

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES 1 355
2. AMENDMENT/MODIFICATION NO. Amendment Four (4)		3. EFFECTIVE DATE 5/10/2012	4. REQUISITION/PURCHASE REQ. NO. N/A	5. PROJECT NO. (if applicable)	
6. ISSUED BY NASA Ames Research Center William E. Hale Mailstop 213-1 Moffett Field, CA 94035-0001		CODE JAC: 241-1	7. ADMINISTERED BY (if other than Item 6) William Hale (650) 604-2849		CODE JAC
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) TO ALL PROSPECTIVE OFFERORS			(X)	9A. AMENDMENT OF SOLICITATION NO. NNA1226099R	
			X	9B. DATED (SEE ITEM 11) 3/1/12	
				10A. MODIFICATION OF CONTRACT/ORDER NO.	
				10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
(X) The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers (X) is extended, () is not extended.					
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:					
(a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; Or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PALCE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (if required)					
13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT /ORDER NO. AS DESCRIBED IN ITEM 14.					
CHECK ONE	A. THIS ORDER ID ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).				
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
	D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor () is not, (X) is required to sign this document and return <u>1</u> copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)					
a. The purpose of this amendment is post the updated drawings and specifications for this procurement.					
b. Attachment J-1 Specification dated 3/13/2012 is replaced with Attachment J-1 Specifications Dated 5/1/2012.					
c. Attachment J-2 Drawings Dated 3/15/2012 is replaced with Attachment J-2 Drawings Dated 4/26/2012.					
d. Steam Vacuum System NOx Emission Reduction System Question Set 2 is attached. (Attachment 3)					
e. Bay Area Air Quality Management District (BAAQMD) Permit. (Attachment 4)					
Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
15B. CONTRACTOR/OFFEROR			15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ (Signature of person authorized to sign)			_____ (Signature of Contracting Officer)	_____ (Signature of Contracting Officer)	_____ (Signature of Contracting Officer)
NSN 7540-01-152-8070 Previous edition unusable				STANDARD FORM 30 (REV. 10-83) Prescribed by GSA FAR (48 CFR) 53.243	

Steam Vacuum System NOx Emission Reduction System
NNA1226099R
Question Set 1
April 27, 2012

RFP Reference	Question/Comment	Answer(s)
1	General Drawing 334A-1000-M1 Mechanical Notes, Piping General Note #7 states that material for the SVS Gas Effluent to Gas Column is Black Carbon Steel. Equipment vendors are stating that the material should be stainless steel or fiberglass. Please confirm that Carbon Steel is acceptable to NASA.	The build to print portion of the SVS Gas Effluent piping shall be carbon steel. The design-build portion of the SVS system piping (identified as chemical process piping on M1) shall be RFP or approved alternate and shall comply with specification section 44 10 00.
2	General Item A.1 on page M-3 states that the Offeror and Subcontractors shall provide copies of c) California C-21 Building Moving/Demolition contractor license. Give that the demolition scope no longer includes any buildings or structures, and demolition of water & gas lines and concrete pads can be accomplished with a California A license, do we need to have a subcontractor with a C-21 license?	There is no item A.1 on drawing M-3.
3	General Can you provide a copy of the existing Bay Area Air Quality Management District (BAAQMD) Air Permit?	See Attachment 4.
4	General Will NASA be responsible for obtaining any required Authority to Construct permit for the new NOx system?	The offeror is responsible for obtaining an Authority to construct permit.
5	General Section 44 10 00 1.10.a states that the system will be capable of monitoring NOx at two locations: the inlet and exhaust of the scrubber system. Nowhere else does it discuss monitoring or recording inlet NOx. Is simultaneous monitoring & recording of inlet NOx concentrations and mass required in addition to outlet?	NO , it is not necessary to simultaneous monitor and record inlet NOx concentrations.
6	General Our company proposed on the previous Steam Vacuum System NOx Emission Reduction System RFP and we intend to propose again. Will you require us to get new past performances submitted?	All past performance must be resubmitted.



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Page: 1

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Dan Winningham
NASA-AMES Research Center
Moffett Field, Mail Stop 237 14
Moffett Field, CA 94035

Location: Moffett Field NS
Mountain View, CA 94035

S#	DESCRIPTION	[Schedule]	PAID
3	Service Station G7109, 2 gasoline nozzles, Vehicle Service Station-Bldg N 251	[D]	152
4	Solvent cleaning, 28.51 gal/yr net solvent Facility Wide Wipe Clean Operations	[E]	315
48	Commercial/Instutional Boiler, 255MM BTU/hr max, Natural gas Arc Jet Boiler Emissions at: P48 Stack	[B]	6235
56	Brushes; Touch up, Electrostatic (airless) Facility Wide Coating Operation	[E]	315
1001	Standby Reciprocating engine, 67 hp, Williams&Lane Diesel Engine, emergency standby Emissions at: P24332 Stack	[B]	205
1002	Standby Reciprocating engine, 67 hp, Onan S/N 19297 Diesel Engine, Onan model 50-0DVA-1SR-2, emergency standby Emissions at: P24333 Stack	[B]	205
1003	Standby Reciprocating engine, 268 hp, Onan Diesel Engine, emergency standby Emissions at: P24334 Stack	[B]	205

The operating parameters described above are based on information supplied by permit holder and may differ from the limits set forth in the attached conditions of the Permit to Operate. The limits of operation in the permit conditions are not to be exceeded. Exceeding these limits is considered a violation of District regulations subject to enforcement action.



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S#	DESCRIPTION	[Schedule]	PAID
2272	Diesel engine, 347 hp, EPA# YJDXL08.1008, John Deere N227 Unitary Wind Tunnel Lube System Diesel Motor Abated by: A2272 Catalyzed Diesel Particulate Filter Emissions at: P2272 Stack	[B]	205
2273	Diesel engine, 347 hp, EPA# YJDXL08.1008, John Deere N227 Unitary Wind Tunnel Lube System Diesel Motor Abated by: A2273 Catalyzed Diesel Particulate Filter Emissions at: P2273 Stack	[B]	205
2290	Solvent cleaning, 5.4 gal/yr net solvent, 59 deg F Wipe Cleaning Bldg N229	[E]	315
2302	Solvent cleaning, .93 gal/yr net solvent, 59 deg F Wipe Cleaning	[E]	315
2312	Misc CHEM, Ethyl alcohol, Mineral spirits, .5 gallons/hr max Facility-wide Laser Seeding Operations	[F]	274
2330	Standby Diesel engine, 1502 hp, EPA# 6CPXL32.0ESK, Caterpillar Emergency Standby Diesel Generator Set Emissions at: P61 Stack	[B]	258
2372	Solvent cleaning, 9.41 gal/yr net solvent, 68 deg F Wipe Cleaning	[E]	315
2381	Misc MISC, Air, 90K cubic feet/hr max Arc heater #1, 2x9 Turb. Flow Facility Abated by: A2381 Preformed Spray Scrubber	[F]	274
2382	Misc MISC, Air, 90K cubic feet/hr max Arc heater #2, Aerodynamic Heating Facility Abated by: A2381 Preformed Spray Scrubber	[F]	274
2383	Misc MISC, Air, 90K cubic feet/hr max Arc heater #3, Panel Test Facility Abated by: A2381 Preformed Spray Scrubber	[F]	274
2384	Misc MISC, Air, 90K cubic feet/hr max Arc heater #4, Interaction Heating Facility Abated by: A2381 Preformed Spray Scrubber	[F]	274

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Page: 11

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Source# 3	subject to Condition	ID# 20666, 7878, 22951
Source# 4	subject to Condition	ID# 8719
Source# 48	subject to Condition	ID# 24800
Source# 56	subject to Condition	ID# 14581
Source# 1001	subject to Condition	ID# 22820
Source# 1002	" " "	ID# 22820
Source# 1003	" " "	ID# 22820
Source# 1004	" " "	ID# 22820
Source# 1005	" " "	ID# 22820
Source# 1006	" " "	ID# 22820
Source# 1007	" " "	ID# 22820
Source# 1008	" " "	ID# 22820
Source# 1010	" " "	ID# 22820
Source# 1013	subject to Condition	ID# 19533
Source# 1027	subject to Condition	ID# 22820
Source# 1030	subject to Condition	ID# 22084
Source# 1031	" " "	ID# 22084
Source# 1032	subject to Condition	ID# 22584
Source# 1033	" " "	ID# 22584
Source# 1038	subject to Condition	ID# 23378
Source# 1039	subject to Condition	ID# 23457
Source# 1040	" " "	ID# 23457
Source# 1041	" " "	ID# 23457
Source# 1043	subject to Condition	ID# 23635
Source# 1044	subject to Condition	ID# 22850
Source# 1046	subject to Condition	ID# 23982
Source# 1047	" " "	ID# 23982
Source# 1048	" " "	ID# 23982
Source# 1049	subject to Condition	ID# 22850
Source# 1050	subject to Condition	ID# 23635
Source# 1051	subject to Condition	ID# 23982
Source# 1053	subject to Condition	ID# 24531
Source# 1055	subject to Condition	ID# 22850
Source# 1056	" " "	ID# 22850
Source# 1445	" " "	ID# 22850
Source# 1610	subject to Condition	ID# 7523, 20666, 22951
Source# 2072	subject to Condition	ID# 8719
Source# 2073	" " "	ID# 8719
Source# 2110	" " "	ID# 8719
Source# 2118	subject to Condition	ID# 10346
Source# 2150	subject to Condition	ID# 8719
Source# 2151	subject to Condition	ID# 15980
Source# 2152	subject to Condition	ID# 22850
Source# 2161	subject to Condition	ID# 15980
Source# 2162	subject to Condition	ID# 8719



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Plant# 550

Page: 12

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Source#	2204	subject	to	Condition	ID#	8719
Source#	2210	subject	to	Condition	ID#	21238
Source#	2211	"	"	"	ID#	21238
Source#	2270	subject	to	Condition	ID#	8719
Source#	2272	subject	to	Condition	ID#	18512
Source#	2273	"	"	"	ID#	18512
Source#	2290	subject	to	Condition	ID#	8719
Source#	2302	"	"	"	ID#	8719
Source#	2312	subject	to	Condition	ID#	8790
Source#	2330	subject	to	Condition	ID#	22850
Source#	2372	subject	to	Condition	ID#	8719
Source#	2381	subject	to	Condition	ID#	10712
Source#	2382	"	"	"	ID#	10712
Source#	2383	"	"	"	ID#	10712
Source#	2384	"	"	"	ID#	10712
Source#	2390	subject	to	Condition	ID#	8719
Source#	2423	subject	to	Condition	ID#	4343
Source#	2432	subject	to	Condition	ID#	8719
Source#	2433	subject	to	Condition	ID#	13428
Source#	2440	subject	to	Condition	ID#	8719
Source#	2450	"	"	"	ID#	8719
Source#	2462	"	"	"	ID#	8719
Source#	2481	"	"	"	ID#	8719
Source#	2483	subject	to	Condition	ID#	16719
Source#	2491	subject	to	Condition	ID#	24990
Source#	2540	subject	to	Condition	ID#	22502
Source#	2582	subject	to	Condition	ID#	22850
Source#	2583	"	"	"	ID#	22850
Source#	2584	"	"	"	ID#	22850
Source#	2600	subject	to	Condition	ID#	8719
Source#	2610	subject	to	Condition	ID#	22850
Source#	2670	subject	to	Condition	ID#	18322
Source#	2671	"	"	"	ID#	18322
Source#	4002	subject	to	Condition	ID#	13636
Source#	4003	subject	to	Condition	ID#	16798
Source#	4200	subject	to	Condition	ID#	16719
Source#	20411	subject	to	Condition	ID#	8719
Source#	22134	"	"	"	ID#	8719
Source#	24011	"	"	"	ID#	8719
Source#	24332	subject	to	Condition	ID#	15491



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Plant# 550

Page: 16

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with the applicable requirements of Regulation 8, Rule 29 "Aerospace Assembly And Component Coating Operations"

- 4. The total throughput of Chromium (VI) at S-2118 shall not exceed 4.0 pounds during any consecutive 12 month period.
 - 5. The total amount of cleanup solvent used at S-2118 shall not exceed 100 gallons during any consecutive 12 month period.
 - 6. To confirm compliance with Conditions #2, #3, #4, and #5 the owner/operator of S-2118 shall maintain the following records in a District approved log:
 - a. Maintain a list of all coatings used at S-2118, the mix ratios for the coating components, and the VOC Content (excluding exempt solvents) of each coating as applied. The following information should also be available for each component coating: density, VOC Content (excluding exempt solvents), Total VOC Content (including exempt solvents), percentage of Chromium (VI).
 - b. Maintain weekly records of the amount of each component coating used at S-2118 and the amount of the total coatings as applied at S-2118.
 - c. Summarize all coating usage records on a monthly basis.
 - d. Maintain monthly records of the type and amount of each cleanup solvent used at S-2118.
- These records shall be kept on site for a minimum of 24 months from the date of entry and shall be made available to District personnel upon request.

COND# 10712 applies to S#'s 2381, 2382, 2383, 2384

**Conditions for Arc-Jet Facilities
S-2381, S-2382, S-2383, and S-2384**

- 1. All emissions from the Arc Heater Facilities shall be routed to the Three-Stage Caustic NOx Scrubber System (A-2381). (basis: Regulation 2-1-403)
- 2. NOx emissions from each of the Arc Heaters S-2381,



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Plant# 550

Page: 17

Expires: DEC 1, 2012

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S-2382, S-2383, and S-2384 shall be less than 10 pounds per day and 2,600 pounds per rolling 12-month period, as determined by the following equation: (basis: BACT Trigger, Cumulative Increase)

$NOx = 5.96 E-08 (T) (F) (C) \text{ lb/test}$

Where:

- T = Duration of Test (minutes)
- F = Flow Rate from Scrubber Exhaust (dry standard cubic feet per minute, dscfm)
- C = Peak NOx Concentration (parts per million by volume, ppmv)

NOx emissions for each test run shall be calculated and summed for each of the Arc Heaters S-2381 through S-2384 on a daily and monthly basis. The flow rate from the scrubber (F) shall either be an actual value or the average result from the most recent source test.

3. To determine (C) in part 2, the owner/operator of the Arc Heaters shall measure the NOx concentration in the exhaust stream of the Vertical Tower Scrubber using a District approved monitor equipped with a chart recorder. This monitor shall be subject to the Parametric Monitoring and Recordkeeping Procedures of Regulation 1-523. (basis: Regulation 2-1-403)
4. During periods of monitor inoperation (as allowed by Regulation 1-523.2) the NOx concentration (C) shall be determined using Drager tubes designed to detect NOx in parts per million at the ranges normally found at these sources. Measurements from the scrubber exhaust shall be taken at least three times per test run during the period where NOx emissions are most likely to occur. The highest of the sampled NOx concentrations for each test run shall be used as (C) in part 2. (basis: Regulation 2-1-403)
5. In order to periodically determine the flow rate (F) from the scrubber, NASA Ames shall either install and maintain a District approved flow meter or conduct an annual source test. If source testing is chosen, it shall be performed in accordance with the District's



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Plant# 550

Page: 18

Expires: DEC 1, 2012

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Manual of Procedures. The facility shall obtain prior approval from the District's Source Test Manager for the location of sampling ports and source testing procedures. All source test results shall be delivered to the District within 30 days of the date of the test. If a flow meter is installed it will be subject to the Parametric Monitoring and Recordkeeping Procedures of Regulation 1-523. (basis: Regulation 2-1-403)

- 6. The pH of each stage of A-2381 shall be operated at a pH level of 8 or higher. When the pH drops down below 8, fresh caustic solution shall be automatically pumped into the caustic tanks to bring the pH back to the operating level. (basis: Regulation 2-1-403)
- 7. To confirm compliance with part 6, the owner/operator of A-2381 shall continuously monitor the pH of each stage of the A-2381 Three-Stage Caustic NOx Scrubber System using a District approved pH gauge or meter. (basis: Regulation 2-1-403)
- 8. In order to demonstrate compliance with the above requirements, the owner/operator of the Arc Heater Facilities shall keep the following records in a District approved log. These records shall be kept on site and be made available for inspection by District personnel upon request for a period of at least 2 years from the date on which a record was made. (basis: BACT Trigger, Cumulative Increase, Regulation 2-1-403)
 - a. Calculated NOx emissions for each test run summed on a daily basis for each Arc Heater
 - b. Monthly NOx emissions for each Arc Heater
 - c. Parameters (T), (F), and (C) for each test run
 - d. Daily records of the pH level in each stage of A-2381
 - e. Parametric monitor records as required by Regulation 1-523

COND# 13428 applies to S# 2433

Conditions for S-21117 and S-2433

PAGE 7



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Plant# 550

Page: 43

Expires: DEC 1, 2012

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rolling consecutive 12-month basis.

The owner/operator shall record all records in a District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District Regulations. (basis: Toxic Risk Screen, Cumulative Increase, Regulation 1-441)

COND# 24800 applies to S# 48

S-48: Arc Jet Boiler, 255 MMBTU/hr

1. In order to qualify for exemption from the emissions standards of Regulation 9, Rule 7 "Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters", the Arc Jet Boiler S-48 shall be operated in such manner as to maintain the rolling 12-month fuel consumption at a rate that is less than 10% of the annual capacity of the boiler. Therefore, the effective 12-month heat input limit for S-48 is 233,380 MMBTU. (basis: Regulation 9-7-112.2)
2. In order to demonstrate compliance with this requirement, the operator of S-48 shall operate a non-resettable totalizing fuel meter for the boiler and maintain fuel usage records on a monthly basis. Records shall be available on site and include at a minimum the following information: (basis: Regulation 9-7-504)
 - a. Ongoing monthly fuel consumption (MMBTU)
 - b. Rolling 12-month fuel consumption for each month (MMBTU)
 - c. Percentage of boiler capacity used for each rolling 12-month period

COND# 24990 applies to S# 2491

S-2491: Peregrine Sounding Rocket Tests