SPECIFICATIONS FOR GAS CHROMATOGRAPH/MASS SPECTROMETER:

HARDWARE:
1) Ion Source: Can be changed without needing to break the vacuum to the MS;
2) Mass Range: 1.0 – 1,200 u (amu);
3) Analyzer: Quadrupole with pre-filter;
4) Mass Stability: +–0.1 m/z over 48 hours;
5) EI Voltage: 10 – 100 eV;
6) Vacuum Pumps: 255 L/sec (nitrogen) air-cooled turbomolecular pump (230 L/sec helium pumping capacity);
7) Vacuum Gauge: Single wide-range gauge;
8) Pump-down: <3 minutes for air/water check, <90 minutes for quantitative stability
9) MS Isolation: Dean's Switch technology or similar (no "Y" connection for columns);
10) Field Upgrades: Positive/negative chemical ionization, water cooling;
11) Sensitivity: 800:1 for 1 pg of octafluoronaphthalene in EI Full Scan.

PERFORMANCE:
12) MS Data Collection: Full Scan, Selected Ion Monitoring (SIM), Simultaneous Full-Scan Selected Ion Monitoring (SIFI);
13) Scan Rate: Fully variable up to 12,500 amu/sec;
14) Acquisition Rate: 100 points/sec (SIM);
15) Functions/Run 3: 32 functions or 32 ions per function;
16) Linear Dynamic Range: 10^6 dependant on acquisition rate.

DATA SYSTEM:
17) Software: Compatible with Windows 7 Professional operating system or similar operating system approved for access to government intranet systems;
18) Operating System: Windows 7 Professional or similar operating system approved for access to government intranet systems;
19) GC Acquisition: Full control and data processing of a single GC/MS with up to 2 GC detectors;
20) Reporting: Included specialized reports for: Environmental and forensic applications;
21) MS Library: NIST 11 Mass Spectral Library, including AMDIS Deconvolution and MS Search.

PHYSICAL:
22) Gas Chromatography: Two sample inlets, each attached to its own GC column,
    A. Gas Sampling Valve port: Column for low mass volatile organics
    B. Split/Splitless port: Column for higher mass semi-volatile organics
23) Mass Spectrometer: Single Quad Mass Spectrometer;
24) Power: 120 VAC +–10% @ 50/60 Hz +–1%.

25) Installation: Included
26) Training: Included

SPECIFICATIONS FOR AUTOMATED HEADSPACE SAMPLER WITH TRAP:

HARDWARE:
1) Sample Vials: Able to accept up to 40 vials of both larger (22ml) and smaller (6ml) volumes;
2) Sample Thermostatting: Thermostatting period and temperature precisely controlled for each sample. Software should automatically optimize sample thermostatting overlap;
3) Sample Temperature: Temperature settable from 35 °C to 210 °C in 1 °C increments or at ambient;
4) Transfer Line: Temperature settable from 35 °C to 210 °C in 1 °C increments or at ambient;
5) Transfer Line System: Deactivated fused-silica capillary transfer line or capillary column (0.32-µm i.d. or 0.25-µm i.d.) shielded inside a heated transfer tube between the headspace sampler and GC injector;
6) Column Compatibility: Compatible with all capillary-column diameters in split and splitless (direct coupled) mode. On-column sampling using 0.25, 0.32 or 0.53-mm i.d. capillary columns and 1/8-inch o.d. packed columns;
7) Headspace Sampling Method: Pneumatic, pressure-balanced sampling (no syringe or gas sample loop). Sample vials are pressurized with carrier gas. Injection amount is programmable by time or by volume without requiring any hardware change. For headspace-trap sampling, the gas is focused on a sorbent trap before injection into the GC. This can be done for up to four cycles;
8) Headspace-trapping Sampling Method: The sample is focused on a sorbent trap before injection into the GC. This can be done for up to four cycles;
9) Analyte Compatibility: Polar and non-polar organic compounds including compounds such as free volatile organic acids, sulfur compounds, amines and other nitrogen-containing organic compounds;
10) Shaker: Shaker for quicker sample-specific equilibration during thermostatting.

MODES OF OPERATIONS:
11) Constant Mode: Routine analysis mode with constant, equal thermostatting time for each sample. Includes intelligent, overlapped thermostatting to automatically optimize oven movement for maximized sample throughput;
12) Multiple Headspace Extractions Mode: Multiple headspace extractions from each vial. Up to nine extraction steps with intermediate vent performed automatically;
13) Progressive Mode: Method-development tool used in determining required equilibration time and in performing kinetic studies. Thermostatting time is automatically increased to determine optimal thermostatting time.

ECONOMY:
14) Economy Mode: Programmable power-saving and gas-saving features with automatic wake-up function.

PHYSICAL:
15) Power: 120 VAC @ 50/60 Hz.

16) Installation: Included
17) Training: Included