ATTACHMENT J-1 AMENDMENT

Addendum to SPECIFICATION NO. K90032, Steam Vacuum System NOx Emission Reduction System, is provided:

SVS NOx Emission Reduction System Specifications Amendment
10-21-2011

Page 3 Section 01 33 00

1.1.1 Submittal description (add the following)

All construction documents such as submittals, Requests For Information (RFIs), daily reports, field clarifications, schedules, and change orders, shall be submitted and approved electronically using NASA's SharePoint Portal. Adobe Digital signatures shall be the legal equivalent to pen and ink signatures. A free version of Adobe Acrobat reader will suffice for all reviewers and most readers. A recent version of Adobe Acrobat Pro, compatible with Adobe Acrobat Pro Version 9, is required to upload submittals and RFIs.

Page 12 Section 01 33 00
1.6.1through 1.6.7 (add the following)
All submittals shall be in electronic format submitted through NASA's SharePoint Portal.

Page 5 Section 23 81 48
3.1 Instructing operating personnel (replace with the following)
Upon completion of work and at time designated by contracting officer , provide services of manufacturer's technical representative for period of not less than one 4-hour working day for instruction of government operating personnel in proper operation and maintenance of equipment.

Page 6 Section 44 10 00 (add the following before SD-02 Shop Drawings)

1.3 Submittals

SD-02 Final Process and Instrumentation Diagram (P&ID); G

Submit drawings for government approval prior to equipment construction or integration. Modifications to original drawings made during installation shall be immediately recorded for inclusion into the as-built drawings.

SD-02 Shop Drawings
Approved Detail Drawings; G

Detail drawings containing complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

Drawings and other information describing the equipment shall be submitted for evaluation and approval. Equipment will not be purchased, fabricated, or installed without review and written approval by the Purchaser.

Three (3) complete sets of drawings and other information shall be submitted to the Purchaser for review. General arrangement drawings for each major assembly shall be submitted. The drawings shall include Overall plan and elevation space requirements; clearance required for operation, maintenance, removal, or repair of components.

Page 10 Section 44 10 00
1.8.1 b (add the following)
A stack analysis shall be performed to model the exposure levels.

Page 12 Section 44 10 00
1.10 Emissions Monitoring
a. (add the following)
Currently BAAQMD has approved the Horiba model –VA-3000 CEMS.

Page 24 44 10 00
3.5.1 System performance test (add the following)
Electricity, water and test conditions shall be furnished by the government.

Additions/revisions to Construction Specification
07-26-2011

Section 01 11 00, para. 1.2.1b is revised as follows (revision in italic):

Install SVS Nox Emission Reduction System with associated columns, pumps, piping ***and secondary containment as required.***

Section 44 10 00, para. 1.8.1w is revised as follows:

All new ***storage equipment and facilities*** **shall meet current Santa Clara County Ordinance…**

Attachment 1 - Arc Jet Test Schedule/Performance Requirements for Design of Nox Emission Reduction System

	Typical	Minimum				
	Current	Current	Future			
Arc Jet Test Days per Year	160	120	120			
Total SVS Operating Time (standby plus testing), hrs/day	6	2	2			
Frequency of Tests	4 per day 5 days per week	2 per day 2 days per week	2 per day 2 days per week			
Duration of Tests	15 min	5 min	5 min			
Inflow Conditions						
Test Gas Mass Flow, kg/sec	0.07-0.7	0.02	0.2-0.4			
NOx Concentrat-ion, ppmv	30,000	1,000	1,000			
NO Mass Flow , kg/sec	0.00218-0.0218	0.0000207	0.000207-0.000414			
Added Steam, kg/sec	0.105-1.05	0.03	0.3-0.6			
Pressure, bar	1.005	1.005	1.005			
Temperature, °F (°C)	195 (90.6)	195 (90.6)	195 (90.6)			
Outflow Conditions						
Treated Gas NOx	<4.54 kg/day	<4.54 kg/day	<4.54 kg/day			
Spent Scrubber Solutions	<5,000 mg/L TDS	<5,000 mg/L TDS	<5,000 mg/L TDS			
Note 1: The test gas is air. Use mass composition 76.85% N_2/Inerts and 23.15% O_2. Use molar composition 79.05% N_2/Inerts and 20.95% O_2. Use average molecular weight 28.97 kg/kg-mole.						
Note 2: There is no net change in molar flow in the arc jet – $N_2 + O_2$ □ 2NO						
Note 3: The test gas exiting the arc jet is dry. Passing through the SVS, the test gas becomes saturated with water vapor.						
Note 4: BACT trigger point is 4.54 kg NOx per day, prefer to stay below the trigger point.						
Note 5: Spent scrubber solutions discharge to city sewer, must be <5,000 mg/L TDS						

(End of Attachment J-1 Amendment)