section 4. Regular Part Time Classification (RPTC). There will be allowed Regular Part Time Classification (RPTC) employees, not to exceed thirty percent (30%) of the total work force, classified as Regular Part Time Utility Helper only, and working less than thirty (30) hours per week. These employees shall receive, in lieu of all benefits set forth in this Agreement, a monetary fringe benefit payment, and a vacation allotment, as prescribed within the Service Contract Act Area Wage Determination for Hampton, Virginia.

Section 5. It is understood by all parties that employees classified as RPTC Utility Helper are not entitled to any shift differential at any time.

Section 6. Hazmat Pay - Employees participating on HAZMAT Teams required to carry pagers for immediate response to incidents within a determined amount of time will receive \$20.00 per day while in an "on-call" status.

Section 7. Certification (license) renewal fees shall be paid by the Company if it is a requirement of the job.

Section 8. Water Treatment Analysis Certified (WTAC)  
Effective 1/26/08 WTAC Personnel will receive \$0.50 per hour worked (excludes PL, Holiday, Jury, Bereavement and any other special pay status). This rate will increase as follows: 1/31/09 = \$0.55, 1/30/10 = \$0.60, and 1/29/11 = \$0.65

WTAC Requirements:

- a. The Company will develop and implement and OJT Program for certification of Water Treatment Duties. Employees classified as Stationary Steam Engineer and/or Facilities Maintenance Mechanic assigned to the Steam Plant are eligible.
- b. Employees qualified as documented through the OJT program will receive the increase in pay as identified in this Section 8.
- c. Once qualified, employees may be assigned these duties by supervision at any time.
- d. Furthermore, all parties agree this qualification does not effect the seniority of the employee.

Section 9. The Company and the Union jointly agree to begin "Development of OJT Qualifications" for the Utility Person 1, 2 and 3 classifications. This process shall begin within 180 calendar days of the ratification of this agreement.

Section 10. Shift / Shop Lead

- a. Leadmen will be compensated at \$1.00 an hour above their normal rate, for all hours assigned.
- b. It is the sole prerogative of management to select employees to lead positions and to abolish lead positions. It is the intent of management to assign leads for short-term periods to fill-in for supervision.
- c. Lead positions will be offered to employees from the bargaining unit. The Company will select lead positions based upon ability, fitness, skill, and knowledge. The Company shall notify the Union of lead persons assigned.
- d. Lead persons should be qualified to perform the duties for which they are responsible, in order that they may train any employee coming into their section/department and direct employees in their assignment of work, as instructed by their supervisors.
- e. Lead persons are to work in peace and harmony with their fellow employees. They are not empowered to hire, fire, suspend or discipline, or recommend discipline for any employee. Lead persons are simply to carry out instructions as directed by their supervisors and report any problems they incur. This may include calling overtime in the absence of the supervisor.



Jacobs Technology Inc.  
ROME Group  
5 Manhattan Square  
Hampton, Virginia 23666

March 25, 2008

Lisa Harvey, Contracting Officer  
Mailstop 126  
NASA Langley Research Center  
Hampton, VA 23681

Reference: Contract NNL04AA03B

Subject: Collective Bargaining Agreement between Jacobs Technology Inc.,  
and IBEW Local Union No. 1340

Dear Ms. Harvey:

Jacobs Technology Inc. is submitting the enclosed Collective Bargaining Agreement between Jacobs Technology Inc. and IBEW Local Union No. 1340 as required by Exhibit C (K) Collective Bargaining Agreements, under the referenced contract. This CBA covers the period of February 1, 2008 through January 31, 2012.

Questions concerning the above should be directed to the undersigned at (757) 224-7819.

Sincerely,

A handwritten signature in cursive script that reads "Deborah Haggerty".

Deborah Haggerty  
Business Manager  
Jacobs Technology Inc., ROME Group

Enclosure: as stated

Copy:

Gary Stergin, COTR, Mailstop 242  
Contractor Labor Relations Officer, Mailstop 144  
File Copy



# **Collective Bargaining Agreement IBEW Local Union No.1340 & Jacobs Technology Inc. / Sierra Lobo, Inc.**

**NASA Langley Research Center  
Hampton, Virginia**

**February 1, 2008 – January 31, 2012**

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## **ARTICLE 1 – SCOPE OF WORK**

Section 1.01: This agreement covers maintenance and operational work assigned to the Company by National Aeronautical and Space Administration (NASA) under the “Research Operations, Maintenance and Engineering (ROME)” contract and performed by the employees of Jacobs Technology Inc. & Sierra Lobo, Inc. (Company) with job titles conforming to Appendix A of this document.

## **ARTICLE 2 – RECOGNITION**

Section 2.01: The Company recognizes the IBEW Local 1340 (Union) as the exclusive collective bargaining representative for employees with job titles conforming to Appendix A of this agreement, and working under the Research, Operations, Maintenance and Engineering (ROME) contract at the NASA Langley Research Center.

## **ARTICLE 3 - MANAGEMENT RIGHTS**

Section 3.01: The Union recognizes that the Company retains the sole right to manage its business, as such right existed prior to the execution of this agreement except only as expressly abridged by a specific provision of this Agreement.

The Company reserves and retains, solely and exclusively, all of its inherent rights to manage the business including but not limited to, the right to determine the location, relocation, or termination of any or all of its plants or facilities, including without limitation, the consolidation or merger of the Company’s operations with that of any division or subsidiary of the Company that might be created or any other firm or entity; the right to contract with third parties for the performance of all or any part of the work of the Company; the right to determine whether products, services, or any other work shall be made or purchased; to direct, instruct, and control its employees; to determine the number and qualifications of employees to perform work; to create new job classifications and to establish new rates of pay for such classifications; the right to maintain the efficiency of employees, to set performance standards, assign shifts, work or overtime; the right to hire, assign, lay-off, reclassify, promote, demote, and transfer; the right to discipline, suspend, and discharge employees for just cause; the right to determine job content and to establish the requirements for the job and those of the employees to fill such jobs; the right to determine the hours of work, the processes, methods, and procedures to be employed; and the right to make and enforce reasonable rules and regulations, except as expressly and specifically limited by the terms of this Agreement.

The foregoing enumeration of management rights shall not be deemed to exclude other rights of management not specifically set forth and the Company shall retain all rights to otherwise manage the work force unless specifically limited by this Agreement.



Section 3.02: The Company will notify the Union office in writing at least fourteen (14) calendar days prior to implementation of any new or revised rules or regulations and shall meet to discuss such changes during the fourteen (14) calendar day period if requested.

#### **ARTICLE 4 – SUBCONTRACTING**

Section 4.01: The Company agrees that it will not exercise its management rights to subcontract, reclassify, create new job classifications, or establish rates of pay for such classifications to avoid the wage schedule set forth in this Agreement. Further, the Company agrees not to subcontract bargaining unit work in such a manner which causes the termination of bargaining unit employees unless directed to do so by the government, in which event verification of such directive will be furnished to the Union upon request.

Section 4.02: When new classifications need to be added to the bargaining unit, the Company and the Union must immediately meet and bargain to establish wage rates and job duties for the new classifications. If the parties cannot reach agreement the Company may unilaterally set the wage rate for any new job classification and the union may submit a grievance at the step 2 level in accordance with section 6.01 of this agreement.

#### **ARTICLE 5 - UNION SECURITY**

Section 5.01: Maintenance of Membership - As a condition of continued employment, all employees covered by this agreement must maintain their membership in the Union or become an Agency Fee Paying Objector. Application for membership or payment of agency fees must be made within thirty (30) days of employment. Union membership is required only to the extent that employees must pay either (1) the Union's initiation fees or periodic dues or (2) agency fees corresponding to the proportion of the Union's total expenditures that support representational activities. Any individual refusing to pay dues, initiation or agency fees as required under this article will be discharged by the Company. The discharge will be effective within five (5) working days after the employee is given the right to cure the default.

Section 5.02: Working and Basic Dues Check-off: Upon receiving a signed dues authorization form, the Company will deduct union dues or agency fees from employees' gross wages in accordance with the Local Union's bylaws and IBEW constitution or fee payer objection plan. The Union must provide the Company with written notification regarding the amount of dues or fees to be deducted.

Section 5.03: COPE Check-off: Upon receiving a signed COPE authorization form from an employee, the Company will deduct five cents (\$.05) per hour worked from the employee's gross wages in accordance with the guidelines contained on the COPE authorization form.

Section 5.04: Reporting - The Company will provide the Financial Secretary of the Union with a detailed report showing names, social security number, wage rate, gross earnings,

total hours paid, and deduction amounts at the time of payment. Deductions provided above shall be remitted to the Financial Secretary of the Union no later than fifteen (15) days after the end of the month for which deductions are being made and shall include all deductions made in the previous month.

Section 5.05: Indemnification of the Company. The Union shall indemnify and save the Company harmless against any and all claims, demands, suits or other forms of liability that may arise out of or by reason of any action taken or not taken by the Company for purposes of complying with the provisions of this article.

## **ARTICLE 6 - GRIEVANCE PROCEDURE**

Section 6.01: A grievance is defined as any dispute between the parties as to the meaning, interpretation or application of the provisions of this Agreement. The parties agree that all grievances, except those involving discipline or discharge, will be settled and determined through the following grievance procedure. Discipline and Discharge grievances will be processed in accordance with Article 8. Failure to follow any of the set time limits will result in the grievance being void and waived, and the matter concluded without resort to arbitration unless the parties have mutually agreed to an extension.

Step 1: The Union or any employee who believes he or she has a justifiable grievance must, within five (5) working days after the cause of the grievance is known, or when it could have reasonably been known, verbally present and discuss the grievance with his or her supervisor on paid working time. The Chief Steward will be present at this meeting and will identify the verbal presentation as a formal grievance. The supervisor must give his verbal response to the Union within five (5) working days of the Step 1 meeting.

Step 2: If the grievance is not resolved at the Step 1, the grievance must be submitted in writing to the Department Manager within five (5) working days of the supervisor's decision. The written grievance will cite the specific violation(s) and remedy sought. The Department Manager will meet with the Chief Steward and Shop Steward in an attempt to resolve the matter. The Department Manager must give his or her written response to the Union within five (5) working days of the Step 2 meeting.

Step 3: If the grievance is not resolved at the Step 2, the grievance must be submitted in writing to the Human Resources Manager within five (5) working days of the Department Manager's decision. The General Manager, Human Resources Manager, Chief Steward and Business Representative of the Union will meet and attempt to resolve the matter. The Company must give its written response to the Union within five (5) working days of the Step 3 discussion. If the matter is not satisfactorily resolved, it may be submitted to arbitration in accordance with Article 7.

**Section 6.02:** In order to investigate and adjust grievances arising under the CBA, the chief steward is permitted to consult with any bargaining unit employee during paid working time, provided he first obtains the permission of his own supervisor and then obtains the permission of the immediate supervisor of the employee being consulted. Such consultation must not disrupt the Company's operations and will be as brief as practicable. The permission of the immediate supervisor must not be unreasonably withheld.

## **ARTICLE 7 – ARBITRATION**

**Section 7.01: Arbitration** - Any grievance not resolved in the Step 3 of the grievance procedure may be submitted to impartial arbitration with the Federal Mediation and Conciliation Service within five (5) working days of the Company's response to Step 3.

**Section 7.02: Rules Governing Arbitration** - Any grievance processed under the terms of this article will be arbitrated in accordance with the Labor Arbitration Rules of the Federal Mediation and Conciliation Service, except that either party may reject one list of arbitrators per case. Each list of arbitrators submitted by FMCS must contain the names of at least seven (7) arbitrators who members of the National Academy of Arbitrators (NAA) and are selected without regard to the geographic location of their residence in relation to NASA LaRC. The parties will alternately strike names from the list until one (1) remains who will be the Arbitrator of the case. No more than one grievance shall be simultaneously submitted to any one arbitrator unless the Company and the Union agree otherwise in writing.

**Section 7.03: Cost of Arbitration** – Each party must bear the cost of preparing and presenting its case to the arbitrator. All other expenses of arbitration, such as but not limited to the Arbitrator's fee, the cost of recording and transcribing testimony and the renting of a space where the arbitration proceedings are to be held, will be divided equally between the Company and the Union.

**Section 7.04: Function of the Arbitrator** - The Arbitrator has the authority to decide matters made subject to arbitration by the terms of this Agreement. The Arbitrator has the authority to interpret this Agreement, but no authority to alter, modify or amend it. The Arbitrator's award will be final and binding upon the Company, the Union and the aggrieved employee or employees.

## **ARTICLE 8 - DISCIPLINE & DISCHARGE**

**Section 8.01: Probationary Employees** - The Company has the right to discharge an employee during their probationary period with or without just cause, and without recourse by the Union or by such probationary employee to the grievance procedure of this Agreement.

**Section 8.02: Disciplinary Actions** - The maintenance of discipline is the responsibility of the Company and to that end, the Company has the right to discipline or discharge employees, who have completed their probationary period, for just cause. The Chief Steward must be present for all disciplinary action meetings or formal investigations which could result in disciplinary action of employees covered by this agreement. Employees may decline the presence of the Chief Steward or Assistant Steward by signing a statement waiving their right to Union representation at that meeting.

**Section 8.03: Notification of Disciplinary Action** - The Company must give the affected employee a copy of any written disciplinary action. The Union may, within five (5) working days after the administration of disciplinary action, appeal such action directly to step 2 of the grievance procedure in Article 6.

**Section 8.04:** Employee disciplinary records may not be used in arbitration if such records are more than one (1) year old, unless the employee was suspended, then such records may not be used if they are more than two (2) years old.

## **ARTICLE 9 - UNION REPRESENTATIVES**

**Section 9.01:** Representatives of the Union have access to the job during working hours on Union Business. They must obtain specific authorization for each visit from the Company when required.

**Section 9.02:** The Union has the right to appoint a Chief Steward and two shop stewards at the Company. The Company must be notified and furnished the name(s) of the Stewards in writing. The Company will deal with any such designated Steward until such designated Steward has been revoked in writing by the Union. After coordinating with his or her supervisor, the Steward will be allowed reasonable time during the regular working hours, without loss of pay, to see that the terms and conditions of this Agreement are observed. The presence of the Steward must not disrupt or interfere with the work of the Company. No Steward(s) will be discriminated against by the Company because of his faithful performance of duties as Steward.

**Section 9.03:** The Chief Steward must be given preferential seniority provided he or she has been performing the steward duties for six (6) consecutive months and has not less than twelve (12) months seniority.

## **ARTICLE 10 - REFERRAL OF EMPLOYEES**

**Section 10.01:** When employees are required, the Company shall request from the Local Union that the required number of applicants be referred for employment. The Company retains the right to select or reject any applicant referred by the Local Union, and have the further right to select any applicant from among those referred by the Union. When the Company requests an applicant or referral from the Union, the Union will refer such

applicant within forty-eight (48) hours [two (2) working days] and in the event the Union fails to refer an applicant within that period of time, the Company is free to utilize other sources to fill its manpower needs.

## **ARTICLE 11 – WAGES**

Section 11.01: Appendix A of this agreement establishes the job classifications and wage rates for employees of the bargaining unit.

Section 11.02: Employees must be paid once a week on Friday no later than 3:30 pm eastern standard time barring uncontrollable circumstances. Payment must be in the form of a Company payroll check or through direct deposit.

Section 11.03: The payroll period will consist of 7 days and close at midnight on “Friday.” The payroll week consists of seven (7) consecutive days beginning 12:01 a.m. Saturday and ending the following Friday at midnight. When a workday spans midnight, time will be charged on the day in which the majority of hours is worked. When the workday is divided evenly before and after midnight, time will be charged on the day on which work was started.

Section 11.04: Employees who are laid off or discharged shall be paid all their wages by the next regularly scheduled pay period, providing all indebtedness and obligations to the Company by the employee are satisfied.

## **ARTICLE 12 - HOURS OF WORK**

Section 12.01: The normal workday is defined as eight (8) consecutive hours of work between the hours of 7:00 a.m. and 3:30 p.m., exclusive of time out for lunch. The normal workweek is five (5) such regularly scheduled consecutive days (forty [40] hours), Monday through Friday and two (2) consecutive days off Saturday and Sunday. By mutual consent of the Company and the Union, the starting and quitting times of any shift, including day shift, may be permanently changed.

Section 12.02: Shift Work - The Company may establish second and third shifts consisting of no less than eight (8) hours. The second shift will be between the hours of 3:15 pm and 11:45 pm. The third shift will be between the hours of 11:30 pm and 8:00 am. Shift differentials established for second shift and third shifts are reflected in Appendix A of this agreement. Any second or third shift work will be on a voluntary basis. The most senior qualified employee that volunteers will have first priority. If there are no volunteers, the least senior employee will be assigned the shift work. Assigned shift work will be rotated every thirty (30) days.

Section 12.03: Notice of Shift Change - The Company will notify an employee of any change in their regular scheduled workweek at least forty-eight (48) hours prior to the change.

Section 12.04: Show-up Pay - Any employee reporting for their regularly scheduled shift who is not assigned work within one (1) hour shall be relieved for the day by the supervisor and be compensated two (2) hours of pay at their regular straight time rate.

## **ARTICLE 13 - OVERTIME**

Section 13.01: Overtime is defined as time worked in accordance with the provisions of this article and will be paid at one and one-half (1½) times the regular straight time rate for:

1. All work performed in excess of eight (8) hours in any one day;
2. All work performed before or after an employee's regularly scheduled shift;
3. All work performed on Saturday or Sunday;
4. All work performed on a recognized holiday in accordance with section 14.01 of this agreement.

Section 13.02: For the purposes of this article, overtime shall be defined as "scheduled" overtime or "call-in" overtime.

- (a) Scheduled Overtime - Is defined as overtime anticipated or scheduled in advance and about which the employee was notified, prior to leaving the facility. Additionally, when an employee is directed to report for work outside his regular schedule, directed to continue working at the conclusion of his regular workday, directed to commence work before his starting time after reporting to his work location such overtime will be treated as scheduled overtime and paid at one and one half (1½) times the employees regular straight time rate of pay.
- (b) Call-in – Employees who respond to emergency calls at the facility outside their normally scheduled shift will be paid a minimum of three (3) hours at one and one-half (1½) times their regular straight time rate and must be immediately released upon completion of the job. Employees who are not required to respond at the facility, but are contacted outside their regularly scheduled shift to resolve job related issues, will be paid a minimum of one (1) hour at one and one-half (1½) times their regular straight time rate. The Duty Officer or Manager/Supervisor contacting the employee will log the call times for accurate time card keeping. If the same employee receives multiple calls within the original hour, only one (1) hour will be charged.

Section 13.03: Overtime Distribution: Overtime will be distributed equitably among qualified employees for each shift, department and job classification. If an employee was improperly denied overtime opportunities, the Company must provide the employee with future planned overtime, provided he or she is qualified to do the job and such assignment does not disrupt the efficient operation of the department. This does not apply to emergency overtime. If an employee is unable to perform assigned overtime work, the overtime

assignment shall be referred to the employee with the lowest overtime credits who is qualified to perform the work.

Section 13.04: Emergency Overtime - If there is an insufficient number of employees to perform required work, employees will be selected on the basis of their ability to perform the job in the reverse order of seniority. The least senior qualified person will be required to perform the work.

Section 13.05: Overtime Record Keeping – Each department supervisor will maintain a written Overtime Distribution Record. The record will indicate the date, the employee's name and the number of overtime hours worked. Employees who refuse offers of overtime will have their overtime account credited for hours worked on the job they refused. Such credits will be used for the distribution of overtime purposes only. The Overtime Distribution Record will be zeroed out the first pay period of each calendar year. The employee with the least amount of hours will be reduced to zero (0) hours. Employees with higher amounts will be reduced by the same number of hours as the zeroed out employee. (Example: Employee 1 has 150 hours. Employee 2 has 165 hours. Employee 1 has his hours reduced to zero (0) and Employee 2 has his hours reduced to 15) New employees will be credited with the highest overtime hours, plus one hour in the department and classification for distribution purposes.

## **ARTICLE 14 – HOLIDAYS**

Section 14.01: The following days shall be observed as holidays under this agreement:

New Year's Day	Labor Day
Martin Luther King Day	Columbus Day
President's Day	Veteran's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

\* The above holidays will be observed on the same day NASA observes them.

Section 14.02: If the government proclaims a permanent holiday other than those listed in Section 14.01, then the employees will be granted that holiday as well. If the government eliminates a permanent federal holiday, it will not be observed.

Section 14.03: Fulltime employees who are not required to work on the above referenced holidays will receive eight (8) hours pay at their regular straight time rate. To be eligible for holiday pay, an employee must work their regularly scheduled shift before the holiday and their regularly scheduled shift after the holiday. Employees who use accrued leave on the scheduled shift before or after the holiday will be paid for the holiday.

**Section 14.04:** Employees required to work on one of the above-listed holidays will be paid one and one-half (1½) times their regular straight time rate for all hours worked, in addition to eight (8) hours holiday pay at their regular straight time rate.

## **ARTICLE 15 - ADMINISTRATIVE LEAVE**

**Section 15.01:** During special events where the contracting officer notifies the Company that normal activity at the center will be substantially reduced, employees who are not required to work during the event will be dismissed for the day and receive their regular straight time hourly rate for the remainder of their scheduled shift.

**Section 15.02:** Employees required to work during the above referenced special events will be paid one and one half (1½) times their regular straight time rate for all hours worked in addition to any special event pay at their straight-time rate up to a maximum of eight (8) hours.

**Section 15.03:** Employees who are out on sick leave or vacation during such special events will charge their time to sick leave or vacation and will not receive special event pay.

## **ARTICLE 16 – VACATION**

**Section 16.01:** Eligibility - Fulltime bargaining unit employees hired by the Company or a successor employer will accrue vacation hours in accordance with the table below:

Date of Hire	Years of Continuous Service	Hours Accrued Per Week	Maximum Hours Per Year
On or Before 12/18/2004	Less than 15	3.08	160
Before 12/18/2004	15 or more	4	208
After 12/18/2004	Less than 5	1.54	80
After 12/18/2004	More than 5	2.31	120
After 12/18/2004	15 or More	3.08	160

**Section 16.02:** Vacation Pay - Vacation pay shall be calculated at the employee's regular straight time hourly rate and will not be counted as hours worked for the computation of overtime.

**Section 16.03:** Continuous Service: Continuous service is defined as the whole span of continuous service beginning with the first date the employee performed services for the Company or predecessor employers at the facility. This date is referred to as the employee's anniversary date and seniority date. For the purposes of this section, an employee's continuous service credit shall not be lost unless his or her seniority is lost in accordance with Section 26.10.



Section 16.04: Minimum Notice - Employees are required to provide five (5) days minimum notice for vacation requests exceeding three (3) days duration. All vacation requests are subject to company approval and will not be unreasonably withheld. All other vacation requests must be approved by the Company before 9:00 a.m. the day preceding vacation. Vacation may be utilized in no less than one (1) hour increments and cannot exceed eight (8) hours pay for each day of absence. Requests for vacation on an unscheduled basis shall not exceed four (4) times in a calendar year or sixteen (16) total hours.

Section 16.05: Unused Vacation - Employees are permitted to accrue a maximum total of 240 hours per year and will not accrue vacation hours while on short term disability or workers compensation. Employees are permitted to carry over unused vacation hours from one year to the next provided their cumulative balance does not exceed 240 hours. If a successor employer assumes operations at the facility, the Company agrees to negotiate the rollover of unused vacation belonging to bargaining unit employees. If unsuccessful, the Company will pay employees for all unused vacation at their regular straight time rate. In addition, employees with more than 120 hours of vacation may sell up to sixty-four (64) hours of vacation back to the Company during the calendar year. Sales will be in the form of one forty (40) hour payment and one twenty-four (24) hour payment. Request(s) may be submitted at anytime during the calendar year provided the employee has a minimum of 120 vacation hours.

Section 16.06: Separation of Employment - In the event an employee is separated for any reason (including extended approved leave of absence, retirement, lay-off, resignation, disability, death or discharge), the Company will pay to the employee, or the employee's estate, an amount equal to any unused vacation benefits to which the employee was otherwise entitled at the time of separation. Separated employees who return to active employment prior to the loss of their seniority will accrue vacation benefits at their previous rate; however they will not accrue hours during the period of separation.

## **ARTICLE 17 - SICK LEAVE**

Section 17.01: During the first pay period of each year all regular full time employees are advanced forty-eight (48) hours of Sick Leave. Sick Leave is earned at a rate of .9231 hours per week and credited against the employee's account. Any employee hired mid-year will receive a prorated number of sick leave hours based on the number of pay periods remaining in the calendar year. Any earned unused sick leave will be paid out to employees upon separation of employment; however, employees who have used more sick leave than earned (using the above calculation) shall have such difference deducted from their final paycheck.

Section 17.02: Sick Leave Pay - Sick leave is to be utilized for the employee's illness or doctor's appointment. Sick Leave must be used in a minimum of one (1) hour increments and is calculated at the employee's regular straight time hourly rate and cannot exceed eight (8) hours pay for each absence. Sick Leave will not be counted as hours worked for

the computation of overtime and will not be accrued during periods of layoff, strike or after the first thirty (30) calendar days of a leave of absence.

Section 17.03: Reporting Illness & Unscheduled Sick Leave - Employees suffering from an illness or wishing to take unscheduled sick leave are required to contact their supervisor prior to the start of their scheduled shift, but in no case later than two (2) hours after the shift start. Employees are not required to furnish a medical certificate to substantiate requests for sick leave, except when the illness exceeds three (3) consecutive work days. In the case of a communicable disease, and in the interest of protecting other employees, the Company may require medical certification of fitness to return to work. In the event of a period of disability, for any reason (injury or illness), a medical certificate, stating employee is fit for duty, will be required prior to returning to work.

Section 17.04: Legacy Sick Leave - An employee who has legacy sick leave credits will reserve those hours to use after the annual amount is exhausted. Legacy sick leave is carried over from year-to-year until completely exhausted or forfeited due to separation of employment.

Section 17.05: Unused Annual Sick Leave - Any unused annual sick leave will be paid to employees at their regular straight time rate in the first pay period of the new calendar year.

## **ARTICLE 18 – FLEXTIME**

Section 18.01: Fulltime employees are permitted to modify their schedule on a daily basis to meet personal needs such as Doctor's appointments and childcare in lieu of using their sick leave or vacation to satisfy the forty (40) hour workweek. Flex-time requests must be in advance and approved by the Company. The Company and Union agree this is a voluntary program, and at the employee's initiation only, and will not result in additional compensation including shift differential pay, overtime, special operations pay, and emergency non-scheduled duty pay.

## **ARTICLE 19 – JURY DUTY**

Section 19.01: Jury Duty - Employees required to serve on a jury will suffer no reduction in straight-time pay, and will be paid the difference between money received for such jury duty and normal straight-time earnings, exclusive of shift premium. Employees who report for jury duty but are not selected for service are expected to return to work for the balance of the work day. The Company may require evidence of the employee's requirement to report for Jury Duty, or to honor a subpoena, proof of attendance, time of reporting, time of release and amounts received as compensation.

**Section 19.02: Testifying** - An employee subpoenaed to testify in a Grand Jury proceeding will suffer no reduction in straight-time pay, for time lost in testifying, and will be paid the difference between money received for honoring the subpoena and normal straight-time earnings, exclusive of shift premium. Employees will not be entitled to such pay when the employee (1) is called as a witness against the Company or its interests; (2) is called as a witness on his own behalf or his family; or (3) voluntarily seeks to testify as a witness. Employees are required to provide prompt notice of their receipt of a subpoena.

## **ARTICLE 20 – FUNERAL LEAVE**

**Section 20.01:** Employees are permitted to take up to three (3) consecutive days off without loss of pay in connection with the death of an immediate family member. For purposes of this section immediate family is considered to include the employee's spouse, children, stepchildren, siblings, parents, stepparents, step-siblings, foster parents, foster children, parents-in-law, legal guardians, grandparents, and grandchildren. All leave granted under this section shall be taken between the date of death and two days following the date of the funeral or service.

**Section 20.02:** The Company shall allow a designated steward to attend the funeral of any employee if such funeral takes place during normal working hours and use Sick time or Vacation time for the event.

## **ARTICLE 21 – INSURANCE BENEFITS**

**Section 21.01:** For the duration of this agreement, regular full-time employees have the opportunity to participate in the below listed insurance plans offered by the Company. These Plans and their Summary Plan Descriptions, which may change from time to time, shall become incorporated as a part of this Agreement.

Medical/Vision Insurance

Dental Insurance

Short-Term Disability Insurance

Life Insurance

Accidental Death & Dismemberment

**Section 21.02: Medical/Vision Benefits** – The Company agrees to pay 75% of the medical/vision premiums for the type of coverage selected by the employee. The employee will pay the remaining 25% of the premium through weekly payroll deductions. Employees who elect not to participate in the Company's medical/vision benefits will receive thirty-four cents (\$0.34) per hour, limited to 2080 hours per year, in lieu of accepting the insurance coverage offered.

**Section 21.03: Dental Benefits** – The Company agrees to make available an employee paid dental insurance plan for all regular full-time employees. Premiums will be paid through weekly payroll deductions based on the type of coverage selected.

**Section 21.04: Additional Benefits** - The Company will provide the following additional insurance benefits to employees covered by this collective bargaining agreement:

Short-Term Disability insurance:

- 60% of basic weekly pay to a maximum of \$1,200 per week.  
Coverage will be from the 8th day of total disability and will extend through the 26th week of such disability.

Life insurance:

- In the amount of \$25,000.00 per employee; (after age 65 there are certain benefit reductions)

Accidental death & dismemberment policy:

- In the amount of \$25,000.00; (after 65 there are certain benefit reductions.)

**Section 21.05:** It is understood that the Company contracts with insurance carriers to provide the benefits contemplated under this Article. Interpretation and application of such contracts shall ultimately rest with the insurance carrier and any dispute thereunder shall be between the employee and the insurance carrier and not subject to the Grievance Procedure of this Agreement. The Company reserves the right to change insurance carriers so long as the primary benefits are essentially the same.

**Section 21.06:** Participation in Company's Insurance plans is only available to new employees, existing employees who have a qualifying event or during the Company's open enrollment period. Specific terms regarding coverage are provided pursuant to and as a part of the respective insurance policies and plans.

## **ARTICLE 22 – RETIREMENT BENEFITS**

**Section 22.01: - Pension Fund** - The Employer agrees to contribute on behalf of all Employees working under the terms of this Agreement seven and half percent (7.5%) of their gross weekly pay into a pension fund on an individual basis (IBEW Local Union 1340 Maintenance Retirement Fund, 825 Diligence Dr, Newport News, VA 23606, Phone (757) 873-2050.

The said pension fund shall be administered pursuant to an agreement and declaration of trust administered jointly by an equal number of persons representing the Local Union and the Employer. The trustees shall determine the rules and regulations regarding the pension fund and that such rules and regulations conform to all requirements of the law.

Section 23.02: - Contributions - The check or respective monies shall be transmitted not later than fifteen (15) days after the end of the month for which contributions are being made. Along with the check for the amount of calendar monthly contributions, the Company shall furnish to the Trust Fund a mutually agreeable form setting forth the employee's name, social security number, the number of clock hours worked, and his gross earnings for the calendar month, and said copies will be executed to cover the aggregate number of weekly payrolls in each calendar month.

Section 22.03: The individual employer hereby accepts, and agrees to be bound by, the Restated Employees Benefit Agreement and Trust.

Section 22.04: An individual employer who fails to remit as provided above shall be additionally subject to having his Agreement terminated upon seventy-two (72) hours notice in writing being served by the Union, provided the individual employer fails to show satisfactory proof that the required payments have been paid to the appropriate local collection agent.

Section 22.05: The failure of an individual employer to comply with applicable provisions of the Restated Employees Benefit Agreement and Trust shall also constitute a breach of this labor agreement.

## **ARTICLE 23 – SAFETY**

Section 23.01: The Company agrees that it has the sole responsibility to provide a safe and healthy work environment for all employees, and correct all hazards affecting employees in the workplace in accordance with the requirements of the Occupational Safety and Health Administration, U.S Department of Labor and as well as all state and local agencies. Employees recognize their responsibility to cooperate with the Company in maintaining and improving a safe and healthful working environment and participating in OSHA's Voluntary Protection Program. The Company further agrees it will make every effort to ensure optimum working conditions and provide the highest standards of workplace sanitation, ventilation, cleanliness, light and noise control.

Section 23.02: Nothing in this agreement will imply that the IBEW Local 1340 has undertaken or assumed any portion of the responsibility for safety referenced in Section 23.01.

Section 23.03: ROME Executive Safety Council - The Company agrees to maintain an effective safety program and safety committee. The Union shall be entitled to appoint one (1) primary employee and one (1) alternate employee to serve on the ROME Executive Safety Council.

Section 23.04: Maintenance Department Safety Committee – The Committee will consist of an equal number of union members and company representatives. Meetings will be held

once a month during working hours and copies of the minutes will be supplied to each committee member. The committee chair position will alternate annually between craft and salaried personnel. Union committee members will be paid at their regular straight time rate for time spent in attendance of these meetings. Recommendations and observations of the committee will be submitted to the Company for consideration and possible implementation.

Section 23.05: Proposed Changes or Rules – Changes to safety rules or regulations must be submitted in writing to the Union.

Section 23.06: Personal Protective Equipment – Safety equipment, Personal Protective Equipment (PPE), and specialized protective clothing will be provided by the Company at no cost to employees when it is deemed necessary to maintain safe and healthful conditions, excluding personal clothing required with or under the special clothing or PPE. Any safety equipment, PPE, or specialized protective clothing will be provided and maintained by the Company in good working order. When employees are issued safety equipment, PPE, or specialized protective clothing, they will be responsible for loss or damage to those items other than that incurred by normal wear or use through no fault of the employee.

Section 23.07: New Assignments - No employee will be required to work on an unfamiliar job or machine until adequate instruction and training in the performance of the job or operation of the machine have been provided. This will include training in health and safety, first aid, and any emergency procedures needed to protect health and safety.

Section 23.08: Refusing to Work in Unsafe Conditions – No employee will be penalized, coerced, intimidated, disciplined or discharged for refusing to work in job conditions or operate machinery that he or she believes to be unsafe or unhealthy. In such cases, the employee will notify his immediate supervisor and be transferred to other available work without reduction in pay until the alleged unsafe condition has been investigated and corrected or declared “safe-to-work”. The determination must be made jointly by a member of the ROME Safety Department and the Supervisor. If the employee still feels that the task is unsafe, a determination will then be made jointly by the Sr. Manager-Safety and a Rome Maintenance Safety Committee member. If these parties are unable to agree, the determination shall be made by a NASA Safety representative. After the job condition or machinery is declared safe-to-work, the employee will be reassigned to the job. If the employee continues to refuse to work the job or machinery, he or she will be subject to the disciplinary process of this agreement.

Section 23.09: CPR Training – The Company will offer formal First Aid and Cardio Pulmonary Resuscitation (CPR) training to all employees.

Section 23.10: Job Related Accidents and Injuries - A regular full-time employee who is injured on the job and who after treatment for the injury is directed by a licensed medical doctor or by a hospital not to continue to work shall be paid eight (8) hours straight-time pay for the day on which the injury occurred, which must not be charged to his sick leave or vacation. The Company agrees not to separate any employee from employment while he or she is on leave, under compensation, relating to an on-the-job accident, for a period of one (1) year. After one (1) year of such leave, an employee may be separated from employment

after two (2) weeks written notice to the employee and Union, subject to the grievance procedure.

## **ARTICLE 24 – DRUG TESTING**

Section 24.01: All employees covered by this agreement must comply with the Company's Drug, Alcohol and Contraband Policy which is made part of this agreement. In accordance with the policy, employees are subject to pre-hire, post-incident, reasonable suspicion and random drug testing. Such testing will be done during an employee's regularly scheduled shift and will not result in a loss of pay.

## **ARTICLE 25 – INTERFACING**

Section 25.01: Craftsmen are permitted to temporarily support other crafts (trades) when the workload requires it. When employees are required to support each other as part of a multi-craft job task, individual craftsman are expected to work under the direction of the craftsman requesting assistance. The Company agrees that interfacing applies to skilled craftsmen only, and will not assign such work to laborers. This does not prohibit a laborer deemed qualified by the Company from being temporarily upgraded to a higher classification and rate of pay. When such assignments are made, the Company must notify the chief steward.

## **ARTICLE 26 – SENIORITY**

Section 26.01: Types of Seniority – There are three (3) types of seniority for employees covered by this agreement; classification seniority, bargaining unit seniority and Stewards Seniority.

- (a) Classification Seniority – Classification seniority is the employee's length of continuous service in a given craft to which he or she has been permanently assigned.
- (b) Bargaining Unit Seniority – is defined as the total continuous length of an employee's service at the unit while employed by the Company or predecessor employer(s).
- (c) Steward Seniority – The Chief Steward will have seniority over all other employees in the bargaining unit. When subject to layoff he shall be entitled to bump any bargaining unit employee who holds a classification for which he or she possesses the abilities and qualifications to perform.

Section 26.02: Probationary Employees: New employees of the Company are to be considered probationary and not entitled to seniority until they have acquired ninety (90)

calendar days of Company service. Probationary employees must be laid off before any other bargaining unit employee possessing the same job classification. After serving the probationary period, a new employee will be placed on the seniority list and given seniority as of the first day they were hired by the Company. The Company may transfer, layoff and discharge probationary employees and such action is not be subject to the grievance procedure.

Section 26.03: Posting of Seniority List - The Company must post a seniority list of the employees covered by this Agreement. Such list(s) must indicate each employee's classification seniority and bargaining unit seniority dates and shall be updated semi-annually.

Section 26.04: Disputes over Seniority List – Any dispute over the seniority standing of any employee on the seniority list must be submitted to the Company within fifteen (15) working days after the posting of the list. If not immediately resolved, the Union may submit a grievance at Step 2.

Section 26.05: Layoffs: The Company will determine the time of layoffs, the number of employees to be laid off, and in what job classification and craft layoffs will occur. Such layoffs will be on the basis of the least amount of classification seniority. In case of a tie, unit seniority shall govern.

Section 26.06: Union Notification - If a layoff should become necessary, the Union office shall be notified at least two (2) weeks in advance or as soon as possible.

Section 26.07: Bumping Rights - An employee subject to layoff out of a job classification may use their Bargaining Unit seniority to bump a less senior Bargaining Unit employee who holds a classification for which they possess the abilities and qualifications to perform as determined by the Company. The displacing employee(s) must have bargaining unit seniority greater than or equal to that of the employee they wish to bump. The displacing employee shall be paid at the rate of the job classification he or she moves into.

Section 26.08: Notice to Exercise Bumping Rights - The affected employee(s) given notice of a reduction in force shall notify the Company of their election to exercise the above displacement rights or accept the layoff within three (3) working days of receipt of such notice. Failure to notify the company shall be considered an acceptance of layoff. No employee shall have the right to displace any employee in a higher job classification.

Section 26.09: Determining Equal Seniority - If classification seniority and unit seniority are equal, then seniority will be determined by drawing cards. The employee who draws the lowest card in a standard deck of cards with a two (2) being the lowest card will be the first to be laid off.



**Section 26.10: Loss of Seniority** – An employee shall lose seniority for the following reasons:

- (a) An employee quits.
- (b) An employee is discharged.
- (c) An employee fails to notify the Company of his intent to return to work in accordance with section 26.13.
- (d) Settlement has been made for total disability.
- (e) An employee has retired.
- (f) An employee has been in layoff status for more than twelve (12) consecutive months.
- (g) An employee accepts a position outside of the collective bargaining unit and remains outside of the unit for more than ninety (90) days.

**Section 26.11:** In the event an employee accepts a new job within the Company and within 30 days he or the Company decide against said move, then the employee shall be immediately reinstated to his former position with no loss of seniority or pay as if the move had never occurred.

**Section 26.12: Order of Recall.** Recall shall be in reverse order of layoff within job classification.

**Section 26.13: Notice of Recall.** The Company will forward notice of recall by certified mail to the last known address of the employee reflected on Company records with consideration to the Union's records for possible more current addresses. The employee must, within ten (10) working days of delivery or attempted delivery of the notice of recall, notify the Company of his intent to return to work on the date specified for recall and thereafter, return to work on such date.

**Section 26.14: Last Known Address** - Notice by the Company, to the last known address of a former employee is considered fulfilling the recall notice requirements. An employee failing to comply with the provisions of this article will be considered as having voluntarily resigned from the service of the Company.

## **ARTICLE 27 – NO STRIKE / NO LOCKOUT**

**Section 27.01:** During the length of this Agreement, there will be no lockout by the Company, and no slowdown, work stoppages, or sympathy strikes by the Union.

## **ARTICLE 28 – NON-DISCRIMINATION**

Section 28.01: There will be no discrimination by the Company or the Union in the application of the terms of this Agreement because of race, color, religion, national origin, age, sex, sexual orientation, handicap, or status as a disabled veteran or veteran of the Vietnam Era.

Section 28.02: The use of the masculine or feminine gender in this Agreement shall be construed as including both genders and not a sex limitation.

## **ARTICLE 29 – SAVINGS CLAUSE**

Section 29.01: It is understood and agreed that the provisions of this Agreement are subject to all applicable laws and governmental regulations in effect and to the lawful rulings and orders of all regulatory commissions having jurisdiction. If any provision of this Agreement is found to be in conflict with any lawful ruling or regulation, the parties will meet for the purpose of discussing and modifying that portion of the Agreement only.

## **ARTICLE 30 – DURATION**

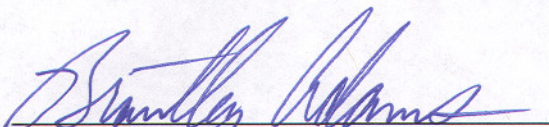
Section 30.01: The effective date of this Agreement is February 1, 2008. This Agreement will be in full force and effect for the entire period from February 1, 2008, through midnight of January 31, 2012, and from year to year thereafter, unless either party at least sixty (60) days prior to January 31, 2012, notifies the other party in writing of its intention or desire to open the agreement for negotiations or to terminate it in its entirety.

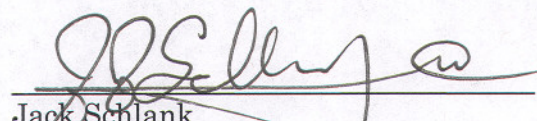
Section 30.02: This Agreement is subject to amendments at any time by mutual consent of the parties hereto. Any such amendment agreed upon must be reduced to writing and signed by the parties.

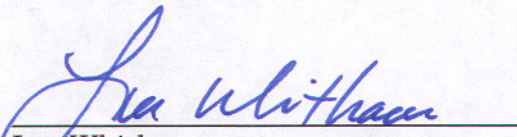
**SIGNATURES PAGE**


**FOR THE EMPLOYER:**

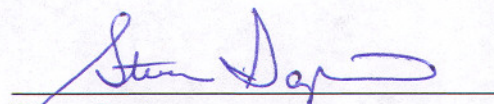
Jacobs Technology, Inc.  
Sierra Lobo, Inc.

  
Brant Adams,  
VP/GM ROME Group

  
Jack Schlank,  
Director, Sierra Lobo, Inc.

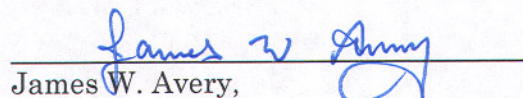
  
Lee Whitham,  
Director, Human Resources  
Jacobs Technology Inc.

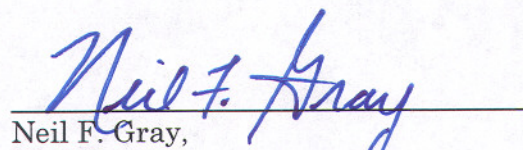
  
Brenda Phillips,  
Manager, Human Resources  
ROME Group

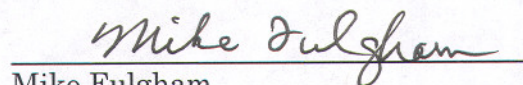
  
Steve Iapicco,  
Manager, Labor Relations  
Jacobs Technology Inc.

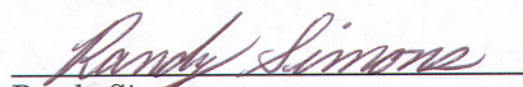
**FOR THE UNION:**

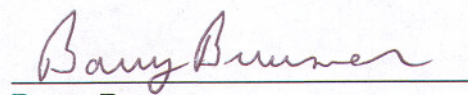
Local Union No. 1340, IBEW  
AFL-CIO Local Union No. 1340

  
James W. Avery,  
Business Manager

  
Neil F. Gray,  
President

  
Mike Fulgham,  
Unit Chairman

  
Randy Simons,  
Union Negotiator

  
Barry Brunner,  
Union Negotiator

**WAGE APPENDIX – A**

<b>JOB CLASSIFICATION</b>	<b>Feb.2 2008</b>	<b>Jan. 31 2009</b>	<b>Jan. 30 2010</b>	<b>Jan. 29 2011</b>
Asbestos Worker	21.41	22.11	22.96	23.81
Calibration Mechanic	22.06	22.76	23.61	24.46
Carpenter	21.51	22.31	23.26	24.21
Craft Technician	23.64	24.34	25.19	26.04
Electrician	22.06	22.76	23.61	24.46
Electrician (High Voltage)	23.66	24.36	25.21	26.06
HVAC Mechanic	22.06	22.76	23.61	24.46
HVAC Technician	26.26	26.96	27.81	28.66
Insulator, Pipecover, Maintenance	21.51	22.31	23.26	24.21
Laborer	13.48	14.28	15.23	16.18
Mason/Bricklayer	22.06	22.76	23.61	24.46
Mechanic	22.06	22.76	23.61	24.46
Millwright	22.06	22.76	23.61	24.46
Painter	21.00	21.80	22.75	23.70
Pipefitter	22.06	22.76	23.61	24.46
Precision Machine Repairman	22.44	23.14	23.99	24.84
Rigger	22.06	22.76	23.61	24.46
Roofer	21.51	22.31	23.26	24.21
Sheetmetal	22.06	22.76	23.61	24.46
Water Treatment	22.06	22.76	23.61	24.46
Welder	22.06	22.76	23.61	24.46
Shift Differential Pay - 2nd Shift*	1.95	1.95	1.95	1.95
Shift Differential Pay - 3rd Shift*	2.45	2.45	2.45	2.45

\*Excludes non-productive hours (i.e. not Vacation, Sick, Holiday, Bereavement)

**Note - Craft Technician List**

PT&I Motor Testing (Electrical); PT&I Vibration (Mechanic); PT&I Thermographer (Electrical); Protective Relay (Electrical); Drive Systems (Electrical); Oxygen Ultrasonic Tech (Mechanic); Instrumental/Calibration Tech (Electrical); High Pressure Component (Pipefitter) and Oil Test (Mechanic)

## **Section 2 – Out – of – Craft Pay**

When directed to work out of craft by supervision, the employee will be compensated at the higher wage rate.

## **Section 3 – HAZMAT Pay**

Employees participating on HAZMAT Teams required to carry pagers for immediate response to incidents within a determined amount of time will receive \$20.00 per day while “on-call”.

## **Section 4 - Temporary Hires**

Temporary hires (not to exceed 120 days) and summer hires shall receive the established rate but shall not be eligible for any fringe benefits in addition to their monthly rate.

## **Section 5 - Leadmen and Shop Leads**

- (a) Leadmen will be compensated a minimum of \$0.75 an hour above their normal rate, for at least eight (8) hours per incident.
- (b) Shop Leaders will be compensated up to 110% of the rate of the craftsman, for at least eight (8) hours per incident.

## **Section 6 - Lead Positions**

- (a) It is the sole prerogative of management to select employees to lead positions and to abolish lead positions.
- (b) Lead positions will be offered to employees from the bargaining unit. The Company will select lead positions based upon ability, fitness, skill, and knowledge. The Company shall notify the Union of lead persons assigned.
- (c) Lead persons should be qualified to perform the duties for which they are responsible, in order that they may train any employee coming into their section/department and direct employees in their assignment of work, as instructed by their supervisors.
- (d) Lead persons are to work in peace and harmony with their fellow employees. They are not empowered to hire, fire, suspend or discipline, or recommend discipline for any employee. Lead persons are simply to carry out instructions as directed by their supervisors and report any problems they incur.

## **MEMORANDUM OF UNDERSTANDING #1**

### **BETWEEN THE INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL UNION #1340 AND JACOBS TECHNOLOGY INC. and/or SIERRA LOBO, Inc.**

This Agreement shall apply to Jacobs Technology Inc. and/or Sierra Lobo, Inc. at NASA Langley, its successors and assigns in part or in whole, in the performance of all work covered by the collective bargaining agreement between the parties named above, and is entered into for the purpose of amending and modifying the collective bargaining agreement between IBEW Local Union No. 1340 and Jacobs Technology Inc. and/or Sierra Lobo, Inc.,

**TERM OF MEMORANDUM** – This Memorandum shall take effect October 4, 2007, and shall remain in effect through January 31, 2012. It shall continue in effect thereafter from year to year, from February 1st of each year through January 31st of the following year unless changed or terminated in the way provided within the current Collective Bargaining Agreement between Local Union No. 1340, IBEW and Jacobs Technology Inc.

**AGREED** – The above-mentioned and below signed parties agree to the following amendment to the current Collective Bargaining Agreement (CBA).

#### **Added – Hurricane Ride Out Team Compensation Package**

The ROME Contract has provisions to support natural disasters and emergencies to include hurricane response. Part of the hurricane response and the plan to get the center back to normal operations is a ride out team. The ride out team's main job is to stay on the center during the storm so that damage assessment operations can begin quickly after the storm. The ride out team will not be venturing out of the building during the storm.

Selection of the ride out team members will be by volunteers. Everyone in the bargaining unit is eligible to volunteer for the team. Skills and background of each person volunteering will be taken into consideration to meet the needs of the ride out team. Ride out team members need to be able to assess damage and determine rough repair requirements.

Hurricane season is also the traditional vacation season. In the event an employee who has volunteered for the ride out team has a previously scheduled vacation that cannot be changed, the company will make every effort to get another volunteer.

The LaRC plan calls for the ride out team to be dismissed at the announcement of Hurricane III (50-knot/58 MOH winds within 48 hours). They will be allowed time to take care of their family and other personal needs. They will return to the center at Hurricane II (50-knot/58 MOH winds within 24 hours) and remain on the center or at an assigned location until relieved by recovery personnel.



This plan calls for each person on the ride out team to be separated from their family during a hurricane. Ride out team members must receive special compensation for this dedication to the center. The following items should be part of this compensation.

For the ride out team, the following language is proposed: (Note: See Attached Example.)

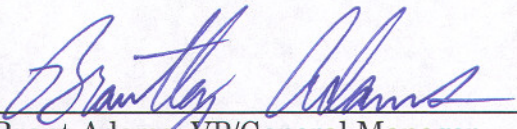
- (a) Those employees who work will be paid at two and one-half (2 ½) times the employee's straight time base rate of pay for all hours worked up to eight (8) hours. All hours on the ride out team in excess of eight (8) hours each day will be paid at time and one-half (1 ½) his straight time rate. The first eight (8) hours in succeeding days will be paid at two and one half (2 ½) times the straight time base rate. The remaining hours present in each succeeding day will be paid at time and one-half (1 ½) times the straight time rate. This overtime pay schedule will continue until the ride out team is dismissed."
- (b) Each ride out team member should receive eight (8) hours of their base rate of pay for the period between Hurricane III and Hurricane II if they are sent home to prepare for the storm. This should apply even if they are not recalled to the center because the storm changed direction or dissipated.

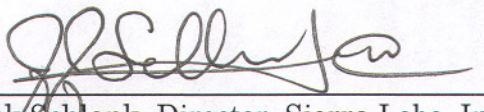
Since the ride out team might be on the job for more than one day, the above should apply to each day the center is closed and the ride out team is here. (see next page)

The aforementioned are and collectively agreed to by signature of all the parties as signed below, on this 1st day of February 2008. (see example following pages)

**FOR THE EMPLOYER:**

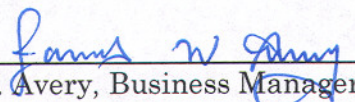
Jacobs Technology Inc.  
Sierra Lobo, Inc.

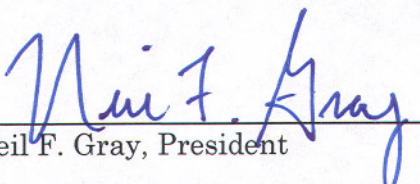
  
Brant Adams, VP/General Manager  
ROME Group

  
Jack Schlank, Director, Sierra Lobo, Inc.

**FOR THE UNION:**

Local Union No. 1340, IBEW  
AFL-CIO Local Union No. 1340

  
Jim W. Avery, Business Manager

  
Neil F. Gray, President

**HURRICANE RIDEOUT TEAM EXAMPLE**

<u>Rate</u>	<u>Day 1 Hours</u>	<u>OT</u>	<u>Amount</u>
\$22.06	8	2.5 x	\$441.20
	<u>16</u>	1-1/2 x	<u>529.44</u>
<b>Total</b>	<b>24</b>		<b>\$970.64</b>

	<u>Day 2 Hours</u>		
	8	2.5 x	\$441.20
	16	1-1/2 x	<u>529.44</u>
<b>Total</b>	<b>24</b>		<b>\$970.64</b>

	<u>Day 3 Hours</u>		
	8	2.5 x	\$441.20
<b>Total</b>	16	1-1/2 x	<u>529.44</u>
	<b>24</b>		<b>\$970.64</b>

	<u>Day 4 Hours</u>		
	8	2.5 x	\$441.20
	16	1-1/2 x	<u>529.44</u>
<b>Total</b>	<b>24</b>		<b>\$970.64</b>

	<u>Day 5 Hours</u>		
	8	2.5 x	\$441.20
	16	1-1/2x	<u>529.44</u>
<b>Total</b>	<b>24</b>		<b>\$970.64</b>

			<u><b>40 hours Regular pay</b></u>
<b>Total</b>	<b>5 days</b>	<b>\$4853.20</b>	<b>\$882.40</b>



## **MEMORANDUM OF UNDERSTANDING #2**

### **BETWEEN THE INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL UNION #1340 AND JACOBS TECHNOLOGY INC.**

This Agreement shall apply to Jacobs Technology Inc. at NASA Langley, its successors and assigns in part or in whole, in the performance of all work covered by the collective bargaining agreement between the parties named above, and is entered into for the purpose of amending and modifying the collective bargaining agreement between IBEW Local Union No. 1340 and Jacobs Technology Inc.

**TERM OF MEMORANDUM** – This Memorandum shall take effect February 1, 2008, and shall remain in effect through January 31, 2012. It shall continue in effect thereafter from year to year, from February 1st of each year through January 31st of the following year unless changed or terminated in the way provided within the current Collective Bargaining Agreement between Local Union No. 1340, IBEW and Jacobs Technology Inc.

**AGREED** – The above-mentioned and below signed parties agree to the following amendment to the current Collective Bargaining Agreement (CBA).

It is understood and agreed to by Jacobs Technology Inc. (Company) and the IBEW (Union) that this agreement relates to the ROME contract dated February 1, 2008 to January 31, 2012 the portion pertaining to Article 11- Wages and Wage Appendix A.

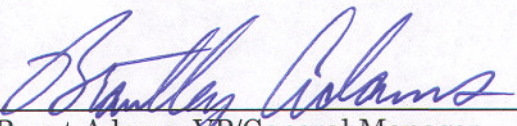
The Company agrees to implement a “High Voltage Electrician Standards” OJT / Certification program. All employees classified as “Electrician, Maintenance” will be eligible to participate on a voluntary basis. Employee’s classified as “Electrician, Maintenance” that are also classified as “Craft Technicians” are not eligible for this program. This program is intended to promote employees to the classification of “Electrician, High Voltage Maintenance.” Employees entered into the program will be required to complete OJT / Certification in a three (3) step program. Upon completion of each step the employee’s rate of pay will be increased by \$0.50 documented through Human Resources in the employee’s personnel folder. The following are the Steps for this program:

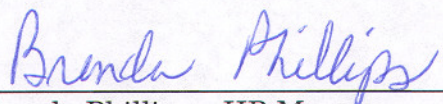
1. Certification Criteria for 7KV High Voltage Electrician
2. Certification Criteria for 22KV High Voltage Electrician
3. Certification Criteria for 115KV High Voltage Electrician

The aforementioned are and collectively agreed to by signature of all the parties as signed below, on this 1st day of February 2008. (see example following pages)

**FOR THE EMPLOYER:**

Jacobs Technology, Inc.

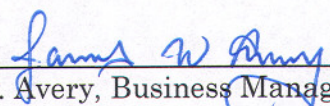
  
\_\_\_\_\_  
Brant Adams, VP/General Manager  
ROME Group

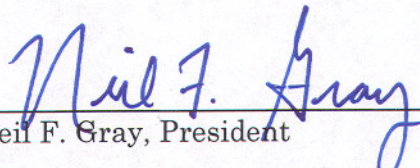
  
\_\_\_\_\_  
Brenda Phillips – HR Manager  
ROME Group

**FOR THE UNION:**

Local Union No. 1340, IBEW

AFL-CIO Local Union No. 1340

  
\_\_\_\_\_  
Jim W. Avery, Business Manager

  
\_\_\_\_\_  
Neil F. Gray, President

**Attachment 1****ROME High Voltage Electrician Standards Step 1**Certification Criteria for 7KV High Voltage Electrician

Requirement	Check if Completed/ Switchman Initials/Date
1. Know all substation numbers, locations, and weekly preventive maintenance (PM)	<input type="checkbox"/> _____/_____
2. Know the operation of electrical distribution equipment up to 7KV <ul style="list-style-type: none"> <li>▪ Air switches</li> <li>▪ Vacuum Breakers</li> <li>▪ Oil filled breakers</li> <li>▪ Gas filled breakers</li> <li>▪ Terminators</li> <li>▪ Personal protective grounds</li> <li>▪ Personal Protective Equipment</li> </ul>	<input type="checkbox"/> _____/_____
3. Have attended a certificated training class and have a comprehensive understanding of NFPA-70E	<input type="checkbox"/> _____/_____
4. Have read and work in accordance with NASA LPR 1710.10 & 1710.6	<input type="checkbox"/> _____/_____
5. Have attended a certificated training class on electrical safety for substations and power distribution and have a comprehensive understanding of OSHA 1910.269	<input type="checkbox"/> _____/_____
6. Have successfully completed a complex 7KV switching procedure	Procedure #: _____ <input type="checkbox"/> _____/_____
7. After meeting requirements 1-6, take and pass the LaRC 7KV Lock-Out Tag-Out (LOTO), Safety Operator's Test	<input type="checkbox"/> _____/_____
Supervisor Signature & Date	

This training and all other safety and technical training will be both OJT and Company Sponsored then documented in ROME personal training records.

**ROME High Voltage Electrician Standards Step 2**Certification Criteria for 22KV High Voltage Electrician

Requirement	Check if Completed/ Switchman Initials/Date
1. Have a comprehensive understanding of the LaRC 22KV 1-line diagrams	<input type="checkbox"/> _____/_____
2. Have a comprehensive knowledge of the operation, location, and safety concerns of high voltage equipment up to 22KV <ul style="list-style-type: none"> <li>▪ Air switches</li> <li>▪ Sectionalizer switch</li> <li>▪ Vacuum Breakers</li> <li>▪ Metering</li> <li>▪ Phasing Issues</li> <li>▪ Oil-filled breakers</li> <li>▪ Gas-filled breakers</li> <li>▪ Nitrogen-filled cables</li> <li>▪ Personal Protective Equipment</li> </ul>	<input type="checkbox"/> _____/_____
3. Be familiar with the identification, operation, and location of protective relays	<input type="checkbox"/> _____/_____
4. Be familiar with the operation and location of potential transformers (PTs) and current transformers (CTs)	<input type="checkbox"/> _____/_____
5. Have successfully completed a complex 22KV switching procedure	Procedure #: _____ <input type="checkbox"/>
6. After meeting requirements 1-5, take and pass the LaRC 22KV Lock-Out Tag-Out (LOTO), Safety Operator's Test	<input type="checkbox"/> _____/_____
Supervisor Signature & Date	

This training and all other safety and technical training will be both OJT and Company Sponsored then documented in ROME personal training records.

**ROME High Voltage Electrician Standards Step 3**Certification Criteria for 115KV High Voltage Electrician

Requirement	Check if Completed/ Switchman Initials/Date
1. Evaluate information from weekly substation preventive maintenance (PM) to initiate required maintenance	<input type="checkbox"/> _____/_____
2. Have a comprehensive knowledge of the operation, location, and safety concerns of high voltage equipment up to 115KV <ul style="list-style-type: none"> <li>▪ Air switches</li> <li>▪ Sectionalizer switch</li> <li>▪ Oil-filled breakers</li> <li>▪ Gas-filled breakers</li> <li>▪ Nitrogen-filled cables</li> <li>▪ Oil-filled cables</li> <li>▪ Transformers, including high voltage bushings, tap changers, risers, and controls</li> <li>▪ Personal Protective Equipment</li> </ul>	<input type="checkbox"/> _____/_____
3. Be familiar with the identification, operation, and location of protective relays	<input type="checkbox"/> _____/_____
4. Be familiar with the operation and location of potential transformers (PTs) and current transformers (CTs)	<input type="checkbox"/> _____/_____
5. Have successfully completed a complex 115KV switching procedure	Procedure #: _____ <input type="checkbox"/>
6. After meeting requirements 1-5, take and pass the LaRC 115KV Lock-Out Tag-Out (LOTO), Safety Operator's Test	<input type="checkbox"/> _____/_____
Supervisor Signature & Date	

This training and all other safety and technical training will be both OJT and Company Sponsored, then documented in ROME personal training records.

### **MEMORANDUM OF UNDERSTANDING #3**

#### **BETWEEN THE INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL UNION #1340 AND JACOBS TECHNOLOGY INC.**

This Agreement shall apply to Jacobs Technology Inc. at NASA Langley, its successors and assigns in part or in whole, in the performance of all work covered by the collective bargaining agreement between the parties named above, and is entered into for the purpose of amending and modifying the collective bargaining agreement between IBEW Local Union No. 1340 and Jacobs Technology Inc.

**TERM OF MEMORANDUM** – This Memorandum shall take effect February 1, 2008, and shall remain in effect through January 31, 2012. It shall continue in effect thereafter from year to year, from February 1st of each year through January 31st of the following year unless changed or terminated in the way provided within the current Collective Bargaining Agreement between Local Union No. 1340, IBEW and Jacobs Technology Inc.

**AGREED** – The above-mentioned and below signed parties agree to the following amendment to the current Collective Bargaining Agreement (CBA).

**High Voltage Electrician “On-Call” Pay** - The Company agrees to compensate High Voltage Electricians at a rate of \$24.00 for each day they are “on-call.” All current compensation rules regarding overtime and call-in pay remain in effect. The following rules apply to each person “on-call”:

- The Company (supervision) retains the sole discretion to place an employee in an “on-call” status. To be in effect, this will be annotated by the supervisor in writing (e-mail is an acceptable form of documentation).
- The employee will receive a Company provided communication device. They are responsible for ensuring the device operates properly.
- The employee must answer the communication device whenever it signals.
- The employee must remain in a work ready state 24 hours a day while on-call and are subject to all Company policies especially those in regards to alcohol.
- The employee must be in route to the work site within one hour of receiving a call. In no case should the employee put themselves in harm’s way to meet this arrival time, but should make every reasonable effort to do so.
- Selection of on-call persons would be on a rotating basis from a pool of volunteers for periods of not less than one week. If there are no volunteers, the rotation would follow the seniority list in accordance with the CBA.



Not all crafts would be affected by this policy. The following crafts selected are those necessary to respond to emergency situations that, without response, could cause property damage or complete loss of operational ability. The craft and number of craftsmen are:

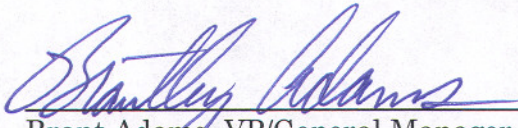
- Electrician, High Voltage 2 (two man safety rule)

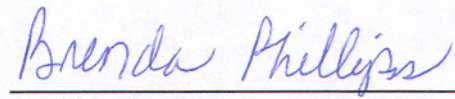
Currently hazmat team volunteers receive on call pay. In the future when a hazmat craftsman of the above description is on call he or she would serve a dual function.

The aforementioned are and collectively agreed to by signature of all the parties as signed below, on this 1st day of February 2008.

**FOR THE EMPLOYER:**

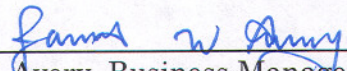
Jacobs Technology, Inc.

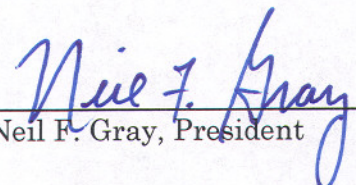
  
\_\_\_\_\_  
Brant Adams, VP/General Manager  
ROME Group

  
\_\_\_\_\_  
Brenda Phillips – HR Manager  
ROME Group

**FOR THE UNION:**

Local Union No. 1340, IBEW  
AFL-CIO Local Union No. 1340

  
\_\_\_\_\_  
Jim W. Avery, Business Manager

  
\_\_\_\_\_  
Neil F. Gray, President

## **APPENDIX-B: GENERAL WORK RULES**

The Employee "Standards of Conduct" Business Policy(s), provide information and guidance. These rules are established to define a standard of personal conduct that is expected of every employee while on duty. The Company will act upon a violation of any rule that merits disciplinary action as follows:

### **PURPOSE**

The purpose of this policy is to provide a work environment that produces maximum efficiency, high employee morale and individual recognition. Our experience has shown that almost all employees enjoy working in such an environment.

### **SCOPE**

Having a work environment, which is based on the concept of individual dignity, requires the establishment of rules and regulations to be used as guidelines for measuring conduct in individual situations.

These work rules place demand on the individual employee as well as the Company. The Company must ensure that the regulations are administered fairly and the employee must understand and abide by the standards.

When employees know and understand the work rules, there is seldom a need to impose compliance. The policy and procedures that follow details the work rules, counseling procedures (often called "Progressive Discipline") and an employee appeal process to ensure fairness.

### **POLICY**

Management is responsible for establishing and communicating to all employees the Company's work standards, policies, standard practices and ensuring that these standards are administered in a fair and just manner. Each situation involving employee conduct represents an individual problem; therefore, good judgment and thorough knowledge of the facts are essential for timely resolution.

All employees are responsible for maintaining acceptable conduct while on the job. In the event an employee's conduct falls below acceptable standards, the employee will be counseled and may be subject to disciplinary action.

To maintain an effective policy, investigations must remain objective. When a breach of standards occurs, the manager will thoroughly investigate and review all relevant facts and allow the employee to explain his/her conduct. The eventual decision must be based on a fair investigation, in which the employee has had ample opportunity to be heard. In addition, the decision should be consistent with similar situations that have been resolved in the past. Accurate and complete records of events, conversations and results, which occur during this process, must be kept.



In the event the employee, the employee's management and Human Resources cannot agree on a solution to the concern, the employee may submit the issue to the General Manager for final resolution.

## **TYPES OF DISCIPLINARY ACTIONS**

The type of action is determined by the Severity of the offense. In most cases, the following steps should be used:

### **Verbal Warning**

If, after counseling, an employee's conduct warrants a verbal warning, the supervisor shall document the warning for his record only. It is the responsibility of the supervisor to make clear to the employee the following:

- The intent to discuss employee breach of standards
- The conduct giving rise to the warning
- Positive steps to be taken by the employee to avoid further management action.

### **Written Warning**

An employee's immediate supervisor shall explain to the employee the conduct giving rise to the written warning and specify whether or not this is a repeat violation. The written warning will be on the Disciplinary Action Record (DAR) form and may be accompanied by any other written record.

#### **Disciplinary 90-Day Review (accompanies written warning)**

When the employee's conduct has violated Company Policies, Rules of Conduct or Standard Practices and the employee is placed on a review for a period of ninety (90) days, known as a "90-Day Review," a copy of the Disciplinary Action Record form shall be completed. Once every thirty (30) days, the supervisor will meet with the employee and evaluate his performance. All reviews shall be documented.

### **Suspension**

When an employee is suspended from work without pay or ineligible for other compensation, the employee shall be informed verbally and a Disciplinary Action Record form will be completed. The form shall document the suspension action and specify, in detail, the violation that led to the suspension.

### **Termination**

Employees may be terminated for just cause and, when such action occurs, it shall be documented on the Disciplinary Action Record form. Termination cannot be implemented until reviewed with Intermediate Home Office Director of HR and Corporate Legal Counsel.

## **Emergency Suspension**

This type of suspension may be made pending further investigation when the employee's conduct or action presents a significant danger to the safety and welfare of others, may severely impact the department's operational status or appears to have violated rules of conduct to an extent possible necessitating termination.

## **CAUSES FOR ACTION**

Commission of any of the following infractions will be considered grounds for immediate discharge:

- Failure to report Company or Government vehicle accidents promptly and properly.
- Theft, including the unauthorized use or removal of Company, Government or a fellow employee's property.
- Engaging in or fostering espionage, sabotage or other criminal activity.
- Selling, or offering for sale, narcotics or restricted, dangerous drugs.
- Refusing to take blood alcohol and/or alcohol Breathalyzer test, or test results that reveal the person is intoxicated as substantiated by Virginia Law.
- Possessing, using, or being under the influence of narcotics or restricted, dangerous drugs on or when trying to enter Government or Company controlled property. This prohibition does not apply when such drugs are prescribed or administered by a licensed physician.
- Possessing, using, or being under the influence of alcohol on or when trying to enter Government or Company controlled property, during normal duty hours.
- Convictions of any felony offense. This rule does not apply when sentencing for the offense specifies adjudication of guilt is withheld.
- Failure to be granted an Unescorted Access Authorization (UAPRP) for ADP work areas when such is required, and/or secret clearance within 180 calendar days from the date of employment.

Any of the following will be grounds for disciplinary action ranging from a warning or reprimand to discharge:

## **Conduct on the Premises**

- Improper conduct on Government or Company controlled property.
- Fighting, practical jokes or horseplay.

- Using threatening, abusive or profane language.
- Gambling.
- Acceptance of anything of monetary value from any supplier, customer or other contractors or prospective contractors, or their representatives.
- Using, disseminating, or permitting the use of any privileged information acquired during employment with the Company or in the work for the Company's customers for personal gain or other improper use.
- Sleeping on the job.
- Insubordination.
- Falsification of operational data, Personnel Security Questionnaire forms or any other Company records.
- Repeated tardiness, unexcused absences, abuse of sick leave privileges, or failure to notify supervision promptly when unable to report to work.
- Leaving the plant or work assignment during working hours without prior supervisory permission.
- Outside employment or other outside activity not compatible with the full and proper discharge of the employee's position with the Company.
- Violation of Company-approved procedures for accomplishing work.

### **Acts of Discrimination or Harassment**

- Acts of discrimination based upon race, creed, color, religion, sex, age, national origin, or disability.
- Harassment of any kind that could be considered to create a hostile work environment.
- Acts of retaliation against an employee in connection with complaints of discrimination or harassment.

### **Safety Rules and Regulations**

- Failure to observe rules and regulations.

- Disobeying safety rules or instructions given in the line of duty by LARC Safety Officers, civil defense personnel, supervisors, or other proper authorities in emergencies.
- Failure to use provided safety equipment.
- Failure to report on-the-job injuries or accidents, or to follow instructions for treatment of injuries.
- Disobeying nonsmoking or non-eating signs; smoking in posted nonsmoking areas.
- Reckless or negligent operation of Government or private vehicles on Government or Company controlled property or while on Company business.

### **Securing and Safeguards Regulations**

- Violation of Security or Safeguards regulations.
- Disclosure of classified matter or information to unauthorized persons.
- Failure to observe the established regulations regarding the protection of such classified matter or information against accidental or deliberate disclosure to unauthorized persons.
- Lending, borrowing or altering a security identification device (badge).
- Unauthorized entry into restricted areas or allowing unauthorized individuals into restricted areas.
- Possessing firearms or other weapons, explosives, cameras, special viewing devices or radio transmitters on Government or Company controlled property without the proper permits.
- Convictions of misdemeanor offenses not compatible with the full and proper discharge of the employee's position with the Company.
- Refusal to permit the search of packages, lunch boxes, briefcases, purses, etc., upon request of authorized individuals.

### **Misuse and/or Misappropriation of Government Property and Funds**

- Misuse or unauthorized use of Government or Company controlled property, material, equipment,

funds, or other property including scrap or salvage.

- Misuse, loss, theft, or unauthorized modification of Company or Government computer systems, programs or databases. This includes hardware, software, communications links and computer time.
- Working on unauthorized projects on Government or Company controlled premises.
- Performing any rework, repair, or modification on any materials or items without the proper authorization.
- Removal of Quality status stamps, tags or documents, and/or the use of any materials or parts that have been rejected by Quality.
- Using Company time for non-Company work.
- Using equipment, tools, stationery, or official vehicles for personal purposes.
- Misusing or abusing telecommunications equipment or services.
- Misappropriating materials, funds, or services by falsifying such documents as timecards, travel invoices, purchase orders, etc., or by any other direct or indirect means.

### **ABSENCE AND TARDINESS**

Paid sick leave is an insurance policy to protect the employee's wages in case of an emergency. Sick leave should be used only for the intended purpose.

Since abuse of absenteeism or tardiness increases costs, creates an undue hardship on fellow employees and limits ability to effectively plan and accomplish goals, the following policies and guidelines have been developed to help reduce absenteeism and tardiness.

Supervision must understand and explain Company policies and procedures to their subordinates. Supervisors at every level will be responsible for maintaining attendance records for employees. Since inconsistency causes problems when counseling or disciplinary action is necessary, Human Resources will monitor actions to assure consistency.

In an effort to monitor absenteeism and tardiness, the following guidelines should be adhered to:

- Accurate records of all nonproductive time should be recorded for each employee.
- As soon as an employee returns to work from sick leave or tardiness, the supervisor should take a few minutes to informally speak to the employee.

- Deal with each absence immediately, whether or not the absence was expected.
- When an employee's record indicates that he is having a problem or might be abusing sick leave, it is time for a counseling session. In such circumstances, a written warning may be necessary.
- If disciplinary action is taken, it must be based upon detailed records.
- Absenteeism should be evaluated giving consideration towards the understanding of any sick leave due to unusual circumstances, such as major medical problems.

## **PROGRESSIVE DISCIPLINE**

### **Counseling**

Whenever there is an irregularity in attendance, the supervisor should, prior to progressive discipline, meet with and counsel the employee as to his obligations. Listed below are the items to be discussed:

- The recent absences leading up to the counseling session.
- The Company's concern and willingness to help if there is a problem.
- Positive steps to be taken by the employee to preclude the need for future disciplinary action.
- Convince the employee that they do make a difference in their respective department, in that satisfactory attendance is one of their primary responsibilities.
- Explain to the employee how his absence can affect others when not at work, such as disruptions of work schedules, problems encountered by employee who fills in, etc.

### **Step 1 – Verbal Warning**

When patterns of absence or tardiness begin to surface, a verbal warning should be initiated and documented on the “Disciplinary Action Record.” The minimum responsibilities of the immediate supervisor are as follows:

- The absenteeism record leading up the counseling. This should be completely up-to-date.
- The Company's concern and willingness to help if there is a bona fide problem.
- Positive steps to be taken by the employee to avoid further disciplinary action.
- Convince the employee that they do make a difference in their department and that satisfactory attendance is one of their primary responsibilities.

- Explain to the employee how his/her absence can affect others when not at work, such as disruptions of work schedules, problems encountered by employee who fills in, etc.

### **Step 2 – Written Warning**

When an employee fails to take the necessary action to correct his attendance following an verbal warning, it will be necessary to issue a written warning and documented on the Disciplinary Action Record to substantiate formal counseling. Such action is designated as a written warning.

#### **90-Day Review Period (accompanies written warning)**

When an employee continues to be tardy or absent from the job, the employee will be placed on a review for a period of ninety (90) days, known as a “90-Day Review.” The following information shall be contained in the Disciplinary Action Record form:

- Clear, concise, and explicit information explaining the terms of the 90-day period and the consequences that could result if the employee continues with lost time during this period. At this point, the employee should also be advised that the next step could be termination.

Once every thirty (30) days, the supervisor will sit with the employee and evaluate his performance. Each evaluation shall be documented, and copies shall be sent to the employee and Human Resources.

### **Step 3 – Suspension**

Action taken for a serious offense, or after one or more violations of a less serious nature, when discharge is not warranted.

### **Step 4 - Termination**

When an employee fails to correct his/her problem through whatever means necessary, the next step is termination.

### **DISCIPLINARY ACTION RECORD**

The Jacobs Technology Inc. and Sierra Lobo, Inc. Disciplinary Action Record (DAR) Form(s) will be used to document all formal disciplinary actions.

**Explanation of the form items:** (In generic form listed below, may not reflect actual form)

- **Nature of Charge.** Use a short title for the offense, (i.e., excessive tardiness, neglect of duty, possession of intoxicating liquor, etc.).

- **Detailed Description of Offense.** Record the specific facts supporting the charge. Details must be factual, objectively stated, and supportable under scrutiny.
- **Adverse Effect on the Safety or Welfare of Others.** Will be indicated when, for example, fighting or negligent horseplay.
- **Adverse Effect on the Performance of Required Work.** Will be indicated when, for example, there is excessive absenteeism or tardiness.
- **Comments.** May be used to further explain to an employee the effect or severity of the offense.

### **APPROVAL CYCLE**

The initiation of a Disciplinary Action Record form is the responsibility of the employee's immediate supervisor. Before disciplinary actions are placed into effect, the manager requesting such action shall communicate with and obtain the concurrence signature of the Manager, Human Resources, and the appropriate Branch Manager/Manager or his designee. All terminations or suspensions shall be discussed with the Manager, Human Resources, who will confer with the Corporate Director of Human Resources and Corporate Legal Counsel as required and any notice documenting the termination of any employee will require the signature of the Manager, Human Resources, the Director of Human Resources, and Corporate Legal Counsel.

The highest level for concurrence of written warnings, probation and suspension actions is the appropriate Supervisor and the Administrative Manager or his designee. Once the concurrence cycle has been completed, the parties indicated on the bottom of each form shall receive appropriate copies. All terminations or suspensions shall first be discussed with the "Manager, Human Resources," or his/her designee, and any notice documenting the termination of an employee will require the signature of the Manager, Human Resources. Employees being considered for this type of action may be placed on emergency suspension pending approval of planned actions.

Before written warnings, probations, suspensions or terminations are placed into effect, the Supervisor requesting such action shall communicate with the Manager, Human Resources, or his/her designee, to discuss such action prior to implementation.

### **ADMINISTRATION OF POLICY**

A progressive sequence of disciplinary action is to be taken based upon the severity of an offense. The least severe offenses result in verbal warnings; the most severe offenses result in terminations.

If and when an employee is placed on a "90-Day Review," his/her conduct or performance becomes critical to continued employment. Any additional violations during this period will result in more serious disciplinary action, regardless of the fact that the additional violation itself may not mandate a suspension or termination.



Such judgments are necessary for successful application of the disciplinary policy. It is of the utmost importance that disciplinary actions not only are justified, but also that they are administered in an evenhanded fashion, which treats equally all who have committed the same type of offense. Employees on a "90 Day Review" shall have their conduct and performance evaluated by their immediate supervisor not less than once every thirty (30) days during said period.

Each evaluation shall be documented with copies sent to the employee and the Manager, Human Resources. Applicable provisions of collective bargaining agreements are not altered by this procedure.

The chart below, although not absolute or exhaustive, lists some causes that will justify disciplinary action. It also indicates the type of counseling and severity of action that could be taken based upon the frequency, facts and severity of the offense. These guidelines should be adhered to as closely as possible.

<u>Incident</u>	<u>Verbal Warning</u>	<u>Written Warning</u>	<u>90-Day Review</u>	<u>Susp.</u>	<u>Term.</u>
Harm to Person or Property					First
Sleeping on the Job					First
Falsifying Information					First
Theft					First
Drugs & Intoxicants					First
Insubordination					First
Espionage, Sabotage or Criminal Activity					First
Improper Conduct				First	Second
Safety Infractions				First	Second
Security Infraction			First		Second
Excessive Absence/ Tardiness	First	Second	Second	Third	Fourth

## EXHIBIT N, PERSONAL IDENTITY VERIFICATION (PIV) CARD ISSUANCE PROCEDURES

In accordance with FAR clause 52.204-9, Personal Identity Verification of Contractor Personnel, the following steps describe the procedures for the NASA Personal Identity Verification Card Issuance (PCI) of a PIV credential:

### **Step 1:**

The Contractors Corporate Security Officer (CSO), Program Manager (PM), or Facility Security Officer (FSO) submits a formal letter that provides a list of contract employees (applicant) names requesting access to the NASA Contracting Officers Technical Representative (COTR). In the case of a foreign national applicant, approval through the NASA Foreign National Management System (NFMMS) must be obtained for the visit or assignment before any processing for a PIV credential can take place. Further, if the foreign national is not under a contract where a COTR has been officially designated, the foreign national will provide the information directly to their visit/assignment host, and the host sponsor will fulfill the duties of the COTR mentioned herein. In each case, the letter shall provide notification of the contract or foreign national employees (hereafter the applicant) full name (first, middle and last), social security number (SSN) or NASA Foreign National Management System Visitor Number if the foreign national does not have a SSN, and date of birth. If the contract employee has a current satisfactorily completed National Agency Check with Inquiries (NACI) or an equivalent or higher degree of background investigation, the letter shall indicate the type of investigation, the agency completing the investigation, and date the investigation was completed. Also, the letter must specify the risk/sensitivity level associated with the position in which each applicant will be working (NPR 1600.1, 4.5 is germane) Further, the letter shall also acknowledge that contract employees may be denied access to NASA information or information systems based on an unsatisfactory background investigation/adjudication.

After reviewing the letter for completeness and concurring with the risk/sensitivity levels, the COTR/host must forward the letter to the Center Chief of Security (CCS). The CCS shall review the OPM databases (e.g., DCII, PIP, et al.), and take appropriate steps to validate the applicants investigation status. Requirements for a NACI or other investigation shall be initiated only if necessary.

Applicants who do not currently possess the required level of background investigation shall be directed to the e-QIP web site to complete the necessary background investigation forms online. The CCS shall provide to the COTR/host information and instructions on how to access the e-QIP for each contract or foreign national employee requiring access

### **Step 2:**

Upon acceptance of the letter/background information, the applicant will be advised that in order to complete the investigative process, he or she must appear in-person before the authorized PIV registrar and submit two forms of identity source documents in original form. The identity source documents must come from the list of acceptable documents included in Form I-9, Employment Eligibility Verification, one which must be a Federal[1] or State issued picture identification. Fingerprints will be taken at this time. The applicant must appear **no later than** the entry on duty date.

When the applicant appears, the registrar will electronically scan the submitted documents; any document that appears invalid will be rejected by the registrar. The registrar will capture electronically both a facial image and fingerprints of the applicant. The information submitted by the applicant will be used to create or update the applicant identity record in the Identity Management System (IDMS).

### **Step 3:**

Upon the applicants completion of the investigative document, the CCS reviews the information, and resolves discrepancies with the applicant as necessary. When the applicant has appeared in person and completed fingerprints, the package is electronically submitted to initiate the NACI. The CCS includes a request for feedback on the NAC portion of the NACI at the time the request is submitted.

### **Step 4:**

Prior to authorizing physical access of a contractor employee to a federally-controlled facility or access to a Federal

information system, the CCS will a National Crime Information Center (NCIC) with an Interstate Identification Index check is/has been performed. In the case of a foreign national, a national check of the Bureau of Immigration and Customs Enforcement (BICE) database will be performed for each applicant. If this process yields negative information, the CCS will immediately notify the COTR/host of the determination regarding access made by the CCS.

**Step 5:**

Upon receipt of the completed NAC, the CCS will update IDMS from the NAC portion of the NACI and indicate the result of the suitability determination. If an unsatisfactory suitability determination is rendered, the COTR will advise the contractor that the employee is being denied physical access to all federally-controlled facilities and Federal information systems.

Based on a favorable NAC and NCIC/III or BICE check, the CCS will authorize the issuance of a PIV federal credential in the Physical Access Control System (PACS) database. The CCS, based on information provided by the COTR/host, will determine what physical access the applicant should be granted once the PIV issues the credential.

**Step 6:**

Using the information provided by the applicant during his or her in-person appearance, the PIV card production facility creates and instantiates the approved PIV card for the applicant with an activation date commensurate with the applicants start date.

**Step 7:**

The applicant proceeds to the credential issuance facility to begin processing for receipt of his/her federal credential.

The applicant provides to the credential issuing operator proof of identity with documentation that meets the requirements of FIPS 201 (DHS Employment Eligibility Verification (Form I-9) documents). These documents **must** be the same documents submitted for registration.

The credential issuing operator will verify that the facial image, and optionally reference finger print, matches the enrollment data used to produce the card. Upon verification of identity, the operator will locate the employees record in the PACS database, and modify the record to indicate the PIV card has been issued. The applicant will select a PIN for use with his or her new PIV card. Although root data is inaccessible to the operator, certain fields (hair color, eye color, et al.) may be modified to more accurately record the employees information.

The applicant proceeds to a kiosk or other workstation to complete activation of the PIV card using the initial PIN entered at card issuance.

[1] A non-PIV government identification badge, including the NASA Photo Identification Badge, MAY NOT BE USED for the original issuance of a PIV vetted credential