MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-236
Item to be Scouted	Horiba Equipment Maintenance and Upgrades
Days to be scouted	21
Response Due By	08/13/2025
Description	Contractor must furnish parts, labor, supervision and equipment necessary to provide remedial and preventive maintenance, troubleshooting, upgrades, spare parts, installation and commissioning for the contract period of affiliated equipment at the U.S. Environmental Protection Agency, Ann Arbor, Michigan 48105.

Section 2: Technical Information

Type of supplier being sought	Other
Details	Michigan Technical Support providing on site (and virtual if applicable) remedial and annual maintenance and equipment/system upgrades at the lab.
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	This procurement is for remedial and annual maintenance and upgrades of all Horiba purchased equipment. This includes but is not limited to MEXA analyzer benches, 4WD Light Duty Chassis Dynamometer, CDTCS (Data acquisition computers), OVNs (Flame Ionization/Chemiluminescent Analyzer), DLS Particulate Measurement, Dilution Air conditioner, gas divider and MEXA-1100QL-N2O gas dividers and the Horiba STARS system.
Provide dimensions / size / tolerances / performance specifications for the item	Equipment list is attached.
List required materials needed to make the product, including materials of product components	This is not applicable although we would expect the contractor to be fully versed on all Horiba equipment at the lab and who would be the one recommending materials, etc.
Are there applicable certification requirements?	Yes
Details	Operation, measurements, and calibration of this equipment must comply with CFR§1065 requirements (https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1065)
Are there applicable regulations?	Yes
Details	40CFR§1065 (https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1065) 40CFR§1054 (https://www.ecfr.gov/current/title-40/chapter-I/subchapter-U/part-1054)
Are there any other stndards, requirements, etc.?	No
Additional Technical Comments	

Section 4: Business Information

Estimated potential business volume	as needed. This procurement is for remedial and annual maintenance of Horiba purchased and supplied equipment in use at the National Vehicle Fuel and Emissions Lab in Ann Arbor, MI.
Estimated target price / unit cost information (if unavailable explain)	Parts are priced by Horiba. Labor rates are set accordingly.
When is it needed by?	Immediate. Current contract is on a 6 month extension.
Describe packaging requirements	Not applicable

Where will this item be shipped?	Services will be performed at the National Vehicle Fuel and Emissions Lab Ann Arbor, MI 48105

Additional Comments

Is there other information you would like to include?	US EPA - National Vehicle Fuel and Emissions Laboratory OAR/OTAQ/ Testing and Advanced Technology Division (TATD)

ATTACHMENT A

STATEMENT OF WORK FOR

HORIBA EQUIPMENT MAINTENANCE/UPGRADE SERVICES AT NVFEL

August 23, 2024

1.0 SCOPE OF WORK: Contractor must furnish parts, labor, supervision and equipment necessary to provide remedial and preventive maintenance, troubleshooting, upgrades, spare parts, installation and commissioning for the contract period of performance on all existing Horiba-supplied instrumentation, benches, CVS units and dynamometers, as well as other affiliated equipment at the U.S. Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan 48105.

This procurement is limited to existing Horiba-supplied and Scheck-Pegasus-supplied (Schenck-Pegasus is now owned by Horiba) equipment; any procurements for completely new test equipment would not face any barriers to competition. Any future Horiba-supplied equipment procured under separate contracts will be included to the scope of this contract for upgrade/maintenance purposes.

1.1 Period of Performance: Base 1 yr with (4) 1-year option periods.

2.0 DEFINITIONS

- ***Preventive Maintenance*.** Preventative Maintenance is defined as periodic maintenance designed to keep the system in operating condition.

- ***Remedial Maintenance.*** Remedial Maintenance is defined as a repair to a system that is inoperative or operating with diminished capability.

- ***Emergency Remedial Maintenance:*** In the event of equipment/system failure which causes emissions testing to stop an emergency service call may be dispatched. It is the EPA's request that the contractor acknowledge and respond to an emergency immediately. If the contractor can have a technician on site within two hours of service call acknowledgment, EPA will pay 2 times the technician's service rate, for same day service. If the contractor cannot respond by the end of that day, the rate returns to the normal service rate.

- ***Upgrades***. Upgrades include but are not limited to, existing Horiba equipment functionality enhancements, peripheral equipment driver installation/commissioning, training on Horiba systems, reconfiguration of existing obsolete equipment and/or software, software version upgrades, and equipment/software changes in response to CFR modifications or other future testing needs.

- ***Trouble-Shooting***. Trouble-shooting includes, but is not limited to, the labor and/or equipment necessary to determine the steps necessary to make equipment or software function as designed and intended.

- ***Commissioning.*** Commissioning includes, but not limited to, performing the steps necessary to make software and/or equipment perform standalone or as a system to function as designed and intended.

- ***Spare Parts.*** Spare parts are key system components (equipment or software) identified by the Government or the Contractor as critical in minimizing test site downtime or in developing and upgrading site capability. The Government will make the ultimate decision on spare part inventory.

3.0 TASKS

3.1 ***Preventive Maintenance.*** Preventive Maintenance will be performed once per period on dates coordinated by the Contract Officer Representative (COR) and Contractor maintenance staff. Preventive Maintenance will include inspection and testing of equipment. The Contractor will clean, adjust, replace consumable items such as O-rings gaskets and the like, and lubricate equipment specified according to manufacturer's recommendations and guidelines. A service ticket showing the Preventive Maintenance is required from the Contractor as well as an accompanying field service report will be provided. Annual calibration will also be performed on Horiba-supplied gas dividers located in the lab (see equipment list), as well as any additional recalibration needed if the divider experiences problems.

3.2 ***Remedial Maintenance.*** Remedial Maintenance will be performed after a service call is placed indicating that a system/instrument is inoperative or operating with diminished capability. The Contractor must have a technician on the job within two (2) business days of being notified by the Contract Officer Representative (COR). All work must be performed during normal working hours.

3.3 ***Parts***. The Contractor must supply spare parts as identified by the Government or the Contractor. The Government will make the ultimate decision on spare part inventory. The contractor must supply replacement parts as required during a remedial maintenance service call.

3.4 ***Upgrades.*** The Contractor must provide upgrade services, equipment, and training. For Upgrade work, a written narrative from EPA describing the work may accompany the request for a written quote. The Contractor must provide a written quote within two (2) weeks of receiving a written narrative describing the Upgrade work.

4.0 REPORTING

4.1 ***Service Ticket(s)/Field Service Report***. The Contractor must submit to the designated COR upon completion of service work, or accompanying resulting invoice, a legible service ticket containing the following information:

4.1.1 Date of service number and room number where equipment is located.

4.6.1 Name of person requesting service/maintenance.

4.6.2 Equipment type, model and serial number

4.6.4 Narrative description of work performed.

4.6.7 Copy of preventive maintenance inspection report.

4.6.8 Listing of any parts used, with part numbers as shown on manufacturer's schematic or parts list. Parts used are to be identified as new or exchange items.

4.6.9 Labor and replacement parts will be itemized.

4.6.10 Signature of service person.

4.6.11 Signature of COR or designee accepting work.

4.6.12 A copy of the service ticket must be attached to the invoices submitted for payment. Payment will not be made without a copy of this service ticket attached to the invoice.

4.2 **Open Service Call List:** The contractor will submit a Monthly Service Call List which details all service requests (maintenance/remedial) submitted by EPA staff. List will be forwarded to the contract COR by the 5th of each month. All service calls not completed at the time the report is submitted will be rolled over to the next month and will continue to be included until service call is resolved. List should include any service call number, Horiba point of contact, EPA point of contact, whether service call is a regular service request or an emergency service request, title or subject of the request, date service call is opened and a chronological history from beginning to closing of service call. The list will include an accounting of the total number of service calls, how many service calls had a service person on site within two (2) business days of being notified by the Contract Officer Representative (COR), and how many were not. Both values are to be shown as a raw number and as a percentage of the monthly and year to date totals. This data will be supplied each month on the monthly service call list and include the data for the month

being submitted as well as aggregate data for the year to date. An example is shown here

	#	Percentage
June		
Number of service calls	14	100
Number of service calls had service personnel on site within 2 business days	12	85.7
Number of service calls which did not have service personnel on site within 2 business days	2	14.3
Average days service call open	5	
Year to date		
Number of service calls	68	100
Number of service calls had service personnel on site within 2 business days	62	91.2
Number of service calls which did not have service personnel on site within 2 business days	6	8.8
Average days service call open	3	

5.0 SPECIAL CONDITIONS

5.1 ***Hours of Work***. All work will be performed during normal working hours of 8:00 AM to 4:30 PM, Monday through Friday, excluding Federal holidays.

5.2 ***Parts***.

1. All parts used or replaced will be paid for by the government at a rate not higher than the current contractor list prices.

2. All parts used or replaced will be itemized on the Contractor's invoice and will be identified by part number shown on the manufacturer's schematic/parts list.

3. The Contract Officer Representative's (COR) approval must be obtained prior to new parts being installed by Contractor.

4. Replacement parts are parts installed during a remedial maintenance service call; spare parts are extra parts to minimize downtime or develop test capability off-line.

5.3 ***Recurring Problems.*** It is understood by EPA that some equipment may experience "intermittent" recurring problems; however, if the Contractor is required to repair the equipment for the same problem more than twice within a period of four months, the Government will not be charged for any labor associated with the subsequent repair, provided the necessity of the repair is not due to EPA negligence.

5.4 ***Replacement parts.*** Parts that are replaced by the Contractor must be provided to the EPA upon request. EPA will subsequently decide whether the parts should be

refurbished. If it is determined that the parts are to be refurbished, the refurbishment will be performed by EPA or by the Contractor under a separate purchase order.

5.5 The contractor must provide all parts and tools required for all work listed in this SOW. This includes items such as connectors, bolts, zip ties, and the like as well as any crimping or fabricating equipment needed such as drill press, welder, bandsaw, drills and the like.

5.6 ***Cleanup***. The Contractor must leave the work site in as clean a condition as when work began. Debris accumulated during work procedures must be removed, and equipment or furniture moved during work must be repositioned to its original location(s).

5.7 ***Removal of Equipment.*** Any equipment required to be removed from this facility for repair work must be coordinated through the designated COR prior to his/her departure Monday through Friday. The Contractor assumes full responsibility for all equipment removed from this facility.

5.8 ***Funding.*** Funding amounts provided for Preventive Maintenance, Remedial Maintenance, Upgrade labor, and Parts are established by the EPA and may be shifted between the categories by EPA, with Horiba concurrence, to cover shifts in category expenditures.

5.9 ***Labor.*** On a case by case basis, the Government may decide to perform the labor covered under this contract. This labor includes, but is not limited to, equipment maintenance, repair, trouble-shooting, commissioning, upgrades, and user-configurable software modifications.

5.10 ***Update Inventory List***. The Contractor must provide an updated list of all current and future Horiba supplied equipment to the COR, Alt. COR, and Contracting Officer. The Contractor must supply this list two (2) weeks after contract award then every six (6) months there-after.

6.0 COORDINATION OF WORK

6.1 In addition to the Contract Officer Representative and Alternate Contract Officer Representative, "Technical Representatives" may be assigned on this contract. The Technical Representatives are:

Don Smail
Justin Jedele

6.2 The role of the Technical Representative:
(a) For work to be performed: contact designated Horiba personnel and describe the work to be done, obtain a written quote for subject work, and obtain written approval from the Contract Officer Representative (COR) or in the absence thereof, the Alternate

Contract Officer Representative (Alt COR). For upgrade work, a written narrative from EPA describing the work may accompany the request for a written quote.

(b) Place the "call" or order to Horiba to perform the work once it has been approved by the COR or Alt COR.

(c) Provide the COR with a copy of the Field Service Report(s) or other documentation that the maintenance/service has been accomplished.

(d) No other work, other than what the COR has approved, may be performed by the Contractor without prior approval.

(e) Serve as the Project Manager for the repair or upgrade.

6.3 The Contractor must provide experienced personnel to perform the work. Trainees may accompany the experienced (certified) employees, but their hours will not be charged on the Field Service Reports.

6.4 Before maintenance is performed the Contractor must perform a system operational check of the analyzer benches. The Contractor will "capture screens" before the work is performed and "capture screens" after the work is performed. These printouts must be submitted with the Field Service Reports on the day of maintenance. If there are parameters stored in the systems being worked on that may be affected by the work those parameters will be backed up before any work that could affect them is done.

6.5 No troubleshooting will utilize parts of another test cell to test out possible fixes without written approval from the COR or a technical representative. No circuit boards will be removed from one system to be used in another without written approval from the COR or technical representatives.

6.6 In an effort to protect EPA equipment against computer viruses, the Contractor will not bring moveable media into the facility unless it has been approved by the COR in advance. The EPA will provide the Contractor with disks if necessary.

6.7 The Contractor will coordinate a work schedule for preventive maintenance with the COR or designee within 30 days after award of contract. An outline for preventive maintenance activities to be accomplished by the Contractor during a preventive maintenance visit will be provided by the designated COR. The Government will make the ultimate decision on the level of preventive maintenance required.

6.8 Upgrade work must be staged to minimize test cell down time. Preparation of upgrades must be performed off-site in order to minimize test cell down time during commissioning.

6.9 Upon arrival at the EPA Facility the Contractor is required to:

1. Check in with the campus security staff, obtain a visitor's pass, and have the designated Project Officer notified prior to starting work on equipment.

2. Upon completion of the visit, the Contractor must return the pass and sign out with the campus security staff.

6.10 Contractor personnel must wear some type of identification bearing the name of the company while working within the EPA complex.

7.0 SAFETY REQUIREMENTS

In the performance of this contract, the Contractor must take such safety precautions, such as lockout/tagout and confined space procedures, to protect the lives and health of the occupants of the building. The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action required to correct the conditions. If the Contractor, or his representative, fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or any part of the work and hold the Contractor in default.

8.0 SECURITY REQUIREMENTS

8.1 Contractor employees working under this contract who will perform work on-site will be subject to security screening requirements. Contractors are responsible for performing the background checks and for screening unacceptable candidates from the pool of on-site workers. Contractors are required to maintain records of background checks and to make them available for government review upon demand. The Contractor is responsible for completing a background check on each of his employees prior to the employee beginning work on-site. To be valid, a background check must have been performed within the 6-month period prior to the employee beginning on-site work. At a minimum the background check will include:

A. National criminal and civil records (to include Social Security number trace);

B. Verification of US citizenship or legal resident status;

C. Written inquiries to appropriate local law-enforcement agencies, former employers and supervisors, references and schools attended by the person under investigation; and

D. Professional license and certification verification.

8.2 EPA may designate certain Contractor employees who will be subject to higher levels of scrutiny. In those instances, the employee and the parameters of the investigation will be specified.

Whenever a Contractor becomes aware that the retention of an employee for work at an on-site location under this contract is inconsistent with the interests of national security, such information must be immediately provided to the Contracting Officer, and the

employee will be immediately removed from the site and replaced with a qualified substitute.

The background investigation identified herein is not required for individuals who were granted site access under the predecessor Contract, EP-C-09-054 / EP-C-15-005, provided the previously granted site access was valid through the expiration date of that contract.

9.0 INVOICES

9.1 Invoices may be submitted immediately upon acceptance of work or parts by the government. Contractor must submit invoices upon delivery and acceptance of all supplies or services provided for in a service call placed in accordance with the Statement of Work. Invoices must contain the current Contract Number, the service order number and description of work performed (FSR), n accordance with Statement of Work paragraph 4.6. Payment will not be approved for invoices without a copy of the service ticket attached.

9.2 Invoice submission to be made as directed on contract award.

1. One (1) copy of the invoice should be emailed to the Contract Officer Representative designated in the clause entitled “Contract Administration Representative” (EP 52.241-100).

2. One (1) copy of the invoice should be emailed to the Contracting Officer designated in the clause entitled “Contract Administration Representative” (EP 52.242-100).

	A	B	C	D	E	F	G
3		**Item**	**Model**	**Serial # / MFG# / HGS #**	**Contract #**	**Location**	**Group**
4							
5	**Cell 10**	Dilute Gas Analysis System,	Horiba MEXA 7200D, MCU version 3.22	42757600032		Rm 510	ATG
6		Dilute Gas Analysis System,	Horiba OVN727A	42757600032		Rm 510	SIG
7							
8	**310**						
9		48" Chassis Dyno w Controller	2WD, Light Duty	0105B	68-C1-0061	RM-310	ATG
10							
11	**510**						
12		Raw Gas Analysis System, Main Bench	MEXA 7100DEGR	42757600012		Rm 510	ATG
13		Raw Gas Analysis System, Flame Ionization Analyzer	OVN727A	42757600012		Rm 510	ATG
14		Motor Exhaust Gas Analyzer	MEXA-7200 MCU version 3.22	57439201C		Rm 510	ATG
15		Gas Divider	GDC-703	57439201		Rm 510	ATG
16							
17	**514**						
18		Real Time 4WD	2WD, Light Duty	0116B	68-C1-0061	RM-514	ATG
19							
20	**516**						
21		Analyzer Bench	MEXA-7500DGR MCU version 3.22	57439202C		RM 516	ATG
22		Flame Ionization/Chemiluminescent Analyzer	OVN-723A	57439202C		RM 516	ATG
23		Flame Ionization/Chemiluminescent Analyzer	OVN-723A	57439202C		RM 516	ATG
24							
25							
26							
27	**D001**						
28		48" Chassis Dyno w Controller	2WD, Light Duty	0138B	68-C1-0061	RM -515	VT
29							
30		Data Acquisition Computer	CDTCS-5000	T3400 356TLL1			VT
31							
32		Bag/Dilute Analyzer Bench	MEXA-7200H	WBS-851783-01		RM 326	VT
33		Controller	Ver. 3.00, MCU version 3.22		EP-C-09-054	RM-326	
34							
35		Light Duty CVS Micro 2	HII CVS	Prop #792543		RM 515	VT
36							
37		Impinger	Impinger	SO# 187592	EP-C-11-035	RM 515	VT
38							
39	**D002**						
40		48" Chassis Dyno w Controller	2WD, Light Duty	0143B	68-C1-0061	RM 515	VT
41							
42		Data Acquisition Computer	CDTCS-5000	GSXP31-360n	68-C-03-103	RM 515	VT
43		Bag/Dilute Analyzer Bench	MEXA-7200DLE	MFG# 4045810001	68-C-03-103	RM 515	VT
44		Heated Oven	OVN-724A	MFG# 4045810001	68-C-03-103	RM 329	VT
45		Controller	Ver. 3, MCU 3.56		EP-C-09-054	RM 329	VT
46							
47		Light Duty CVS	CVS-7200S	4045811002	68-C-03-103	RM -515	VT
48		Bag Mini Diluter	BMD-1000	6005018	68-C-03-103	RM-515	VT
49		Direct Exhaust Flow	EXFM-1000	N/A	68-C-03-103	RM-515	VT
50							
51		Gas Divider and Converter Checker	GDC-703	EPA798544		RM 513	VT
52							
53		N2O Analysis	MEXA-1100QL-N2O	HGS #: 8BJHCJYE	EPC-C-15-014	RM 515	VT
54							

	A	B	C	D	E	F	G
55							
56	**D003 (NRSI) (Cell 13/14)**						
57		Bag/Conti Bench	MEXA-7200D	WBS-S2000500326000010	EP-C-10-01	RM 320	ETC
58		Heated Oven	OVN-727A	WBS-S2000500326000010	EP-C-10-01	RM 513	ETC
59		Controller	Ver. 3.00, MCU 3.54		EP-C-09-054	RM 320	ETC
60							
61		N2O Analysis	MEXA-1100QL-N2O	HGS #: 4V16KX4P	EP-C-14-023	RM 513	ETC
62							
63		Small Engine CVS Micro 2	HII	Prop #C06510		RM 513	ETC
64							
65	**D004 (NRSI) (Cell 15)**						
66		Bag/Conti Bench	MEXA-7200D	WBS-S2000413797000010	EPC-C-10-039	RM 513	ETC
67		Heated Oven	OVN-727A	WBS-S200041379000010	EPC-C-10-039	RM 513	ETC
68		Controller	Ver. 3.00, MCU 3.55		EP-C-09-054	RM 320	ETC
69							
70		Small Engine CVS Micro	HII	Prop #C06623		RM 513	ETC
71							
72	**D005**						
73		Data Acquisition Computer	CDTCS-5000	GTGTVK1-T35400	68-C-03-103	RM 511	ATG
74							
75		Bag Bench	MEXA-ONE C1, Ver. 1.11.2.2(DMC); Ve	S/N- S2001136692000020	EP-C-13-028	RM 511	ATG
76		Dilute/Raw Bench	MEXA-ONE D1, Ver. 1.7.4.1 (DMC); Ver.	S/N- S2001136692000010	EP-C-13-028	RM 511	ATG
77							
78		Medium Duty CVS	CVS-ONE, Ver. 1.11.2.2 (76282)	S/N- S2001223857000010	EP-C-13-040	RM 511	ATG
79							
80		Particulate Measurement	DLS-7200	S/N- S2001370025000011	EP-C-14-011	RM 511	ATC
81		Heated Filter	1HF-47	S/N- 6018410		RM 511	ATG
82		Dilution Air Conditioner	DAC1	S/N- 6018410		RM 511	ATG
83							
84		Particulate Measurement	DLS-ONE	S/N- S2001370025000012	EP-C-14-011	RM 511	ATG
85		Heated Filter	2HF-47	S/N- 6018411		RM 511	ATG
86		Dilution Air Conditioner	DAC2	S/N- 6018411		RM 511	ATG
87							
88		Particulate Measurement	DLS-7200	S/N- S2001370025000013	EP-C-14-011	RM 511	ATG
89		Heated Filter	3HF-47	S/N- 6018412		RM 511	ATG
90		Dilution Air Conditioner	DAC3	S/N- 6018412		RM 511	ATG
91							
92		GAS Divider	GDC-ONE	HGS No. VF70FJSL	EP-C-14-019	RM 511	ATG
93							
94		N2O Analysis	MEXA-1100QL-N2O Ver. 1.9.1.1	HGS #: 8BJHCJYE	EP-C-15-014	RM 511	ATG
95							
96	**D006 (Moved from 5)**						
97		Data Acquisition Computer	CDTCS-5000	3C8DKS1 T3500-T3500	68-C-03-103	RM 511	ATG
98							
99		Bag/Dilute Analyzer Bench	Horiba MEXA 7200SLE MCU version 3.22	4257290001	68-C-03-103	RM 511	ATG
100							
101		CVS ESU 4-CFVs	Horiba CVS-7200S	6005025-2	68-C-03-103	RM 511	ATG
102		CVS BSU	Horiba CVS-7200S	4257290005	68-C-03-103	RM 511	ATG
103		CVS LL-RMT 1 SFV w/ heater	Horiba CVS-7200S	6005025	68-C-03-103	RM 511	ATG
104		Dilution Air Booster Blower	Spencer 1510-HSFC	278951	68-C-03-103	RM 511	ATG
105		CVS Blower	Spencer30103D3	800561	68-C-03-103	RM 511	ATG
106							
107		USFM 7 Hz w/o Heat Exchanger	Horiba EXFM-1000	6005025-2	68-C-03-103	RM 511	ATG
108		BMD	Horiba BMD-1000	4019077	68-C-03-103	RM 511	ATG
109							
110		Gas Divider w/ 4 MFCs	Horiba GDC-703	4257290001	68-C-03-103	RM 511	ATG
111		CFO Kit w/ .003 and .0065 diam	Horiba CFO-202	1011998		RM 511	

	A	B	C	D	E	F	G
112							
113	**D329**	(Replaced location unknow)					
114		Data Acquisition Computer	CDTCS-5000	3C8DKS1-T3500	EP-C-12-044	D329	VT
115							
116		Weather Station	Viatran/Vaisala WS 100	Z0610004	68-C-03-103	D329	VT
117		Sample Analysis System	MEXA-7200SLE	4257290002	68-C-03-103	D329	VT
118		Sample Analysis System	MEXA-7200DLE	4257290003	68-C-03-103	D329	VT
119		Dilute Gas Analysis System	OVN728A	4257290003	68-C-03-103	D329	VT
120		Dilute Gas Analysis System	MEXA-1100FRF	4255577001	68-C-03-103	D329	VT
121							
122		CVS ESU 4-CFVs	CVS-7200SLE-T	?	68-C-03-103	D329	VT
123		Blower	Blower	804012A04	68-C-03-103	D329	VT
124		CVS BSU	CVS-7200SLE-T	?	68-C-03-103	D329	VT
125		Gas Dilution Air Booster Blower	Spencer 0507-SS	Spencer 0507-SS	68-C-03-103	D329Mezz	VT
126		Gas LL-RMT 1 SFV w/ heater	Horiba CVS-7200S LL-RMT	259281-25	68-C-03-103	D329	VT
127		Diesel Dilution Air Booster Blower	Spencer 0507-SS	804187D04	68-C-03-103	D329Mezz	VT
128		Diesel DMT 1 SFV w/ heater	Horiba CVS-7200S DMT	259281-25	68-C-03-103	D329	VT
129		Diesel Tunnel 10" x 100"	Horiba	N/A	68-C-03-103	D329	VT
130							
131		Particulate Sampling Unit	12-filter PSU	H1L0312070	68-C-03-103	D329	VT
132		Particulate Sampling Unit	Horiba DAC(Cooler)	259281-25	68-C-03-103	D329	VT
133		Particulate Sampling Unit	Horiba DAC(Heater)	259281-25	68-C-03-103	D329	VT
134		Particulate Sampling Unit	Horiba HF47	259281-25	68-C-03-103	D329	VT
135		Particulate Sampling Unit	Horiba HF47	259281-25	68-C-03-103	D329	VT
136		Particulate Sampling Unit	Horiba HF47	259281-25	68-C-03-103	D329	VT
137							
138		GC Auxiliary Sampler	Horiba 3UHALEVS	HIL0401069	68-C-03-103	D329	VT
139		SAES Pure Gas	SAES Pure Gas Mega Torr CAS-150	207451	68-C-03-103	D329	VT
140		USFM 7 Hz w/o Heat Exchanger	Horiba EXFM-1000	Prop# A78505	68-C-03-103	D329	VT
141		BMD CFVs w/ MFC Proportional	Horiba BMD 1000	259586-2, Prop# 791809	68-C-03-103		VT
142							
143		Impinger	Impinger	Prop# 791809		D329	VT
144							
145		4 Wheel Dynamometer (Remains in D-329)	HORIBA/MAHA 4WD Light duty Chassis Dyno		68-C-03-129	D329	VT
146							
147		N2O analysis	MEXA-1100QL	S/N S2000822984000070	EP-C-12-044	D329	VT
148							
149		Gas Divider w/ 4 MFCs(internal Part)	Horiba GDC-703	425790002	68-C-03-103	D329	VT
150		CFO Kit w/ .0025, .0035 and .008	Horiba CFO-202	1010997	68-C-03-103	D329	VT
151							
152	**HD-1**						
153		Dilute Gas Analysis System	MEXA7200D (OVN,SHS,MCU), MCU version	85189301C	68-C-04-015	RM 413A	HD Testing
154		Raw Gas Analysis System	MEXA-7100DEGR (OVN,SHS,MCU), MCU v	MFG#427560002	68-C-04-015	RM 413A	HD Testing
155		CVS-7X00 / BSU-8	BSU-8	S/N- S2001206011000010	EP-C-13-035	RM 413A	HD Testing
156							
157		Gas Divider and Converter Checker	GDC 703	85189301		RM 413A	
158							
159		Particulate Measurement	Triplicate PSU sampler	6006022		RM 413A	HD Testing
160		Heated Filter	HF-47A	?		RM 413A	HD Testing
161		Dilution Air Conditioner	DAC-A	?		413Mezz	HD Testing
162		Heated Filter	HF-47B	?		RM 413A	HD Testing
163		Dilution Air Conditioner	DAC-B	?		413Mezz	HD Testing
164		Heated Filter	HF-47C	?		RM 413A	HD Testing
165		Dilution Air Conditioner	DAC-C	?		413Mezz	HD Testing
166							HD Testing
167		Dynamometer Controller	X-act	?		RM 413	HD Testing
168							
169		N2O analysis	MEXA-1100QL-N20	WBS-S2001066591000020		RM 413A	HD Testing

	A	B	C	D	E	F	G
170							
171	**HD-2**						
172		Test Controller	STARS	?		RM 413	HD Testing
173							
174		Dilute Gas Analysis System	MEXA7200D (OVN,SHS,MCU), MCU versio	85189301	68-C-04-015	RM 413A	HD Testing
175		Dilute Gas Analysis System, Heated Analyzer Bench	OVN-720A	85189301			
176		Raw Gas Analysis System	MEXA-7100DEGR (OVN,SHS,MCU), MCU v	42757600011	68-C-04-015	RM 413A	HD Testing
177		Raw Gas Analysis System, Heated Analyzer Bench	OVN-727A	42757600011	68-C-04-015	RM 413A	HD Testing
178							
179		Particulate Measurement	Triplicate PSU sampler	?		RM 413A	HD Testing
180		Heated Filter	HF-47A	P/N 259651-A		RM 413A	HD Testing
181		Dilution Air Conditioner	DAC-A	?		413Mezz	HD Testing
182		Heated Filter	HF-47B	P/N 259651-B		RM 413A	HD Testing
183		Dilution Air Conditioner	DAC-B	?		413Mezz	HD Testing
184		Heated Filter	HF-47C	P/N 259651-C		RM 413A	HD Testing
185		Dilution Air Conditioner	DAC-C	?		413Mezz	HD Testing
186							
187		Dynamometer Controller	X-act	?		RM 413	HD Testing
188		Engine Dyno and Drive	5TKF5011A0A001	224090-1		RM 413	HD Testing
189		Electronic Control Console & Contents	33082T-060	ME-00370		RM 413	HD Testing
190							
191		N2O analysis	MEXA-1100QL-N20	WBS-S200107237000030		RM 413A	HD Testing
192							
193	**HD-3**	**(Mid Range Engine site)**					
194		Gas Divider	GDC-ONE	S2001610384000100	EP-C-15-018	RM 419A	HD Testing
195		Particulate Sampler	DLS-7200E, 1.7.2.6 (66419)	S2001692895000040	EP-C-15-018	RM 419A	HD Testing
196		Raw Gas Analysis System	MEXA-ONE-D1-EGR, 1.12.3.1 (DCU); 1.12.3	S2001692895000010	EP-C-15-018	RM 419A	HD Testing
197		Raw Gas Analysis System	OVN-22H	S2001692895000010	EP-C-15-018	RM 419A	HD Testing
198		Raw Gas Analysis System	OVN-30H	S2001692895000020	EP-C-15-018	RM 419A	HD Testing
199		Dilute Gas Analysis System	MEXA-ONE-C1, 1.12.3.1 (DCU)(85687); 1.1	S2001692895000020	EP-C-15-018	RM 419A	HD Testing
200		Dilute Gas Analysis System	HBS Heated Bubbler	8001006325	EP-C-15-018	RM 419A	HD Testing
201		Particulate Sampler	DLS-7200E DMC, 1.7.2.6	S2100581822000060, 8001051348			
202		Particulate Sampler	DLS-7200E Accessories	S2100581822000060, 8001051348			
203		Particulate Sampler	HF-47	8001006342	EP-C-15-018	RM 419A	HD Testing
204		Particulate Sampler	DAC	8001006342	EP-C-15-018	RM 419A	HD Testing
205		Particulate Sampler	Control Cabinet	8001006331	EP-C-15-018	RM 419A	HD Testing
206		Particulate Sampler	Ratio Check Unit	8001006342	EP-C-15-018	RM 419A	HD Testing
207		Particulate Sampler	Solenoid Control Enclosure	8001006340	EP-C-15-018	RM 419A	HD Testing
208		Tunnel Heating Temperature Control Unit	TCU-20	S2001610384000140	EP-C-15-018	417 Mezz	HD Testing
209		Constan Volume Sampler	CVS-ONE-MV (HBC), 1.12.3.1 (85687)	S2001692895000060	EP-C-15-018	417 Mezz	HD Testing
210		Exhaust Sampling Unit	ESU-ONE	8001006340	EP-C-15-018	417 Mezz	HD Testing
211		Pressure and Temperature control unit	PT Enclosure	8001006347	EP-C-15-018	417 Mezz	HD Testing
212		Engine intake air unit	Krohne Intake Air Meter (4") Optisonic7300	A16043151	EP-C-15-018	RM 417	HD Testing
213		Engine ignition unit	EPA Ignition Enclosure	8001006331	EP-C-15-018	RM 417	HD Testing
214		Engine Charge Air cooling unit	Charge Air Cooler LEW 40kW US	8001006335	EP-C-15-018	RM 417	HD Testing
215		Engine throttle control	Throttle Position Controller LSR2003	1000010863	EP-C-15-018	RM 417	HD Testing
216		Engine Dynamometer	Dynamometer EPAHT-460	8001006331	EP-C-15-018	RM 417	HD Testing
217		Engine Dynamometer	Dynamometer Drive Cabinet EPA HT-460-VF	8001006899	EP-C-15-018	417 Mezz	HD Testing
218		Engine cooling unit	Conditioning Unit CM 15-100	8001006333	EP-C-15-018	RM 417	HD Testing
219		Fuel measurement	Fuel Meter FP-2100DP	8001006332	EP-C-15-018	RM 419	HD Testing
220		Test cell automation	STARS Workstation	HUK16060075	EP-C-15-018	RM 419	HD Testing
221		Test cell automation	STARS Monitor #1	CN-ONV2C4-64180-61R-141S	EP-C-15-018	RM 419	HD Testing
222		Test cell automation	STARS Monitor #2	CN-ONV2C4-64180-61R-145S	EP-C-15-018	RM 419	HD Testing
223							
224	**HD-4**						
225		NONE					
226							
227	**HD-5**						
228		Test Controller	STARS	ME0001		425	HD Testing
229		Dyno Controller	XACT	?		425	HD Testing

	A	B	C	D	E	F	G
230		Engine Dyno and Drive	5TKF5011A0A001	224091-1		423	HD Testing
231		Electronic Control Console & Contents	33082T-060	ME-00404		425	HD Testing
232							
233		Dilute Gas Analysis System,	Horiba MEXA 7200D, MCU version 3.35	42757600031		425A	HD Testing
234		Dilute Gas Analysis System	Horiba OVN727A	42757600031		425A	HD Testing
235		Raw Gas Analysis System	Horiba MEXA 7100DEGR MCU version 3.35	42757600013		425A	HD Testing
236		Raw Gas Analysis System	Horiba OVN727A	4275600013		425A	HD Testing
237							
238		CVS Sampling Unit, control unit	Horiba CVS-7200T	4275760004		425A	HD Testing
239		Heated Bag Rack		S/N 6015432			
240		CVS Sampling Unit Blower	Spencer 30X150-H-MOD	804605F04		425A(M)	HD Testing
241		CVS Sampling Unit, Dilution tunnel - complete	Horiba CVS-7200T	none		425A	HD Testing
242		CVS Sampling Unit, Auxiliary (GC) Sampler	Horiba BSU	6005820		425A	HD Testing
243							
244		Particulate Sampling System, Controller	Micro PSU 3.08			425A	HD Testing
245		Particulate Sampling System, Heated Filter Unit	Horiba HF47	WBS S2000508044000010		425A	HD Testing
246		Particulate Sampling System, Dilution Air Controller - Chille	Horiba DAC(Cooler)			425A(M)	HD Testing
247		Particulate Sampling System, Dilution Air Controller - Heat	Horiba DAC(Heater)			425A(M)	HD Testing
248							
249		Engine intake air unit	Krohne Intake Air Meter (6") Optisonic7300	A160443188	EP-C-15-005	RM 423	HD Testing
250							
251		Gas Divider	Horiba GDC703	427481003		425A	HD Testing
252		CFO Kit	Horiba 202	101632		425A	HD Testing
253							
254		N2O analysis	MEXA-1100QL-N20	HGS #: XCKD8US0	EPC-C-14-023	425A	HD Testing
255							
256	**HEAVY DUTY CHASSIS**						
257		Product Name	Mfg. Number	HGS No.	WBS No.	MFG Date:	Contact No.
258		GDC-ONE	S2001681221000020	P22LHC9G		12-Jan-16	EP-C-15-007
259		DLS-7200E, 1.7.2.6(DMC) 1.7.2.5(66419) (DCU)	S2001610384000040	PH2Y5GAR		30-Sep-15	EP-C-15-007
260		DLS-7200E, 1.7.2.6(DMC) 1.7.2.5(66419) (DCU)	S2001610384000050	TLR2H3ET		30-Sep-15	EP-C-15-007
261		DLS-7200E, 1.7.2.6(DMC) 1.7.2.5(66419) (DCU)	S2001610384000060	WRF09YC6		30-Sep-15	EP-C-15-007
262		MEXA-ONE-D1, 1.12.15 (DMC) 1.12.15 (88371) (DCU)	S2001610384000110	7GW8ML4K		1-Oct-15	EP-C-15-007
263		OVN-22H	S2001610384000110	7GW8ML4K		1-Oct-15	EP-C-15-007
264		OVN-30H	S2001610384000120	VGHURYA5		20-Oct-15	EP-C-15-007
265		MEXA-ONE-C1-OV, 1.12.15 (DMC) 1.12.15 (88371) (DCU)	S2001610384000120	VGHURYA5		20-Oct-15	EP-C-15-007
266		MEXA-ONE-C1-OV (Sub Rack)	S2001610384000120	VGHURYA5		20-Oct-15	EP-C-15-007
267		CVS-ONE-MV (HBC), 1.12.15 (DMC) 1.12.15 (88371) (DCU)	S2001610384000030	UK1VBHH8		30-Sep-15	EP-C-15-007
268		F-01H(1) - test cell	S2001610384000110	7GW8ML4K		1-Oct-15	EP-C-15-007
269		F-01H(2) -test cell	S2001610384000110	7GW8ML4K		1-Oct-15	EP-C-15-007
270		F-01H (1)- mounted in filter stand	S2001610384000120	VGHURYA5		20-Oct-15	EP-C-15-007
271		F-01H (2)- mounted in filter stand	S2001610384000120	VGHURYA5		20-Oct-15	EP-C-15-007
272		HF-47/DAC/HCU	8001004320		2100035553	29-Jan-16	EP-C-15-007
273		HF-47/DAC/HCU	8001004321		2100035553	1-Feb-16	EP-C-15-007
274		HF-47/DAC/HCU	8001004322		2100035553	1-Feb-16	EP-C-15-007
275		Computer Cabinet	S2001610384000130	15ARCKT6		20-Oct-15	EP-C-15-007
276		Ratio Check Unit	8001004317		2100035553	Nov-15	EP-C-15-007
277		Impinger	8001004966		2100062902	Feb-16	EP-C-15-007
278		Process I/O Cabinet	8001003726-1		2100035553	31-Mar-16	EP-C-15-007
279		TMU Cabinet (Pit)	8001003726-2		2100035553	31-Mar-16	EP-C-15-007
280		TMU Cabinet (Mezzanine)	8001003726-3		2100035553	31-Mar-16	EP-C-15-007
281		TCU-20 #1	S2001610384000140	RSPGCS3E		7-Dec-15	EP-C-15-007
282		TCU-20 #2	S2001610384000140	TW04EX0G		7-Dec-15	EP-C-15-007
283		TCU-20 #3	S2001610384000140	9RLKY0J0		7-Dec-15	EP-C-15-007
284		TCU-20 #4	S2001610384000140	14SGS9JS		7-Dec-15	EP-C-15-007
285		TCU-20 #5	S2001610384000140	RJH3PT2Y		7-Dec-15	EP-C-15-007
286		TCU-20 #6	S2001610384000140	72KMDFP7		7-Dec-15	EP-C-15-007

	A	B	C	D	E	F	G
287		TCU-20 #7	S2001610384000140	4YYWXAWC		7-Dec-15	EP-C-15-007
288		CDTCS Workstation Dell Precision Tower 5810n	FJD5V52			20150817	EP-C-15-007
289		CDTCS Monitor #1 Dell P2714H	CN-0NV2C4-64180-572-0UMS				EP-C-15-007
290		CDTCS Monitor #1 Dell P2714H	CN-0NV2C4-64180-572-0USS				EP-C-15-007
291		Hioki Main Unit	140130442				EP-C-15-007
292		Hioki CT6843 AC/DC Current Probe	150808867				EP-C-15-007
293		Hioki CT6843 AC/DC Current Probe	150808865				EP-C-15-007
294		Hioki 9279 Universal Clamp on CT	150909172				EP-C-15-007
295		Hioki 9279 Universal Clamp on CT	150909171				EP-C-15-007
296		IPAD	S/N DMPN4JHDF182				EP-C-15-007
297		IPAD	S/N DMQN350EF182				EP-C-15-007
298		CarDAQ-Plus by Drewtech	2080				EP-C-15-007
299		Remote TCU Unit Cabinet					
300							

	A	B	C	D	E	F	G
301	**GDC-703 G**	**GDC-703 Gas Dividers/Nox Generators**					
302				57439201			
303				85178303			
304				85189301			
305				4045810001			
306				4257290001			
307				4257290002			
308				4257290003			
309				4272481003			
310				436795001			
311							
312	**CFO Kits**						
313				1000263		343B	
314				86942		343B	