State of California
AIR RESOURCES BOARD

LABORATORY QUESTIONNAIRE

Dated:

I. General Laboratory Information

A. Laboratory Name _____

B. Address: _____

_____

Telephone: _____

C. Laboratory Contact to be used by ARB _____

D. Ownership _____

II. Personnel

Identify the people who perform the following laboratory functions and attach summaries of their qualifications. (A resume is usually sufficient unless relevant experience is not clear).

A. Laboratory Manager _____

_____

B. Test Supervisor(s) _____

_____

C. Data Review _____

_____

D. Test Review _____

_____

E. Driver (s) _____

_____

F. Equipment repair and calibration _____

_____

G. Other persons involved in the certification and testing of used direct-import import vehicles _____

_____

III. Facilities:

A. Laboratory Test Area/Vehicle Soak Area: _____/_____sq.ft.

B. Capacity:

1. Number of dynamometers. _____

2. Number of evaporative sheds. _____

3. Estimate your maximum test capability. _____ per week

III.

C. Distance from soak area to dynamometer(s) _____ ft.

D. How are the temperature and humidity monitored during the FTP? _____

E. Soak area temperature _____ ± _____ °F.

F. Is the laboratory air-conditioned? _____ yes _____ no

G. Is soak area temperature continuously monitored and recorded? _____ yes _____ no. Provide a drawing indicating sensor location(s).

H. Is the laboratory humidity controlled? _____ yes _____ no.
If "yes", what is the controlled range? _____

I. Is soak area free of precipitation? _____ yes _____ no

J. Laboratory elevation: _____ ft above sea level

IV. Materials

A. Test Fuels

1. Indicate your supply source for each type of test fuel used.

2. Have fuels been analyzed? _____ yes _____ no. If "yes", attach a typical report for each type.

3. Attach a description of your fuel handling system. Include transfer methods, storage, and temperature control. Explain how your system maintains the RVP of gasoline.

4. Where is vehicle fueling performed? _____

B. Calibration Gas Cylinders

1. Cylinder storage area temperature range: _____ °F

2. Is each cylinder equipped with its own regulator?
_____ yes _____ no

3. Are NOx cylinder regulators corrosion resistant?
_____ yes _____ no

4. At what pressure are cylinders considered empty? _____ psig.

5. Gas Standards

Describe your procedure of analyzing the concentrations from gas cylinders used as calibration standards. If the analysis is provided by the vendor, documentation must show compliance with 40 CFR, 86.114. (Analysis must identify cylinder concentrations as being within 1% of NBS gas standards). List SRM or CRM cylinder numbers.

_____

_____

_____

_____

If you use a gas divider describe its use and include calibration, documentation and/or accuracy specifications, operating flows and pressures.

_____

_____

_____

V. Equipment and Procedures

Provide the following information for each test site.

A. Dynamometer

1. Make, Model and Serial Number: _____

_____

2. Date manufactured/Date purchased: _____/ _____

3. Is dynamometer equipped with direct drive variable inertia assembly? ____ yes ____ no. If "no", specify type of drive,

_____

_____

4. Is dyno equipped with a 50 hp. power absorber? ____ yes ____ no
If "no" specify maximum horsepower rating.

5. Is the dynamometer a split-roll type? _____ yes _____ no

6. The roll measurements are: _____ inches in diameter, _____ inches in length, _____ inches center to center.

7. On which roll is the vehicle speed tachometer generator located? _____

_____

8. On which roll is the revolution counter located? _____

_____

9. Describe your procedure for calibrating:

Roll revolution counter: _____

Torque sensor: _____

10. Indicate dates for each of the following:

Load calibration/verification: _____/_____
Torque calibration/verification: _____/_____
Speed calibration/verification: _____/_____
Roll rev. counter calib./verification: _____/_____

11. List your inertia weight settings and the corresponding actual HP to be used when testing under 40 CFR 85.1504. (Inertia weight/cookbook horsepower). -

IW/HP	IW/HP
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____
_____/_____	_____/_____

12. How is vehicle curb weight determined? _____

13. How is test inertia weight determined? _____

14. Provide the most current dynamometer "performance check".

15. What are your acceptance criteria for a "performance check"?

16. Provide current dynamometer calibration data. Include coastdown times and power absorption unit (PAU) values used to determine PAU horsepower settings.

8. Drivers Cycle

1. a. How is the FTP driving cycle displayed to the driver? ____

b. Describe method of permanently recording a driver's trace.

2. If a video screen is used, is a strip chart simultaneously generated? _____ yes _____ no.

3. How are driver violations determined? _____

_____

4. Chart recorder

Make, Model and Serial Number: _____

Chart speed = _____ inches per minute.

0 to 55 mph = _____ inches of chart deflection

C. Constant Volume Sampling System

1. Make, Model, Type and Serial Number: _____

_____

2. Date manufactured/Date purchased: _____/_____

3. From where is the CVS dilution air taken? _____

4. How and where is the CVS temperature monitored? _____

5. When was the CVS last calibrated? _____

6. Provide complete documentation for the following: (include calibrations).

CVS calibration with flowmeter data.

Two successive propane recovery tests.

#1. _____ % error, _____ % of analyzer full scale

#2. _____ % error, _____ % of analyzer full scale

7. What is the concentration or grade of the propane used? _____

8. Make, Model and Serial Number of Balance or CFO used: _____

_____

9. If a balance is used, what is its range and accuracy? _____

D. Analytical Systems

1. What material(s) do you use for gas plumbing? _____

_____

2. What material are the sample bags made from? _____

_____

3. Are analyzer flows the same for calibration, zero, and sample analysis? _____ yes _____ no

4. Hydrocarbon Analyzer (Exhaust Emissions Test)

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Fuel type: _____
Fuel pressure: _____ psi; Fuel source pressure: _____ psi
Air pressure: _____ psi; Air source pressure: _____ psi
Sample pressure: _____ psi; Sample flow rate: _____ CFH
Type of Zero gas used? _____, Contaminant levels HC _____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____, 0 - _____
Is an analyzed span gas used for each range? _____ yes _____ no
Number of calibration gases for each range: _____
Provide the calibration data and curve equation for the most frequently used range(s). List percent-of-point deviations.
Are curve concentrations in ppm P or ppm C? _____

5. Hydrocarbon Analyzer (SHED Test):

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Fuel type: _____
Fuel pressure: _____ psi; Fuel source pressure: _____ psi
Air pressure: _____ psi; Air source pressure: _____ psi
Sample pressure: _____ psi; Sample flow rate: _____ CFH
Type of Zero gas used? _____, Contaminant levels HC _____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____, 0 - _____
Is an analyzed span gas used for each range? _____ yes _____ no
Number of calibration gases for each range: _____
Provide the calibration data and curve equation for the most frequently used range(s). List percent-of-point deviations.

6. Carbon Monoxide Analyzer

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Sample flow rates: _____ CFH
Type of Zero gas used? _____, Contaminant levels HC _____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____, 0 - _____
Is an analyzed span gas used for each range? _____
Number of calibration gases for each range: _____
Provide the calibration data and curve equation for the most frequently used range(s). List percent-of-point deviations.

Is a separate CO analyzer used for "high ranges"?
If "yes", provide the above information for that analyzer.
Provide latest CO_2 and H_2O interference check data.

7. Carbon Dioxide Analyzer

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Type of Zero gas used? _____, Contaminant levels HC ____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____, 0 - _____
Is an analyzed span gas used for each range? _____
Number of calibration gases for each range: _____
Provide the calibration data and curve equation for the most frequently used range(s). List percent-of-point deviations.
Is a separate CO_2 analyzer used for "high ranges"?
If "yes", provide the above information for that analyzer.

8. Oxides of Nitrogen Analyzer

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Type of analyzer? _____ vacuum _____ atmospheric
Bypass flow rate: _____ CFH
Reactor vacuum (if applicable): _____ torr/mm.
Type of Zero gas used? _____, Contaminant levels HC ____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____, 0 - _____
Is an analyzed span gas used for each range? _____
Number of calibration gases for each range: _____
Is the analyzer spanned through the converter? ____ yes ____ no
Provide a NOx converter efficiency test (include strip chart and values for step 4-10 in CFR 86.123-78).
Provide the calibration data and curve equation for the most frequently used range.

E. Evaporative Emissions Equipment

1. Describe your procedure and acceptance criteria for pressure testing vehicle fuel systems. _____

2. Describe your equipment (heat source and temperature controller) and method used to perform heat build. _____

3. Heat Build Temperature Recorder

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Temperature range and accuracy: _____° - _____°F ± _____°F
Number of channels: _____
Type of thermocouple: ambient air _____, fuel _____

4. SHED Test

What are the temperature limits for SHED ambient air?
_____°F - _____°F
What is the minimum temperature for the SHED cooling medium? _____°F
Describe your procedure for conducting a SHED test: _____
_____
_____
_____
_____

Provide a SHED retention check and calibration (Include raw data).

SHED Enclosure:

What is the total capacity for the mixing blower(s)? _____
Describe the SHED cooling system _____
_____
_____

How is the SHED purged? _____
_____

F. Diesel Test System

1. Heated FID:

Make, Model and Serial Number _____
Date manufactured/Date purchased _____/_____
Fuel type: _____
Fuel pressure: _____ psi; Fuel source pressure: _____ psi
Air pressure: _____ psi; Air source pressure: _____ psi
Sample pressure: _____ psi
Sample bypass flow rate: _____ CFH
Type of Zero gas used? _____, Contaminant levels HC ____ ppm C.
CO _____ ppm, CO_2 _____ ppm, NOx _____ ppm
List analyzer ranges used: 0 - _____, 0 - _____, 0 - _____
0 - _____ 0 - _____ ppm(c).
Is an analyzed span gas used for each range? _____ yes _____ no
Number of calibration gases for each range: _____
Provide the calibration data and curve equation for the most frequently used range(s).
Is a continuous HC analyzer stripchart generated for each test?
_____ yes _____ no

How is the continuous HC sample converted to average concentration?

Is the instrument spanned through the sample probe? _____ yes _____ no
Is the instrument calibrated through the sample probe? ___ yes ____ no

If the HC system includes electronic integration, what is the output frequency at 10% of full scale? _____

2. Temperature Control: (Diesel)

Describe your system for controlling the temperature of the HFID sampling system? _____

List the components monitored for temperature, the temperature ranges and methods of recording.

3. Exhaust Collection: (Diesel)

What are the available CVS flow rate(s)? _____
Attach CVS flow calibrations.
Provide data to show complete mixing in the dilution tunnel.
Specify tunnel dimensions. _____

What is the maximum distance from a vehicle exhaust to the tunnel exhaust inlet port? _____ft.

Are exhaust connectors insulated? _____ yes _____ no
Are exhaust connectors flexible or rigid? _____
Dimensions of the dilution tunnel: _____diameter _____length
Dilution of temperature: _____°F
Sample zone dilute exhaust temperature: _____°F
If required temperature, pressure and flow rates are not continuously recorded, provide the documentation that indicates continuous monitoring. Provide propane recovery test data using integrated HFID readings.

4. Particulates: (Diesel)

How is the particulate flow rate controlled? _____

What is the accuracy of the particulate flow rate measurement?

Describe how particulate filters are conditioned. _____

How is the filter conditioning environment controlled and monitored? _____

_____

_____

_____

Make, model and serial number of microbalance. _____

_____

_____

Provide manufacturers specifications

5. Provide a flow schematic of the CVS system, the HFID system and the particulate system. Indicate the location of the dilution tunnel exhaust inlet, HFID probe, particulate probe, particulate filters, heat exchangers and required temperature, pressure and flow sensors.

VI. Supplementary Information

A. Vehicle Test Packet

Provide a sample test data packet for each type of vehicle (gasoline or diesel) you test. The test data must be from an actual vehicle test and provide all the information necessary to verify emissions calculations. (see 40 CFR 86.142).

B. Provide photographs of the following:
1. Soak area
2. Dynamometer(s)
3. Analyzers
4. SHED(s)
5. Test fuel conditioner and storage area
6. Gas cylinders and storage area
7. Fuel tank temperature probes

C. Provide a copy of your test procedures.

D. Provide a copy of your Quality Control Schedule and Procedures.

I hereby certify that the information contained in this document is true, complete, and correct to the best of my knowledge.

Print Name

(Date)

Signature
Laboratory Supervisor/Manager

Print Name

(Date)

Signature
Owner/Corporate Officer