Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

AP42 Section: 11.1

Reference Number: 354

Title: J. S. Gammie, Compliance Test Report, Hot Mix, Inc./Fuller Sand & Gravel, Inc., Baghouse Exhaust, Danby, VT,

Environmental Risk Limited, Bloomfield, CT,

November 1995.

ENVIRONMENTAL RISK LIMITED

COMPLIANCE TEST REPORT
HOT MIX, INC./FULLER SAND & GRAVEL, INC.
BAGHOUSE EXHAUST
DANBY, VERMONT

Prepared For:

Hot Mix, Inc.

RECEIVED
DEC 29 1995
AIR POLLUTION CONTROL DIVISION
STATE OF VERMONT

Prepared By:

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Project Manager

ERL Project No. 8100004389

November 1995

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1.0 INTRODUCTION

1.1 Summary of Test Program

Environmental Risk Limited (ERL) was retained by Hot Mix, Inc./Fuller Sand & Gravel, Inc. of Danby, Vermont to conduct a compliance emission measurement test program on a asphalt plant process located at the Hot Mix, Inc. plant in Danby, Vermont. The test program was conducted to comply with the State of Vermont Department of Environmental Conversation air regulations for this type of facility. This facility is owned and operated by Hot Mix, Inc. and Fuller Sand and Gravel, Inc.

Pollutants measured at the facility, consisted of total particulate matter (TPM), nitrogen oxides (NO_x) and opacity. Outlet emissions were tested to determine compliance with the regulations as stipulated by the State of Vermont. The facility had to comply with the following regulations:

Particulate matter:	0.04 grains per dry standard cubic feet
Opacity:	10%
NO_x	0.15 pounds per million Btu (lbs/MMBtu)(HHV) and 7.7 lbs/hr

1.2 Key Personnel

The following presents the test program organization and names and phone numbers of responsible individuals.

Hot Mix, Inc.	Todd Widley	(802) 293-5243
Environmental Risk Limited	John Gammie	(203) 242-9933

2.0 SOURCE DESCRIPTION

2.1 Process Description

Hot Mix, Inc. is currently operating a new drum barrel drier for drying crushed aggregate manufactured by Cedarapids Model G-60A Serial #18938 and is equipped with a new Hauch Model #SJO-4260E starject high pressure air atomizing burner which utilizes No. 2 low sulfur fuel.

The stack was approximately 35 feet high and attached to the ID fan of the baghouse.

2.2 Control Equipment

The plant is equipped with a baghouse manufactured by standard Havens Model ALFA-Mark I which consisted of 672 non-woven virgin high density aramid bags, 9 feet long 6 ⅝" wide, having a bag surface area of approximately 12,000 square feet providing an air to cloth ratio of approximately 4.5 to 1 while operating at a rate of 30,000 CFM at 190°F. The tubes were cleaned by pulse jet.

2.3 Flue Gas Sampling Location

The exhaust stack sampling location was located in a 35" by 38" rectangular section of steel stack. Five sampling ports spaced equally apart gave access to the particulate laden gas stream. The ports were 216" (6.0 duct diameters) downstream of the ID fan and 72" (2.0 duct diameters) upstream from the top of the stack. Based upon the above parameters, EPA Method 1 required the use of 25 sampling points. Five traverse sampling points were located through each of the 5 ports.

A schematic diagram of the outlet test location, along with traverse point locations, is shown in Figure 4-1 (see Appendix A).

2.4 Process Parameter Monitoring

The average production rate was determined by collection of truck slips during the test day and averaging the production based on start and finish times of each test.

3.0 SUMMARY AND DISCUSSION OF RESULTS

3.1 Objectives and Test Matrix

The purpose of the test program is to determine the emissions from the asphalt plant operating under near capacity production rate. Table 3-1 presents the sampling and analytical matrix. The specific observations in the order of priority are:

- Total particulate, oxides of nitrogen (NO_x) and opacity emissions performed in accordance with EPA Methods 1-5, 7E and 9.

TABLE 3-1
Emission Measurement Test Matrix
Baghouse Exhaust Stack
Danby, Vermont

Sampling Location	Sample/Type Pollutant	No. of Runs	Sampling Method	Sampling Organ.	Sample Run Time (min.)	Analytical Method	Analytical Laboratory
Exhaust Stack	TSP	3	EPA M1-5	ERL	60	Gravimetric	ERL
	NO_x	3	EPA M7E	ERL	60	Instrument	ERL
	Opacity	3	EPA M9	ERL	60	Visual	ERL

3.2 Discussion of Results

Table 3-2 summarizes the results from the test program. The average particulate emission rate was 7.17E-3 grains per dry standard cubic feet (gr/dscf). The average opacity was 0 for all three runs, while the average NO_x emission rate in pounds per hour was 12.31 and 0.284 pounds per MMBtu. These tests were all performed simultaneously on the same day.

3.3 Field Test Changes and Problems

A motor on the bin conveyor belt below between the first and second run, creating a two hour delay. Other than that, no other changes or problems existed.

TABLE 3-2
Summary of Emission Measurement Results
Baghouse Exhaust Stack
Danby, Vermont

	Danby, Vermont			Test Date: 10/25/95	
Method/Component	**Units**	**Run 1**	**Run 2**	**Run 3**	**Average**
Method 5 - TSP	Gr/dscf[1]	1.01E-2	7.17E-3	4.26E-3	7.17E-3
Method 3 -O_2	%[2]	15.8	16.6	16.2	16.2
Method 3 - CO_2	%	3.6	3.5	3.8	3.6
Method 4 - Moisture	%	12.86	10.06	11.64	11.52
Method 2 - Flow	dscf[3]	29411	30379	27497	29096
Method 9 - Opacity	%	0	0	0	0
Method 7E - NO_x	lbs/MMBtu[4]	0.296	0.293	0.264	0.284
Method 7E - NO_x	lbs/hr[5]	14.04	12.10	10.79	12.31
Production Rate	tons/hr	160.03	152.53	174.91	161.66

[1] grains per dry standard cubic feet

[2] percent

[3] dry standard cubic feet

[4] pounds per million british thermal units

[5] pounds per hour

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 Particulate Matter Tests

Particulate matter sampling was accomplished by using the EPA Method 5 collection train, described in the Code of Federal Regulations (CFR), Title 40, Part 60. It is shown schematically in Figure 5-1 (see Appendix A) and consists of a nozzle, four impingers, vacuum pump, dry gas meter, and an orifice flowmeter. Complete sampling train calibrations are performed before and after the compliance test.

A stainless steel nozzle (1) was attached to a stainless steel glass lined probe (2) which was heated to prevent condensation. Pallflex fiberglass filter paper supported in a 4-inch glass filter holder (3) was used as the collection media. The filter assembly was enclosed in a heated box (4) to maintain temperatures at 248°F ± 25°F. An ice bath containing four impingers (5) was attached to the back end of the filter. The first two impingers contained 100 ml of DI water, the third was dry, and the fourth contained silica gel to remove any remaining moisture. Flexible tubing (6), vacuum gauge (7), needle valve (8), leakless vacuum pump (9), bypass valve (10), dry gas meter (11), calibrated orifice and inclined manometer (12) completed the sampling train. The stack velocity pressure was measured using a pitot tube and inclined manometer (13). The stack temperature was monitored by a thermocouple that was attached to the pitot and connected to a potentiometer (14). A check valve was not used in the ERL sampling train.

A nomograph was used to quickly determine the orifice pressure drop required for any pitot velocity pressure and stack temperature to maintain isokinetic sampling conditions. Sampling flow was adjusted by means of the bypass valve. Before and after each particulate matter test run, the sampling train was leak checked.

Test data was recorded on the field data sheets shown in the appendix. At the end of each test, three sample containers were used as follows:

Container 1 Filter.

Container 2 Acetone wash of probe and front half of filter. The probe and nozzle were rinsed and brushed three times.

Container 3 Silica gel from the fourth impinger.

The samples were transported to the laboratory and the following analysis performed:

Container 1 Transferred the filter and any loose particulate matter from the sample container to a tared glass weighing dish, desiccate and dry to constant weight. Reported results to the nearest 0.1 mg.

Container 2 Transferred the acetone washings to a tared beaker and evaporate to dryness at ambient temperature and pressure. Desiccate and dry to a constant weight. Reported results to the nearest 0.1 mg.

Container 3 Weighed silica gel to the nearest 0.5 g. The weight of the moisture entrapped in the silica gel, along with the volume of moisture which condensed in the impingers, was used to calculate the moisture content of the flue gas.

Prior to testing, a preliminary velocity traverse, covering all sampling points, was performed for cyclonic flow.

A calculator program developed by ERL was used to calculate mass emission rates in pounds per million BTU and pounds per hour. The program also calculates percent moisture, molecular weight of the stack gas at stack conditions, and the percent isokinetics.

4.2 Gas Analysis

The composition of the gas stream at the sampling location was analyzed for oxygen and carbon dioxide during each test run in accordance with CFR, Title 40, Part 60, EPA Method 3. To make an accurate assessment of the flue gas composition, redundant Orsat analyses were conducted. During each particulate matter test run at least one multipoint integrated sample of

flue gas was taken for Orsat analyses. The integrated gas sampling train used for Method 3 is shown in Figure 5-2 (see Appendix A).

4.3 Visible Emissions

A certified EPA Method 9 observer conducted triplicate one-hour visible emission tests simultaneously with the particulate tests. A copy of the certification is included in Appendix D.

4.4 Continuous Emission Monitoring

ERL conducted the outlet flue gas measurements for NO_x and O_2 using EPA Reference Methods 7E and 3A, respectively. A schematic diagram of the sampling system is shown in the Appendix.

The continuous emission monitoring system (CEMS) draws flue gas in through a 2-foot stainless steel heated probe with in-stack and/or heated out-of-stack filtration systems. The gas sample was drawn through the probe and filter(s) by a heated Teflon lined diaphragm vacuum pump. From the pump, the sample was sent through a heated Teflon sample line. At the end of the sample line, the extracted flue gas was split with one part going through a moisture removal system, into a manifold, and finally to the NO/NO_x and O_2 analyzers. Analyzer outputs were recorded by a data acquisition system (DAS) at thirty (30) second intervals.

A total of three 60-minute CEM test runs were performed simultaneously with the particulate tests. A zero and mid-range calibration check was performed between each test run. In addition, a full range calibration and linearity check was performed on each reference method analyzer at the beginning of each test day. Emissions were reported in parts per million (ppm), pounds per hour (lb/hr) and pounds per million Btu (lbs/MMBtu).

All field data reporting and calculations was conducted in accordance with the guidelines presented in EPA Reference Method 6C. Copies of the field data sheets are included in the Appendix.

The NO_x instrument was a Rosemount Model 955 NO/NO_x analyzer. This instrument utilizes the principle of chemiluminescence, whereby NO in the sample gas reacts with ozone (O_3) at a specific wavelength to produce NO_2. The NO_2 is then disassociated by a converter to produce NO, which is the combination of the original NO and the disassociated NO_2 in the sample stream. This total NO is proportional to the original NO_x (NO and NO_2) concentration.

The O_2 instrument was a Rosemount Model 755 analyzer, which measures O_2 concentration by means of the paramagnetic susceptibility of the sample gas using a proven magneto-type measuring cell. Oxygen molecules are attracted more strongly by the magnetic field than are molecules of other gases, and their concentrations can thereby be measured.

Calibrations were performed using an Environics Series 2020 Computerized Multi-Component Gas Mixer. This system (shown in Appendix B) accurately blends NIST (National Institute of Standards and Technology) traceable mixtures from EPA Protocol and other certified gases.

The gas mixer contains five (5) mass flow controllers (MFCs) which have been calibrated and certified NIST traceable with the use of a Sierra Cal-Bench. The Sierra Cal-Bench is a NIST recognized and traceable primary flow measurement standard which contains a sonar detection device sensitive to 0.0005 inches. Using this system, the MFCs are calibrated by the manufacturer at eleven (11) points along their respective ranges from zero to the maximum flow. These data points are stored in the gas mixer's computer as a reference table to be used for interpolating all flow commands.

Required flow rates and target mixtures are entered into the instrument's computer along with the undiluted gas concentrations. The MFCs then accurately mix the calibration gases with the balance gas to produce the requested dilutions. In this way NIST traceable gas mixtures can be produced on site to fit any source specific requirement.

Certified EPA Protocol 1 compressed span gases of NO and O_2 were used as the calibration standards. High purity nitrogen (N_2) were used as the zero and gas mixer balance gas.

The gas mixer was used in strict accordance with the EPA's EMTIC (Emission Measurement Technical Information Center) Publication No. CTM-007, Verification of Gas Dilution System for Field Instrument Calibrations. The accuracy of the gas mixer will be demonstrated to the on-site observer in accordance with the Performance Specifications Tests outlined in EPA Conditional Test Method 7.

For the field tests, the analyzers were calibrated and linearized at three or four points along their measurement ranges at the beginning of each test day. EPA Protocol 1 gases were introduced to each analyzer via the gas mixer to produce calibrations at 90%, 60%, 30%, and 0% of the span values using the N_2 balance/zero gas as the dividing medium.

The system bias and drift tests were conducted with appropriate mid-level dilution gases based on the source emissions. These system calibrations were repeated after each test run. The gases passed through all components of the sampling system except the sampling probe.

The system calibrations were performed to document any instrument drift. Using Equation 6C-1 (40CFR60, Appendix A), the ppm and percent values were corrected to account for the zero and span values and any instrument drift as follows:

$$C_{gas} = (\bar{C} - C_o) \times \frac{C_{ma}}{C_m - C_o}$$

where:

C_{gas}	=	emissions concentration (ppm or %)
$\bar{C}$	=	average emissions reading (ppm or %)
C_o	=	average zero reading (ppm or %)
C_m	=	average span reading (ppm or %)
C_{ma}	=	span gas concentration (ppm or %)

The corrected ppm and % averages were then used to calculate emission rates in the appropriate standard units.

4.5 Fuel Sample Analysis

A fuel sample was collected during the compliance test day, and analyzed to determine the pounds per million Btu (MMBtu) content. A copy of the fuel analysis is included in Appendix D.

5.0 QA/QC ACTIVITIES

5.1 QC Procedure/QA Audits

ERL maintains specific laboratory facilities dedicated to maintenance and calibration of source sampling equipment used in performing EPA reference method source tests. These facilities include all equipment and standards necessary for equipment calibration using the procedures outlined in the Quality Assurance Handbook for Air Pollution Measurement Systems Volume III, Stationary Source Specific Methods (EPA 600/4-77-027b).

The checkout and calibration of the source sampling equipment is performed prior to and at the completion of each project. Referenced calibration procedures are strictly followed and the results properly documented and retained. The following calibrated equipment will be used during the test program.

- Type-S Pitot Tubes
- Sampling Nozzles
- Type-K Thermocouples
- Dry Gas Meters

Calculations for determining flow rates, moisture contents, isokinetics, particulate and gaseous concentrations is made using a computer program developed by the QA/QC Manager at ERL. This program utilizes the calculation procedures and equations specified in EPA Methods 2, 4, and 5. The program has been successfully used for numerous test efforts and has been validated by independent performance audits. Sample calculations is performed by the software program and a definition of terms will be provided in the final report. Data will be transported to the software directly from the field data sheets.

5.2 Sample Identification and Custody

Sample custody procedures for this program are based on EPA recommended procedures. The project manager is responsible for ensuring that proper custody and documentation procedures were followed for the field sampling and field analytical efforts. The project manager is assisted in this effort by key sampling personnel involved in sample recovery.

All sampling data, including information regarding sampling times, locations, and any specific considerations associated with sample acquisition are recorded in black ink on pre-formatted data sheets.

A master sample logbook is used to document all sample collection activities. The project manager is responsible for reviewing the logbook on a daily basis and ensuring that entries are complete and up to date.

Following sample collection, all samples are given a unique alphanumeric sample identification code. Sample labels and integrity seals are completed and affixed to the sample container.

In addition to the master sample logbook, a daily activity log is maintained by the project manager. This is an informal log used to record various types of information, such as minor problems which may have arose, sketches of sampling locations, names and phone numbers of contacts.

5.3 QC Procedure

Data sheets also act as QC check lists. These worksheets can be found in the appendix section of this pretest protocol.

5.4 QA/QC Checks of Data Reduction

The QA/QC Engineer will run an independent check (using a validated computer program) of the calculations with predetermined data before the field test. This will ensure that calculations done in the field are accurate. The QA/QC Engineer will also conduct a spot check on-site to assure that data are being recorded accurately. After the test, the QA/QC Engineer will check the data input to assure that the raw data have been transferred to the computer accurately.

APPENDIX A

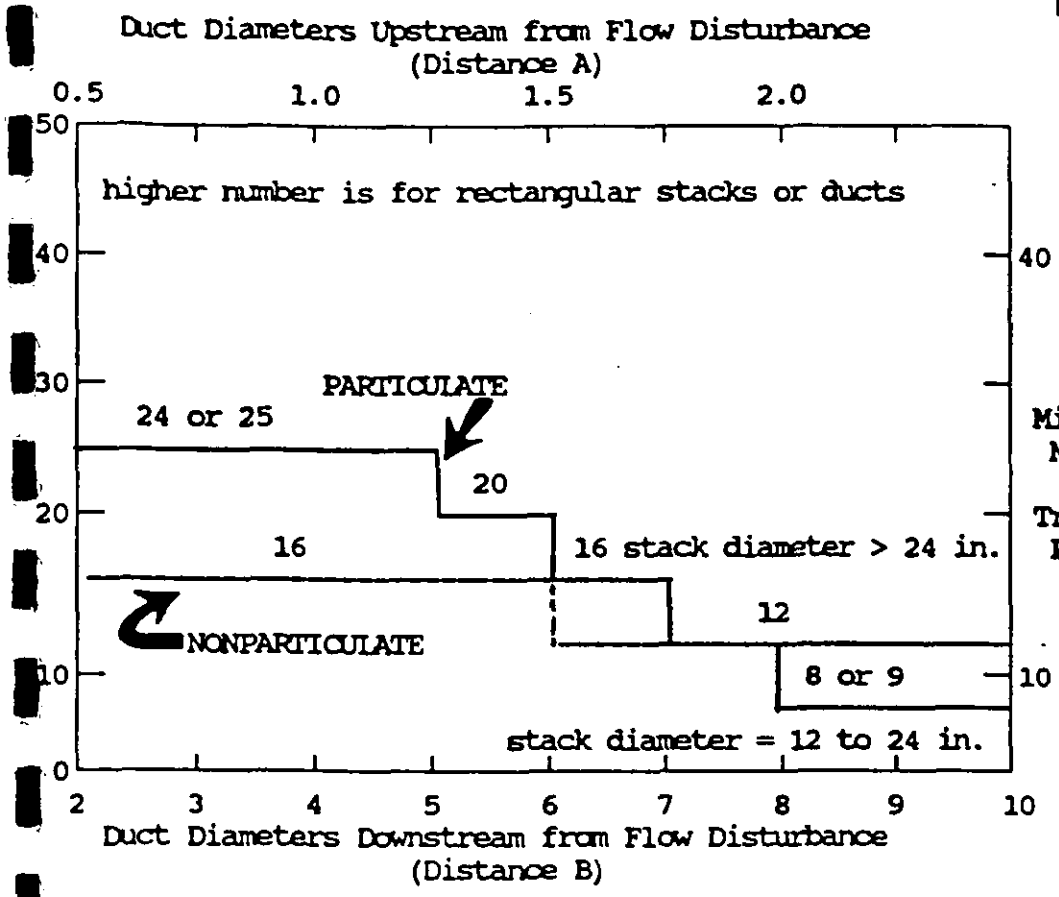
Figures

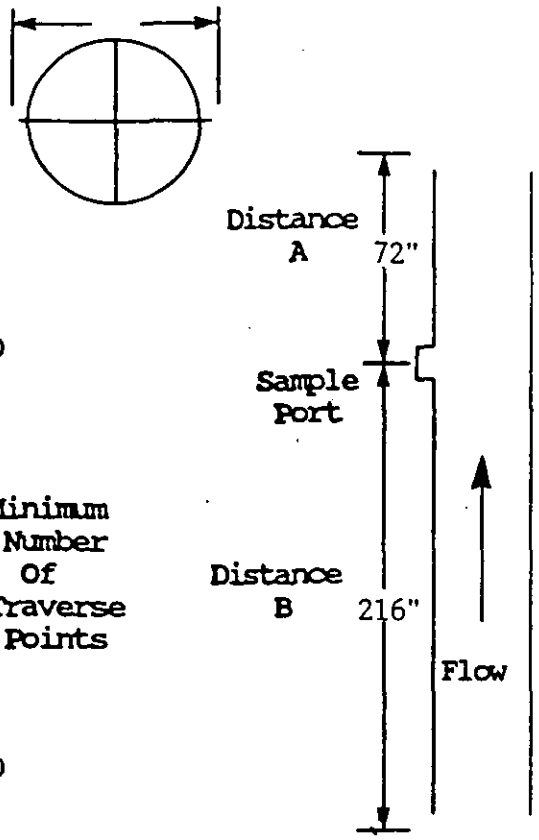
EPA METHOD 1 Sampling and Velocity Traverse

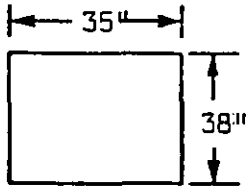
Firm Hot Mix, Inc.
Location Baghouse Exhaust
Diameters Upstream 2.0
Diameters Downstream 6.0

Total Traverse Points Required 25
Number of Ports 5
Points Per Ports 5
Traverse (Horizontal or Vertical) H

MINIMUM NUMBER OF TRAVERSE POINTS FOR PARTICULATE AND NONPARTICULATE TRAVERSES







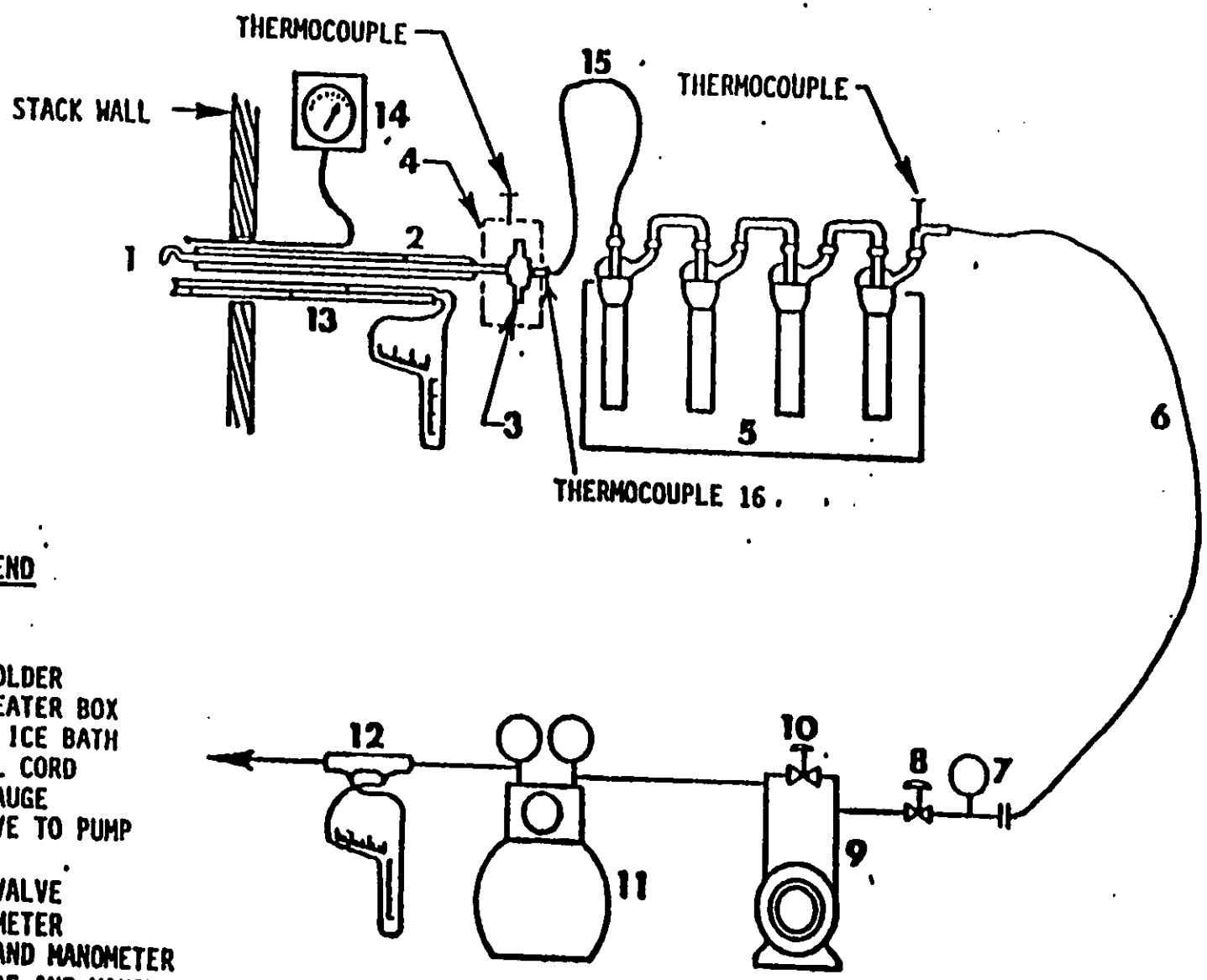
$$D_{eq} = \frac{2LW}{L+W} = \underline{36.}$$

LOCATION OF TRAVERSE POINTS IN CIRCULAR STACKS

Point Number On A Diameter	(Percent of stack diameter from inside wall to traverse point) Number Of Traverse Points On A Diameter 4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

TRAVERSE POINT LOCATIONS

No.	Distance From Wall	Nipple Size	Total Distance
1	3.5		
2	10.5		
3	17.5		
4	24.5		
5	31.5		
6			
7			
8			
9			
10			
11			
12			

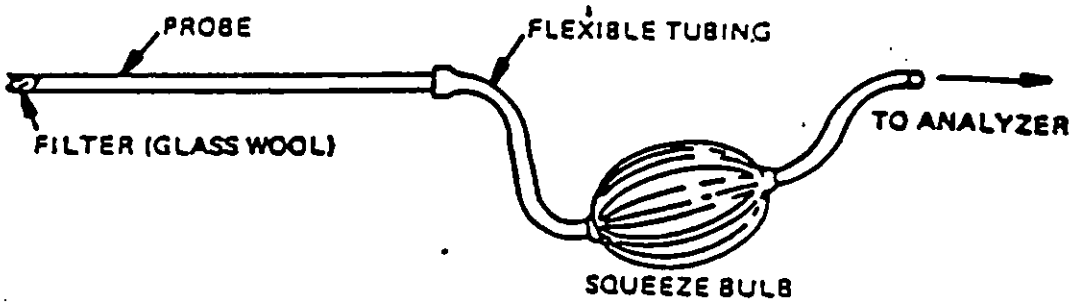


LEGEND

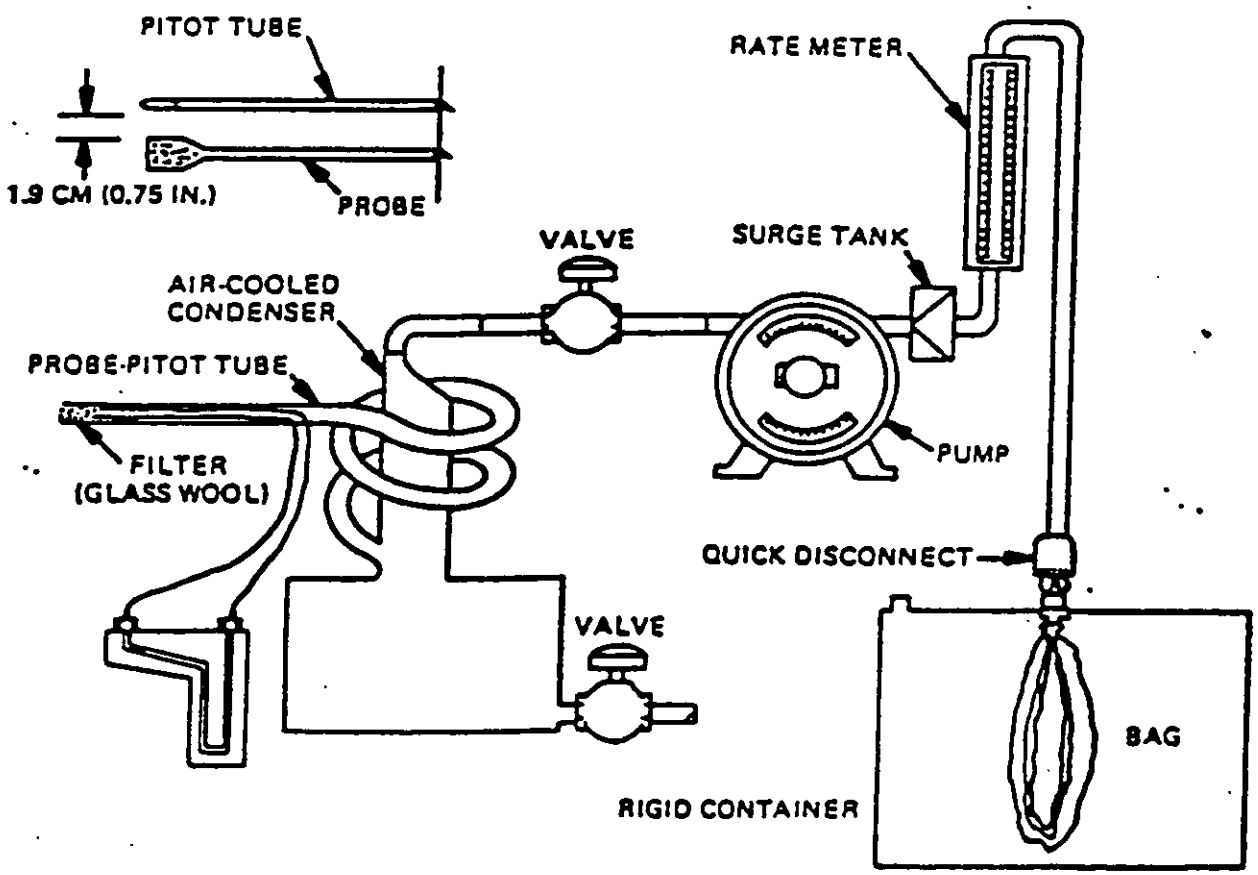
1 - NOZZLE
2 - PROBE
3 - FILTER HOLDER
4 - FILTER HEATER BOX
5 - IMPINGER ICE BATH
6 - UMBILICAL CORD
7 - VACUUM GAUGE
8 - MAIN VALVE TO PUMP
9 - PUMP
10 - BY-PASS VALVE
11 - DRY GAS METER
12 - ORIFICE AND MANOMETER
13 - PITOT TUBE AND MANOMETER
14 - STACK TEMPERATURE READOUT
15 - FLEXIBLE TUBING
16 - THERMOCOUPLE

FIGURE 5-1

EPA Modified Method 5 Sampling Train



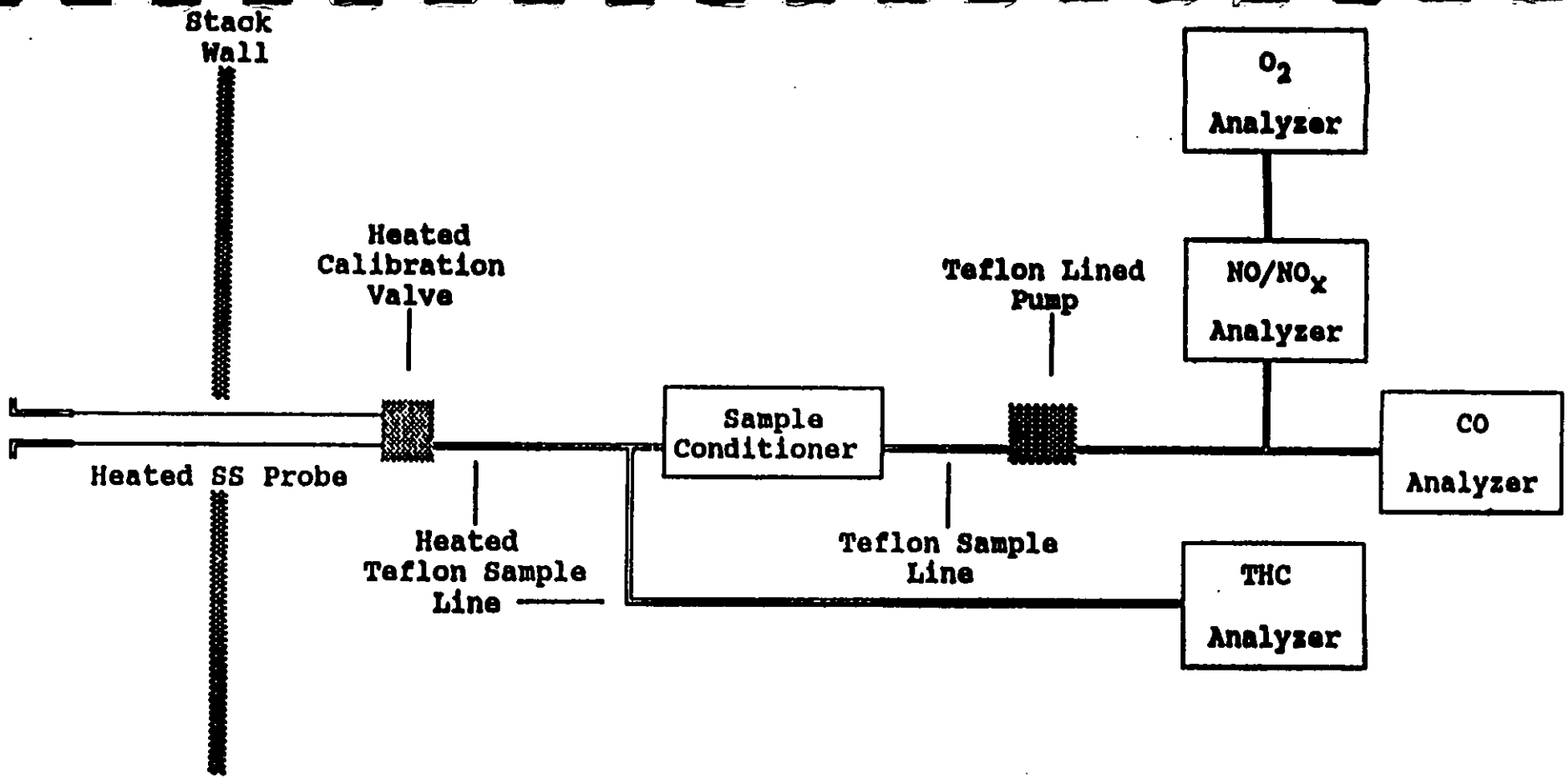
GRAB SAMPLE SETUP FOR MOLECULAR WEIGHT DETERMINATION



INTEGRATED SAMPLE SETUP FOR MOLECULAR WEIGHT DETERMINATION

FIGURE 5-2

EPA Method 3 Exhaust Gas Sampling Train



Continuous Emissions Monitoring Sampling Train

APPENDIX B

Results and Calculations

Summary of Particulate Emissions

Hot Mix, Inc.

Danby, Vermont

RUN NO.:	M5-1	M5-2	M5-3	Average
DATE:	10-25-95	10-25-95	10-25-95	
TIME:	0751-0903.5	1250-1403.5	1553-1706.5	
PBAR, (in. Hg)	29.30	29.30	29.30	29.30
STACK AREA, (Sq. Ft.)	9.23	9.23	9.23	9.23
NOZZLE DIA., (in.)	0.185	0.185	0.185	0.185
TOTAL TIME, (minutes)	62.5	62.5	62.5	62.5
CALIBRATION FACTOR	1.0020	1.0020	1.0020	1.0020
PITOT COEFFICIENT	0.84	0.84	0.84	0.84
SQ.RT.DELTA P, (in. H2O)	1.2052	1.2075	1.1005	1.1711
DELTA H, (in. H2O)	0.95	1.21	1.06	1.07
METER TEMP., (Degree F)	69	69	77	72
STATIC PRESS., (in. H2O)	0.78	1.30	1.35	1.14
STACK TEMP., (Degree F)	204	187	188	193
METER VOLUME, (cu.ft.)	35.217	39.456	37.086	37.253
TOTAL H2O VAPOR, (ml)	108	92	100	100
CO2 IN STACK GAS, (%)	3.6	3.5	3.8	3.6
O2 IN STACK GAS, (%)	15.8	16.6	16.2	16.2
CO IN STACK GAS, (%)	0.0	0.0	0	0
N2 IN STACK GAS, (%)	80.6	81.9	80.0	80.8
TOTAL CATCH, (mg)	22.60	18.00	9.90	16.83
METER VOL. STD, (cu.ft.)	34.57	38.76	35.88	36.40
H2O IN STACK GAS, (%)	12.86	10.06	11.64	11.52
STACK GAS MOLECULAR WT	27.77	28.60	27.95	28.10
EXCESS AIR, (%)	288.4	330.6	329.3	316.1
STACK GAS VEL., (FPM)	4686.72	4564.27	4211.11	4487.37
GAS FLOWRATE, (ACFM)	43258	42128	38869	41418
STP FLOWRATE, (DSCFM)	29411	30379	27497	29096
ISOKINETIC, (%)	93.1	101.0	103.3	99.1
CONC., (GR/ACF)	6.86E-03	5.17E-03	3.01E-03	5.01E-03
CONC., (GR/DSCF)	1.01E-02	7.17E-03	4.26E-03	7.17E-03
EMISSION RATE, (lb/hr)	2.54E+00	1.87E+00	1.00E+00	1.80E+00
CONC., (GR/DSCF@12%CO2)	3.3621E-02	2.4568E-02	1.34E-02	2.39E-02
CONC., (GR/DSCF@7%O2)	2.7490E-02	2.3163E-02	1.26E-02	2.11E-02

HOTMIX INC.
Baghouse Exhaust Stack
Danby, Vermont

TEST:	CEM – 1	CEM – 2	CEM – 3	AVERAGE
DATE:	10–25–95	10–25–95	10–25–95	
TIME:	0743–0843	1248–1348	1556–1656	
INPUTS				
O_2 Concentration (%), dry	15.8	16.6	16.2	16.2
NO_x Concentration (ppm), dry	66.5	55.5	54.7	58.9
CO Concentration (ppm), dry	0.0	0.0	0.0	
SO_2 Concentration (ppm), dry	0.0	0.0	0.0	
THC Conc. (ppm), wet, as C	0.0	0.0	0.0	
Ambient Temp, Dry (°F)	48	50	57	52
Ambient Temp, Wet (°F)	0	0	0	
Ambient Barometric Press (in.Hg)	29.30	29.30	29.30	29.30
Sat. Vapor Pressure @ Tamb, "Hg	0	1.253	1.3822	0.8784
Volumetric Flowrate (dscfm)	29411	30379	27497	29096
Moisture Content, Percent	12.86	10.06	11.64	11.5
Fuel Analysis				
% Carbon	85.07	85.07	85.07	85.07
% Hydrogen	12.78	12.78	12.78	12.78
% Nitrogen	0.02	0.02	0.02	0.02
% Sulfur	0.26	0.26	0.26	0.26
% Oxygen	1.87	1.87	1.87	1.9
Gross Calorific Value, (Btu/lb)	19370	19370	19370	19370
F–factor, (dscf/MMBtu), M19				
OUTPUTS				
F_d, (dscf/MMBtu) fuel analysis	9085	9085	9085	9085
Specific Humidity, (lb H_2O/lb dry air)	–0.0103	0.0165	0.0179	0.0080
ISO K–factor	0.7603	1.2579	1.2650	1.0944
NO_x (ppm@15%O_2)	76.9	76.2	68.7	73.9
NO_x (ppmISO@15%O_2)	58.5	95.8	86.9	80.4
NO_x (lb/hr)	14.04	12.10	10.79	12.31
NO_x (lb/MMBtu), O_2	0.296	0.293	0.264	0.284

EXAMPLE CALCULATIONS

1. NOx, ppm corrected to 15% O_2

$$= \text{ppm} \times \frac{20.9-15.0}{20.9-\%O_2}$$

$$= 66.5 \times \frac{5.9}{5.1}$$

$$= 76.9 \text{ ppm@15\%}O_2$$

2. ISO K–Factor

$$= (((Pref/Pobs)^{0.5}) \times (e^{(19(Hamb - 0.00633))}) \times ((288\ °K/Tamb)^{1.53}))$$

$$= 1.0105 \times 0.7287 \times 1.0325$$

$$= 0.7603$$

where,

Pref = reference atmospheric pressure, 29.92 inches of Mercury
Pobs = test ambient atmospheric pressure, inches of Mercury
e = transcendental constant, 2.718
Hamb = Hahumidity ratio in lb H_2O/lb air, determined from Ashrae Psychrometric Chart (Appendix)
Tamb = ambient temperature, degrees Kelvin (degrees Celsius + 273.15)

3. NOx, ppm@15%O_2 and ISO standard day conditions

$$= \text{ppm@15\%}O_2 \times \text{ISO K–Factor}$$

$$= 76.9 \times 0.7603$$

$$= 58.5 \text{ ppmISO@15\%}O_2$$

4. Conversion Factor (for the calculation of pounds per dry standard cubic feet)

$$= 2.205E-3 \text{ lb/g} \times 10^{-6}$$

22.414 l/g–mole x 3.531E–2 cf/l x (528.27°R/492.27°R)

= 2.5962E–09

where,

lb/g = pounds per gram
l/g–mole = liters per gram–mole
cf/l = cubic feet per liter
°R = degrees Rankine
MW = molecular weight in grams per gram–mole (g/g–mole)

5. NOx, pounds per dry standard cubic feet

=	ppm	x	MW	x	Conv. Fact.
=	66.5	x	46.0	x	2.596E–09
=	7.94E–06 lb/dscf				

6. NOx, pounds per hour

=	lb/dscf	x	dscfm	x	60
=	7.941E–06	x	29411	x	60
=	14.0 lb/hr				

7. F_d, (dscf/mmBTU)

$$= 10^6 \times \frac{(3.64\ \%H + 1.53\ \%C + 0.57\ \%S + 0.14\ \%N - 0.46\ \%O)}{GCV}$$

F_d = 9085

8. NOx, pounds per million Btu (F_d)

=	lb/dscf	x	F_d	x	$\frac{20.9}{20.9-\%O_2}$
=	7.941E–06	x	9085	x	4.1
=	0.296 lb/MMBtu				

EMISSION CALCULATION SYMBOLS

Test No.: M5-1
Date: 10-25-95
Location: Baghouse Exhaust Stack

INPUTS

P bar	=	29.30	-Barometric pressure, "Hg
As	=	9.23	-Cross sectional area of duct, square feet
Dn	=	0.185	-Nozzle Diameter, inches
T tot	=	63	-Total sampling time, minutes
Y	=	1.002	-Dry gas meter calibration factor
Cp	=	0.84	-Pitot tube coefficient, dimensionless
DP avg	=	1.205	-Average square root of velocity head, sqrt(" H2O)
DH avg	=	0.95	-Average orifice pressure drop, "H2O
Tm avg	=	69	-Average dry gas meter temperature, degrees F
Ps avg	=	0.78	-Average duct static pressure, "H2O
Ts avg	=	204	-Average Stack Temperature, degrees F
Vm tot	=	35.217	-Total meter sample volume, cubic feet
Vi+Vsg	=	108	-Total volume of liquid collected
% CO2	=	3.6	-Percent CO2 by volume (dry basis), %
% O2	=	15.8	-Percent O2 by volume (dry basis), %
% CO	=	0.0	-Percent CO by volume (dry basis), %
% N2	=	80.6	-Percent N2 by volume (dry basis), %
Mn	=	22.60	-Total particulate collected, mg

Fuel Input

%H	=	0	-Percent by weight of hydrogen in fuel
%C	=	0	-Percent by weight of carbon in fuel
%S	=	0	-Percent by weight of sulfur in fuel
%N	=	0	-Percent by weight of nitrogen in fuel
%O	=	0	-Percent by weight of oxygen in fuel
GCV	=	0	-Gross calorific value of fuel, BTU/lb

Tstd	=		-Standard Temperature, degrees F
Pstd	=		-Standard Pressure, "Hg
Lp	=		-Final Leak Rate of Sampling Train, cfm

1. Volume of Sample Measured By Dry Gas Meter, Corrected to Standard Conditions (Vm std)

$$= Vm\ total \times Y \times \frac{Tstd + 460}{Tm\ avg + 460} \times \frac{Pbar + DHavg/13.6}{P\ std}$$

$$= 35.217 \times 1.002 \times \frac{68 + 460}{69 + 460} \times \frac{29.3 + 0.95/13.6}{29.92}$$

Vmstd = 34.57 dscf

2. Moisture Content of Duct Gas (%H2O)

$$= \frac{0.04707 \times (Vi + Vsg)}{Vm\ std + 0.04707 \times (Vi + Vsg)}$$

$$= \frac{0.04707 \times 108}{34.573 + 0.04707 \times 108}$$

%H20 = 12.8 %

3. Molecular Weight of Stack Gas (MWs)

$$= \{(0.44 \times \%CO_2) + (0.28 \times \%CO) + (0.28 \times \%N_2) + (0.32 \times \%O_2)\} \times (1 - \frac{\%H_2O}{100}) + (0.18 \times \%H_2O)$$

$$= \{(0.44 \times 3.6) + (0.28 \times 0.0) + (0.28 \times 80.6) + (0.32 \times 15.8)\} \times (1 - \frac{12.8}{100}) + (0.18 \times 12.81)$$

MWs = 27.77 lb/lb mole

4. Average Duct Gas Density (Dst)

$$= 0.0458 \times MWs \times \frac{Pbar + (Ps\ avg / 13.6)}{Ts\ avg + 460}$$

$$= 0.0458 \times 27.771 \times \frac{29.3 + (0.78 / 13.6)}{204 + 460}$$

Dst = 0.056 lbs / cubic feet

5. Excess Air (EA)

$$= \frac{100 \times \%O_2 - (0.5 \times \%CO)}{0.264 \times \%N_2 - (\%O_2 - (0.5 \times \%CO))}$$

$$= \frac{100 \times 15.8 - (0.5 \times 0)}{0.264 \times 80.6 - (15.8 - (0.5 \times 0))}$$

EA = 288.4 %

6. Average Duct Velocity (Vs)

$$= 5129.4 \times Cp \times DP\ avg \times SQRT\ \{ \frac{Ts\ avg + 460}{(P\ bar + Ps\ avg / 13.6) \times MW} \}$$

$$= 5129.4 \times 0.84 \times 1.205 \times SQRT\ \{ \frac{204 + 460}{(P\ bar + 0.78 / 13.6) \times 27.7} \}$$

Vs = 4686 ft/min

7. Duct Volumetric Flow Rate, (Q)

$$= Vs \times As$$

$$= 4686.3 \times 9.23$$

Q = 43255 acfm

8. Duct Volumetric Flow Rate, Corrected to Dry Standard Conditions, (Qstd)

$$= Q \times \left(1 - \frac{\%H2O}{100}\right) \times \left(\frac{Tstd + 460}{Ts\ avg + 460}\right) \times \left(\frac{P\ bar + Ps\ avg/13.6}{P\ std}\right)$$

$$= 43254. \times \left(1 - \frac{12.818}{100}\right) \times \left(\frac{68 + 460}{204 + 460}\right) \times \left(\frac{29.3 + 0.78/13.6}{29.92}\right)$$

Qstd = 29422 dscfm

9. Isokinetic Factor, (I)

$$= \frac{5.67 \times (Ts\ avg + 460) \times Vm\ std}{\left(P\ bar + \frac{Ps\ avg}{13.6}\right) \times Vs \times T\ tot \times \left(1 - \frac{\%H2O}{100}\right) \times \left(\frac{Dn^2 \times 0.7854}{144}\right)}$$

$$= \frac{5.67 \times (204 + 460) \times 34.573}{\left(29.3 + \frac{0.78}{13.6}\right) \times 4686.3 \times 62.5 \times \left(1 - \frac{12.81}{100}\right) \times \left(\frac{0.03 \times 0.7854}{144}\right)}$$

I = 93.0 %

10. Actual Particulate Concentration, grains/acf, (C)

$$= \frac{0.01543 \times Mn \times (Tstd + 460) \times \left(P\ bar + \frac{Ps\ avg}{13.6}\right) \times \left(1 - \frac{\%H2O}{100}\right)}{Vm\ std \times (Ts\ avg + 460) \times P\ std}$$

$$= \frac{0.01543 \times 22.6 \times (68 + 460) \times \left(29.3 + \frac{0.78}{13.6}\right) \times \left(1 - \frac{12.81}{100}\right)}{34.573 \times (204 + 460) \times 29.92}$$

C = 0.00686 grains/acf

11. Particulate Concentration, Corrected to Dry Standard Conditions, (Cs)

$$= 0.01543 \times \frac{Mn}{Vm\ std}$$

$$= 0.01543 \times \frac{22.6}{34.573}$$

Cs = 0.01009 gr/dscf

12. Particulate Emission Rate, (ER)

$$= 0.008571 \times Cs \times Qstd$$

$$= 0.008571 \times 1E-02 \times 29422.$$

ER = 2.54358 lbs/hr

13. F – Factor (F)

$$= \frac{(1 \times 10^6) \times \{(3.64 \times \%H) + (1.53 \times \%C) + (0.57 \times \%S) + (0.14 \times \%N) - (0.46 \times \%O)}{GCV}$$

$$= \frac{(1 \times 10^6) \times \{(3.64 \times 0) + (1.53 \times 0) + (0.57 \times 0) + (0.14 \times 0) - (0.46 \times 0)}{GCV}$$

0

F = 9570 dscf/MM BTU

14. Particulate Emission, (E)

$$= 0.0001429 \times Cs \times F \times \left(\frac{20.9}{20.9 - \%O2}\right)$$

$$= 0.0001429 \times 0.0100 \times F \times \left(\frac{20.9}{20.9 - 15.8}\right)$$

E = 6E–02 lb/MM BTU

15. Particulate Concentration Corrected to Dry Standard Conditions and 12% CO2, (Cs@12%CO2)

$$= Cs \times \frac{12}{\%CO2}$$

$$= Cs \times \frac{12}{\%CO2}$$

Cs @12%CO2 = 0.03362 grains/dscf @ 12% CO2

16. Particulate Concentration Corrected to Dry Standard Conditions and 7% O2, (Cs@7%O2)

$$= Cs \times \frac{20.9 - 7}{\%O2}$$

$$= 0.0100 \times \frac{20.9 - 7}{15.8}$$

Cs @7%O2 = 0.02749 grains/dscf @ 7% O2

APPENDIX C

Raw Field Data and Calibration Sheets

EPA METHOD 2
VELOCITY TRAVERSE AND FLOWRATE DETERMINATION

Page 1 of

Date 12/24/95
Plant HOT MIX INC
Location BAGHOUSE EXHAUST

Stack Dimensions 35" x 38" Area ____ ft^2
Barometric Pressure, (Pb) ____ in. Hg.
Static Pressure, (Ps) .68 in. H2O
Stack Molecular Wt., (Ms) 28
Moisture Content 20 %

Pitot No. ____
Leak Check 0.3" in. H2O
Pitot Coefficient .84
Tester TEC/JSG

CCBA 00000

Point	Delta P inch H2O	Ts (°F)	Cyclonic Flow Angle	Other	Other
A 1	1.10	160	3		
2	1.15	162	3		
3	1.25	164	7		
4	1.45	164	2		
5	1.20	160	13		
B 1	1.25	161	5		
2	1.35	163	0		
3	1.60	164	10		
4	1.60	164	8		
5	1.25	163	10		
C 1	1.15	160	4		
2	1.40	162	5		
3	1.60	163	1		
4	1.60	163	1		
5	1.30	162	17		
D 1	1.20	~~1.30~~ 160	3		
2	1.30	162	4		
3	1.45	163	5		
4	1.55	163	2		
5	1.35	162	15		
E 1	1.10	160	7		
2	1.05	161	0		
3	1.20	162	0		
4	1.40	162	7		
5	1.15	160	0		
Average					

Absolute Gas Temperature = Ts + 460°R

Absolute Gas Pressure, Pg = Pb + Ps / 13.6

Gas Velocity, Vs = (85.49) x (Cp) x (Delta P^1/2)avg x SQRT [(Ts + 460) / (Pg x Ms)] — 4388 ft/sec

Actual Gas Flowrate, Qs = (Vs) x 60 x Area — 40499 ACFM

Standard Gas Flowrate, Qstd = (Qs) x (528 °R / Ts) x (Pg / 29.92) x (100 - %H2O / 100) — ____ DSCFM

000016

METHOD 5 FIELD DATA SHEET

RUN NO.	M5-1	MODULE NO.	1481	PITOT LEAK CHECK	STACK COND.
PROJ. NO.	814387	DGM, Y	1.0030	INITIAL ✓ 0 @ 4"	STATIC PRES. 0.78
DATE	10/25/95	MOD.ΔH@	1.92	FINAL	DUCT DIM. 35 x 38
FIRM NAME	HOT MIX INC	PROBE I.D.	401	TRAIN LEAK CHECK	DUCT AREA 9.23
PLANT LOC.	DANBY, VT	PITOT (Cp)	.84	INITIAL 0.006 ft³ @ 7" in. Hg.	%H2O 3.0
TESTER	TEC/ED/JJG	NOZ. DIA.	.185	FINAL 0.000 ft³ @ 3 in. Hg.	AMBIENT COND.
		FILTER I.D.	QAT - 4 - 087	SAMPLING TIME 62.5 min.	AMB. TEMP 48 °F
		TARE WT.		INITIAL 0751	BAR. PRES. 29.3 in. Hg.
				FINAL 0903.5	

TRAV. PT	SAMPLE TIME (min)	CLOCK TIME (hours)	VEL. ΔP	ORIFICE ΔH	DGM Tm in °F	DGM Tm out °F	STACK TEMP. Ts °F	GAS SAMPLE VOLUME Vm ft³	COND. OUTLET °F	HEATER BOX °F	PROBE TEMP. °F	FILTER OUTLET °F	PUMP VAC. in. Hg.	OTHER
	2.5	0751						610.000	<55					
1		0753.5	1.1	0.72	57	57	184	612.0		251	253	232	0	
2		0756	1.3	0.85	60	60	195	613.2		250	248	241	0	
3		0758.5	1.4	0.91	64	60	198	614.6		245	252	250	0	
4		0801	1.4	0.92	70	61	200	615.9		244	251	247	0	
5		0803.5	1.1	0.72	71	62	202	616.8		240	255	202	0	
1		0809.5	1.2	0.77	69	62	208	618.3		245	255	197	0	
2		0812	1.5	0.97	71	64	209	619.8		246	255	210	0	
3		0814.5	1.8	1.17	74	62	209	621.4		253	258	221	0	
4		0817	1.6	1.04	76	65	210	622.8		253	253	225	0	
5		0819.5	1.4	0.92	78	66	204	624.1		250	254	227	0	
1		0824.5	1.3	0.84	73	64	208	625.5		250	254	203	0	
2		0827	1.5	0.98	74	66	208	626.9		254	255	226	0	
3		0829.5	1.7	1.11	76	67	208	628.4		254	256	233	0	
4		0832	1.8	1.18	77	67	208	630.0		247	256	235	0	
5		0834.5	1.6	1.06	78	68	198	631.5		250	256	232	0	
1		0839	1.3	0.85	75	66	206	632.9		242	254	209	0	
2		0841.5	1.5	0.96	76	67	224	634.5		253	255	229	0	
3		0844	1.7	1.11	77	68	208	635.8		254	255	230	0	
4		0846.5	1.6	1.10	77	68	207	637.6		250	254	228	0	
5		0849	1.7	1.13	78	68	198	638.9		252	254	229	0	
1		0853.5	1.2	0.78	74	66	206	640.2		247	256	229	0	
2		0856	1.3	0.85	75	67	206	641.7		253	256	238	0	
3		0858.5	1.3	0.85	76	68	205	643.0		253	257	243	0	
4		0901	1.5	0.99	77	68	205	644.5		252	256	242	0	
5		0903.5	1.5	1.00	78	68	194	645.817		244	241	238	0	
	AVERAGE	ΔP	1.46	.95	69		204	TOTAL						
		SQRT (ΔP)	~~1.208~~ 1.2052					35.217						

822
836.5

REMARKS

Environmental Risk Limited

POST IMPS. WEIGHT
PRE IMPINGERS TARE
TOTAL IMP'S CONTENTS 100

POST S.G. WEIGHT 8.4
PRE S.G. TARE
TOTAL ~~S.G.~~ CONTENTS 108.4

ORSAT BAG ANALYSIS

	1	2	3	AVERAGE
CO2	3.6			
O2	15.8			
CO				
N2				

SAMPLE I.D. QAT - 4 - 087

DATE TAKEN

PROJECT#

ANALYSIS

0001017

EPA METHOD 5 FIELD DATA SHEET

RUN NO. M5-2
PROJ. NO. 814357
DATE 10/25/95
FIRM NAME HOT MIX INC
PLANT LOC. DANBY, VT
TESTER TGL/GB/JSW

MODULE NO. 1481
DGM, Y 1.0020
MOD ΔH@ 1.92
PROBE I.D. 401
PITOT (Cp) .84
NOZ. DIA. .187
FILTER I.D. QAT-4-088
TARE WT.

PITOT LEAK CHECK
INITIAL ✓
FINAL
TRAIN LEAK CHECK
INITIAL 0.002 ft³ @ 5 in. Hg.
FINAL 0.003 ft³ @ 4 in. Hg.
SAMPLING TIME 62.5 min.
INITIAL 1250
FINAL 1407.5

STACK COND.
STATIC PRES. 1.3
DUCT DIM. 35x38
DUCT AREA 9.23
%H2O 15
AMBIENT COND.
AMB. TEMP 50 °F
BAR. PRES. 29.3 in. Hg.

TRAV. PT	SAMPLE TIME (min)	CLOCK TIME (hours)	VEL. ΔP	ORIFICE ΔH	DGM Tm in °F	DGM Tm out °F	STACK TEMP. Ts °F	GAS SAMPLE VOLUME Vm ft³	COND. OUTLET °F	HEATER BOX °F	PROBE TEMP. °F	FILTER OUTLET °F	PUMP VAC. in. Hg.	OTHER
	2.5	1250						646.500	<55					
1		1252.5	1.1	0.91	54	54	169	648.0	54	244	259	207	0	
2		1255	1.2	0.99	55	55	172	649.5		244	259	210	0	
3		1257.5	1.3	1.07	57	55	174	650.9		239	259	252	0	
4		1300	1.4	1.15	60	55	174	652.3		243	259	252	0	
5		1302.5	1.4	1.17	63	56	169	653.9		247	258	250	0	
1		1307	1.2	1.00	65	57	175	655.5		244	251	236	0	
2		1309.5	1.3	1.08	67	58	178	656.9		251	258	259	0	
3		1312	1.5	1.24	70	59	180	658.6		249	255	260	0	
4		1314.5	1.6	1.33	73	60	180	660.2		244	257	259	0	
5		1317	1.4	1.18	75	62	176	661.7		241	255	257	0	
1		1323	1.2	0.99	70	62	185	663.2		244	254	~~208~~ 245	0	
2		1325.5	1.6	1.32	74	64	190	664.8		248	255	254	0	
3		1328	1.9	1.56	76	65	193	666.6		250	257	261	0	
4		1330.5	1.9	1.56	79	66	197	668.4		248	257	262	0	
5		1333	1.5	1.27	82	77	187	669.9		248	256	261	0	
1		1338.5	1.3	1.06	76	66	202	671.4		246	255	252	0	
2		1341	1.6	1.30	79	68	202	672.8		255	254	266	0	
3		1343.5	1.8	1.47	80	69	203	674.9		249	255	269	0	
4		1346	1.9	1.56	82	70	200	676.8		252	253	268	0	
5		1348.5	1.8	1.49	85	70	198	678.3		249	256	267	0	
1		1353.5	1.1	0.90	80	69	198	679.7		244	254	244	0	
2		1356	1.3	1.07	80	70	198	681.3		251	257	260	0	
3		1358.5	1.6	1.32	81	71	198	682.9		248	256	261	0	
4		1401	1.5	1.24	82	72	196	684.5		248	255	260	0	
5		1403.5	1.3	1.09	83	72	189	685.956		250	256	258	0	
	AVERAGE	ΔP	1.47					TOTAL						
		SQRT (ΔP)	1.2075	1.21	69		187	39.456						

30.700

REMARKS

Environmental Risk Limited

POST IMPS. WEIGHT
PRE IMPINGERS TARE
TOTAL IMP'S CONTENTS 84

POST S.G. WEIGHT 8.1
PRE S.G. TARE
TOTAL ~~S.G.~~ CONTENTS 92.1

ORSAT BAG ANALYSIS

	1	2	3	AVERAGE
CO2	3.5			
O2	16.6			
CO				
N2				

SAMPLE I.D. QAT-4-088
DATE TAKEN
PROJECT#
ANALYSIS

0000018

1304.5
1320.5
1336 1351

[redacted] EPA [redacted] HO [redacted] E [redacted] A SI [redacted]

RUN NO.	M5-3	MODULE NO.	1481	PITOT LEAK CHECK	STACK COND.
PROJ. NO.	814389	DGM, Y	1.0070	INITIAL ✓	STATIC PRES. ~~[illegible]~~ + 1.35
DATE	10/25/95	MOD.ΔH@	1.72	FINAL	DUCT DIM. 35x38
FIRM NAME	HOT MIX INC	PROBE I.D.	401	TRAIN LEAK CHECK	DUCT AREA 9.23
PLANT LOC.	DANBY, VT	PITOT (Cp)	.84	INITIAL 0.00 ft³ @ 5 in. Hg.	%H2O 10
TESTER	TEC/ED/JOC	NOZ. DIA.	.185	FINAL 0.003 ft³ @ 4 in. Hg.	AMBIENT COND.
		FILTER I.D.	QAT-4-089	SAMPLING TIME 62.5 min.	AMB. TEMP 57 [redacted] °F
		TARE WT.		INITIAL 1553	BAR. PRES. 29.7 in. Hg.
				FINAL 1706.5	

TRAV. PT	SAMPLE TIME (min)	CLOCK TIME (hours)	VEL. ΔP	ORIFICE ΔH	DGM Tm in °F	DGM Tm out °F	STACK TEMP. Ts °F	GAS SAMPLE VOLUME Vm ft³	COND. OUTLET °F	HEATER BOX °F	PROBE TEMP. °F	FILTER OUTLET °F	PUMP VAC. in. Hg.	OTHER
	2.5	1553						687.000	<55					
1		1555.5	1.1	0.95	67	67	181	688.6		250	264	193	0	
2		1558	1.2	1.04	71	71	186	689.9		258	264	242	0	
3		1600.5	1.2	1.04	76	72	187	691.4		251	260	245	0	
4		1603	1.3	1.13	80	72	188	692.8		243	260	248	0	
5		1605.5	1.1	0.96	82	72	185	694.3		246	252	241	0	
1		1610.5	1.1	0.95	78	70	192	695.7		243	251	225	0	
2		1613	1.2	1.04	81	72	192	697.2		251	252	241	0	
3		1615.5	1.5	1.30	82	73	192	698.8		248	252	244	0	
4		1618	1.4	1.22	84	74	192	700.4		244	251	242	0	
5		1620.5	1.2	1.05	86	74	188	701.9		246	252	238	0	
1		1626	1.1	0.95	80	72	191	703.4		240	251	208	0	
2		1628.5	1.2	1.04	82	73	191	704.8		256	252	237	0	
3		1631	1.5	1.30	82	74	191	706.4		248	251	239	0	
4		1633.5	1.4	1.22	84	74	190	708.0		241	251	238	0	
5		1636	1.2	1.06	85	74	185	709.6		248	253	238	0	
1		1641.5	1.05	0.91	80	71	188	710.9		242	250	221	0	
2		1644	1.1	0.96	82	74	188	712.3		256	252	235	0	
3		1646.5	1.4	1.22	83	74	189	713.9		249	252	240	0	
4		1649	1.4	1.22	83	74	188	715.5		245	252	246	0	
5		1651.5	1.3	1.15	86	75	185	717.0		250	252	247	0	
1		1656.5	0.94	0.82	81	72	187	718.3		245	251	222	0	
2		1659	1.0	0.87	82	74	187	719.7		259	251	243	0	
3		1701.5	1.1	0.96	82	74	187	721.1		252	252	247	0	
4		1704	1.2	1.05	83	74	187	722.7		248	252	249	0	
5		1706.5	1.2	1.06	85	75	185	724.086		249	250	252	0	
	AVERAGE	ΔP	1.22	1.06	77		188	TOTAL 37.086						
		SQRT (ΔP)	1.1005											

27486 REMARKS

87.85

POST IMPS. WEIGHT
PRE IMPINGERS TARE
TOTAL IMP'S CONTENTS 92

POST S.G. WEIGHT 8.4
PRE S.G. TARE
TOTAL S.G. CONTENTS 100.4

1623.5
1639
1654

ORSAT BAG ANALYSIS

	1	2	3	AVERAGE
CO2	3.8			
O2	16.2			
CO				
N2				

Environmental Risk Limited

SAMPLE I.D. QAT-4-089

DATE TAKEN

PROJECT#

ANALYSIS

000019

VISIBLE EMISSIONS OBSERVATION FORM

RUN NO: M9-3 PAGE 3 OF 3

COMPANY NAME: HOT MIX INC
STREET ADDRESS: RT 7
CITY/STATE/ZIP: NANTY, UT
KEY CONTACT: TODD WINLEY
PHONE NO: 801 293-5343

SOURCE ID NO:
SOURCE DESCRIPTION: ASPHALT PLANT

PROCESS EQUIP: DRYER EXHAUST
OPERATING MODE: APPROX 180 TPH
CONTROL EQUIP: BAGHOUSE

DESCRIPTION OF EMISSION PT: CLEAR

HEIGHT ABOVE GROUD LEVEL: 30'
DISTANCE FROM OBSERVER: 100'
DIRECTION FROM OBSERVER: S

DESCRIPTION OF EMISSIONS: CLEAR

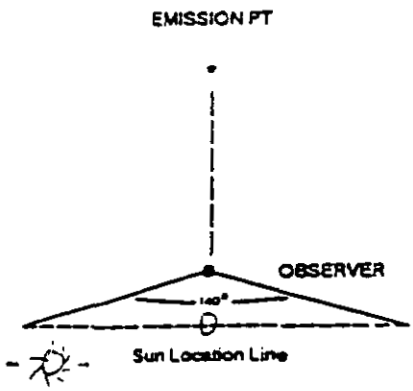
DESCRIPTION OF SKY CONDITIONS: CLOUDY

AMBIENT TEMPERATURE: 50
AMBIENT HUMIDITY:
BAROMETRIC PRESSURE: 29.30
WIND SPEED/DIRECTION: 10 MPH W

SKETCH

LEGEND
PLUME -
SUN >O<
WIND --->

NORTH ARROW



ADDITIONAL COMMENTS:

OBSERVER'S NAME: JOHN CHIMMIK
SIGNATURE: [signature] DATE: 10/25/95
ORGANIZATION: ERL
CERTIFIED BY: MEIER DATE: 10/95

DATE: 10/25/95 START: 1554 END: 1654

min/sec	0	15	30	45	COMMENTS
1	0	0	5	0	
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45	0	0	0	0	
46	5	5	0	0	
47	0	0	0	0	
48	0	0	0	0	
49	0	0	0	0	
50	0	0	0	5	
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57	0	0	0	0	
58	0	0	0	0	
59	0	0	0	5	
60	0	0	0	0	

VISIBLE EMISSIONS OBSERVATION FORM

RUN NO: M9-1 PAGE 1 OF 3

COMPANY NAME: HOT MIX INC
STREET ADDRESS: RT 7
CITY/STATE/ZIP: DANBY, VT
KEY CONTACT: TODD WIDLEY
PHONE NO: 802 773-5245

SOURCE ID NO:
SOURCE DESCRIPTION: ASPHALT PLANT

PROCESS EQUIP: BAGHOUSE EXHAUST
OPERATING MODE: APPROX 180 TPH
CONTROL EQUIP: BAGHOUSE

DESCRIPTION OF EMISSION PT: Light, light brec after steam left
HEIGHT ABOVE GROUD LEVEL: 30'
DISTANCE FROM OBSERVER: 100'
DIRECTION FROM OBSERVER: S

DESCRIPTION OF EMISSIONS: CLEAR

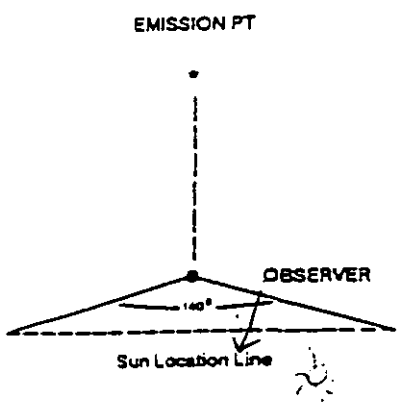
DESCRIPTION OF SKY CONDITIONS: Partly Cloudy

AMBIENT TEMPERATURE: 50
AMBIENT HUMIDITY:
BAROMETRIC PRESSURE: 29.30
WIND SPEED/DIRECTION: W x 10-15mph

SKETCH

LEGEND
PLUME ~
SUN >O<
WIND --->

NORTH ARROW



ADDITIONAL COMMENTS:
Very clean, only steam for the most part.

OBSERVER'S NAME: JOHN CAMMINE
SIGNATURE: DATE: 10/25/95
ORGANIZATION: CRL
CERTIFIED BY: ME DGF DATE: 10/95

DATE: 10/25/95 START: 0745 END: 0845

min/sec	0	15	30	45	COMMENTS
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
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6	0	0	0	0	
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29	0	0	0	0	
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43	0	5	0	5	
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56	5	5	0	0	
57	5	5	0	0	
58	0	0	5	0	
59	5	0	0	5	
60	0	0	0	0	

VISIBLE EMISSIONS OBSERVATION FORM

RUN NO: M9-3 1244 PAGE 2 OF 3

COMPANY NAME: HOT MIX INC
STREET ADDRESS: RT 7
CITY/STATE/ZIP: DANBY, VT
KEY CONTACT: TOM MONEY
PHONE NO: 802 297-5243

SOURCE ID NO:
SOURCE DESCRIPTION: ASPHALT PLANT

PROCESS EQUIP: BAGHOUSE EXHAUST
OPERATING MODE: APPROX 180 TPH
CONTROL EQUIP: BAGHOUSE

DESCRIPTION OF EMISSION PT:

HEIGHT ABOVE GROUD LEVEL: 30'
DISTANCE FROM OBSERVER: 100'
DIRECTION FROM OBSERVER: S

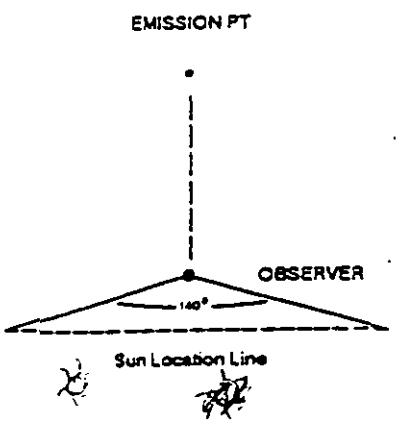
DESCRIPTION OF EMISSIONS: Pretty clear

DESCRIPTION OF SKY CONDITIONS: PARTLY CLOUDY TO MOSTLY CLOUDY
AMBIENT TEMPERATURE: 50 windy
AMBIENT HUMIDITY:
BAROMETRIC PRESSURE: 29.30
WIND SPEED/DIRECTION: W, 10-15 MPH

SKETCH

LEGEND
PLUME -
SUN >O<
WIND --->

NORTH ARROW



ADDITIONAL COMMENTS:

OBSERVER'S NAME: JOHN CUMMINE
SIGNATURE: [signature] DATE: 10/25/95
ORGANIZATION: ERC
CERTIFIED BY: MEDEY DATE: 10/95

DATE: 10/25/95 START: 1225 END: 1344

min/sec	0	15	30	45	COMMENTS
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7	0	0	0	0	
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50	0	0	5	10	
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52	0	5	5	0	
53	0	0	5	5	
54	0	0	0	0	
55	0	0	5	0	
56	0	0	5	0	
57	5	0	0	0	
58	0	0	0	0	
59	0	0	5	0	
60	0	0	0	0	

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY CONTROL

Certifies That

JOHN GAMMIE

Successfully Completed

INITIAL VISIBLE EMISSION OBSERVER TRAINING

during October 18 and 19, 1995
and is qualified to perform visible emission observations
pursuant to EPA Method 9.

Louis Fontaine, Instructor

Keep for permanent records. Certification must be renewed every six months.

000023

ANALYZER CALIBRATION DATA

Plant: HOT MIX

Date: 10-24-95

Location: DANBY, VT.

Operator: EMB

O_2 Analyzer ID: SERVOMEX 570A O_2 span:	Cylinder Value	Analyzer Response	Absolute Value	% Span (<2%)
O_2 zero	N_2			
O_2 mid (40% to 60% of span)				
O_2 high (80% to 100% of span)	21.2	21.1		
CO_2 Analyzer ID: CO_2 span:				
CO_2 zero				
CO_2 mid (40% to 60% of span)				
CO_2 high (80% to 100% of span)				
SO_2 Analyzer ID: SO_2 span:	SO_2 Span must be < or = to Emission Limit / 30%			
SO_2 zero				
SO_2 mid (40% to 60% of span)				
SO_2 high (80% to 100% of span)				
NO Analyzer ID: BECKMAN MODEL 955 NO span:	NO Span must be < or = to Emission Limit / 30%			
NO zero	N_2			
NO mid (40% to 60% of span)				
NO high (80% to 100% of span)	99.2			
CO Analyzer ID: CO span:	CO Span must be < or = to 1.5 x Emission Limit			
CO zero				
CO low (30% of span)				
CO mid (60% of span)				
CO high (span)				

Analyzer Calibration Error Calculation

$$\frac{\text{Cylinder Value} - \text{Analyzer Response}}{\text{Span}} \times 100$$

anlz_cal

ANALYZER CALIBRATION DATA

Plant: HOT MIX

Location: DANBY, VT.

Date: 10-25-95

Operator: EMB

O_2 Analyzer ID: SERVOMEX 570 A O_2 span:	Cylinder Value	Analyzer Response	Absolute Value	% Span (<2%)
O_2 zero	N_2	0.1		
O_2 mid (40% to 60% of span)	10.6	10.7		
O_2 high (80% to 100% of span)	21.2	21.2		
CO_2 Analyzer ID: CO_2 span:				
CO_2 zero				
CO_2 mid (40% to 60% of span)				
CO_2 high (80% to 100% of span)				
SO_2 Analyzer ID: SO_2 span:	SO_2 Span must be < or = to Emission Limit / 30%			
SO_2 zero				
SO_2 mid (40% to 60% of span)				
SO_2 high (80% to 100% of span)				
NO Analyzer ID: NO span:	NO Span must be < or = to Emission Limit / 30%			
NO zero	N_2	~~0.4~~ -0.4		
NO mid (40% to 60% of span)	50.8	50.6		
NO high (80% to 100% of span)	99.2	99.5		
CO Analyzer ID: CO span:	CO Span must be < or = to 1.5 x Emission Limit			
CO zero				
CO low (30% of span)				
CO mid (60% of span)				
CO high (span)				

Analyzer Calibration Error Calculation

$$\frac{\text{Cylinder Value} - \text{Analyzer Response}}{\text{Span}} \times 100$$

anlz_cal

EPA Method 6C/10 Worksheet (Page 1 0f 2)

Plant: HOT MIX
Date: 10-25-95
Project No.:

FILE: HMT1
FILE: HMT2
FILE: HMT3

Time of Run No. 1: 074300 – 084304
Time of Run No. 2: 124819 – 134819
Time of Run No. 3: 155619 – 165625

Oxygen

Span(DAS full scale) 25
Anal Cal Rs (zero) 0.1
Anal Cal Rs (upscale) 10.7

Run No.:	1	2	3
Coi:	0.2	0.1	0.1
Cof:	0.1	0.1	0.1
Cmi:	10.7	10.7	10.7
Cmf:	10.7	10.7	10.7
Cma:	10.6	10.6	10.6
C:	15.8	16.6	16.2
Cgas:			

Oxides of Nitrogen

Span(DAS full scale) 100
Anal Cal Rs (zero) -0.4
Anal Cal Rs (upscale) 50.6

1	2	3
-0.1	0.2	0.8
0.2	~~0.1~~ 0.8	1.2
49.7	50.7	50.5
50.7	50.5	50.1
50.8	50.8	50.8
66.5	55.5	54.7

Carbon Monoxide

Span(Highest Cal Gas)
Anal Cal Rs (zero)
Anal Cal Rs (upscale)

Run No.:	1	2	3
Coi:			
Cof:			
Cmi:			
Cmf:			
Cma:			
C:			
Cgas:			

Sulfer Dioxide

Span(DAS full scale)
Anal Cal Rs (zero)
Anal Cal Rs (upscale)

1	2	3

Nomenclature:

Coi	initial system calibration for zero gas.
Cof	final system calibration for zero gas.
Cmi	initial system calibration for upscale gas.
Cmf	final system calibration for upscale gas.
Cma	actual upscale calibration gas concentration.
C	average actual concentration (as measured).
Cgas	average effluent gas concentration corrected per Eq. 6C–1.
Upscale gas	Either the mid–range or high–range gas, whichever most closely approximates the effluent gas.

Equation 6C–1:

$$Cgas = (C - Co) \times \frac{Cma}{(Cm - Co)}$$

EPA METHOD 3
ORSAT EQUIPMENT CHECK, MOLECULAR WEIGHT
DETERMINATION, AND ANALYSIS VALIDATION

FIRM HOT MIX

TEST NUMBER RUN #1

SAMPLING TIME (24-hr CLOCK) 0931

SAMPLING LOCATION

SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) BAG

SAMPLE MOISTURE CONTENT %

AMBIENT TEMPERATURE

TESTER/DATE EMB / 10-25-95

An ORSAT analysis of boiler exhaust gases is considered valid if the F_o calculated from the ORSAT analysis is within ±5% of the F_o calculated from fuel analysis. If fuel analysis data is not available, the F_o calculated from the ORSAT analysis must be within ±5% of the average published F_o for a given fuel as follows:

FUEL	AVE. F_o	±5% ACCEPTANCE LIMITS
Anthracite	1.070	1.016 - 1.124
Bituminous	1.140	1.083 - 1.197
Lignite	1.076	1.022 - 1.130
Oil	1.346	1.279 - 1.413
Natural Gas	1.749	1.662 - 1.836
Propane	1.510	1.434 - 1.586
Butane	1.479	1.405 - 1.553
Wood	1.050	0.9975- 1.102
Bark	1.056	1.003 - 1.109

PRE-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: PRE-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
PRE-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.6 - 21.2%

MOLECULAR WEIGHT DETERMINATION

GAS \ RUN	1 ACTUAL READING (ml)	1 %	2 ACTUAL READING (ml)	2 %	3 ACTUAL READING (ml)	3 %	AVERAGE %	MULTIPLIER	CONTRIBUTION TO DRY MOLECULAR WEIGHT OF STACK GAS M_{di} lb/lb-mole
CO_2	3.6	3.6	3.4	3.4	3.5	3.5	3.5	44/100	
O_2								32/100	
CO								28/100	
N_2								28/100	

$$M_w = \frac{M_d\,(100 - \%\,H_2O) + 18\,(\%\,H_2O)}{100} = _____ \qquad M_d = \sum M_{di} = _____$$

FOR F-FACTOR CALCULATIONS ALL ORSAT ANALYSES MUST BE RUN IN TRIPLICATE AND MUST AGREE WITH EACH OTHER TO WITHIN 0.3% BY VOLUME

POST-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: POST-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
POST-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.5 - 21.2%

ORSAT ANALYSIS VALIDATION

Average Published F_o = _____

Fuel Analysis F_o = $\frac{20.9\,(1.53\,\%C + 3.54\,\%H + 0.57\,\%S - 0.14\,\%N - 0.46\,\%O)}{0.321\,\%C\,(100)}$ = _____

ORSAT Analysis F_o* = $\frac{20.9 - \%\,O_2}{\%\,CO_2}$ = _____, Acceptance Limits are shown above.

*Assuming CO concentration is neglible (< 1000 ppm)

000027

Revision 3 2/8/93

EPA METHOD 3
ORSAT EQUIPMENT CHECK, MOLECULAR WEIGHT
DETERMINATION, AND ANALYSIS VALIDATION

FIRM HOT MIX

TEST NUMBER RUN # 2

SAMPLING TIME (24-hr CLOCK) 1430

SAMPLING LOCATION

SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) BAG

SAMPLE MOISTURE CONTENT ____ %

AMBIENT TEMPERATURE

TESTER/DATE EMB / 10-25-95

An ORSAT analysis of boiler exhaust gases is considered valid if the F_o calculated from the ORSAT analysis is within ±5% of the F_o calculated from fuel analysis. If fuel analysis data is not available, the F_o calculated from the ORSAT analysis must be within ±5% of the average published F_o for a given fuel as follows:

FUEL	AVE. F_o	±5% ACCEPTANCE LIMITS
Anthracite	1.070	1.016 - 1.124
Bituminous	1.140	1.083 - 1.197
Lignite	1.076	1.022 - 1.130
Oil	1.346	1.279 - 1.413
Natural Gas	1.749	1.662 - 1.836
Propane	1.510	1.434 - 1.586
Butane	1.479	1.405 - 1.553
Wood	1.050	0.9975- 1.102
Bark	1.056	1.003 - 1.109

PRE-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: PRE-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
PRE-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.6 - 21.2%

MOLECULAR WEIGHT DETERMINATION

GAS \ RUN	1 ACTUAL READING (ml)	1 %	2 ACTUAL READING (ml)	2 %	3 ACTUAL READING (ml)	3 %	AVERAGE %	MULTIPLIER	CONTRIBUTION TO DRY MOLECULAR WEIGHT OF STACK GAS M_{di} lb/lb-mole
CO_2	3.5	3.5	3.4	3.4	3.5	3.5	3.5	44/100	
O_2								32/100	
CO								28/100	
N_2								28/100	

$$M_w = \frac{M_d\,(100 - \%\,H_2O) + 18\,(\%\,H_2O)}{100} = _____ \qquad M_d = \sum M_{di} = _____$$

FOR F-FACTOR CALCULATIONS ALL ORSAT ANALYSES MUST BE RUN IN TRIPLICATE AND MUST AGREE WITH EACH OTHER TO WITHIN 0.3% BY VOLUME

POST-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: POST-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
POST-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.5 - 21.2%

ORSAT ANALYSIS VALIDATION

Average Published F_o = _____

Fuel Analysis F_o = $\frac{20.9\,(1.53\,\%C + 3.64\,\%H + 0.57\,\%S + 0.14\,\%N - 0.46\,\%O)}{0.321\,\%C\,(100)}$ = _____

ORSAT Analysis F_o* = $\frac{20.9 - \%\,O_2}{\%\,CO_2}$ = _____, Acceptance Limits are shown above.

*Assuming CO concentration is neglible (< 1000 ppm)

000028

EPA METHOD 3
ORSAT EQUIPMENT CHECK, MOLECULAR WEIGHT
DETERMINATION, AND ANALYSIS VALIDATION

FIRM HOT MIX

TEST NUMBER

SAMPLING TIME (24-hr CLOCK) 1736

SAMPLING LOCATION

SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) BAG

SAMPLE MOISTURE CONTENT ____ %

AMBIENT TEMPERATURE

TESTER/DATE EMB 10-25-

An ORSAT analysis of boiler exhaust gases is considered valid if the F_o calculated from the ORSAT analysis is within ±5% of the F_o calculated from fuel analysis. If fuel analysis data is not available, the F_o calculated from the ORSAT analysis must be within ±5% of the average published F_o for a given fuel as follows:

FUEL	AVE. F_o	±5% ACCEPTANCE LIMITS
Anthracite	1.070	1.016 - 1.124
Bituminous	1.140	1.083 - 1.197
Lignite	1.076	1.022 - 1.130
Oil	1.346	1.279 - 1.413
Natural Gas	1.749	1.662 - 1.836
Propane	1.510	1.434 - 1.586
Butane	1.479	1.405 - 1.553
Wood	1.050	0.9975- 1.102
Bark	1.056	1.003 - 1.109

PRE-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: PRE-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
PRE-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.6 - 21.2%

MOLECULAR WEIGHT DETERMINATION

GAS \ RUN	1 ACTUAL READING (ml)	1 %	2 ACTUAL READING (ml)	2 %	3 ACTUAL READING (ml)	3 %	AVERAGE %	MULTIPLIER	CONTRIBUTION TO DRY MOLECULAR WEIGHT OF STACK GAS M_{di} lb/lb-mole
CO_2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	44/100	
O_2								32/100	
CO								28/100	
N_2								28/100	

$$M_w = \frac{M_d\ (100 - \%\ H_2O) + 18\ (\%\ H_2O)}{100} = _____ \qquad M_d = \sum M_{di} = _____$$

FOR F-FACTOR CALCULATIONS ALL ORSAT ANALYSES MUST BE RUN IN TRIPLICATE AND MUST AGREE WITH EACH OTHER TO WITHIN 0.3% BY VOLUME

POST-TEST ORSAT EQUIPMENT CHECK

ORSAT CHECK: POST-TEST LEAK CHECK: INITIAL ____ ml 0 min.
ACCEPTANCE LIMIT: LEAK < 0.2 ml/5 min. FINAL ____ ml 5 min.
POST-TEST AMBIENT O_2 = ____%; ACCEPTANCE LIMITS OF O_2 = 20.6 - 21.2%

ORSAT ANALYSIS VALIDATION

Average Published F_o = _____

Fuel Analysis F_o = $\frac{20.9\ /1.53\ \%C + 3.54\ \%H + 0.57\ \%S + 0.14\ \%N - 0.46\ \%O)}{0.321\ \%C\ (100)}$ = _____

ORSAT Analysis F_o* = $\frac{20.9 - \%\ O_2}{\%\ CO_2}$ = _____, Acceptance Limits are shown above.

*Assuming CO concentration is neglible (< 1000 ppm)

000029

Revision 3 2/8/93

Method 5 ...odule Calibration

Date: 5/26/95
Bar. Ps., (Pb): 29.95 in. Hg

Module #: 1481
Std. Meter: 527797

Pre-test / Post-test

Module Orifice Setting (in. H2O)	Standard Meter Volume Vs (ft³)	Standard Meter Factor Ys	Standard Meter Temp. ts (°F)	Standard Meter Pressure Ps (in. H20)	Module Meter Volume Vm (ft³)	Module Meter Temperatures tmi (°F)	Module Meter Temperatures tmo (°F)	Module Meter Time @ (min)	Y	ΔHa (in. H2O)	Module Flowrate Q (SCFM)	OF
0.5	5.001	1.001	75	-0.1	5.005	86	78	13.03	1.0118	1.89	0.3796	3.0081
1	5.002	1.001	75	-0.1	5.073	87	78	9.06	.9981	1.83	0.5456	4.2560
1.5	10.004	1.001	75	-0.1	10.144	90	80	15.45	1.0017	1.98	0.6399	5.2245
2	10.006	1.0017	75	-0.1	10.186	93	81	13.41	1.0009	1.98	0.7379	6.0438
3	10.002	1.0012	75	-0.1	10.214	95	82	10.78	.9976	1.92	0.9171	7.4123
								Averages	1.0020	1.92		

Check

calc		
avg		

For check, use the average ΔHa for ΔH

$$Y = \frac{Vs\left(Pb + \frac{Ps}{13.6}\right)(Tm + 460)\,Ys}{Vm\left(Pb + \frac{\Delta H}{13.6}\right)(Ts + 460)}$$

$$\Delta Ha = \frac{(0.0317)\ \Delta H}{Pb\ (tm + 460)} \quad \frac{[(ts + 460)\ @\ ]^2}{[\ Vs\ \ Ys\ ]^2}$$

$$Q = Y\ (17.64)\ Vm\ \frac{\left(Pb + \frac{\Delta H}{13.6}\right)}{(tm + 460)\ @}$$

$$\text{Orifice factor} = \frac{[(Ts + 460)\ \Delta H\ ]^{1/2}}{[\ Pb\ ]^{1/2}}$$

Correlation Line Equation
Q = m (OF) + b

Acceptance Criteria:
Each Y must be 1.00 ± 0.01
Average ΔHa must be 1.84 ± 0.25
Each ΔHa must be within 0.15 of the average ΔHa

tmi °F	tmo °F	Reference thermometer °F	Module Leak Check ft³	Module Leak Check in. Hg.

Heater Box Love Control OK: ✓
Probe Heater Love Control OK: ✓
Module Cleaned: ✓
Pitot Tube Manometer Leak Check: ✓

Calibrated and Checked by: TEC Date: 5/26/95

Reviewed by: _____ Date: _____

000030

Method 5 Module Calibration

Date: 10-9-95
Bar. Ps., (Pb): 30.00 in. Hg

Module #: 1481
Std. Meter: 570415

Pre-test / Post-test

Module Orifice Setting (in. H2O)	Standard Meter Volume Vs (ft³)	Standard Meter Factor Ys	Standard Meter Temp. ts (°F)	Standard Meter Pressure Ps (in. H20)	Module Meter Volume Vm (ft³)	Module Meter Temperatures tmi (°F)	Module Meter Temperatures tmo (°F)	Module Meter Time @ (min)	Y	ΔHa (in. H2O)	Module Flowrate Q (SCFM)	OF
3.0	5.006	1.0068	65	-0.1	5.283	90	70	5.53	.9939	1.95	.9185	7.3485
3.0	6.004	1.0068	65	-0.1	6.356	92	72	6.55	.9744	1.89	.9300	7.3621
3.0	5.001	1.0069	65	-0.1	5.303	95	74	5.45	.9774	1.88	.9311	7.3790
								Averages	.9752	1.91		

Check

calc		
avg		

For check, use the average ΔHa for ΔH

$$Y = \frac{Vs\left(Pb + \frac{Ps}{13.6}\right)(Tm + 460)\,Ys}{Vm\left(Pb + \frac{\Delta H}{13.6}\right)(Ts + 460)}$$

$$\Delta Ha = \frac{(0.0317)\ \Delta H}{Pb\ (tm + 460)} \quad \frac{[(ts + 460)\ @\ ]^2}{[\ Vs\ \ Ys\ ]^2}$$

$$Q = Y\ (17.64)\ Vm\ \frac{\left(Pb + \frac{\Delta H}{13.6}\right)}{(tm + 460)\ @}$$

$$\text{Orifice factor} = \frac{[(Ts + 460)\ \Delta H]^{1/2}}{[\ Pb\ ]^{1/2}}$$

Correlation Line Equation
Q = m (OF) + b

Acceptance Criteria:
Each Y must be 1.00 + or − 0.01
Average ΔHa must be 1.84 ± 0.25
Each ΔHa must be within 0.15 of the average ΔHa

tmi °F	tmo °F	Reference thermometer °F	Module Leak Check ft³	Module Leak Check in. Hg.
65	65	65	0.000	27"

Heater Box Love Control OK: ____
Probe Heater Love Control OK: ____
Module Cleaned: ✓
Pitot Tube Manometer Leak Check: ✓

Calibrated and Checked by: TEC Date: 10-9-95

Reviewed by: ____ Date: ____

000031

Method 5 ...odule Calibration

Date: 10-26-95

Bar. Ps., (Pb): 29.97 in. Hg

Module #: 1481

Std. Meter: 570415

Pre-test / Post-test

Module Orifice Setting (in. H2O)	Standard Meter Volume Vs (ft³)	Standard Meter Factor Ys	Standard Meter Temp. ts (°F)	Standard Meter Pressure Ps (in. H20)	Module Meter Volume Vm (ft³)	Module Meter Temperatures tmi (°F)	Module Meter Temperatures tmo (°F)	Module Meter Time @ (min)	Y	ΔHa (in. H2O)	Module Flowrate Q (SCFM)	OF
1.1	5.001	1.0063	68	-0.1	5.292	81	71	8.81	0.9625	1.85	0.5718	4.4354
1.1	5.002	1.0063	68	-0.1	5.312	83	72	8.88	0.9618	1.88	0.5674	4.4416
1.1	5.004	1.0061	68	-0.1	5.313	85	73	8.88	0.9644	1.87	0.5675	4.4478
								Averages	0.9629	1.87		

Check

calc		
avg		

For check, use the average ΔHa for ΔH

$$Y = \frac{Vs\left(Pb + \frac{Ps}{13.6}\right)(Tm + 460)\,Ys}{Vm\left(Pb + \frac{\Delta H}{13.6}\right)(Ts + 460)}$$

$$\Delta Ha = \frac{(0.0317)\ \Delta H}{Pb\ (tm + 460)} \quad \frac{[(ts + 460)\ @\ ]^2}{[\ Vs\ \ Ys\ ]^2}$$

$$Q = Y\ (17.64)\ Vm\ \frac{\left(Pb + \frac{\Delta H}{13.6}\right)}{(tm + 460)\ @}$$

$$\text{Orifice factor} = \frac{[(Ts + 460)\ \Delta H]^{1/2}}{[\ Pb\ ]^{1/2}}$$

Correlation Line Equation

Q = m (OF) + b

Acceptance Criteria:

Each Y must be 1.00 + or − 0.01

Average ΔHa must be 1.84 ± 0.25

Each ΔHa must be within 0.15 of the average ΔHa

tmi °F	tmo °F	Reference thermometer °F	Module Leak Check ft³	Module Leak Check in. Hg.
68	68	68	0.000	25

Heater Box Love Control OK: _____

Probe Heater Love Control OK: _____

Module Cleaned: ✓

Pitot Tube Manometer Leak Check: ✓

Calibrated and Checked by: TEC Date: 10-26-95

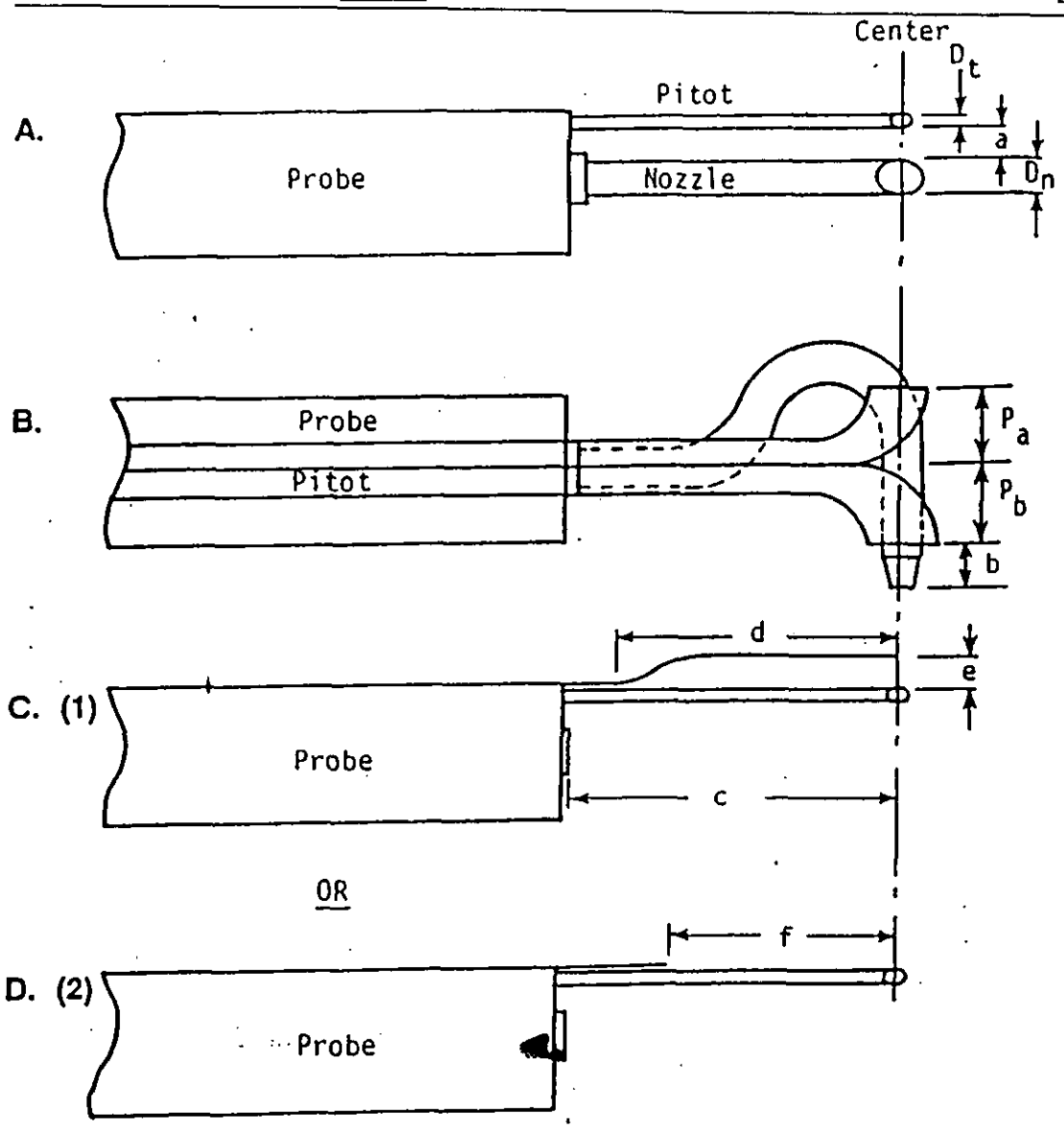
Reviewed by: _____ Date: _____

000032

S-TYPE PITOT GEOMETRIC CALIBRATION
PART 1 - PROBE CONFIGURATION

PROBE IDENTIFICATION: 401
PITOT IDENTIFICATION: 401

TECHNICIAN: TEC
DATE: 4/18/95



D_t = .365
D_n = .500
a = .835

P_a = .473
P_b = .473
b = 1.020

c = 3.289
d = 3.992
e = .801

or

c = ___

f = ___

SPECIFICATION (EPA METHOD 2)

D_t = 3/16" to 3/8"
D_n = 1/2"
a ≥ 3/4"
b ≥ 0

c ≥ 3"
d ≥ 3"
e ≥ 3/4"
f ≥ 2"

$P_a = P_b$

$1.05\ D_t \leq P \leq 1.50\ D_t$

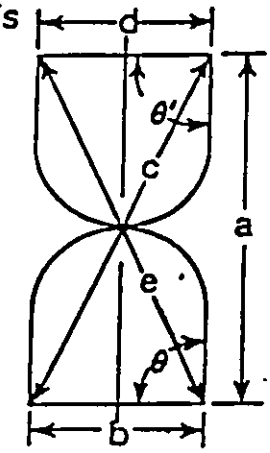
If these specifications are met, proceed with Part 2, Pitot alignment.

S-TYPE PITOT GEOMETRIC CALIBRATION
PART 2 - PITOT ALIGNMENT

PROBE IDENTIFICATION: 401
PITOT IDENTIFICATION: 401

TECHNICIAN: TEC
DATE: 4/18/95

A. Transverse Tube Axis



a = 1.010
b = .365
c = 1.095
d = .371

$$\frac{a^2+b^2-c^2}{2ab} = \cos\theta$$

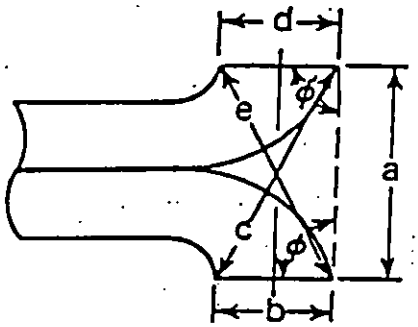
e = 1.091

$$\frac{a^2+d^2-e^2}{2ad} = \cos\theta'$$

θ = 93.6 (80°<θ<100°)

θ ' = 92.5 (80°<θ'<100°)

B. Longitudinal Tube Axis



a = 1.010
b = .475
c = 1.095
d = .489

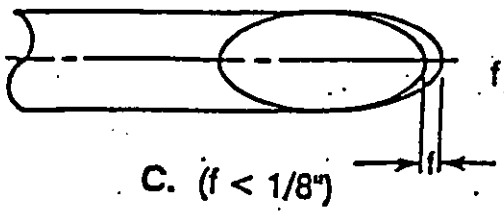
$$\frac{a^2+b^2-c^2}{2ab} = \cos\theta$$

e = 1.091

$$\frac{a^2+d^2-e^2}{2ad} = \cos\theta'$$

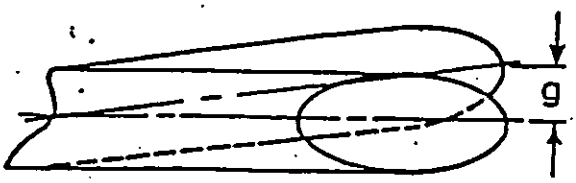
θ = 87.2 (85°<θ<95°)

θ ' = 86.0 (85°<θ'<95°)



f 0.063

C. (f < 1/8")



g 0.005

D. (g < 1/32")

NOTE: Values in parentheses are EPA Method 2 specifications.

Scott Specialty Gases, Inc.

2330 HAMILTON BOULEVARD SOUTH PLAINFIELD NJ 07080 (908)754-7700 FAX:(908)754-7303

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL RISK LTD.
Formerly Rojac Env.
Floor 1S 120 Mountain Ave
Bloomfield CT 06002
Attn.: ESTHER SAMODA

Assay Laboratory
Scott Specialty Gases
2330 Hamilton Blvd
South Plainfield NJ 07080

Purchase order 950491
Scott Project #0735084

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards -Procedure G1 September 1993

Cylinder Number ALM020383
Cylinder Pressure 2000psig

Certification Date 05-17-1995

Expiration Date 5-17-1998

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(OXYGEN)	10.6%	+/-1%NIST Directly Traceable
(Nitrogen cas7727379)	Balance	

*Do not use when cylinder Pressure is below 150 psig

*Analytical accuracy is inclusive of usual known error sources which at least includes precision of the measurement processes

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM2658	10/11/96	ALM017715	9.56 %O2 in N2

INSTRUMENTATION

Instrument/Model/Serial#	Date Last Calibrated	Analytical Principle
O2:Varian-3700-31608928	05/08/1995	GC TCD

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
OXYGEN	Date: 05-17-1995 Response units: % Z1=0 R1= 9.56 T1=10.6 R2= 9.56 Z2=0 T2=10.7 Z3=0 T3=10.6 R3= 9.56 Ave. Conc. of Cust. Cyl.= 10.6		Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.9999944 Constants: A= -2.8496E-02 B=1.7674E-05 C= D= E=

Special Notes

Analyst John O'Shea

Scott Specialty Gases

2330 HAMILTON BOULEVARD SOUTH PLAINFIELD NJ 07080 (908)754-7700 FAX:(908)754-7303

CERTIFICATE OF ANALYSIS:Interference-Free Multi-Component EPA Protocol GAS

Customer
ENVIRONMENTAL RISK LTD.
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Bloomfield CT 06002
Attn: RICH KOPACZ

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Scott Specialty Gases
2330 Hamilton Blvd
South Plainfield NJ 07080

Purchase order 950613
Scott Project #0735791

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards -Procedure G1 September 1993

Cylinder Number ALM055324 **Certification Date** 06-09-1995 **Expiration Date** 6-09-1998
Cylinder Pressure 2000psig

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(OXYGEN)	21.2%	+/-1%NIST Directly Traceable
(Nitrogen cas7727379)	Balance	

*Do not use when cylinder Pressure is below 150 psig
*Analytical accuracy is inclusive of usual known error sources which at least includes precision of the measurement processes

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM2659	10/11/96	ALM017554	20.6 %O2 in N2

INSTRUMENTATION

Instrument/Model/Serial#	Date Last Calibrated	Analytical Principle
O2:Varian-3700-31608928	06/08/1995	GC TCD

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
OXYGEN	Date: 06-09-1995 Response units: % Z1=0 R1=20.6 T1=21.2 R2=20.6 Z2=0 T2=21.3 Z3=0 T3=21.2 R3=20.6 Ave. Conc. of Cust. Cyl.= 21.2		Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$ r=0.9999944 Constants: A= -2.8496E-02 B=1.7674E-05 C= D= E=

Special Notes

Analyst John O'Shea

Scott Specialty Gases

2330 HAMILTON BOULEVARD SOUTH PLAINFIELD NJ 07080 (908)754-7700 FAX:(908)754-7303

CERTIFICATE OF ANALYSIS:Interference-Free Multi-Component EPA Protocol GAS

Customer
ENVIRONMENTAL RISK LTD.
Formerly Rojac Env.
Floor 1S 120 Mountain Ave
Bloomfield CT 06002
ESTHER SAMODIA

Assay Laboratory
Scott Specialty Gases
2330 Hamilton Blvd
South Plainfield NJ 07080

Purchase order 950751
Scott Project #0736862

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards -Procedure G1 September 1993

Cylinder Number ALM062642 **Certification Date** 08-04-1995 **Expiration Date** 8-04-1997
Cylinder Pressure 1950psig

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(NITRIC OXIDE)	50.8ppm	+/-1%NIST Directly Traceable
(Nitrogen cas7727379)	Balance	
Total Oxides of Nitrogen	50.8ppm	Reference Value Only

*Do not use when cylinder Pressure is below 150 psig

*Analytical accuracy is inclusive of usual known error sources which at least includes precision of the measurement processes

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM1683	11/22/96	ALM010380	47 ppmNO in N2

INSTRUMENTATION

Instrument/Model/Serial#	Date Last Calibrated	Analytical Principle
NO:NICOLET 8220A AAB9400258 -	08/04/1995	FTIR

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
NITRIC OXIDE	Date: 07-28-1995 Response units: ppm Z1=0 R1=47 T1=50.6 R2=47 Z2=0 T2=50.8 Z3=0 T3=50.8 R3=47 Ave. Conc. of Cust. Cyl. = 50.7	Date: 08-04-1995 Response units: ppm Z1=0 R1=47 T1=50.8 R2=47 Z2=0 T2=50.8 Z3=0 T3=50.8 R3=47 Ave. Conc. of Cust. Cyl. = 50.8	Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$ r=0.9999945 Constants: A= 2.3794E-01 B=1.0418E+00 C= D= E=

Special Notes

Analyst John O'Shea

Scott Specialty Gases

2330 HAMILTON BOULEVARD SOUTH PLAINFIELD NJ 07080 (908)754-7700 FAX:(908)754-7303

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
ENVIRONMENTAL RISK LTD.
Formerly Rojac Env.
Floor 1S 120 Mountain Ave
Bloomfield CT 06002
Attn.: ESTHER SAMODAI

Assay Laboratory
Scott Specialty Gases
2330 Hamilton Blvd
South Plainfield NJ 07080

Purchase order 950613
Scott Project #0735791

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards -Procedure G1 September 1993

Cylinder Number ALM062566 **Certification Date** 06-28-1995 **Expiration Date** 6-28-1997
Cylinder Pressure 2000psig

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(NITRIC OXIDE)	99.2ppm	+/-1%NIST Directly Traceable
(Nitrogen cas7727379)	Balance	
Total Oxides of Nitrogen	99.8ppm	Reference Value Only

*Do not use when cylinder Pressure is below 150 psig

*Analytical accuracy is inclusive of usual known error sources which at least includes precision of the measurement processes

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM1684	07/20/96	ALM024443	95.22 ppmNO in N2

INSTRUMENTATION

Instrument/Model/Serial#	Date Last Calibrated	Analytical Principle
NO:TECO/10S/26404 225	06/08/1995	CHEMILUMINESCENCE

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
NITRIC OXIDE	Date: 06-12-1995 Response units: ppm Z1=0 R1= 95.22 T1=99.4 R2= 95.22 Z2=0 T2=98.8 Z3=0 T3=98.8 R3= 95.22 Ave. Conc. of Cust. Cyl. = 99	Date: 06-28-1995 Response units: ppm Z1=0 R1= 95.22 T1=99.4 R2= 95.22 Z2=0 T2=99.4 Z3=0 T3=99.4 R3= 95.22 Ave. Conc. of Cust. Cyl. = 99.4	Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$ r=0.9999914 Constants: A= -0.12723E-00 B=0.4696E+00 C= D= E=

Special Notes

Analyst John O'shea

000033

Scott Specialty Gases

2330 HAMILTON BOULEVARD, SOUTH PLAINFIELD, NJ 07080 (908) 754-7700 FAX: (908) 754-7303

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS CERTIFICATION

Customer
ENVIRONMENTAL RISK LTD
Formerly Rojac Env.
Floor 1S 120 Mountain Avenue
Bloomfield CT 06002

Assay Laboratory
SCOTT SPECIALTY GASES
2330 Hamilton Blvd.
South Plainfield NJ 07080

Purchase Order 950003
Scott Project # 0732082

ANALYTICAL INFORMATION

This certification was performed acc2ording to EPA Traceability For Assay and Certification of Gaseous Calibration Standards: Procedure G1; September, 1993

Cylinder Number ALM024346
Cylinder Pressure 1950 psig

Certification Date 01/18/1995
Previous Certification Dates

Expiration Date 01/18/1997

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty**
(NITRIC OXIDE)	226ppm	+/-1%NIST Directly Traceable
Total Oxides of Nitrogen	226 ppm	Reference Value Only
(NITROGEN CAS7727379)	Balance	

* Do not use if below 150 psig **Analytical accuracy is inclusive of usual known error sources which at least include precision fo the measurement processes

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM1685	8/4/96	ALM036278	245ppmNOinN2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO:Nicolet/ 8220A/AAB9400258	12/27/1994	FTIR

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
NITRIC OXIDE	Date: 1-11-1995 Response:ppm Z1=0 R1=245 T1=226 R2=245 Z2=0 T2=226 Z3=0 T3=225 R3=245 Ave.Conc.of Customer Cyl=226	Date: 1-18-1995 Response: ppm Z1= 0 R1=245 T1-226 R2= 245 Z2=0 T2=226 Z3= 0 T3-226 R3=245 Ave.Conc.of Customer Cyl-226	Concentration=A+Bx+Cx2+Dx3+Ex4 r= 1 Constants A=5.1779E-1 B=5.32601E-1 C= 5.41625E-4 D=3.72932E-8

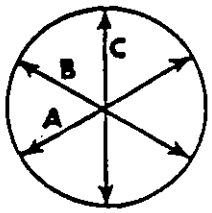
Special Notes

Analyst Adela A.Sy

000039

NOZZLE CALIBRATION DATA SHEET

NOZZLE SET NO. 3 DATE 9/25/95 TECHNICIAN JSG



NOZZLE NO.	DIAMETER*	A	B	C	AVERAGE**
1	9/64"	.124	.126	.125	.125
2	3/16"	.186	.187	.188	.187
3	1/4"	.247	.248	.246	.247
4	5/16"	.306	.307	.308	.307
5	1/2"	.504	.506	.506	.505

* Measure to nearest .001"
** Three measurements must be within .004" of each other

APPENDIX D

Sampling Log, Chain-of-Custody, Analytical Data Sheets

EPA METHOD 5
ANALYTICAL DATA FORM

Plant: HOT MIX INC

Run No.: M5-1

Samp. Loc.: BAGHOUSE EXHAUST

Rel. Hum.: 40%

Sample Type	Sample Identification	Liquid Level Marked and/or Container Sealed
Acetone Rinse	Beaker #47	
Filter(s)	Filter OAT-4-087	

Acetone Blank

Density of Acetone, (Pa) .7857 g/ml

Acetone Rinse Volume, (Vaw) 50 ml

Acetone Blank Residue Concentration, (Ca) 0.008 mg/g

Wa = Ca Vaw Pa = ( )( )( ) = 0.3 mg

Acetone Rinse Container Number

Date / Time of Wt 10/27/95 / 0823 — Gross Wt. 29045.0 mg

Date / Time of Wt 10/27/95 / 1650 — Gross Wt. 29045.3 mg

Average Gross Wt. 29045.2 mg

Tare Wt. 29036.9 mg

Less Acetone Blank Wt (Wa): 0.3 mg

Weight of Particulate in Acetone Rinse: 8.0 mg

Filter(s) Container Number

Date / Time of Wt 10/27/95 / 1310 — Gross Wt. 633.6 mg

Date / Time of Wt 10/30/95 / 1621 — Gross Wt. 631.5 / 631.2 mg

Third weighing 10/31/95 1211

Average Gross Wt. 631.4 mg

Tare Wt. 616.8 mg

Weight of Particulate on Filter(s): 14.6 mg

Total Weight of Particulate: 22.6 mg

Note: In no case should a blank residue be > 0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of Analyst: John S. [illegible]

Signature of Reviewer:

EPA METHOD 5
ANALYTICAL DATA FORM

Plant: HOT MIX INC

Run No.: M5-2

Samp. Loc.: BAGHOUSE EXHAUST

Rel. Hum.: 40%

Sample Type	Sample Identification	Liquid Level Marked and/or Container Sealed
Acetone Rinse	Beaker #48	
Filter(s)	Filter 0AT-4-088	

Acetone Blank

Density of Acetone, (Pa) .7857 g/ml

Acetone Rinse Volume, (Vaw) 50 ml

Acetone Blank Residue Concentration, (Ca) .008 mg/g

Wa = Ca Vaw Pa = ( )( )( ) = 0.3 mg

Acetone Rinse Container Number

Date / Time of Wt 10/27/95 / 1154 Gross Wt. 29574.6 mg

Date / Time of Wt 10/30/95 / 0906 Gross Wt. 29574.6 mg

Average Gross Wt. 29574.6 mg

Tare Wt. 29571.6 mg

Less Acetone Blank Wt (Wa): 0.3 mg

Weight of Particulate in Acetone Rinse: 2.7 mg

Filter(s) Container Number

Date / Time of Wt 10/27/95 / 1405 Gross Wt. 662.9 mg

Date / Time of Wt 10/30/95 / 1413 Gross Wt. 662.5 mg

Average Gross Wt. 662.7 mg

Tare Wt. 647.4 mg

Weight of Particulate on Filter(s): 15.3 mg

Total Weight of Particulate: 18.0 mg

Note: In no case should a blank residue be > 0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of Analyst: John S.

Signature of Reviewer:

EPA METHOD 5
ANALYTICAL DATA FORM

Plant: HOT MIX INC

Run No.: M5-3

Samp. Loc.: BAGHOUSE EXHAUST

Rel. Hum.: 46%

Sample Type	Sample Identification	Liquid Level Marked and/or Container Sealed
Acetone Rinse	Beaker #49	
Filter(s)	QAT-4-089	

Acetone Blank

Density of Acetone, (Pa) .7857 g/ml

Acetone Rinse Volume, (Vaw) 50 ml

Acetone Blank Residue Concentration, (Ca) .008 mg/g

Wa = Ca Vaw Pa = ( )( )( ) = 0.3 mg

Acetone Rinse Container Number

Date / Time of Wt 10/27/95 / 1248 — Gross Wt. 29626.3 mg

Date / Time of Wt 10/30/95 / 0916 — Gross Wt. 29626.1 mg

Average Gross Wt. 29626.2 mg

Tare Wt. 29623.7 mg

Less Acetone Blank Wt (Wa): 0.3 mg

Weight of Particulate in Acetone Rinse: 2.2 mg

Filter(s) Container Number

Date / Time of Wt 10/27/95 / 1604 — Gross Wt. 655.0 mg

Date / Time of Wt 10/30/95 / 1120 — Gross Wt. 655.1 mg

Average Gross Wt. 655.1 mg

Tare Wt. 647.4 mg

Weight of Particulate on Filter(s): 7.7 mg

Total Weight of Particulate: 9.9 mg

Note: In no case should a blank residue be > 0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of Analyst: John S. [illegible]

Signature of Reviewer:

EPA METHOD 5
BLANK ANALYTICAL DATA FORM

Plant: _____ Run No.: BLANK

Samp. Loc.: ERL

Rel. Hum.: 40%

Sample Type	Sample Identification	Liquid Level Marked and/or Container Sealed
Acetone Rinse Filter(s)	B# 36	

Acetone Blank

Density of Acetone, (Pa) 0.7857 g/ml

Blank Acetone Volume, (Va) 50 ml

Date / Time of Wt 10-9-95 / 1605 Gross Wt. 30498.7 mg

Date / Time of Wt 10-13-95 / 0810 Gross Wt. 30498.8 mg

Average Gross Wt. 30498.8 mg

Tare Wt. 30498.5 mg

Weight of blank (m_a): 0.3 mg

$$C_a = \frac{m_a}{V_a \quad P_a} = \frac{(\quad)}{(\quad)(\quad)} = 0.008 \text{ mg/g}$$

Note: In no case should a blank residue be > 0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Filter(s) Container Number

_____

Date / Time of Wt _____ / _____ Gross Wt. _____ mg

Date / Time of Wt _____ / _____ Gross Wt. _____ mg

Average Gross Wt. _____ mg

Tare Wt. _____ mg

Difference Weight: _____ mg

Note: Average difference must be less than 15 mg or 2% of total sample weight whichever is greater.

Remarks _____

Signature of Analyst: Edward R. Bennett

Signature of Reviewer: _____

COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306
SINCE 1908
Member of the SGS Group (Société Générale de Surveillance)

PLEASE ADDRESS ALL CORRESPONDENCE TO:
16130 VAN DRUNEN RD.
SOUTH HOLLAND, IL 60473
TEL: (708) 331-2900
FAX: (708) 333-3060

November 2, 1995

ENVIRONMENTAL RISK LIMITED
120 Mountain Avenue
Bloomfield, CT 06002
Attn: John Gammie
Lab Director

Sample identification by
Environmental Risk Limited

Kind of sample reported to us No. 2 Fuel Oil

Sample taken at ------

Sample taken by Todd

Date sampled October 25, 1995

Date received October 30, 1995

Sample ID: Fuel Sample
Project: Hot Mix Inc.

P.O. No. 951138

Analysis Report No. 71-14975

	As Received
HEATING VALUE	
Btu/lb	19370
ULTIMATE	
% Water	<0.01
% Carbon	85.07
% Hydrogen	12.78
% Nitrogen	0.02
% Sulfur	0.26
% Ash	<0.01
% Oxygen(diff)	≤ 1.87

METHODS
Heating Value: ASTM D 240; Water: ASTM D 95; Carbon, Hydrogen & Nitrogen: ASTM D 5291
Sulfur: ASTM D 1552; Ash: ASTM D 482; Oxygen: Calculated Value (Difference);

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory

ANALYSIS REQUEST FORM

SHIP SAMPLES TO:

COMMERCIAL TESTING & ENGINEERING CO.
16130 VAN DRUNEN ROAD PHONE (708)331-2900
SOUTH HOLLAND, IL 60473 FAX (708)333-3060

REPORT INFORMATION

COMPANY Environmental Risk Limited

ADDRESS 120 Mountain Ave

CITY Bloomfield STATE CT ZIPCODE 06002

ATTENTION LAB DIRECTOR

PHONE NUMBER 203 2429933 FAX NUMBER 203 243 9055

Fax Result ASAP

SAMPLE IDENTIFICATION

IDENTIFICATION Fuel Sample

KIND OF SAMPLE # 2 Fuel

SAMPLE TAKEN AT 10/25/95

SAMPLE TAKEN BY TODD

DATE SAMPLED 10/25/95

BILLING INFORMATION

BILLING ADDRESS
(other than above)

PURCHASE ORDER NO. ~~[illegible]~~ 957138

ANALYSIS REQUESTED

- ☐ COAL
- ☐ PETROLEUM COKE
  - ☐ Small Proximate
  - ☐ Proximate
  - ☐ Short Proximate
  - ☐ Ultimate
  - ☐ Ultimate w/BTU
  - ☐ Sulfur Forms
  - ☐ Ash Analysis
  - ☐ Fusion (Reducing)
  - ☐ Fusion (Oxidizing)
  - ☐ Hardgrove Grindability
  - ☐ Equilibrium Moisture
  - ☐ Free Swelling Index
  - ☐ Sieve Analysis (sizes)
  - ☐ Other Analyses

- ☐ WASTE OIL
- ☒ FUEL OIL
  - ☐ Ash Content
  - ☐ Short Proximate
  - ☐ BTU, Sulfur, Gravity
  - ☐ Distillation
  - ☐ Flash Pt., Open Cup
  - ☐ Flash Pt., P-M Closed Cup
  - ☒ Ultimate
  - ☐ Viscosity @ _____ °F
  - ☐ Other Analyses

- ☐ SLUDGE
- ☐ WOOD/PAPER
- ☐ RDF/TDF
  - ☐ Proximate
  - ☐ Short Proximate
  - ☐ Ultimate
  - ☐ Ash Analysis
  - ☐ Loss on Ignition
  - ☐ Other Analyses

INSTRUCTIONS/NOTES: Ultimate analysis including % carbon, hydrogen, nitrogen, sulfur, oxygen and gross calorific value

COMMERCIAL TESTING & ENGINEERING CO.

F-400
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APPENDIX E

DAS Printouts

20.0	1.7	2.3	0.3	6.8	0.0	0.0	0.00	15	162558				
20.0	1.7	2.6	0.3	7.8	0.0	0.0	0.00	16	162632				
19.9	1.7	2.9	0.3	7.8	0.0	0.0	0.00	17	162701				
19.9	1.7	2.9	0.3	7.8	0.0	0.0	0.00	18	162714				
20.0	1.7	3.2	0.3	7.8	0.0	0.0	0.00	19	162723				
0	20	163015											
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time	
0	21	163323											
0	22	163342											
0	23	163352											
0	24	163402											
0	25	163412											
0	26	163421											
0	27	163432											
0	28	163443											
0	29	163532											
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time	
0	1	165304											
0	2	165314											
0	3	165324											
0	4	165334											
0	5	165344											
0	6	165353											
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time	
20.0	1.7	4.0	0.3	13.9	0.0	0.0	0.00	1	170210				
19.9	1.8	3.9	0.3	14.6	0.0	0.0	0.00	2	170220				
19.9	1.8	4.0	0.4	14.6	0.0	0.0	0.00	3	170230				
20.0	1.8	4.3	0.3	14.6	0.0	0.0	0.00	4	170239				
20.0	1.8	3.9	0.4	13.7	0.0	0.0	0.00	5	170250				
19.9	1.7	4.2	0.4	13.7	0.0	0.0	0.00	6	170301				
20.0	1.8	3.9	0.4	14.6	0.0	0.0	0.00	7	170311				
19.9	1.8	4.4	0.4	12.7	0.0	0.0	0.00	8	170417				
20.0	1.7	3.9	0.4	11.7	0.0	0.0	0.00	9	170427				
19.9	1.8	4.0	0.3	11.7	0.0	0.0	0.00	10	170437				
19.9	1.8	3.9	0.4	10.5	0.0	0.0	0.00	11	170448				
19.8	1.8	4.2	0.4	10.7	0.0	0.0	0.00	12	170458				
20.0	1.7	3.9	0.3	10.7	0.0	0.0	0.00	13	170508				
19.8	1.7	4.2	0.3	10.7	0.0	0.0	0.00	14	170518				
20.0	1.8	4.3	0.3	10.7	0.0	0.0	0.00	15	170529				
20.0	1.8	4.0	0.4	9.5	0.0	0.0	0.00	16	170539				
19.9	1.7	4.0	0.3	9.8	0.0	0.0	0.00	17	170549				
20.0	1.8	4.2	0.4	9.8	0.0	0.0	0.00	18	170559				
19.9	1.7	3.9	0.4	9.8	0.0	0.0	0.00	19	170609				
20.0	1.8	4.2	0.4	9.8	0.0	0.0	0.00	20	170620				

pre CR2

19.9	1.7	4.0	0.4	9.8	0.0	0.0	0.00	21	170630				
20.0	1.8	3.9	0.4	9.8	0.0	0.0	0.00	22	170640				
20.0	1.7	4.0	0.4	9.8	0.0	0.0	0.00	23	170650				

20.0	1.8	4.2	0.4	9.5	0.0	0.0	0.00	24	170700
20.0	1.8	4.2	0.3	9.8	0.0	0.0	0.00	25	170709
15.6	1.4	4.3	0.4	9.8	0.0	0.0	0.00	26	170720
19.0	1.7	3.5	0.3	10.7	0.0	0.0	0.00	27	170730
20.0	1.7	3.8	0.4	52.7	0.0	0.0	0.00	28	170740
20.4	1.8	3.5	0.3	72.8	0.0	0.0	0.00	29	170750
20.5	1.8	3.4	0.3	50.5	0.0	0.0	0.00	30	170800
20.4	1.8	3.7	0.3	35.2	0.0	0.0	0.00	31	170811
20.5	1.9	3.7	0.3	23.4	0.0	0.0	0.00	32	170821
20.9	1.8	3.3	0.3	22.7	0.0	0.0	0.00	33	170832
21.0	1.9	3.5	0.3	19.5	0.0	0.0	0.00	34	170842
21.0	1.8	3.7	0.4	15.6	0.0	0.0	0.00	35	170853
21.4	1.9	3.8	0.3	12.7	0.0	0.0	0.00	36	170903
21.4	1.8	3.5	0.3	10.7	0.0	0.0	0.00	37	170913
21.1	1.9	3.5	0.4	10.7	0.0	0.0	0.00	38	170922
21.2	1.8	3.4	0.3	8.8	0.0	0.0	0.00	39	170933
21.1	1.9	3.5	0.3	8.8	0.0	0.0	0.00	40	170943
21.4	1.8	3.4	0.3	7.8	0.0	0.0	0.00	41	170953
21.5	1.9	3.5	0.3	7.8	0.0	0.0	0.00	42	171004
21.4	1.9	3.9	0.3	7.8	0.0	0.0	0.00	43	171015
21.5	1.9	3.7	0.3	7.6	0.0	0.0	0.00	44	171025
21.4	1.9	3.4	0.3	7.1	0.0	0.0	0.00	45	171036
21.2	1.9	3.4	0.3	6.6	0.0	0.0	0.00	46	171046
21.1	1.8	3.5	0.3	6.8	0.0	0.0	0.00	47	171055
21.4	1.9	3.7	0.3	6.8	0.0	0.0	0.00	48	171106
21.1	1.9	3.5	0.3	6.8	0.0	0.0	0.00	49	171116
21.0	1.8	3.4	0.3	6.8	0.0	0.0	0.00	50	171125
21.2	1.9	3.5	0.3	6.8	0.0	0.0	0.00	51	171136
21.4	1.8	3.7	0.3	6.9	0.0	0.0	0.00	52	171147
21.0	1.9	3.5	0.3	6.8	0.0	0.0	0.00	53	171157
21.0	1.9	2.3	0.3	6.6	0.0	0.0	0.00	54	171206
21.1	1.8	0.6	0.2	6.8	0.0	0.0	0.00	55	171217
21.1	1.8	-0.1	0.1	6.6	0.0	0.0	0.00	56	171227
21.0	1.9	0.2	0.2	6.8	0.0	0.0	0.00	57	171236
21.1	1.8	0.4	0.1	6.8	0.0	0.0	0.00	58	171247
21.2	1.9	-0.2	0.1	6.3	0.0	0.0	0.00	59	171257
21.1	1.8	0.0	0.2	6.6	0.0	0.0	0.00	60	171308
21.1	1.8	0.2	0.2	6.8	0.0	0.0	0.00	61	171318
21.2	1.9	0.0	0.1	6.8	0.0	0.0	0.00	62	171329
21.1	1.9	0.0	0.1	6.8	0.0	0.0	0.00	63	171339
21.1	1.9	0.1	0.2	6.6	0.0	0.0	0.00	64	171349
14.9	1.4	57.2	2.9	6.8	0.0	0.1	0.00	65	171400
O2_b	tmc	NOX	SO2	13TCO	MT	MT	MT	THC_0	THC_1	CO F	scan	time
5.0	0.7	101.0	5.0	6.8	0.0	0.0	0.00	66	171409
1.2	0.4	108.9	5.4	6.8	0.0	0.0	0.00	67	171420
0.5	0.4	111.3	5.6	5.9	0.0	0.0	0.00	68	171431
0	69	171441							
0	70	171452							
0	71	171502							

21.2 02

21.2 20

FILE: HM PRECAL

0	71	171502										
0	72	171512										
0	73	171522										
0	74	171532										
0	75	171542										
0	76	171552										
0	77	171601										
0	78	171629										
0	79	171539										
0	80	171549										
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
0	1	172002										
0	2	172012										
0	3	172022										
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
0	1	172748										
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
0	1	173744										
0	2	173754										
0	3	173804										
0	4	173815										
0	5	173825										
0	6	173835										
0	7	173846										
0	8	173856										
0	9	173927										
0	10	173937										
0	11	173947										
0	12	173956										
0	13	174007										
0	14	174017										
0	15	174027										
0	16	174038										
0	17	174047										
0	18	174058										
0	19	182644										
0	20	182654										
0	21	182703										
0	22	182714										
0	23	182724										
0	24	182734										
0	25	182744										
0	26	182754										
0	27	182804										
0	28	182814										
0	29	182825										
0	30	182834										
0	31	182845										
0	32	182855										
0	33	182905										
0	34	182915										
0	35	182925										
0	36	182935										
0	37	182945										
0	38	182955										
0	39	183004										
0	40	183015										
0	41	183025										
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
20.5	1.7	3.3	0.3	10.3	0.0	0.0	0.00	1	183339			
20.6	1.8	3.4	0.3	9.8	0.0	0.0	0.00	2	183349			
20.8	1.9	3.3	0.3	9.6	0.0	0.0	0.00	3	183400			
20.9	1.9	3.3	0.3	9.3	0.0	0.0	0.00	4	183409			
20.5	1.8	3.7	0.3	9.9	0.0	0.0	0.00	5	183420			
20.9	1.8	3.3	0.3	9.9	0.0	0.0	0.00	6	183430			
20.9	1.8	3.4	0.3	9.8	0.0	0.0	0.00	7	183441			
20.9	1.8	3.4	0.3	9.5	0.0	0.0	0.00	8	183452			

20.9	1.8	3.4	0.3	9.8	0.0	0.0	0.00	9	183502
20.8	1.8	3.4	0.3	9.8	0.0	0.0	0.00	10	183513
20.9	1.8	3.5	0.3	9.8	0.0	0.0	0.00	11	183523
20.8	1.8	3.5	0.3	8.8	0.0	0.0	0.00	12	183533
20.8	1.8	3.4	0.3	8.8	0.0	0.0	0.00	13	183544
20.6	1.8	3.5	0.3	8.8	0.0	0.0	0.00	14	183553
20.6	1.8	3.3	0.3	8.8	0.0	0.0	0.00	15	183604
20.8	1.9	3.4	0.3	9.8	0.0	0.0	0.00	16	183614
20.6	1.8	3.3	0.3	8.8	0.0	0.0	0.00	17	183624
20.8	1.8	3.4	0.3	8.8	0.0	0.0	0.00	18	183634
20.8	1.8	3.5	0.3	8.5	0.0	0.0	0.00	19	183644
20.8	1.7	3.3	0.3	8.8	0.0	0.0	0.00	20	183657
20.6	1.8	3.5	0.3	8.8	0.0	0.0	0.00	21	183708
20.8	1.6	3.3	0.3	8.8	0.0	0.0	0.00	22	183720
20.8	1.8	3.5	0.3	8.8	0.0	0.0	0.00	23	183733
20.8	1.8	3.3	0.3	8.8	0.0	0.0	0.00	24	183743
20.9	1.8	3.3	0.3	8.8	0.0	0.0	0.00	25	183753
20.6	1.8	3.8	0.3	8.8	0.0	0.0	0.00	26	183804
20.8	1.8	3.4	0.3	8.8	0.0	0.0	0.00	27	183814
20.6	1.7	3.5	0.2	8.8	0.0	0.0	0.00	28	183826
20.9	1.8	3.5	0.3	8.8	0.0	0.0	0.00	29	183837
20.8	1.8	3.5	0.3	8.8	0.0	0.0	0.00	30	183847
20.8	1.8	3.4	0.3	8.8	0.0	0.0	0.00	31	183857
20.8	1.8	3.8	0.3	8.8	0.0	0.0	0.00	32	183907
20.9	1.8	3.3	0.3	8.8	0.0	0.0	0.00	33	183916
20.6	1.8	3.5	0.3	8.8	0.0	0.0	0.00	34	183926
20.8	1.8	3.5	0.3	8.8	0.0	0.0	0.00	35	183937
20.8	1.8	3.7	0.3	8.8	0.0	0.0	0.00	36	183947
20.8	1.8	3.5	0.3	8.8	0.0	0.0	0.00	37	183957
20.5	1.8	3.5	0.3	8.8	0.0	0.0	0.00	39	184006

10-25-95
ANALYZER
CALS

FILE: HM T1

6.0	0.7	0.9	0.3	11.7	0.0	0.0	0.00	39	65721			
1.8	0.4	-0.4	0.3	25.9	0.0	0.0	0.00	40	65732			
0.5	0.2	-0.5	0.3	39.1	0.0	0.0	0.00	41	65743			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
0.5	0.2	-0.1	0.3	35.2	0.0	0.0	0.00	42	65753			
0.4	0.2	-0.4	0.3	15.6	0.0	0.0	0.00	43	65803			
0.2	0.2	-0.4	0.3	12.7	0.0	0.0	0.00	44	65813			
0.1	0.2	-0.2	0.3	11.7	0.0	0.0	0.00	45	65823			
0.2	0.2	-0.4	0.3	10.7	0.0	0.0	0.00	46	65834			
0.0	0.2	-0.5	0.3	7.3	0.0	0.0	0.00	47	65844			
0.4	0.2	-0.4	0.3	5.9	0.0	0.0	0.00	48	65854			
0.0	0.2	-0.5	0.3	4.9	0.0	0.0	0.00	49	65904			
0.4	0.2	-0.2	0.3	4.5	0.0	0.0	0.00	50	65914			
0.0	0.2	-0.7	0.2	3.3	0.0	0.0	0.00	51	65924			
0.4	0.2	-0.5	0.3	2.7	0.0	0.0	0.00	52	65934			
0.4	0.2	-0.5	0.3	2.9	0.0	0.0	0.00	53	65944			
0.1	0.2	-0.3	0.2	2.9	0.0	0.0	0.00	54	65954			
0.2	0.3	-0.3	0.3	2.7	0.0	0.0	0.00	55	70004			
0.1	0.2	-0.6	0.3	2.0	0.0	0.0	0.00	56	70014			

0.2	0.2	-0.8	0.3	2.0	0.0	0.0	0.00	57	70025
0.2	0.2	-0.9	0.2	2.0	0.0	0.0	0.00	58	70035
0.2	0.2	-1.0	0.3	2.0	0.0	0.0	0.00	59	70045
0.0	0.2	-0.9	0.2	2.0	0.0	0.0	0.00	60	70055
0.1	0.2	-0.7	0.2	2.0	0.0	0.0	0.00	61	70105
0.2	0.2	-1.0	0.2	2.0	0.0	0.0	0.00	62	70115
0.2	0.2	-0.7	0.3	2.0	0.0	0.0	0.00	63	70125
0.1	0.2	-0.9	0.3	2.0	0.0	0.0	0.00	64	70136
0.1	0.2	-0.5	0.2	2.0	0.0	0.0	0.00	65	70146
0.1	0.2	-0.5	0.3	2.0	0.0	0.0	0.00	66	70156
0.1	0.2	-0.4	0.3	2.0	0.0	0.0	0.00	67	70206
0.4	0.2	-0.4	0.3	2.0	0.0	0.0	0.00	68	70217
0.2	0.2	0.0	0.3	2.0	0.0	0.0	0.00	69	70227
0.0	0.2	-0.1	0.3	1.7	0.0	0.0	0.00	70	70237
0.1	0.2	-0.4	0.3	1.7	0.0	0.0	0.00	71	70247
0.1	0.2	-0.4	0.3	2.0	0.0	0.0	0.00	72	70257
0.1	0.2	-0.2	0.3	2.0	0.0	0.0	0.00	73	70307
0.2	0.2	-0.2	0.3	2.0	0.0	0.0	0.00	74	70317
0.4	0.2	-0.4	0.3	2.0	0.0	0.0	0.00	75	70327
0.1	0.2	-0.4	0.3	2.0	0.0	0.0	0.00	76	70337
0.0	0.2	-0.5	0.3	2.0	0.0	0.0	0.00	78	70357
0.0	0.2	-0.5	0.3	2.0	0.0	0.0	0.00	79	70407
0.2	0.2	-0.5	0.3	2.0	0.0	0.0	0.00	80	70418
0.2	0.2	-0.2	0.3	1.7	0.0	0.0	0.00	81	70428
5.1	0.6	-0.1	0.3	2.2	0.0	0.0	0.00	82	70438
16.7	1.5	-0.1	0.3	1.7	0.0	0.0	0.00	83	70448
20.0	1.7	-0.4	0.3	2.0	0.0	0.0	0.00	84	70458
21.0	1.9	-0.4	0.3	2.0	0.0	0.0	0.00	85	70508
21.2	1.8	-0.4	0.3	4.6	0.0	0.0	0.00	86	70519
21.1	1.9	-0.4	0.3	4.9	0.0	0.0	0.00	87	70529
21.0	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	88	70539
21.1	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	89	70549
21.1	1.9	-0.6	0.3	5.9	0.0	0.0	0.00	90	70559
21.2	1.9	-0.4	0.3	5.9	0.0	0.0	0.00	91	70609
21.1	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	92	70620
21.2	1.9	-0.4	0.3	5.9	0.0	0.0	0.00	93	70630
21.0	1.8	-0.4	0.3	5.9	0.0	0.0	0.00	94	70640
21.2	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	95	70650
21.2	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	96	70700
21.2	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	97	70709
21.2	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	98	70719
21.2	1.9	-0.5	0.3	5.9	0.0	0.0	0.00	99	70730
20.1	1.8	1.5	0.4	5.1	0.0	0.0	0.00	100	70740
7.6	0.5	101.1	5.1	5.3	0.0	0.0	0.00	101	70750
2.0	0.4	111.5	6.9	5.3	0.0	0.0	0.00	102	70800
0.5	0.2	113.2	7.1	5.5	0.0	0.0	0.00	103	70810
0.4	0.2	114.1	7.0	4.9	0.0	0.0	0.00	104	70820
0.2	0.2	114.9	7.2	3.9	0.0	0.0	0.00	105	70831
0.4	0.2	115.5	7.5	3.7	0.0	0.0	0.00	106	70841
0.1	0.2	106.3	6.8	2.7	0.0	0.0	0.00	107	70851
0.2	0.2	101.1	6.4	2.9	0.0	0.0	0.00	108	70901

0.0	0.2	101.3	6.4	2.9	0.0	0.0	0.00	109	70911
0.5	0.2	99.9	6.3	2.9	0.0	0.0	0.00	110	70921
0.1	0.3	99.0	6.5	2.7	0.0	0.0	0.00	111	70932
0.1	0.2	99.4	6.3	2.7	0.0	0.0	0.00	112	70942
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
0.1	0.2	98.9	6.4	1.7	0.0	0.0	0.00	113	70952
0.0	0.2	99.2	6.3	2.0	0.0	0.0	0.00	114	71002
0.1	0.2	98.9	6.3	2.0	0.0	0.0	0.00	115	71012
0.1	0.2	99.2	6.3	2.0	0.0	0.0	0.00	116	71022
0.4	0.2	99.5	6.4	2.0	0.0	0.0	0.00	117	71032
0.1	0.2	99.7	6.4	2.0	0.0	0.0	0.00	118	71043
0.1	0.2	99.4	6.3	1.7	0.0	0.0	0.00	119	71053
0.0	0.2	99.4	6.4	2.0	0.0	0.0	0.00	120	71103
1.1	0.2	78.9	5.3	2.0	0.0	0.0	0.00	121	71113
7.6	0.8	1.1	0.6	2.0	0.0	0.0	0.00	122	71123
9.9	1.0	0.0	0.5	1.7	0.0	0.0	0.00	123	71133
10.5	1.0	-0.4	0.5	2.7	0.0	0.0	0.00	124	71144
10.6	1.0	-0.1	0.5	2.9	0.0	0.0	0.00	125	71154
[illegible]	1.0	-0.2	0.4	3.9	0.0	0.0	0.00	126	71204
10.7	1.0	-0.4	0.4	3.7	0.0	0.0	0.00	127	71214
10.7	1.0	-0.4	0.4	3.9	0.0	0.0	0.00	128	71224
10.7	1.0	-0.5	0.4	3.7	0.0	0.0	0.00	129	71234
10.7	1.0	-0.5	0.4	4.9	0.0	0.0	0.00	130	71245
10.7	1.1	-0.2	0.4	4.9	0.0	0.0	0.00	131	71255
10.7	1.0	-0.4	0.4	4.9	0.0	0.0	0.00	132	71306
10.5	1.0	-0.5	0.4	4.9	0.0	0.0	0.00	133	71316
9.8	1.0	1.1	0.5	3.9	0.0	0.0	0.00	134	71326
3.4	0.5	49.3	3.4	3.9	0.0	0.0	0.00	135	71336
0.9	0.2	50.3	3.4	4.9	0.0	0.0	0.00	136	71347
0.5	0.2	50.4	3.4	6.6	0.0	0.0	0.00	137	71357
0.2	0.2	50.5	3.4	5.9	0.0	0.0	0.00	138	71408
0.2	0.2	50.4	3.5	4.9	0.0	0.0	0.00	139	71418
0.2	0.2	50.9	3.5	3.9	0.0	0.0	0.00	140	71428
0.0	0.2	50.7	3.4	3.7	0.0	0.0	0.00	141	71438
0.0	0.2	2.2	0.5	2.7	0.0	0.0	0.00	142	71449
0.1	0.2	-0.4	0.4	2.9	0.0	0.0	0.00	143	71459
0.2	0.2	-0.5	0.4	1.7	0.0	0.0	0.00	144	71510
0.4	0.2	-0.4	0.4	2.0	0.0	0.0	0.00	145	71520
0.1	0.2	-0.5	0.4	2.0	0.0	0.0	0.00	146	71530
0.2	0.2	-0.1	0.4	2.0	0.0	0.0	0.00	147	71541

0.1	0.2	-0.1	0.4	2.0	0.0	0.0	0.00	148	71551
0.2	0.2	-0.2	0.4	1.0	0.0	0.0	0.00	149	71602
0.2	0.2	-0.2	0.4	1.0	0.0	0.0	0.00	150	71612
0.5	0.2	-0.1	0.4	1.0	0.0	0.0	0.00	151	71622
1.8	0.3	2.1	0.6	1.0	0.0	0.0	0.00	152	71632
3.3	0.4	5.8	0.9	2.0	0.0	0.0	0.00	153	71643
6.3	0.7	4.0	0.7	3.9	0.0	0.0	0.00	154	71653
8.1	0.8	1.5	0.5	4.9	0.0	0.0	0.00	155	71704
7.3	0.8	1.0	0.5	4.9	0.0	0.0	0.00	156	71714
5.9	0.7	0.2	0.4	4.4	0.0	0.0	0.00	157	71724
4.5	0.6	0.2	0.4	5.9	0.0	0.0	0.00	158	71735
3.4	0.5	-0.2	0.4	6.6	0.0	0.0	0.00	159	71745
2.8	0.4	-0.1	0.4	6.8	0.0	0.0	0.00	160	71755
2.0	0.4	-0.4	0.4	5.9	0.0	0.0	0.00	161	71806
2.0	0.3	-0.1	0.4	5.9	0.0	0.0	0.00	162	71816
1.8	0.3	-0.2	0.4	5.9	0.0	0.0	0.00	163	71826
1.5	0.3	-0.1	0.4	4.9	0.0	0.0	0.00	164	71836
1.0	0.3	0.0	0.4	4.9	0.0	0.0	0.00	165	71847
1.0	0.3	0.0	0.4	3.9	0.0	0.0	0.00	166	71856
1.5	0.3	-0.2	0.4	4.9	0.0	0.0	0.00	167	71907
1.5	0.3	-0.2	0.4	4.9	0.0	0.0	0.00	168	71917
1.5	0.3	0.0	0.4	4.9	0.0	0.0	0.00	169	71927
1.0	0.3	0.0	0.4	4.9	0.0	0.0	0.00	170	71937
0.9	0.2	-0.2	0.4	4.9	0.0	0.0	0.00	171	71948
0.5	0.2	-0.1	0.4	4.9	0.0	0.0	0.00	172	71958
0.5	0.2	0.0	0.4	4.9	0.0	0.0	0.00	173	72008
0.5	0.2	-0.1	0.4	3.7	0.0	0.0	0.00	174	72018
0.5	0.2	-0.4	0.4	3.9	0.0	0.0	0.00	175	72029
0.5	0.2	-0.2	0.4	2.7	0.0	0.0	0.00	176	72039
0.5	0.2	-0.2	0.4	2.9	0.0	0.0	0.00	177	72050
0.5	0.2	0.1	0.4	2.9	0.0	0.0	0.00	178	72100
8.9	0.9	2.3	0.6	3.7	0.0	0.0	0.00	179	72110
15.7	1.5	0.0	0.4	3.9	0.0	0.0	0.00	180	72121
19.0	1.7	-0.2	0.4	4.9	0.0	0.0	0.00	181	72131
20.4	1.8	-0.5	0.4	6.8	0.0	0.0	0.00	182	72141
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
20.6	1.8	-0.1	0.4	7.8	0.0	0.0	0.00	183	72152
20.9	1.9	0.0	0.4	7.8	0.0	0.0	0.00	184	72202
21.0	1.8	0.1	0.4	7.8	0.0	0.0	0.00	185	72212
21.0	1.8	-0.2	0.4	7.8	0.0	0.0	0.00	186	72221
20.8	1.9	0.0	0.4	7.8	0.0	0.0	0.00	187	72232
20.9	1.8	0.0	0.4	7.8	0.0	0.0	0.00	188	72242
12.2	1.2	-0.1	0.4	8.8	0.0	0.0	0.00	189	72253

START 6788ppm CA25

5.7	0.7	-0.1	0.4	8.3	0.0	0.0	0.00	190	72303
2.6	0.4	-0.2	0.4	8.8	0.0	0.0	0.00	191	72313
1.3	0.3	-0.5	0.4	6.3	0.0	0.0	0.00	192	72323
0.5	0.3	-0.5	0.4	5.9	0.0	0.0	0.00	193	72334
0.5	0.2	-0.4	0.4	4.9	0.0	0.0	0.00	194	72344
0.4	0.2	-0.2	0.4	3.3	0.0	0.0	0.00	195	72354
0.4	0.2	-0.4	0.4	3.7	0.0	0.0	0.00	196	72405
0.4	0.2	-0.5	0.4	2.7	0.0	0.0	0.00	197	72415
0.2	0.2	-0.1	0.4	2.3	0.0	0.0	0.00	198	72425
0.2	0.2	-0.2	0.4	2.7	0.0	0.0	0.00	199	72435
0.4	0.2	-0.1	0.4	2.7	0.0	0.0	0.00	200	72446
0.2	0.2	-0.1	0.4	2.3	0.0	0.0	0.00	201	72456

0.1	0.2	-0.4	0.4	2.0	0.0	0.0	0.00	202	72507
0.0	0.2	-0.2	0.4	1.7	0.0	0.0	0.00	203	72517
0.4	0.2	-0.2	0.4	1.7	0.0	0.0	0.00	204	72527
0.2	0.2	0.2	0.4	2.0	0.0	0.0	0.00	205	72537
2.9	0.4	0.7	0.5	2.0	0.0	0.0	0.00	206	72548
8.1	0.8	-0.5	0.4	2.0	0.0	0.0	0.00	207	72558
9.8	1.0	-0.2	0.4	2.0	0.0	0.0	0.00	208	72608
10.3	1.0	-0.4	0.4	2.9	0.0	0.0	0.00	209	72618
10.5	1.0	-0.4	0.4	3.9	0.0	0.0	0.00	210	72629
10.7	1.0	-0.1	0.4	3.9	0.0	0.0	0.00	211	72639
10.7	1.0	-0.2	0.4	4.9	0.0	0.0	0.00	212	72648
10.7	1.0	-0.2	0.4	4.9	0.0	0.0	0.00	213	72659
10.6	1.0	-0.4	0.4	4.9	0.0	0.0	0.00	214	72709
10.7	1.0	-0.2	0.4	4.9	0.0	0.0	0.00	215	72719
10.4	1.0	19.4	1.5	4.6	0.0	0.0	0.00	216	72729
4.8	0.6	47.5	3.3	4.9	0.0	0.0	0.00	217	72739
2.0	0.3	49.0	3.4	4.9	0.0	0.0	0.00	218	72750
1.0	0.2	49.2	3.5	4.9	0.0	0.0	0.00	219	72800
0.5	0.2	49.3	3.5	3.9	0.0	0.0	0.00	220	72810
0.4	0.2	49.6	3.5	3.9	0.0	0.0	0.00	221	72820
0.2	0.2	49.4	3.5	2.7	0.0	0.0	0.00	222	72831
0.2	0.2	49.9	3.5	2.9	0.0	0.0	0.00	223	72842
0.2	0.2	49.7	3.5	2.7	0.0	0.0	0.00	224	72852
0.4	0.2	49.6	3.5	2.7	0.0	0.0	0.00	225	72902
0.0	0.2	40.3	3.0	2.9	0.0	0.0	0.00	226	72912
0.2	0.2	9.9	1.1	2.7	0.0	0.0	0.00	227	72922
0.4	0.2	3.7	0.7	1.5	0.0	0.0	0.00	228	72933

ON - LINE

15.4	1.5	57.8	4.8	113.1	0.0	0.0	0.00	229	74208
15.6	1.4	58.8	4.8	109.4	0.0	0.0	0.00	230	74218
15.3	1.4	68.7	4.9	101.6	0.0	0.0	0.00	231	74229
15.4	1.4	57.6	4.7	95.2	0.0	0.0	0.00	232	74239
15.4	1.5	54.7	4.5	88.3	0.0	0.0	0.00	233	74249

START RUN #1

15.5	1.4	62.6	4.5	86.4	0.0	0.0	0.00	234	74300
15.5	1.4	62.3	4.5	85.9	0.0	0.0	0.00	235	74310
15.4	1.4	62.1	4.4	86.7	0.0	0.0	0.00	236	74320
15.5	1.5	61.0	4.4	88.9	0.0	0.0	0.00	237	74330
15.5	1.4	58.0	4.2	88.9	0.0	0.0	0.00	238	74341
15.5	1.5	58.2	4.2	89.1	0.0	0.0	0.00	239	74351
15.6	1.4	59.9	4.3	88.9	0.0	0.0	0.00	240	74401
15.3	1.5	61.8	4.4	89.1	0.0	0.0	0.00	241	74412
15.5	1.4	64.8	4.6	87.9	0.0	0.0	0.00	242	74422
15.6	1.4	66.2	4.7	85.9	0.0	0.0	0.00	243	74432
15.5	1.4	66.2	4.7	83.0	0.0	0.0	0.00	244	74443
15.3	1.4	65.1	4.7	81.1	0.0	0.0	0.00	245	74453
15.4	1.4	55.2	4.1	79.1	0.0	0.0	0.00	246	74503
15.6	1.5	55.1	4.0	75.0	0.0	0.0	0.00	247	74513
15.6	1.4	62.5	4.5	67.4	0.0	0.0	0.00	248	74523
15.4	1.4	60.7	4.4	60.8	0.0	0.0	0.00	249	74534
15.5	1.4	60.4	4.4	58.1	0.0	0.0	0.00	250	74544
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
15.6	1.5	55.5	4.1	55.9	0.0	0.0	0.00	251	74554
15.6	1.4	54.3	4.0	55.2	0.0	0.0	0.00	252	74604
15.6	1.4	56.9	4.1	52.7	0.0	0.0	0.00	253	74615
15.5	1.4	57.5	4.2	59.8	0.0	0.0	0.00	254	74625
15.5	1.5	58.6	4.3	71.0	0.0	0.0	0.00	255	74635
15.6	1.4	58.3	4.3	78.9	0.0	0.0	0.00	256	74646
15.6	1.5	59.4	4.3	80.8	0.0	0.0	0.00	257	74656
15.6	1.4	60.9	4.4	81.8	0.0	0.0	0.00	258	74706
15.6	1.4	64.2	4.7	83.0	0.0	0.0	0.00	259	74716
15.4	1.4	64.2	4.7	83.0	0.0	0.0	0.00	260	74726
15.5	1.4	64.8	4.7	82.0	0.0	0.0	0.00	261	74737
15.5	1.4	66.0	4.7	80.1	0.0	0.0	0.00	262	74747
15.6	1.4	67.1	4.8	78.1	0.0	0.0	0.00	263	74757
15.4	1.5	67.6	4.9	76.7	0.0	0.0	0.00	264	74807
15.4	1.4	67.9	4.9	76.2	0.0	0.0	0.00	265	74817
15.6	1.5	66.8	4.8	74.7	0.0	0.0	0.00	266	74828
15.6	1.4	66.8	4.8	74.2	0.0	0.0	0.00	267	74838
15.6	1.4	66.2	4.8	72.8	0.0	0.0	0.00	268	74848
15.6	1.4	64.3	4.7	72.8	0.0	0.0	0.00	269	74859
15.6	1.4	64.9	4.7	74.0	0.0	0.0	0.00	270	74909
15.5	1.4	65.1	4.7	74.7	0.0	0.0	0.00	271	74919
15.6	1.4	64.9	4.7	76.2	0.0	0.0	0.00	272	74929
15.6	1.5	65.4	4.8	75.4	0.0	0.0	0.00	273	74939
15.5	1.4	65.6	4.9	74.7	0.0	0.0	0.00	274	74949
15.6	1.5	65.6	4.9	73.7	0.0	0.0	0.00	275	74959
15.5	1.4	66.4	4.8	73.0	0.0	0.0	0.00	276	75010
15.6	1.5	67.7	4.9	73.0	0.0	0.0	0.00	277	75020
15.3	1.4	67.9	4.9	74.0	0.0	0.0	0.00	278	75030
15.6	1.5	68.2	5.0	74.0	0.0	0.0	0.00	279	75040
15.5	1.4	68.5	5.0	74.2	0.0	0.0	0.00	280	75050
15.5	1.4	69.2	5.0	73.0	0.0	0.0	0.00	281	75101
15.5	1.4	68.2	4.9	72.0	0.0	0.0	0.00	282	75111
15.5	1.4	68.2	5.0	73.0	0.0	0.0	0.00	283	75121
15.5	1.5	67.4	4.9	73.7	0.0	0.0	0.00	284	75131
15.5	1.5	66.8	4.9	74.2	0.0	0.0	0.00	285	75141
15.5	1.4	66.7	4.9	73.7	0.0	0.0	0.00	286	75151
15.6	1.4	66.3	4.9	71.5	0.0	0.0	0.00	287	75202
15.5	1.4	66.4	4.9	72.2	0.0	0.0	0.00	288	75212
15.5	1.4	65.1	4.9	74.5	0.0	0.0	0.00	289	75222
15.6	1.4	64.9	4.7	75.9	0.0	0.0	0.00	290	75232

CO P	scan	time

15.5	1.4	66.8	4.9	76.9	0.0	0.0	0.00	291	75242
15.5	1.4	68.0	4.9	79.1	0.0	0.0	0.00	292	75252
15.4	1.4	68.4	5.0	80.8	0.0	0.0	0.00	293	75302
15.6	1.4	67.5	4.9	81.1	0.0	0.0	0.00	294	75313
15.6	1.4	66.7	4.9	80.1	0.0	0.0	0.00	295	75323
15.6	1.4	66.8	4.8	78.9	0.0	0.0	0.00	296	75333
15.5	1.5	66.2	4.8	79.5	0.0	0.0	0.00	297	75343
15.6	1.4	65.8	4.8	80.6	0.0	0.0	0.00	298	75353
15.5	1.4	66.9	4.8	82.0	0.0	0.0	0.00	299	75402
15.4	1.4	68.7	5.0	82.0	0.0	0.0	0.00	300	75412
15.3	1.5	68.8	5.0	81.8	0.0	0.0	0.00	301	75422
15.4	1.4	70.1	5.1	81.1	0.0	0.0	0.00	302	75433
15.4	1.4	68.6	4.9	81.1	0.0	0.0	0.00	303	75443
15.4	1.4	68.6	5.0	80.6	0.0	0.0	0.00	304	75453
15.4	1.4	66.8	4.9	81.1	0.0	0.0	0.00	305	75503
15.3	1.5	61.4	4.5	81.1	0.0	0.0	0.00	306	75513
15.5	1.4	59.2	4.4	80.8	0.0	0.0	0.00	307	75523
15.6	1.4	56.5	4.2	80.8	0.0	0.0	0.00	308	75534
15.4	1.4	56.9	4.2	81.8	0.0	0.0	0.00	309	75544
15.5	1.4	58.2	4.3	81.1	0.0	0.0	0.00	310	75554
15.4	1.4	61.3	4.5	80.1	0.0	0.0	0.00	311	75604
15.6	1.4	64.5	4.8	79.1	0.0	0.0	0.00	312	75614
15.5	1.4	68.1	4.9	76.9	0.0	0.0	0.00	313	75624
15.6	1.4	69.8	5.1	74.0	0.0	0.0	0.00	314	75635
15.6	1.4	70.1	5.1	69.8	0.0	0.0	0.00	315	75645
15.6	1.4	69.5	5.1	65.9	0.0	0.0	0.00	316	75655
15.6	1.4	69.1	5.0	62.5	0.0	0.0	0.00	317	75705
15.6	1.4	69.5	5.0	62.5	0.0	0.0	0.00	318	75715
15.4	1.4	70.1	5.1	62.0	0.0	0.0	0.00	319	75726
15.5	1.4	70.2	5.1	60.5	0.0	0.0	0.00	320	75736
15.6	1.4	70.4	5.1	59.8	0.0	0.0	0.00	321	75746
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
15.5	1.5	70.3	5.1	58.8	0.0	0.0	0.00	322	75756
15.6	1.4	70.3	5.1	58.6	0.0	0.0	0.00	323	75806
15.5	1.4	70.8	5.2	58.8	0.0	0.0	0.00	324	75816
15.5	1.5	71.9	5.2	58.6	0.0	0.0	0.00	325	75826
15.5	1.4	71.3	5.2	59.6	0.0	0.0	0.00	326	75836
15.5	1.4	70.9	5.2	59.6	0.0	0.0	0.00	327	75847
15.6	1.4	71.2	5.1	61.3	0.0	0.0	0.00	328	75857
15.6	1.4	69.5	5.1	61.3	0.0	0.0	0.00	329	75907
15.6	1.4	68.8	5.0	60.8	0.0	0.0	0.00	330	75917
15.5	1.4	65.9	4.9	61.3	0.0	0.0	0.00	331	75926
15.6	1.4	64.9	4.8	62.7	0.0	0.0	0.00	332	75937
15.5	1.4	64.9	4.8	63.5	0.0	0.0	0.00	333	75947
15.5	1.4	64.0	4.7	64.5	0.0	0.0	0.00	334	75957
15.5	1.4	64.0	4.7	66.9	0.0	0.0	0.00	335	80008
15.6	1.5	63.5	4.7	67.6	0.0	0.0	0.00	336	80018
15.5	1.4	64.7	4.8	68.4	0.0	0.0	0.00	337	80028
15.5	1.4	67.1	4.9	70.8	0.0	0.0	0.00	338	80037
15.6	1.4	69.2	5.0	71.3	0.0	0.0	0.00	339	80048
15.6	1.4	70.3	5.1	70.1	0.0	0.0	0.00	340	80058
15.6	1.5	70.7	5.1	70.1	0.0	0.0	0.00	341	80108
15.6	1.4	71.0	5.2	67.6	0.0	0.0	0.00	342	80118
15.6	1.4	71.7	5.2	66.7	0.0	0.0	0.00	343	80128
15.6	1.5	72.1	5.2	64.5	0.0	0.0	0.00	344	80138
15.6	1.5	72.5	5.2	63.7	0.0	0.0	0.00	345	80149
15.6	1.4	71.8	5.2	63.7	0.0	0.0	0.00	346	80159
15.5	1.4	72.3	5.2	63.5	0.0	0.0	0.00	347	80209
15.5	1.5	72.0	5.2	62.5	0.0	0.0	0.00	348	80219
15.4	1.4	72.5	5.2	62.5	0.0	0.0	0.00	349	80230
15.6	1.4	72.1	5.2	62.5	0.0	0.0	0.00	350	80240
15.6	1.4	72.1	5.2	62.7	0.0	0.0	0.00	351	80250
15.5	1.5	71.7	5.2	63.7	0.0	0.0	0.00	352	80301
15.6	1.4	72.4	5.2	63.0	0.0	0.0	0.00	353	80311
15.6	1.4	72.3	5.2	62.5	0.0	0.0	0.00	354	80321
15.5	1.4	71.3	5.2	61.8	0.0	0.0	0.00	355	80331

CO P scan time

15.6	1.5	70.9	5.1	62.0	0.0	0.0	0.00	356	80342
15.6	1.4	71.7	5.2	62.0	0.0	0.0	0.00	357	80352
15.5	1.4	68.4	5.0	62.3	0.0	0.0	0.00	358	80402
15.6	1.4	68.8	5.0	62.5	0.0	0.0	0.00	359	80413
15.5	1.5	67.1	4.9	63.5	0.0	0.0	0.00	360	80423
15.6	1.4	66.8	4.8	64.7	0.0	0.0	0.00	361	80433
15.6	1.4	67.1	4.9	64.5	0.0	0.0	0.00	362	80444
15.6	1.4	66.9	4.9	64.9	0.0	0.0	0.00	363	80454
15.5	1.4	67.0	4.9	63.7	0.0	0.0	0.00	364	80504
15.5	1.4	68.1	4.9	63.5	0.0	0.0	0.00	365	80514
15.5	1.4	69.9	5.0	63.5	0.0	0.0	0.00	366	80524
15.4	1.5	71.0	5.1	61.8	0.0	0.0	0.00	367	80535
15.6	1.4	71.8	5.2	61.0	0.0	0.0	0.00	368	80545
15.5	1.4	71.4	5.2	59.6	0.0	0.0	0.00	369	80555
15.6	1.5	70.7	5.1	58.6	0.0	0.0	0.00	370	80605
15.6	1.4	69.3	5.0	57.9	0.0	0.0	0.00	371	80616
15.6	1.4	69.7	5.1	56.6	0.0	0.0	0.00	372	80626
15.7	1.4	70.3	5.1	55.7	0.0	0.0	0.00	373	80636
15.5	1.5	69.2	5.0	55.7	0.0	0.0	0.00	374	80647
15.5	1.4	69.2	5.1	55.7	0.0	0.0	0.00	375	80657
15.6	1.5	68.2	5.0	54.7	0.0	0.0	0.00	376	80708
15.6	1.4	67.6	5.0	53.7	0.0	0.0	0.00	377	80718
15.6	1.5	66.2	4.8	53.7	0.0	0.0	0.00	378	80728
15.6	1.5	64.2	4.7	53.7	0.0	0.0	0.00	379	80737
15.6	1.4	64.6	4.8	52.7	0.0	0.0	0.00	380	80748
15.6	1.5	64.5	4.7	52.7	0.0	0.0	0.00	381	80758
15.6	1.4	67.1	4.9	52.7	0.0	0.0	0.00	382	80808
15.6	1.4	69.5	5.1	52.7	0.0	0.0	0.00	383	80817
15.6	1.5	70.8	5.1	52.7	0.0	0.0	0.00	384	80828
15.7	1.4	71.3	5.1	51.8	0.0	0.0	0.00	385	80838
15.6	1.4	70.7	5.1	50.8	0.0	0.0	0.00	386	80847
15.6	1.5	69.5	5.1	48.8	0.0	0.0	0.00	387	80858
15.9	1.5	68.5	5.0	48.8	0.0	0.0	0.00	388	80908
15.6	1.5	68.5	5.0	47.9	0.0	0.0	0.00	389	80918
15.7	1.4	68.2	5.0	47.9	0.0	0.0	0.00	390	80928
15.7	1.5	66.8	4.9	47.9	0.0	0.0	0.00	391	80939
16.0	1.4	68.0	5.0	47.9	0.0	0.0	0.00	392	80949
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
15.7	1.5	68.1	5.0	47.6	0.0	0.0	0.00	393	80959
15.9	1.4	68.1	5.0	47.9	0.0	0.0	0.00	394	81010
15.7	1.5	68.8	5.0	47.4	0.0	0.0	0.00	395	81020
16.1	1.4	69.1	5.0	46.1	0.0	0.0	0.00	396	81030
15.9	1.5	69.9	5.1	45.9	0.0	0.0	0.00	397	81040
15.9	1.5	69.7	5.1	45.9	0.0	0.0	0.00	398	81050
16.1	1.4	70.9	5.2	45.9	0.0	0.0	0.00	399	81100
16.0	1.5	69.9	5.0	46.4	0.0	0.0	0.00	400	81110
16.0	1.5	69.5	5.1	46.9	0.0	0.0	0.00	401	81120
16.0	1.4	67.5	4.9	46.9	0.0	0.0	0.00	402	81131
16.0	1.5	68.4	5.0	47.9	0.0	0.0	0.00	403	81141
15.9	1.4	69.9	5.1	47.9	0.0	0.0	0.00	404	81151
16.1	1.5	70.4	5.1	47.9	0.0	0.0	0.00	405	81201
16.0	1.5	68.5	5.0	46.9	0.0	0.0	0.00	406	81211
16.0	1.4	68.2	5.0	47.9	0.0	0.0	0.00	407	81222
16.1	1.4	68.4	5.0	48.8	0.0	0.0	0.00	408	81232
16.1	1.4	67.4	4.9	48.8	0.0	0.0	0.00	409	81242
15.6	1.5	66.9	4.9	48.8	0.0	0.0	0.00	410	81253
15.9	1.5	67.3	5.0	48.8	0.0	0.0	0.00	411	81303
16.0	1.4	66.8	4.9	50.8	0.0	0.0	0.00	412	81313
16.0	1.5	67.1	4.9	51.8	0.0	0.0	0.00	413	81323
16.1	1.4	67.0	4.8	51.8	0.0	0.0	0.00	414	81334
16.0	1.5	68.4	5.0	51.8	0.0	0.0	0.00	415	81344
15.9	1.4	68.2	5.0	51.8	0.0	0.0	0.00	416	81354
16.1	1.4	65.1	4.8	51.8	0.0	0.0	0.00	417	81404
15.9	1.5	64.6	4.7	51.8	0.0	0.0	0.00	418	81414
16.0	1.5	64.9	4.8	51.8	0.0	0.0	0.00	419	81425
15.9	1.5	66.9	4.9	51.8	0.0	0.0	0.00	420	81435

15.7	1.5	68.1	5.0	50.8	0.0	0.0	0.00	421	81445
16.0	1.5	68.7	5.0	50.8	0.0	0.0	0.00	422	81456
16.1	1.5	68.5	4.9	50.8	0.0	0.0	0.00	423	81506
15.9	1.5	68.8	5.0	49.8	0.0	0.0	0.00	424	81516
15.9	1.5	67.0	4.9	47.9	0.0	0.0	0.00	425	81526
16.1	1.5	65.4	4.8	47.9	0.0	0.0	0.00	426	81536
16.1	1.5	65.2	4.8	46.9	0.0	0.0	0.00	427	81547
16.1	1.5	65.9	4.8	46.9	0.0	0.0	0.00	428	81557
16.1	1.5	66.9	4.9	46.9	0.0	0.0	0.00	429	81607
16.0	1.5	66.7	4.9	46.9	0.0	0.0	0.00	430	81618
16.1	1.5	67.0	4.9	45.9	0.0	0.0	0.00	431	81628
16.1	1.5	67.0	4.8	45.9	0.0	0.0	0.00	432	81638
16.1	1.5	67.1	4.9	45.9	0.0	0.0	0.00	433	81648
16.1	1.5	66.7	4.9	45.9	0.0	0.0	0.00	434	81659
16.1	1.4	65.9	4.8	45.9	0.0	0.0	0.00	435	81709
16.0	1.5	66.0	4.8	45.9	0.0	0.0	0.00	436	81719
16.1	1.5	68.1	4.9	45.9	0.0	0.0	0.00	437	81729
16.0	1.4	70.2	5.1	45.9	0.0	0.0	0.00	438	81739
16.0	1.5	70.9	5.1	45.9	0.0	0.0	0.00	439	81749
16.0	1.5	70.9	5.0	45.9	0.0	0.0	0.00	440	81800
16.0	1.5	71.8	5.2	46.9	0.0	0.0	0.00	441	81811
15.7	1.5	71.7	5.2	46.9	0.0	0.0	0.00	442	81821
16.0	1.5	71.9	5.2	47.9	0.0	0.0	0.00	443	81831
15.6	1.5	71.0	5.2	47.9	0.0	0.0	0.00	444	81841
16.1	1.5	68.5	4.9	47.9	0.0	0.0	0.00	445	81851
15.9	1.4	69.6	5.1	47.9	0.0	0.0	0.00	446	81902
15.9	1.5	69.2	5.0	47.9	0.0	0.0	0.00	447	81912
15.7	1.5	68.6	5.0	47.9	0.0	0.0	0.00	448	81922
16.0	1.4	68.0	5.0	47.9	0.0	0.0	0.00	449	81932
16.0	1.4	68.1	4.9	47.9	0.0	0.0	0.00	450	81942
15.9	1.4	68.6	5.0	47.9	0.0	0.0	0.00	451	81951
15.7	1.4	68.2	5.0	47.9	0.0	0.0	0.00	452	82002
16.1	1.5	65.2	4.8	46.9	0.0	0.0	0.00	453	82012
16.0	1.5	67.5	4.9	46.9	0.0	0.0	0.00	454	82022
15.9	1.5	69.3	5.0	46.9	0.0	0.0	0.00	455	82032
16.0	1.5	68.1	4.9	46.9	0.0	0.0	0.00	456	82042
16.1	1.4	68.4	5.0	46.9	0.0	0.0	0.00	457	82053
16.1	1.4	69.0	5.0	46.9	0.0	0.0	0.00	458	82103
16.1	1.5	67.4	4.9	45.9	0.0	0.0	0.00	459	82113
15.9	1.5	66.2	4.8	45.9	0.0	0.0	0.00	460	82123
16.0	1.5	64.0	4.6	45.9	0.0	0.0	0.00	461	82133
15.9	1.5	64.2	4.7	45.7	0.0	0.0	0.00	462	82143
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
15.9	1.5	63.6	4.6	45.7	0.0	0.0	0.00	463	82153
15.9	1.5	61.3	4.5	45.9	0.0	0.0	0.00	464	82203
16.0	1.4	62.1	4.6	45.9	0.0	0.0	0.00	465	82213
15.7	1.4	64.7	4.7	46.9	0.0	0.0	0.00	466	82223
16.0	1.5	65.3	4.8	46.9	0.0	0.0	0.00	467	82232
15.7	1.4	64.5	4.8	46.9	0.0	0.0	0.00	468	82242
15.9	1.4	65.4	4.7	46.9	0.0	0.0	0.00	469	82253
16.1	1.5	67.3	4.9	46.9	0.0	0.0	0.00	470	82303
16.0	1.4	68.4	5.0	46.9	0.0	0.0	0.00	471	82313
15.9	1.5	68.0	5.0	45.9	0.0	0.0	0.00	472	82323
16.0	1.5	68.6	5.1	45.9	0.0	0.0	0.00	473	82332
16.1	1.4	68.1	5.0	45.9	0.0	0.0	0.00	474	82342
16.1	1.5	68.2	4.9	45.9	0.0	0.0	0.00	475	82253
15.9	1.5	68.2	5.0	45.9	0.0	0.0	0.00	476	82403
16.1	1.4	67.5	4.9	45.9	0.0	0.0	0.00	477	82413
15.7	1.5	66.4	4.9	44.9	0.0	0.0	0.00	478	82423
16.0	1.5	65.7	4.8	44.9	0.0	0.0	0.00	479	82433
16.1	1.4	65.3	4.8	45.9	0.0	0.0	0.00	480	82443
16.1	1.5	65.8	4.7	45.9	0.0	0.0	0.00	481	82453
16.1	1.5	66.0	4.8	45.9	0.0	0.0	0.00	482	82504
16.1	1.5	65.8	4.8	45.9	0.0	0.0	0.00	483	82514
15.9	1.4	68.4	5.0	45.9	0.0	0.0	0.00	484	82524
15.9	1.4	67.6	4.9	45.9	0.0	0.0	0.00	485	82535

16.1	1.5	66.9	4.9	45.9	0.0	0.0	0.00	486	82545
16.0	1.5	67.9	4.9	45.9	0.0	0.0	0.00	487	82555
16.1	1.5	67.9	4.9	45.9	0.0	0.0	0.00	488	82605
16.0	1.4	68.4	5.0	45.9	0.0	0.0	0.00	489	82615
16.0	1.5	68.4	4.9	45.9	0.0	0.0	0.00	490	82625
16.1	1.5	67.0	4.9	46.9	0.0	0.0	0.00	491	82636
16.1	1.5	66.4	4.9	46.6	0.0	0.0	0.00	492	82646
16.1	1.5	65.8	4.9	46.9	0.0	0.0	0.00	493	82656
16.1	1.5	64.8	4.8	47.9	0.0	0.0	0.00	494	82706
16.1	1.5	64.2	4.7	47.9	0.0	0.0	0.00	495	82716
16.1	1.4	64.1	4.7	47.9	0.0	0.0	0.00	496	82727
16.1	1.5	64.2	4.7	47.9	0.0	0.0	0.00	497	82737
16.1	1.5	64.7	4.7	47.9	0.0	0.0	0.00	498	82747
16.2	1.5	66.3	4.8	47.9	0.0	0.0	0.00	499	82757
16.1	1.5	66.3	4.8	47.9	0.0	0.0	0.00	500	82807
16.2	1.5	66.0	4.8	47.9	0.0	0.0	0.00	501	82817
16.1	1.5	65.3	4.8	47.9	0.0	0.0	0.00	502	82827
16.2	1.5	65.1	4.8	47.9	0.0	0.0	0.00	503	82837
16.1	1.5	64.9	4.8	47.9	0.0	0.0	0.00	504	82848
16.1	1.5	65.3	4.7	47.9	0.0	0.0	0.00	505	82858
16.2	1.5	65.8	4.8	47.9	0.0	0.0	0.00	506	82908
16.1	1.5	66.9	4.9	47.9	0.0	0.0	0.00	507	82918
16.1	1.5	67.7	4.9	46.9	0.0	0.0	0.00	508	82928
16.2	1.5	67.3	4.9	47.9	0.0	0.0	0.00	509	82938
16.2	1.5	67.4	4.9	47.9	0.0	0.0	0.00	510	82948
16.1	1.5	67.0	4.9	47.9	0.0	0.0	0.00	511	82958
16.1	1.5	67.7	4.9	46.6	0.0	0.0	0.00	512	83009
16.1	1.5	66.2	4.8	46.9	0.0	0.0	0.00	513	83019
16.1	1.5	64.2	4.7	47.6	0.0	0.0	0.00	514	83029
16.1	1.5	63.4	4.7	47.9	0.0	0.0	0.00	515	83039
16.1	1.4	63.4	4.6	46.9	0.0	0.0	0.00	516	83049
16.2	1.5	62.9	4.6	47.9	0.0	0.0	0.00	517	83058
16.1	1.5	59.6	4.4	47.9	0.0	0.0	0.00	518	83109
16.1	1.5	61.0	4.5	47.9	0.0	0.0	0.00	519	83119
16.1	1.4	62.7	4.6	47.9	0.0	0.0	0.00	520	83129
16.1	1.5	61.6	4.5	46.9	0.0	0.0	0.00	521	83140
16.1	1.5	63.7	4.6	47.9	0.0	0.0	0.00	522	83150
16.1	1.4	64.5	4.7	47.9	0.0	0.0	0.00	523	83200
16.1	1.5	65.1	4.7	48.6	0.0	0.0	0.00	524	83211
16.1	1.5	65.3	4.7	47.9	0.0	0.0	0.00	525	83221
16.2	1.5	66.4	4.8	47.9	0.0	0.0	0.00	526	83231
16.1	1.5	66.8	4.9	47.9	0.0	0.0	0.00	527	83242
16.1	1.5	66.5	4.9	47.9	0.0	0.0	0.00	528	83252
16.1	1.5	65.2	4.8	46.9	0.0	0.0	0.00	529	83301
16.4	1.5	64.3	4.7	46.9	0.0	0.0	0.00	530	83312
16.1	1.5	64.6	4.7	45.9	0.0	0.0	0.00	531	83322
16.1	1.5	64.8	4.8	46.6	0.0	0.0	0.00	532	83332
16.1	1.5	65.6	4.6	46.9	0.0	0.0	0.00	533	83343
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
16.2	1.5	66.4	4.9	45.9	0.0	0.0	0.00	534	83353
16.2	1.5	66.4	4.9	44.9	0.0	0.0	0.00	535	83403
16.1	1.5	65.7	4.8	44.7	0.0	0.0	0.00	536	83414
16.1	1.5	65.8	4.8	45.9	0.0	0.0	0.00	537	83424
16.2	1.5	65.8	4.8	45.9	0.0	0.0	0.00	538	83433
16.1	1.5	66.4	4.9	44.9	0.0	0.0	0.00	539	83444
16.2	1.5	64.8	4.8	44.9	0.0	0.0	0.00	540	83454
16.2	1.5	64.3	4.7	44.9	0.0	0.0	0.00	541	83504
16.1	1.5	64.7	4.7	44.9	0.0	0.0	0.00	542	83514
16.1	1.5	65.5	4.5	45.9	0.0	0.0	0.00	543	83525
16.1	1.5	65.9	4.6	45.9	0.0	0.0	0.00	544	83535
16.1	1.5	66.2	4.9	45.9	0.0	0.0	0.00	545	83545
16.1	1.5	65.7	4.8	44.9	0.0	0.0	0.00	546	83556
16.1	1.4	66.5	4.9	44.9	0.0	0.0	0.00	547	83606
16.1	1.5	66.2	4.9	44.9	0.0	0.0	0.00	548	83616
16.0	1.5	65.2	4.8	44.9	0.0	0.0	0.00	549	83627
16.1	1.5	64.8	4.8	45.9	0.0	0.0	0.00	550	83637

16.1	1.5	67.1	4.9	45.9	0.0	0.0	0.00	551	83648
16.0	1.5	67.0	4.9	46.6	0.0	0.0	0.00	552	83658
16.1	1.5	64.5	4.7	46.9	0.0	0.0	0.00	553	83708
16.1	1.5	64.2	4.7	46.9	0.0	0.0	0.00	554	83719
16.1	1.5	62.7	4.6	46.9	0.0	0.0	0.00	555	83729
16.1	1.5	59.3	4.4	46.9	0.0	0.0	0.00	556	83739
15.9	1.5	61.5	4.6	47.9	0.0	0.0	0.00	557	83750
16.0	1.5	63.5	4.7	47.9	0.0	0.0	0.00	558	83800
16.1	1.5	64.5	4.7	47.9	0.0	0.0	0.00	559	83810
16.0	1.4	63.6	4.7	47.9	0.0	0.0	0.00	560	83820
16.0	1.5	63.6	4.7	46.9	0.0	0.0	0.00	561	83830
16.1	1.5	63.5	4.7	46.6	0.0	0.0	0.00	562	83840
16.1	1.5	65.4	4.8	46.9	0.0	0.0	0.00	563	83851
16.1	1.5	66.4	4.8	46.9	0.0	0.0	0.00	564	83901
16.1	1.5	66.3	4.8	46.6	0.0	0.0	0.00	565	83911
16.1	1.5	65.8	4.8	45.9	0.0	0.0	0.00	566	83922
16.1	1.5	64.6	4.7	45.9	0.0	0.0	0.00	567	83932
16.1	1.5	64.5	4.7	45.9	0.0	0.0	0.00	568	83942
16.1	1.5	64.6	4.8	45.7	0.0	0.0	0.00	569	83953
16.5	1.5	64.7	4.8	46.9	0.0	0.0	0.00	570	84003
16.2	1.5	65.4	4.8	46.9	0.0	0.0	0.00	571	84013
16.4	1.5	64.7	4.8	45.9	0.0	0.0	0.00	572	84023
16.1	1.5	65.9	4.8	45.9	0.0	0.0	0.00	573	84033
16.1	1.5	67.4	4.9	45.9	0.0	0.0	0.00	574	84042
16.1	1.5	67.6	4.9	46.9	0.0	0.0	0.00	575	84053
16.2	1.5	66.9	4.9	46.9	0.0	0.0	0.00	576	84103
16.1	1.5	66.2	4.8	46.9	0.0	0.0	0.00	577	84113
16.1	1.5	66.7	4.9	45.7	0.0	0.0	0.00	578	84122
16.1	1.5	65.9	4.9	45.9	0.0	0.0	0.00	579	84133
16.1	1.4	67.5	4.9	45.4	0.0	0.0	0.00	580	84143
16.0	1.5	67.9	4.9	44.9	0.0	0.0	0.00	581	84153
16.1	1.5	67.3	4.9	44.9	0.0	0.0	0.00	582	84203
16.1	1.5	67.9	5.0	44.9	0.0	0.0	0.00	583	84213
16.1	1.5	66.8	4.9	44.9	0.0	0.0	0.00	584	84223
16.0	1.4	68.2	5.0	44.9	0.0	0.0	0.00	585	84233
16.0	1.5	66.8	4.9	44.9	0.0	0.0	0.00	586	84244
16.1	1.4	63.0	4.7	44.9	0.0	0.0	0.00	587	84254
16.0	1.5	61.0	4.6	45.9	0.0	0.0	0.00	588	84304
16.0	1.5	61.5	4.6	45.9	0.0	0.0	0.00	589	84315
16.1	1.5	62.7	4.6	47.1	0.0	0.0	0.00	590	84325
16.1	1.5	62.1	4.6	45.9	0.0	0.0	0.00	591	84335
16.1	1.5	62.7	4.7	44.9	0.0	0.0	0.00	592	84346
16.1	1.4	64.0	4.7	44.9	0.0	0.0	0.00	593	84356
16.1	1.5	65.4	4.8	44.9	0.0	0.0	0.00	594	84405
16.1	1.5	66.0	4.8	44.9	0.0	0.0	0.00	595	84416
16.1	1.5	65.1	4.8	44.9	0.0	0.0	0.00	596	84426
16.1	1.5	64.5	4.8	44.9	0.0	0.0	0.00	597	84436
16.2	1.5	64.7	4.8	44.9	0.0	0.0	0.00	598	84445
16.2	1.5	63.5	4.7	44.9	0.0	0.0	0.00	599	84456
16.1	1.5	62.2	4.6	44.9	0.0	0.0	0.00	600	84506
16.2	1.5	61.6	4.5	44.9	0.0	0.0	0.00	601	84516
16.4	1.5	62.6	4.6	44.9	0.0	0.0	0.00	602	84525
16.2	1.5	62.6	4.7	44.9	0.0	0.0	0.00	603	84536
16.6	1.5	62.6	4.6	45.9	0.0	0.0	0.00	604	84546
O2_%	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
16.5	1.5	61.8	4.6	45.9	0.0	0.0	0.00	605	84557
16.4	1.5	63.6	4.7	45.9	0.0	0.0	0.00	606	84607
16.4	1.5	63.2	4.7	46.9	0.0	0.0	0.00	607	84617
16.5	1.5	64.2	4.8	47.9	0.0	0.0	0.00	608	84627
16.4	1.5	64.6	4.8	47.9	0.0	0.0	0.00	609	84637
16.2	1.5	64.1	4.7	47.9	0.0	0.0	0.00	610	84648
16.1	1.4	65.1	4.8	47.9	0.0	0.0	0.00	611	84658
16.1	1.5	67.5	5.0	47.9	0.0	0.0	0.00	612	84708
16.0	1.5	66.4	4.9	47.9	0.0	0.0	0.00	613	84719
16.1	1.5	65.3	4.8	46.9	0.0	0.0	0.00	614	84729
16.1	1.4	66.2	4.9	46.9	0.0	0.0	0.00	615	84738

END OF TEST #1

16.1	1.5	65.8	4.8	46.9	0.0	0.0	0.00	616	84749
15.9	1.5	65.6	4.8	46.9	0.0	0.0	0.00	617	84800
15.7	1.5	65.9	4.9	46.9	0.0	0.0	0.00	618	84810
16.0	1.5	66.2	4.9	47.9	0.0	0.0	0.00	619	84820
15.7	1.5	67.5	5.0	46.9	0.0	0.0	0.00	620	84830
15.9	1.5	67.4	4.9	46.9	0.0	0.0	0.00	621	84841
15.7	1.5	67.5	5.0	46.9	0.0	0.0	0.00	622	84851
15.0	1.4	67.3	5.0	46.9	0.0	0.0	0.00	623	84901
15.1	1.5	67.5	5.0	46.9	0.0	0.0	0.00	624	84910
15.1	1.4	66.5	4.9	45.9	0.0	0.0	0.00	625	84921
16.1	1.5	66.5	4.9	45.9	0.0	0.0	0.00	626	84931
16.1	1.5	67.6	5.0	45.9	0.0	0.0	0.00	627	84941
16.1	1.5	67.6	5.0	46.1	0.0	0.0	0.00	628	84952
16.1	1.5	66.9	4.9	44.9	0.0	0.0	0.00	629	85002
16.1	1.5	66.3	4.9	44.9	0.0	0.0	0.00	630	85012
16.1	1.5	67.3	5.0	44.9	0.0	0.0	0.00	631	85022
16.1	1.5	67.0	5.0	44.9	0.0	0.0	0.00	632	85032
16.1	1.5	66.4	4.9	44.9	0.0	0.0	0.00	633	85043
16.1	1.5	65.7	4.8	43.9	0.0	0.0	0.00	634	85053
16.2	1.5	66.0	4.9	43.7	0.0	0.0	0.00	635	85103
16.1	1.5	66.2	4.9	43.7	0.0	0.0	0.00	636	85113
16.1	1.5	65.6	4.9	44.9	0.0	0.0	0.00	637	85123
16.1	1.4	65.8	4.9	44.9	0.0	0.0	0.00	638	85133
16.1	1.5	65.4	4.9	44.9	0.0	0.0	0.00	639	85143
16.1	1.5	65.3	4.8	44.7	0.0	0.0	0.00	640	85153
16.1	1.5	65.3	4.9	45.9	0.0	0.0	0.00	641	85204
16.1	1.5	66.4	4.9	45.9	0.0	0.0	0.00	642	85214
16.1	1.5	66.4	5.0	45.9	0.0	0.0	0.00	643	85224
16.2	1.5	66.3	4.9	45.9	0.0	0.0	0.00	644	85234
16.1	1.5	67.7	5.1	45.9	0.0	0.0	0.00	645	85244
16.0	1.5	68.4	5.1	45.9	0.0	0.0	0.00	646	85254
16.1	1.5	68.4	5.1	45.9	0.0	0.0	0.00	647	85305
16.1	1.5	68.2	5.0	44.9	0.0	0.0	0.00	648	85315
15.9	1.5	68.4	5.1	44.9	0.0	0.0	0.00	649	85325
15.9	1.5	68.0	5.0	44.9	0.0	0.0	0.00	650	85336
16.0	1.5	66.8	5.0	45.9	0.0	0.0	0.00	651	85346
16.0	1.5	65.4	4.9	45.7	0.0	0.0	0.00	652	85356
16.0	1.5	64.5	4.8	45.9	0.0	0.0	0.00	653	85406
16.1	1.5	64.8	4.8	45.9	0.0	0.0	0.00	654	85416
16.1	1.5	65.9	4.9	45.9	0.0	0.0	0.00	655	85425
16.1	1.5	65.3	4.9	46.1	0.0	0.0	0.00	656	85436
16.1	1.5	64.6	4.8	45.9	0.0	0.0	0.00	657	85446
15.1	1.5	64.7	4.8	45.7	0.0	0.0	0.00	658	85455
16.2	1.5	64.0	4.8	44.9	0.0	0.0	0.00	659	85506
16.2	1.5	64.0	4.8	45.9	0.0	0.0	0.00	660	85516
16.4	1.5	63.4	4.7	45.9	0.0	0.0	0.00	661	85526
16.5	1.5	62.6	4.7	46.8	0.0	0.0	0.00	662	85536
16.5	1.5	61.5	4.6	46.9	0.0	0.0	0.00	663	85546
16.5	1.5	62.3	4.7	47.9	0.0	0.0	0.00	664	85557
16.4	1.5	62.0	4.6	47.9	0.0	0.0	0.00	665	85607
16.6	1.5	61.6	4.6	47.9	0.0	0.0	0.00	666	85617
16.6	1.5	62.0	4.6	48.8	0.0	0.0	0.00	667	85627
16.6	1.5	62.4	4.7	48.8	0.0	0.0	0.00	668	85637
16.5	1.5	62.3	4.7	49.8	0.0	0.0	0.00	669	85648
16.6	1.5	62.5	4.7	50.8	0.0	0.0	0.00	670	85658
16.5	1.5	63.2	4.7	50.8	0.0	0.0	0.00	671	85709
16.5	1.5	54.0	4.3	52.0	0.0	0.0	0.00	672	85719
16.6	1.5	63.2	4.7	50.8	0.0	0.0	0.00	673	85729
16.5	1.5	53.5	4.3	50.8	0.0	0.0	0.00	674	85739
16.6	1.5	53.7	4.7	50.8	0.0	0.0	0.00	675	85749
O2_5	thc	NOX	SO2	CO700	MT	MT	MT	THC_C	THC_I	CO P	scan	time
16.5	1.5	54.0	4.3	50.8	0.0	0.0	0.00	676	85759
16.6	1.5	53.7	4.8	51.8	0.0	0.0	0.00	677	85809
16.5	1.5	63.1	4.7	51.8	0.0	0.0	0.00	678	85819
16.6	1.5	62.3	4.7	51.8	0.0	0.0	0.00	679	85830
16.6	1.5	60.1	4.5	51.8	0.0	0.0	0.00	680	85840

16.6	1.5	60.3	4.5	51.8	0.0	0.0	0.00	681	85850
16.4	1.5	61.5	4.6	51.8	0.0	0.0	0.00	682	85901
16.4	1.5	62.1	4.7	50.8	0.0	0.0	0.00	683	85911
16.6	1.5	61.9	4.6	49.8	0.0	0.0	0.00	684	85921
16.5	1.5	63.2	4.7	50.0	0.0	0.0	0.00	685	85931
16.5	1.5	63.0	4.7	50.8	0.0	0.0	0.00	686	85941
16.5	1.5	64.1	4.8	50.5	0.0	0.0	0.00	687	85951
16.5	1.5	64.2	4.8	51.5	0.0	0.0	0.00	688	90001
16.6	1.5	63.7	4.8	52.0	0.0	0.0	0.00	689	90011
16.5	1.5	65.2	4.8	51.8	0.0	0.0	0.00	690	90021
16.4	1.5	64.9	4.8	51.8	0.0	0.0	0.00	691	90032
16.2	1.4	64.2	4.8	50.8	0.0	0.0	0.00	692	90042
16.1	1.5	63.6	4.7	49.8	0.0	0.0	0.00	693	90052
16.1	1.5	63.0	4.7	49.8	0.0	0.0	0.00	694	90102
16.1	1.5	61.8	4.6	48.8	0.0	0.0	0.00	695	90112
16.1	1.5	62.7	4.6	48.8	0.0	0.0	0.00	696	90122
16.1	1.5	65.1	4.8	47.9	0.0	0.0	0.00	697	90133
16.1	1.5	66.2	4.9	47.9	0.0	0.0	0.00	698	90143
16.1	1.5	66.0	4.9	47.9	0.0	0.0	0.00	699	90153
16.1	1.5	67.0	4.9	46.9	0.0	0.0	0.00	700	90203
16.1	1.5	66.7	4.9	46.9	0.0	0.0	0.00	701	90213
16.0	1.5	67.9	5.0	46.9	0.0	0.0	0.00	702	90224
16.0	1.5	69.2	5.1	45.9	0.0	0.0	0.00	703	90234
16.1	1.5	69.8	5.1	46.6	0.0	0.0	0.00	704	90244
16.0	1.5	69.6	5.1	46.9	0.0	0.0	0.00	705	90254
16.1	1.5	68.6	5.0	46.6	0.0	0.0	0.00	706	90304
16.1	1.5	68.5	5.1	46.9	0.0	0.0	0.00	707	90314
16.0	1.4	68.0	5.0	46.9	0.0	0.0	0.00	708	90324
16.1	1.4	68.1	5.0	46.9	0.0	0.0	0.00	709	90335
16.1	1.5	66.9	4.9	46.9	0.0	0.0	0.00	710	90345
16.1	1.5	65.7	4.9	46.9	0.0	0.0	0.00	711	90355
16.1	1.5	65.8	4.9	46.9	0.0	0.0	0.00	712	90405
16.2	1.5	64.1	4.8	46.9	0.0	0.0	0.00	713	90416
16.1	1.5	64.2	4.7	46.9	0.0	0.0	0.00	714	90426
16.1	1.5	65.4	4.8	46.9	0.0	0.0	0.00	715	90436
16.2	1.5	64.9	4.8	46.9	0.0	0.0	0.00	716	90446
16.2	1.5	65.9	4.9	46.9	0.0	0.0	0.00	717	90457
16.1	1.5	65.8	4.8	46.9	0.0	0.0	0.00	718	90507
16.4	1.5	66.5	4.9	47.9	0.0	0.0	0.00	719	90517
16.2	1.5	65.7	4.9	47.9	0.0	0.0	0.00	720	90528
16.2	1.5	66.2	4.9	46.9	0.0	0.0	0.00	721	90538
16.1	1.5	67.7	4.9	46.9	0.0	0.0	0.00	722	90548
16.1	1.4	67.9	5.0	46.9	0.0	0.0	0.00	723	90559
16.1	1.5	67.5	5.0	46.9	0.0	0.0	0.00	724	90609
16.1	1.4	65.9	4.9	46.9	0.0	0.0	0.00	725	90620
16.1	1.5	66.4	4.9	45.9	0.0	0.0	0.00	726	90630
16.1	1.4	67.4	4.9	45.9	0.0	0.0	0.00	727	90640
16.1	1.5	66.9	4.9	45.7	0.0	0.0	0.00	728	90651
15.9	1.4	66.2	4.9	46.1	0.0	0.0	0.00	729	90701

START SYS. CALS

15.0	1.5	25.3	2.4	45.1	0.0	0.0	0.00	730	90711
15.9	1.4	5.5	1.2	43.0	0.0	0.0	0.00	731	90722
15.1	1.4	2.5	1.0	38.1	0.0	0.0	0.00	732	90732
15.9	1.5	12.7	1.5	31.0	0.0	0.0	0.00	733	90742
15.5	1.5	56.3	4.3	25.9	0.0	0.0	0.00	734	90752
14.2	1.2	3.5	1.4	25.4	0.0	0.0	0.00	735	90802
5.5	0.6	0.2	0.8	28.3	0.0	0.0	0.00	736	90812
2.0	0.4	0.2	0.8	25.4	0.0	0.0	0.00	737	90823
0.9	0.3	0.1	0.8	19.5	0.0	0.0	0.00	738	90833

0.5	0.2	0.5	0.8	12.7	0.0	0.0	0.00	739	90843
0.4	0.2	0.1	0.8	9.8	0.0	0.0	0.00	740	90853
0.0	0.2	0.2	0.8	8.8	0.0	0.0	0.00	741	90904
0.2	0.2	0.4	0.8	6.8	0.0	0.0	0.00	742	90914
0.0	0.2	0.2	0.8	5.9	0.0	0.0	0.00	743	90924
0.2	0.2	0.0	0.8	4.6	0.0	0.0	0.00	744	90933
0.4	0.2	0.2	0.8	3.9	0.0	0.0	0.00	745	90944
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
0.1	0.2	0.4	0.8	3.9	0.0	0.0	0.00	746	90955
0.2	0.2	0.1	0.8	2.5	0.0	0.0	0.00	747	91005
0.2	0.2	0.2	0.8	2.9	0.0	0.0	0.00	748	91015
0.1	0.2	0.4	0.7	2.7	0.0	0.0	0.00	749	91024
0.0	0.2	0.0	0.7	2.9	0.0	0.0	0.00	750	91035
0.1	0.2	0.1	0.7	2.7	0.0	0.0	0.00	751	91045
0.1	0.2	0.1	0.7	2.9	0.0	0.0	0.00	752	91055
0.4	0.2	0.0	0.7	2.9	0.0	0.0	0.00	753	91105
0.5	0.2	27.8	2.3	2.0	0.0	0.0	0.00	754	91116
0.1	0.2	49.1	3.7	2.0	0.0	0.0	0.00	755	91126
0.0	0.2	49.9	3.8	1.7	0.0	0.0	0.00	756	91136
0.4	0.2	50.4	3.8	2.9	0.0	0.0	0.00	757	91147
0.1	0.2	50.9	3.8	2.7	0.0	0.0	0.00	758	91157
0.1	0.2	50.4	3.8	2.9	0.0	0.0	0.00	759	91208
0.1	0.2	50.2	3.3	2.7	0.0	0.0	0.00	760	91218
0.1	0.2	50.4	3.8	2.9	0.0	0.0	0.00	761	91228
0.1	0.2	50.9	3.8	2.9	0.0	0.0	0.00	762	91239
0.0	0.2	50.9	3.9	2.9	0.0	0.0	0.00	763	91249
0.1	0.2	50.5	3.8	2.0	0.0	0.0	0.00	764	91259
0.0	0.2	50.7	3.8	2.0	0.0	0.0	0.00	765	91310
0.4	0.2	50.3	3.8	2.9	0.0	0.0	0.00	766	91320
2.6	0.4	5.0	1.1	2.9	0.0	0.0	0.00	767	91330
7.4	0.8	0.5	0.8	1.5	0.0	0.0	0.00	768	91339
9.8	0.9	0.5	0.8	2.0	0.0	0.0	0.00	769	91350
10.3	1.0	0.4	0.8	2.9	0.0	0.0	0.00	770	91400
10.5	1.1	0.2	0.8	3.9	0.0	0.0	0.00	771	91411
10.7	1.0	0.5	0.7	5.1	0.0	0.0	0.00	772	91421
10.7	1.0	0.1	0.7	5.3	0.0	0.0	0.00	773	91431
10.7	1.1	0.1	0.7	5.1	0.0	0.0	0.00	774	91442
10.7	1.0	0.5	0.7	5.9	0.0	0.0	0.00	775	91452
10.7	1.1	0.2	0.7	5.9	0.0	0.0	0.00	776	91502
10.7	1.0	0.2	0.7	5.9	0.0	0.0	0.00	777	91511

FILE NAME: HMT2

QUICK RE-CHECK OF CALS (SKS.)

20.5	1.8	0.5	0.4	1.0	0.0	0.0	0.00	778	102918
0.4	0.2	0.5	0.4	73.7	0.0	0.0	0.00	779	103108
0.2	0.2	0.5	0.4	59.6	0.0	0.0	0.00	780	103118
0.2	0.3	0.5	0.4	46.1	0.0	0.0	0.00	781	103129
0.1	0.2	0.4	0.4	31.0	0.0	0.0	0.00	782	103139
0.1	0.2	0.5	0.4	19.5	0.0	0.0	0.00	783	103149
0.2	0.2	0.6	0.5	14.6	0.0	0.0	0.00	784	103159
0.2	0.2	0.5	0.4	11.7	0.0	0.0	0.00	785	103210
0.1	0.2	0.5	0.4	8.8	0.0	0.0	0.00	786	103220
0.0	0.2	0.4	0.4	6.8	0.0	0.0	0.00	787	103230
0.1	0.2	0.5	0.4	4.9	0.0	0.0	0.00	788	103240
0.4	0.2	0.4	0.4	3.9	0.0	0.0	0.00	789	103250
0.2	0.2	0.5	0.4	3.9	0.0	0.0	0.00	790	103301
0.2	0.2	0.5	0.4	2.9	0.0	0.0	0.00	791	103310
0.1	0.2	0.5	0.4	2.9	0.0	0.0	0.00	792	103321
4.5	0.6	0.4	0.4	2.7	0.0	0.0	0.00	793	103331
8.8	0.9	0.5	0.4	2.0	0.0	0.0	0.00	794	103341
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
10.1	1.0	0.4	0.4	1.5	0.0	0.0	0.00	795	103352
10.4	1.0	0.4	0.4	3.2	0.0	0.0	0.00	796	103402
10.5	1.0	0.4	0.4	3.7	0.0	0.0	0.00	797	103412
10.6	1.0	0.2	0.4	3.9	0.0	0.0	0.00	798	103423
10.7	1.0	0.5	0.4	3.9	0.0	0.0	0.00	799	103433
10.6	1.0	0.5	0.4	3.9	0.0	0.0	0.00	800	103443
10.5	1.1	0.6	0.4	4.9	0.0	0.0	0.00	801	103453

10.7	1.0	0.7	0.5	4.9	0.0	0.0	0.00	802	103503
10.3	1.0	12.7	1.0	4.9	0.0	0.0	0.00	803	103513
4.5	0.6	48.8	3.2	4.9	0.0	0.0	0.00	804	103524
1.8	0.4	49.2	3.3	4.9	0.0	0.0	0.00	805	103534
0.6	0.2	49.6	3.3	3.9	0.0	0.0	0.00	806	103544
0.5	0.2	49.4	3.3	3.9	0.0	0.0	0.00	807	103554
0.5	0.2	49.4	3.3	2.9	0.0	0.0	0.00	808	103603
0.1	0.2	49.8	3.3	2.9	0.0	0.0	0.00	809	103614
0.2	0.2	49.9	3.3	2.7	0.0	0.0	0.00	810	103624
0.1	0.2	50.4	3.4	2.4	0.0	0.0	0.00	811	103634
0.1	0.2	49.8	3.3	2.7	0.0	0.0	0.00	812	103644
0.1	0.2	50.3	3.4	2.4	0.0	0.0	0.00	813	103654
0.2	0.2	50.2	3.4	2.7	0.0	0.0	0.00	814	103704
0.1	0.2	50.0	3.3	2.9	0.0	0.0	0.00	815	103714
0.0	0.2	50.3	3.4	2.9	0.0	0.0	0.00	816	103724
0.2	0.2	50.5	3.4	2.0	0.0	0.0	0.00	817	103735
0.0	0.2	50.3	3.4	1.5	0.0	0.0	0.00	818	103745

CALS ARE O.K. GMS

ANOTHER QUICK RE-CHECK (SKS)

000066

19.4	1.7	1.0	0.4	47.9	0.0	0.0	0.00	819	113932
14.8	1.4	2.6	0.5	44.9	0.0	0.0	0.00	820	113942
12.1	1.1	0.9	0.4	41.0	0.0	0.0	0.00	821	113952
11.1	1.1	1.0	0.4	51.8	0.0	0.0	0.00	822	114003
10.7	1.1	0.9	0.4	47.9	0.0	0.0	0.00	823	114013
10.7	1.0	0.6	0.4	23.4	0.0	0.0	0.00	824	114024
10.7	1.0	1.0	0.4	22.0	0.0	0.0	0.00	825	114033
10.7	1.1	0.7	0.4	16.8	0.0	0.0	0.00	826	114044
10.7	1.1	1.0	0.4	16.6	0.0	0.0	0.00	827	114053
10.7	1.1	0.7	0.4	12.2	0.0	0.0	0.00	828	114104
10.6	1.0	0.7	0.4	8.8	0.0	0.0	0.00	829	114114
10.7	1.1	0.6	0.4	7.8	0.0	0.0	0.00	830	114125
9.3	0.9	35.6	2.4	7.8	0.0	0.0	0.00	831	114135
3.4	0.5	49.3	3.2	6.6	0.0	0.0	0.00	832	114146
1.5	0.3	49.8	3.3	5.9	0.0	0.0	0.00	833	114156
0.5	0.3	49.9	3.3	5.9	0.0	0.0	0.00	834	114207
0.5	0.2	49.9	3.3	4.9	0.0	0.0	0.00	835	114218
0.2	0.2	50.0	3.3	3.7	0.0	0.0	0.00	836	114227
0.2	0.2	49.8	3.3	3.7	0.0	0.0	0.00	837	114238
0.2	0.2	49.8	3.3	3.7	0.0	0.0	0.00	838	114247
0.0	0.2	49.7	3.3	2.4	0.0	0.0	0.00	839	114258
0.2	0.2	50.0	3.3	2.9	0.0	0.0	0.00	840	114308
0.2	0.2	50.0	3.3	2.9	0.0	0.0	0.00	841	114319
0.1	0.2	49.9	3.3	2.9	0.0	0.0	0.00	842	114329
0.4	0.2	50.0	3.3	2.9	0.0	0.0	0.00	843	114340
0.1	0.2	49.9	3.3	2.9	0.0	0.0	0.00	844	114349
0.2	0.2	10.6	1.2	2.4	0.0	0.0	0.00	845	114400
0.1	0.2	0.9	0.5	2.9	0.0	0.0	0.00	846	114411
0.1	0.2	0.7	0.5	2.7	0.0	0.0	0.00	847	114421
0.4	0.2	0.6	0.5	2.9	0.0	0.0	0.00	848	114432
0.0	0.2	0.7	0.5	2.9	0.0	0.0	0.00	849	114441
0.2	0.2	0.7	0.5	1.7	0.0	0.0	0.00	850	114452
0.4	0.2	0.7	0.5	2.0	0.0	0.0	0.00	851	114502
0.2	0.2	1.0	0.5	2.0	0.0	0.0	0.00	852	114511
0.2	0.2	0.9	0.5	2.0	0.0	0.0	0.00	853	114522
0.1	0.2	0.6	0.4	2.0	0.0	0.0	0.00	854	114533
0.0	0.2	0.5	0.4	2.0	0.0	0.0	0.00	855	114543
O2	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
0.0	0.2	0.5	0.4	1.7	0.0	0.0	0.00	856	114553
0.2	0.2	0.5	0.4	2.0	0.0	0.0	0.00	857	114604

CO P scan time

OK

OK

OK

OK

ON - LINE

15.7	1.5	65.6	4.3	68.3	0.0	0.0	0.00	858	121956
15.8	1.5	66.5	4.4	76.9	0.0	0.0	0.00	859	122006
15.7	1.5	67.0	4.4	68.6	0.0	0.0	0.00	860	122017
15.6	1.4	64.1	4.2	64.7	0.0	0.0	0.00	861	122027
15.6	1.5	62.0	4.2	62.0	0.0	0.0	0.00	862	122038
15.5	1.5	61.5	4.1	62.0	0.0	0.0	0.00	863	122048
15.6	1.4	59.7	4.0	61.5	0.0	0.0	0.00	864	122059
15.6	1.5	59.0	4.0	62.5	0.0	0.0	0.00	865	122109

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
16.2	1.5	58.3	3.9	64.7	0.0	0.0	0.00	866	122120			
16.1	1.5	59.0	4.0	65.7	0.0	0.0	0.00	867	122129			
16.5	1.5	59.3	4.0	63.7	0.0	0.0	0.00	868	122140			
16.5	1.5	60.5	4.0	59.6	0.0	0.0	0.00	869	122150			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.6	1.5	61.0	4.0	56.6	0.0	0.0	0.00	870	122159			
16.5	1.5	61.3	4.1	53.7	0.0	0.0	0.00	871	122210			
16.5	1.5	62.0	4.1	51.8	0.0	0.0	0.00	872	122220			
16.2	1.5	63.1	4.2	50.8	0.0	0.0	0.00	873	122231			
16.1	1.5	60.8	4.1	50.8	0.0	0.0	0.00	874	122241			
16.2	1.5	56.9	3.9	50.8	0.0	0.0	0.00	875	122250			
16.4	1.5	56.4	3.8	51.8	0.0	0.0	0.00	876	122301			
16.5	1.5	55.2	3.7	52.7	0.0	0.0	0.00	877	122310			
16.5	1.5	55.8	3.8	54.7	0.0	0.0	0.00	878	122321			
16.2	1.5	55.9	3.7	55.7	0.0	0.0	0.00	879	122332			
16.5	1.5	55.9	3.8	56.9	0.0	0.0	0.00	880	122342			
16.6	1.5	54.2	3.7	58.6	0.0	0.0	0.00	881	122351			
16.6	1.5	55.4	3.8	61.3	0.0	0.0	0.00	882	122402			
16.6	1.5	56.9	3.9	61.5	0.0	0.0	0.00	883	122412			
16.6	1.5	58.5	4.0	61.8	0.0	0.0	0.00	884	122422			
16.6	1.5	59.6	4.0	62.5	0.0	0.0	0.00	885	122433			
16.6	1.5	60.3	4.1	63.5	0.0	0.0	0.00	886	122443			
16.6	1.5	60.1	4.0	66.9	0.0	0.0	0.00	887	122454			
16.6	1.5	60.2	4.1	68.4	0.0	0.0	0.00	888	122503			
16.5	1.5	59.4	4.0	68.6	0.0	0.0	0.00	889	122514			
16.5	1.5	58.0	4.0	66.9	0.0	0.0	0.00	890	122525			
16.5	1.5	58.5	3.9	62.5	0.0	0.0	0.00	891	122535			
16.6	1.5	57.7	3.9	62.5	0.0	0.0	0.00	892	122544			
16.4	1.5	57.4	3.8	59.6	0.0	0.0	0.00	893	122555			
16.5	1.5	57.3	3.9	57.6	0.0	0.0	0.00	894	122605			
16.6	1.5	57.0	3.9	58.3	0.0	0.0	0.00	895	122615			
16.6	1.5	56.4	3.8	57.6	0.0	0.0	0.00	896	122626			
16.6	1.5	54.4	3.7	58.6	0.0	0.0	0.00	897	122637			
16.7	1.5	53.2	3.6	59.1	0.0	0.0	0.00	898	122647			
16.8	1.5	51.9	3.5	59.6	0.0	0.0	0.00	899	122656			
16.8	1.5	50.8	3.5	60.5	0.0	0.0	0.00	900	122707			
16.8	1.5	49.2	3.4	61.5	0.0	0.0	0.00	901	122717			
17.1	1.5	47.7	3.3	63.7	0.0	0.0	0.00	902	122726			
17.1	1.5	46.5	3.3	66.4	0.0	0.0	0.00	903	122737			
17.0	1.5	45.5	3.2	70.1	0.0	0.0	0.00	904	122747			
17.1	1.5	45.9	3.2	74.7	0.0	0.0	0.00	905	122758			
17.2	1.6	47.6	3.3	78.6	0.0	0.0	0.00	906	122808			
17.1	1.5	49.2	3.4	83.0	0.0	0.0	0.00	907	122817			
17.3	1.5	50.5	3.5	83.0	0.0	0.0	0.00	908	122828			
17.2	1.6	51.0	3.5	79.8	0.0	0.0	0.00	909	122838			
17.2	1.6	52.1	3.5	74.2	0.0	0.0	0.00	910	122849			
17.1	1.5	51.8	3.5	71.8	0.0	0.0	0.00	911	122859			
17.1	1.5	52.4	3.6	69.8	0.0	0.0	0.00	912	122909			
17.1	1.6	53.2	3.7	68.6	0.0	0.0	0.00	913	122920			
17.1	1.5	54.2	3.7	66.7	0.0	0.0	0.00	914	122930			
17.1	1.6	54.3	3.7	66.4	0.0	0.0	0.00	915	122941			
17.1	1.5	54.0	3.7	66.7	0.0	0.0	0.00	916	122952			
17.0	1.5	56.0	3.8	65.7	0.0	0.0	0.00	917	123002			
17.1	1.5	56.4	3.9	64.5	0.0	0.0	0.00	918	123013			
17.0	1.6	55.2	3.9	62.5	0.0	0.0	0.00	919	123023			
17.1	1.5	55.7	3.8	62.0	0.0	0.0	0.00	920	123033			
16.8	1.5	55.7	3.8	61.8	0.0	0.0	0.00	921	123044			
17.0	1.5	54.7	3.8	60.9	0.0	0.0	0.00	922	123055			
17.0	1.5	52.7	3.5	60.8	0.0	0.0	0.00	923	123104			
17.0	1.6	50.9	3.5	62.2	0.0	0.0	0.00	924	123115			
17.0	1.5	48.3	3.4	64.3	0.0	0.0	0.00	925	123126			
17.1	1.5	46.9	3.3	70.8	0.0	0.0	0.00	926	123134			
17.1	1.5	45.4	3.3	72.0	0.0	0.0	0.00	927	123144			
17.1	1.5	44.4	3.2	74.2	0.0	0.0	0.00	928	123155			
17.1	1.5	44.3	3.2	74.7	0.0	0.0	0.00	929	123204			
17.3	1.6	44.3	3.2	76.7	0.0	0.0	0.00	930	123215			

~~SWITCH TEST~~ DISCARD

17.2	1.6	45.4	3.2	78.9	0.0	0.0	0.00	931	123225
17.2	1.6	45.7	3.3	82.8	0.0	0.0	0.00	932	123235
17.8	1.6	29.2	2.3	83.0	0.0	0.0	0.00	933	123246
19.0	1.7	11.5	1.2	81.1	0.0	0.0	0.00	934	123255
20.0	1.7	4.5	0.8	73.5	0.0	0.0	0.00	935	123306
20.4	1.8	2.2	0.7	58.6	0.0	0.0	0.00	936	123315
20.6	1.8	1.6	0.6	44.9	0.0	0.0	0.00	937	123326
21.0	1.9	1.1	0.6	33.7	0.0	0.0	0.00	938	123335
21.0	1.9	1.0	0.6	27.3	0.0	0.0	0.00	939	123346
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
21.0	1.9	0.9	0.6	22.5	0.0	0.0	0.00	940	123355

PLANT SHUT DOWN

BACK ON LINE

18.2	1.6	45.3	3.2	35.9	0.0	0.0	0.00	941	124434
17.3	1.6	55.1	3.7	36.6	0.0	0.0	0.00	942	124445
16.6	1.5	60.2	4.0	42.0	0.0	0.0	0.00	943	124456
16.5	1.4	62.7	4.2	44.9	0.0	0.0	0.00	944	124507
16.1	1.5	63.1	4.2	46.6	0.0	0.0	0.00	945	124516
16.1	1.4	62.6	4.2	48.8	0.0	0.0	0.00	946	124527
16.0	1.5	63.4	4.2	49.6	0.0	0.0	0.00	947	124536
16.1	1.5	60.9	4.1	51.8	0.0	0.0	0.00	948	124547
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I CO P scan time
16.1	1.5	59.6	4.0	52.7	0.0	0.0	0.00	949	124556
16.1	1.5	57.7	3.9	54.7	0.0	0.0	0.00	950	124607
16.4	1.5	55.3	3.7	57.6	0.0	0.0	0.00	951	124616
16.6	1.5	51.0	3.5	59.1	0.0	0.0	0.00	952	124627
16.6	1.5	47.6	3.3	60.8	0.0	0.0	0.00	953	124637
16.7	1.5	44.2	3.1	63.5	0.0	0.0	0.00	954	124648
17.1	1.6	39.7	2.9	66.4	0.0	0.0	0.00	955	124658
17.1	1.5	37.4	2.7	74.2	0.0	0.0	0.00	956	124708
17.1	1.5	34.9	2.6	81.1	0.0	0.0	0.00	957	124718
17.1	1.6	34.1	2.5	87.6	0.0	0.0	0.00	958	124729
17.5	1.6	34.1	2.5	93.8	0.0	0.0	0.00	959	124738
17.5	1.5	33.9	2.5	97.9	0.0	0.0	0.00	960	124749
17.5	1.6	33.4	2.5	102.3	0.0	0.0	0.00	961	124758
17.6	1.6	34.4	2.5	107.2	0.0	0.0	0.00	962	124809

START TEST #2

17.5	1.6	38.1	2.5	110.1	0.0	0.0	0.00	963	124819
17.5	1.6	39.8	2.8	112.1	0.0	0.0	0.00	964	124829
17.5	1.6	43.8	3.1	111.3	0.0	0.0	0.00	965	124839
17.5	1.5	48.0	3.3	104.0	0.0	0.0	0.00	966	124850
17.1	1.5	49.4	3.4	93.9	0.0	0.0	0.00	967	124859
17.1	1.5	49.8	3.4	85.7	0.0	0.0	0.00	968	124910

17.1	1.5	50.7	3.5	80.1	0.0	0.0	0.00	969	124919
16.8	1.5	49.6	3.4	74.7	0.0	0.0	0.00	970	124930
17.1	1.5	49.3	3.4	70.6	0.0	0.0	0.00	971	124939
17.0	1.5	49.2	3.4	67.6	0.0	0.0	0.00	972	124950
17.1	1.5	49.0	3.4	66.4	0.0	0.0	0.00	973	124959
17.1	1.5	48.5	3.4	67.6	0.0	0.0	0.00	974	125011
17.1	1.5	47.7	3.3	70.3	0.0	0.0	0.00	975	125021
17.0	1.5	46.8	3.3	72.9	0.0	0.0	0.00	976	125030
17.1	1.5	47.4	3.3	77.9	0.0	0.0	0.00	977	125041
17.0	1.5	47.7	3.3	83.7	0.0	0.0	0.00	978	125050
17.0	1.6	48.7	3.4	88.9	0.0	0.0	0.00	979	125101
17.0	1.5	49.0	3.4	89.8	0.0	0.0	0.00	980	125110
17.1	1.6	48.3	3.4	87.9	0.0	0.0	0.00	981	125121
17.1	1.6	47.4	3.3	85.0	0.0	0.0	0.00	982	125132
17.0	1.6	46.6	3.3	83.7	0.0	0.0	0.00	983	125142
17.1	1.6	46.4	3.3	85.0	0.0	0.0	0.00	984	125153
17.1	1.5	45.3	3.2	86.9	0.0	0.0	0.00	985	125203
17.1	1.5	45.2	3.2	89.8	0.0	0.0	0.00	986	125213
17.0	1.5	46.0	3.3	90.8	0.0	0.0	0.00	987	125222
17.0	1.5	46.4	3.3	90.8	0.0	0.0	0.00	988	125233
17.0	1.5	46.5	3.3	90.8	0.0	0.0	0.00	989	125242
17.1	1.5	47.5	3.3	90.8	0.0	0.0	0.00	990	125253
17.1	1.6	49.4	3.4	91.8	0.0	0.0	0.00	991	125302
17.1	1.6	51.9	3.6	90.8	0.0	0.0	0.00	992	125313
17.0	1.5	53.7	3.7	86.7	0.0	0.0	0.00	993	125322
17.0	1.5	55.1	3.7	81.5	0.0	0.0	0.00	994	125333
16.7	1.5	56.5	3.9	76.4	0.0	0.0	0.00	995	125343
16.7	1.5	56.6	3.9	72.0	0.0	0.0	0.00	996	125353
16.6	1.5	56.0	3.8	67.9	0.0	0.0	0.00	997	125404
16.6	1.5	54.7	3.8	64.5	0.0	0.0	0.00	998	125413
16.7	1.5	53.1	3.6	62.5	0.0	0.0	0.00	999	125424
16.8	1.5	51.9	3.6	62.5	0.0	0.0	0.00	1000	125434
16.6	1.5	51.3	3.5	64.7	0.0	0.0	0.00	1001	125444
16.7	1.5	51.0	3.5	66.4	0.0	0.0	0.00	1002	125454
16.8	1.5	51.0	3.5	68.8	0.0	0.0	0.00	1003	125504
16.6	1.5	49.4	3.5	70.6	0.0	0.0	0.00	1004	125513
16.8	1.5	47.5	3.3	71.8	0.0	0.0	0.00	1005	125524
17.0	1.5	46.3	3.3	72.8	0.0	0.0	0.00	1006	125534
17.1	1.5	44.4	3.2	74.7	0.0	0.0	0.00	1007	125544
17.1	1.5	42.8	3.1	79.1	0.0	0.0	0.00	1008	125555
17.1	1.5	42.1	3.0	85.4	0.0	0.0	0.00	1009	125606
17.1	1.6	42.6	3.0	94.5	0.0	0.0	0.00	1010	125616
17.1	1.6	43.7	3.1	95.7	0.0	0.0	0.00	1011	125625
17.1	1.6	45.7	3.3	101.8	0.0	0.0	0.00	1012	125636
17.1	1.5	45.7	3.2	100.8	0.0	0.0	0.00	1013	125646
17.1	1.5	46.9	3.3	95.9	0.0	0.0	0.00	1014	125657
17.1	1.5	46.9	3.3	89.8	0.0	0.0	0.00	1015	125706
17.1	1.6	47.7	3.4	85.0	0.0	0.0	0.00	1016	125717
17.1	1.5	48.1	3.4	81.1	0.0	0.0	0.00	1017	125728
17.1	1.5	48.6	3.4	77.9	0.0	0.0	0.00	1019	125738
17.1	1.5	49.0	3.4	75.9	0.0	0.0	0.00	1019	125749
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
17.1	1.5	49.9	3.4	73.7	0.0	0.0	0.00	1020	125758
17.1	1.6	48.7	3.4	70.5	0.0	0.0	0.00	1021	125809
17.1	1.5	49.0	3.4	68.3	0.0	0.0	0.00	1022	125819
17.1	1.5	48.2	3.4	67.4	0.0	0.0	0.00	1023	125830
17.1	1.5	47.3	3.3	65.4	0.0	0.0	0.00	1024	125841
17.1	1.6	46.3	3.3	65.9	0.0	0.0	0.00	1025	125851
17.1	1.5	45.4	3.3	68.8	0.0	0.0	0.00	1026	125900
17.1	1.5	47.0	3.3	71.0	0.0	0.0	0.00	1027	125911
17.1	1.5	48.0	3.4	72.5	0.0	0.0	0.00	1028	125922
17.1	1.6	46.9	3.3	73.0	0.0	0.0	0.00	1029	125933
17.1	1.5	47.0	3.3	71.5	0.0	0.0	0.00	1030	125943
17.1	1.5	46.3	3.3	71.0	0.0	0.0	0.00	1031	125952
17.1	1.5	44.2	3.2	71.5	0.0	0.0	0.00	1032	130003
17.1	1.6	44.3	3.2	71.8	0.0	0.0	0.00	1033	130013

17.1	1.5	45.4	3.2	70.1	0.0	0.0	0.00	1034	130022
17.0	1.5	45.4	3.3	68.4	0.0	0.0	0.00	1035	130033
17.1	1.5	45.4	3.3	68.4	0.0	0.0	0.00	1036	130042
17.1	1.6	45.5	3.3	69.8	0.0	0.0	0.00	1037	130053
17.0	1.5	45.7	3.3	71.3	0.0	0.0	0.00	1038	130104
17.1	1.6	47.2	3.3	72.0	0.0	0.0	0.00	1039	130114
17.1	1.5	46.8	3.3	71.8	0.0	0.0	0.00	1040	130125
17.0	1.6	47.6	3.3	71.5	0.0	0.0	0.00	1041	130134
17.0	1.5	48.5	3.4	74.7	0.0	0.0	0.00	1042	130145
17.1	1.5	49.0	3.4	79.1	0.0	0.0	0.00	1043	130155
17.1	1.6	47.7	3.4	78.9	0.0	0.0	0.00	1044	130205
17.1	1.6	45.4	3.3	75.0	0.0	0.0	0.00	1045	130217
17.1	1.6	43.1	3.1	73.0	0.0	0.0	0.00	1046	130227
17.1	1.5	41.0	3.0	73.2	0.0	0.0	0.00	1047	130236
17.1	1.5	38.7	2.8	75.9	0.0	0.0	0.00	1048	130247
17.2	1.5	36.4	2.7	83.0	0.0	0.0	0.00	1049	130258
17.2	1.5	39.3	2.9	90.8	0.0	0.0	0.00	1050	130308
17.3	1.5	45.0	3.2	98.6	0.0	0.0	0.00	1051	130319
17.2	1.5	49.3	3.4	101.1	0.0	0.0	0.00	1052	130329
17.0	1.6	51.0	3.5	95.7	0.0	0.0	0.00	1053	130338
17.0	1.5	52.2	3.6	88.9	0.0	0.0	0.00	1054	130349
16.7	1.5	55.5	3.8	81.1	0.0	0.0	0.00	1055	130400
16.6	1.5	57.6	4.0	74.0	0.0	0.0	0.00	1056	130410
16.5	1.5	59.2	4.0	71.0	0.0	0.0	0.00	1057	130420
16.6	1.5	60.3	4.1	67.9	0.0	0.0	0.00	1058	130431
16.6	1.5	60.1	4.1	65.9	0.0	0.0	0.00	1059	130442
16.6	1.5	59.0	4.0	63.5	0.0	0.0	0.00	1060	130452
16.6	1.5	56.0	3.9	61.8	0.0	0.0	0.00	1061	130503
16.6	1.5	54.4	3.8	59.6	0.0	0.0	0.00	1062	130512
16.6	1.5	54.6	3.8	58.5	0.0	0.0	0.00	1063	130523
16.4	1.5	54.1	3.8	59.8	0.0	0.0	0.00	1064	130533
16.6	1.5	52.9	3.7	61.8	0.0	0.0	0.00	1065	130542
16.6	1.5	51.5	3.6	64.5	0.0	0.0	0.00	1066	130553
16.6	1.5	51.0	3.6	67.6	0.0	0.0	0.00	1067	130603
16.6	1.5	50.2	3.6	70.8	0.0	0.0	0.00	1068	130614
16.6	1.5	49.9	3.5	73.7	0.0	0.0	0.00	1069	130624
16.7	1.5	49.7	3.5	78.1	0.0	0.0	0.00	1070	130635
16.8	1.5	49.2	3.5	82.0	0.0	0.0	0.00	1071	130644
17.0	1.5	48.0	3.4	85.0	0.0	0.0	0.00	1072	130655
16.8	1.5	46.4	3.3	85.9	0.0	0.0	0.00	1073	130705
17.1	1.5	46.6	3.3	85.9	0.0	0.0	0.00	1074	130714
17.0	1.6	48.2	3.4	85.9	0.0	0.0	0.00	1075	130725
17.1	1.5	49.2	3.5	86.9	0.0	0.0	0.00	1076	130735
17.1	1.6	50.0	3.6	86.2	0.0	0.0	0.00	1077	130746
17.1	1.5	51.8	3.7	83.0	0.0	0.0	0.00	1078	130756
17.1	1.5	52.5	3.7	81.1	0.0	0.0	0.00	1079	130806
17.1	1.5	53.3	3.7	73.0	0.0	0.0	0.00	1080	130816
16.8	1.5	54.7	3.8	68.6	0.0	0.0	0.00	1081	130827
16.7	1.5	56.2	3.9	65.7	0.0	0.0	0.00	1082	130837
16.6	1.5	56.8	3.9	63.5	0.0	0.0	0.00	1083	130847
16.6	1.5	56.9	4.0	61.8	0.0	0.0	0.00	1084	130858
16.6	1.5	56.8	4.0	61.0	0.0	0.0	0.00	1085	130907
16.6	1.5	57.3	4.0	59.6	0.0	0.0	0.00	1086	130918
16.6	1.5	56.6	4.0	58.8	0.0	0.0	0.00	1087	130928
16.5	1.5	57.4	4.0	57.5	0.0	0.0	0.00	1088	130937
16.6	1.5	58.0	4.0	58.6	0.0	0.0	0.00	1089	130948
O2_b	thc	NOX	SO2	CGTCO	MT	MT	MT	THC_O	THC_I CO P scan time
16.6	1.5	58.0	4.0	58.6	0.0	0.0	0.00	1090	130957
16.5	1.5	58.5	4.1	59.5	0.0	0.0	0.00	1091	131008
16.5	1.5	58.0	4.0	58.6	0.0	0.0	0.00	1092	131017
16.6	1.5	57.1	4.0	60.9	0.0	0.0	0.00	1093	131028
16.6	1.5	55.7	3.9	63.5	0.0	0.0	0.00	1094	131038
16.6	1.5	54.4	3.8	64.7	0.0	0.0	0.00	1095	131047
16.6	1.5	52.5	3.7	64.5	0.0	0.0	0.00	1096	131058
16.5	1.5	50.9	3.6	64.5	0.0	0.0	0.00	1097	131108
16.6	1.5	49.1	3.5	64.7	0.0	0.0	0.00	1098	131119

16.6	1.5	48.5	3.4	66.7	0.0	0.0	0.00	1099	131129
16.8	1.5	46.6	3.3	70.1	0.0	0.0	0.00	1100	131140
17.0	1.5	43.8	3.2	72.8	0.0	0.0	0.00	1101	131151
17.1	1.6	41.9	3.1	78.1	0.0	0.0	0.00	1102	131200
17.1	1.5	40.9	3.0	84.0	0.0	0.0	0.00	1103	131211
17.1	1.5	40.3	3.0	89.8	0.0	0.0	0.00	1104	131220
17.1	1.6	40.2	3.0	96.9	0.0	0.0	0.00	1105	131231
17.1	1.6	43.0	3.1	102.8	0.0	0.0	0.00	1106	131240
17.1	1.6	45.4	3.3	105.2	0.0	0.0	0.00	1107	131251
17.1	1.6	50.5	3.6	105.2	0.0	0.0	0.00	1108	131300
17.1	1.5	54.1	3.8	101.3	0.0	0.0	0.00	1109	131311
17.0	1.5	55.8	3.9	93.8	0.0	0.0	0.00	1110	131321
16.8	1.5	56.9	3.9	85.0	0.0	0.0	0.00	1111	131330
16.7	1.5	58.0	4.0	78.1	0.0	0.0	0.00	1112	131341
16.8	1.5	58.6	4.1	73.0	0.0	0.0	0.00	1113	131350
16.7	1.5	58.3	4.1	69.8	0.0	0.0	0.00	1114	131401
16.7	1.5	58.2	4.0	66.4	0.0	0.0	0.00	1115	131411
16.8	1.5	57.3	4.0	63.5	0.0	0.0	0.00	1116	131422
16.6	1.5	56.3	4.0	62.3	0.0	0.0	0.00	1117	131433
16.6	1.5	56.6	4.0	60.5	0.0	0.0	0.00	1118	131442
16.6	1.5	56.3	3.9	60.8	0.0	0.0	0.00	1119	131453
16.6	1.5	54.6	3.8	61.8	0.0	0.0	0.00	1120	131502
16.6	1.5	51.3	3.7	61.8	0.0	0.0	0.00	1121	131512
16.6	1.5	50.8	3.6	62.5	0.0	0.0	0.00	1122	131523
16.6	1.5	51.1	3.6	62.5	0.0	0.0	0.00	1123	131532
16.7	1.5	49.4	3.6	63.5	0.0	0.0	0.00	1124	131543
16.7	1.5	49.1	3.5	66.9	0.0	0.0	0.00	1125	131552
16.7	1.5	49.6	3.5	70.1	0.0	0.0	0.00	1126	131603
17.1	1.5	48.7	3.5	71.8	0.0	0.0	0.00	1127	131612
17.0	1.5	48.8	3.5	74.7	0.0	0.0	0.00	1128	131623
17.0	1.5	50.4	3.6	78.1	0.0	0.0	0.00	1129	131632
16.7	1.5	50.8	3.6	78.1	0.0	0.0	0.00	1130	131643
17.0	1.5	49.1	3.5	74.5	0.0	0.0	0.00	1131	131653
16.7	1.5	49.7	3.6	72.8	0.0	0.0	0.00	1132	131702
16.8	1.5	51.6	3.7	72.0	0.0	0.0	0.00	1133	131713
16.8	1.5	51.8	3.7	71.3	0.0	0.0	0.00	1134	131723
16.7	1.5	51.1	3.7	71.3	0.0	0.0	0.00	1135	131733
16.7	1.5	52.6	3.7	70.3	0.0	0.0	0.00	1136	131743
16.8	1.5	54.0	3.8	69.6	0.0	0.0	0.00	1137	131753
16.7	1.5	55.4	3.9	70.1	0.0	0.0	0.00	1138	131803
17.1	1.5	55.8	3.9	68.6	0.0	0.0	0.00	1139	131813
16.7	1.5	57.0	3.9	66.4	0.0	0.0	0.00	1140	131823
16.6	1.5	58.2	4.1	63.5	0.0	0.0	0.00	1141	131833
16.6	1.5	60.1	4.2	60.5	0.0	0.0	0.00	1142	131843
16.6	1.5	62.9	4.4	59.6	0.0	0.0	0.00	1143	131852
16.1	1.5	64.9	4.5	58.6	0.0	0.0	0.00	1144	131903
16.1	1.5	66.5	4.6	56.6	0.0	0.0	0.00	1145	131912
16.1	1.5	67.0	4.5	54.7	0.0	0.0	0.00	1146	131923
16.0	1.5	66.8	4.5	53.7	0.0	0.0	0.00	1147	131932
16.0	1.5	65.8	4.5	52.7	0.0	0.0	0.00	1148	131942
16.1	1.4	65.4	4.5	51.8	0.0	0.0	0.00	1149	131952
16.1	1.5	65.3	4.5	51.8	0.0	0.0	0.00	1150	132002
16.1	1.4	64.0	4.4	52.0	0.0	0.0	0.00	1151	132013
16.0	1.5	62.6	4.4	51.8	0.0	0.0	0.00	1152	132023
16.1	1.5	61.4	4.3	52.7	0.0	0.0	0.00	1153	132034
16.1	1.5	60.5	4.3	54.7	0.0	0.0	0.00	1154	132043
16.1	1.5	59.7	4.2	56.6	0.0	0.0	0.00	1155	132054
16.1	1.4	59.6	4.3	58.6	0.0	0.0	0.00	1156	132103
16.4	1.5	59.9	4.2	61.5	0.0	0.0	0.00	1157	132114
16.4	1.4	59.7	4.2	63.5	0.0	0.0	0.00	1158	132123
16.1	1.5	61.0	4.3	64.5	0.0	0.0	0.00	1159	132134
16.1	1.5	62.5	4.4	62.5	0.0	0.0	0.00	1160	132143
16.0	1.5	63.6	4.5	60.5	0.0	0.0	0.00	1161	132154
O2_S	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
16.1	1.4	64.7	4.5	58.6	0.0	0.0	0.00	1162	132203
16.0	1.4	64.2	4.4	56.6	0.0	0.0	0.00	1163	132215

CO P scan time

16.0	1.5	64.2	4.5	55.4	0.0	0.0	0.00	1164	132225
16.0	1.5	63.6	4.5	54.7	0.0	0.0	0.00	1165	132234
16.1	1.5	62.5	4.4	53.7	0.0	0.0	0.00	1166	132245
16.1	1.5	62.3	4.4	52.7	0.0	0.0	0.00	1167	132254
16.1	1.5	61.8	4.3	51.9	0.0	0.0	0.00	1168	132305
16.1	1.4	61.6	4.3	50.8	0.0	0.0	0.00	1169	132314
16.6	1.5	61.2	4.3	50.5	0.0	0.0	0.00	1170	132325
16.5	1.5	60.4	4.3	50.8	0.0	0.0	0.00	1171	132334
16.5	1.5	60.4	4.3	51.8	0.0	0.0	0.00	1172	132345
16.6	1.5	59.7	4.2	51.9	0.0	0.0	0.00	1173	132355
16.6	1.5	60.1	4.2	52.7	0.0	0.0	0.00	1174	132405
16.6	1.5	59.9	4.2	52.7	0.0	0.0	0.00	1175	132416
16.6	1.5	59.7	4.2	53.7	0.0	0.0	0.00	1176	132425
16.4	1.5	59.8	4.2	53.7	0.0	0.0	0.00	1177	132436
16.5	1.5	59.8	4.2	53.7	0.0	0.0	0.00	1178	132445
16.5	1.5	60.9	4.2	53.7	0.0	0.0	0.00	1179	132456
16.5	1.5	61.3	4.2	52.7	0.0	0.0	0.00	1180	132506
16.5	1.5	61.5	4.3	51.8	0.0	0.0	0.00	1181	132516
16.5	1.5	61.8	4.3	51.0	0.0	0.0	0.00	1182	132527
16.4	1.5	62.5	4.4	50.8	0.0	0.0	0.00	1183	132537
16.5	1.5	61.9	4.3	50.8	0.0	0.0	0.00	1184	132547
16.6	1.5	61.4	4.3	50.8	0.0	0.0	0.00	1185	132558
16.2	1.5	61.4	4.3	51.8	0.0	0.0	0.00	1186	132608
16.4	1.5	62.3	4.3	52.7	0.0	0.0	0.00	1187	132617
16.5	1.5	62.9	4.4	52.7	0.0	0.0	0.00	1188	132628
16.5	1.5	63.0	4.4	51.8	0.0	0.0	0.00	1189	132638
16.5	1.5	63.1	4.4	50.8	0.0	0.0	0.00	1190	132649
16.5	1.5	63.5	4.4	50.8	0.0	0.0	0.00	1191	132658
16.5	1.5	63.2	4.4	50.0	0.0	0.0	0.00	1192	132709
16.4	1.5	64.0	4.4	49.8	0.0	0.0	0.00	1193	132719
16.2	1.5	65.1	4.5	48.8	0.0	0.0	0.00	1194	132730
16.1	1.5	65.4	4.5	48.8	0.0	0.0	0.00	1195	132741
16.1	1.5	65.8	4.5	48.8	0.0	0.0	0.00	1196	132750
16.1	1.5	65.7	4.5	48.8	0.0	0.0	0.00	1197	132801
16.1	1.5	65.4	4.4	47.9	0.0	0.0	0.00	1198	132810
16.1	1.5	66.7	4.6	48.6	0.0	0.0	0.00	1199	132821
16.0	1.5	66.8	4.6	48.9	0.0	0.0	0.00	1200	132830
16.0	1.5	66.9	4.6	49.6	0.0	0.0	0.00	1201	132841
16.1	1.4	66.4	4.6	50.8	0.0	0.0	0.00	1202	132850
16.1	1.5	65.7	4.5	51.8	0.0	0.0	0.00	1203	132901
16.1	1.4	64.9	4.4	52.7	0.0	0.0	0.00	1204	132911
16.0	1.4	64.9	4.5	53.7	0.0	0.0	0.00	1205	132921
16.1	1.5	64.5	4.5	54.7	0.0	0.0	0.00	1206	132932
16.1	1.4	62.1	4.3	54.7	0.0	0.0	0.00	1207	132942
16.1	1.5	61.4	4.3	55.2	0.0	0.0	0.00	1208	132953
16.1	1.5	61.0	4.3	54.7	0.0	0.0	0.00	1209	133002
16.5	1.5	61.4	4.3	55.7	0.0	0.0	0.00	1210	133013
16.1	1.5	61.3	4.3	55.7	0.0	0.0	0.00	1211	133022
16.4	1.5	61.0	4.2	55.7	0.0	0.0	0.00	1212	133033
16.4	1.5	61.5	4.2	55.7	0.0	0.0	0.00	1213	133043
16.6	1.5	61.8	4.3	54.7	0.0	0.0	0.00	1214	133054
16.4	1.4	62.3	4.3	54.7	0.0	0.0	0.00	1215	133104
16.6	1.5	63.9	4.3	55.9	0.0	0.0	0.00	1216	133114
16.4	1.5	63.7	4.4	54.7	0.0	0.0	0.00	1217	133125
16.2	1.5	64.7	4.4	53.7	0.0	0.0	0.00	1218	133134
16.1	1.5	65.7	4.5	52.7	0.0	0.0	0.00	1219	133145
16.1	1.5	65.4	4.5	50.8	0.0	0.0	0.00	1220	133155
16.1	1.5	65.6	4.5	50.6	0.0	0.0	0.00	1221	133204
16.1	1.5	64.7	4.5	49.8	0.0	0.0	0.00	1222	133215
16.2	1.5	64.2	4.4	49.1	0.0	0.0	0.00	1223	133224
16.1	1.5	63.8	4.4	48.9	0.0	0.0	0.00	1224	133235
16.0	1.4	63.7	4.4	48.8	0.0	0.0	0.00	1225	133245
16.1	1.5	63.7	4.4	49.5	0.0	0.0	0.00	1226	133255
16.0	1.4	63.2	4.3	49.8	0.0	0.0	0.00	1227	133304
15.9	1.4	64.6	4.4	49.8	0.0	0.0	0.00	1228	133315
16.0	1.4	64.9	4.5	50.9	0.0	0.0	0.00	1229	133325

16.0	1.5	65.3	4.5	51.8	0.0	0.0	0.00	1230	133336			
15.9	1.5	63.8	4.4	52.7	0.0	0.0	0.00	1231	133345			
16.0	1.5	62.6	4.4	52.7	0.0	0.0	0.00	1232	133356			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.0	1.4	62.3	4.3	51.8	0.0	0.0	0.00	1233	133406			
16.1	1.4	62.4	4.3	51.8	0.0	0.0	0.00	1234	133417			
16.1	1.4	62.5	4.3	51.8	0.0	0.0	0.00	1235	133427			
16.1	1.5	62.1	4.3	50.8	0.0	0.0	0.00	1236	133439			
16.2	1.4	62.3	4.3	50.8	0.0	0.0	0.00	1237	133449			
16.1	1.5	61.4	4.3	51.0	0.0	0.0	0.00	1238	133458			
16.4	1.5	61.9	4.3	51.8	0.0	0.0	0.00	1239	133509			
16.1	1.5	62.0	4.3	53.0	0.0	0.0	0.00	1240	133519			
16.2	1.5	62.3	4.3	52.7	0.0	0.0	0.00	1241	133530			
16.1	1.5	62.3	4.4	51.8	0.0	0.0	0.00	1242	133540			
16.4	1.5	61.0	4.3	49.8	0.0	0.0	0.00	1243	133551			
16.1	1.5	61.5	4.3	49.8	0.0	0.0	0.00	1244	133601			
16.1	1.5	61.9	4.3	50.8	0.0	0.0	0.00	1245	133612			
16.2	1.5	61.9	4.4	50.8	0.0	0.0	0.00	1246	133621			
16.2	1.5	62.4	4.4	49.8	0.0	0.0	0.00	1247	133632			
16.1	1.5	63.1	4.4	48.8	0.0	0.0	0.00	1248	133642			
16.4	1.4	62.7	4.4	48.8	0.0	0.0	0.00	1249	133653			
16.1	1.5	62.5	4.4	48.8	0.0	0.0	0.00	1250	133703			
16.1	1.5	61.4	4.3	48.8	0.0	0.0	0.00	1251	133712			
16.2	1.5	61.4	4.3	48.8	0.0	0.0	0.00	1252	133723			
16.2	1.5	60.7	4.3	48.8	0.0	0.0	0.00	1253	133734			
16.1	1.5	61.2	4.3	49.8	0.0	0.0	0.00	1254	133744			
16.2	1.5	61.5	4.3	49.6	0.0	0.0	0.00	1255	133754			
16.1	1.5	59.0	4.2	49.8	0.0	0.0	0.00	1256	133805			
16.2	1.5	56.3	4.0	50.0	0.0	0.0	0.00	1257	133814			
16.4	1.5	54.8	4.0	49.8	0.0	0.0	0.00	1258	133825			
16.4	1.4	55.2	3.9	50.8	0.0	0.0	0.00	1259	133834			
16.4	1.5	56.6	4.0	52.7	0.0	0.0	0.00	1260	133845			
16.4	1.5	57.7	4.1	53.7	0.0	0.0	0.00	1261	133855			
16.5	1.5	58.6	4.2	54.7	0.0	0.0	0.00	1262	133906			
16.5	1.5	58.7	4.2	54.7	0.0	0.0	0.00	1263	133916			
16.5	1.5	58.7	4.1	55.4	0.0	0.0	0.00	1264	133927			
16.5	1.5	59.7	4.2	57.6	0.0	0.0	0.00	1265	133937			
16.5	1.5	60.8	4.3	57.9	0.0	0.0	0.00	1266	133946			
16.5	1.5	62.3	4.4	56.9	0.0	0.0	0.00	1267	133957			
16.4	1.5	61.5	4.3	54.7	0.0	0.0	0.00	1268	134007			
16.4	1.5	61.2	4.3	53.7	0.0	0.0	0.00	1269	134018			
16.2	1.5	62.1	4.3	51.8	0.0	0.0	0.00	1270	134029			
16.1	1.5	62.3	4.4	50.8	0.0	0.0	0.00	1271	134039			
16.1	1.5	62.7	4.4	49.8	0.0	0.0	0.00	1272	134049			
16.1	1.5	63.0	4.4	49.8	0.0	0.0	0.00	1273	134100			
16.2	1.5	62.5	4.4	48.8	0.0	0.0	0.00	1274	134110			
16.2	1.5	62.4	4.3	48.8	0.0	0.0	0.00	1275	134121			
16.2	1.5	61.9	4.3	49.8	0.0	0.0	0.00	1276	134131			
16.6	1.5	60.2	4.2	49.8	0.0	0.0	0.00	1277	134142			
16.2	1.5	59.1	4.2	50.8	0.0	0.0	0.00	1278	134151			
16.2	1.5	58.6	4.1	50.8	0.0	0.0	0.00	1279	134202			
16.4	1.4	57.6	4.0	51.8	0.0	0.0	0.00	1280	134211			
16.6	1.5	56.5	4.0	51.8	0.0	0.0	0.00	1281	134222			
16.6	1.5	56.6	4.0	52.7	0.0	0.0	0.00	1282	134232			
16.6	1.5	57.5	4.0	53.7	0.0	0.0	0.00	1283	134242			
16.6	1.5	57.1	4.0	54.7	0.0	0.0	0.00	1284	134251			
16.6	1.5	57.1	4.0	56.9	0.0	0.0	0.00	1285	134302			
16.6	1.5	57.5	4.0	58.1	0.0	0.0	0.00	1286	134313			
16.7	1.5	55.3	4.0	58.8	0.0	0.0	0.00	1287	134322			
16.6	1.5	55.5	4.0	59.6	0.0	0.0	0.00	1288	134333			
16.6	1.5	56.4	3.9	58.3	0.0	0.0	0.00	1289	134344			
16.6	1.5	54.9	3.9	59.6	0.0	0.0	0.00	1290	134353			
16.6	1.5	55.7	3.8	55.6	0.0	0.0	0.00	1291	134404			
16.6	1.5	54.0	3.8	60.5	0.0	0.0	0.00	1292	134414			
16.7	1.5	54.9	3.9	61.9	0.0	0.0	0.00	1293	134424			
16.6	1.5	53.6	3.8	62.5	0.0	0.0	0.00	1294	134435			

17.0	1.5	53.5	3.8	63.5	0.0	0.0	0.00	1295	134444			
17.0	1.5	53.7	3.8	64.5	0.0	0.0	0.00	1296	134455			
16.8	1.5	54.0	3.8	66.7	0.0	0.0	0.00	1297	134505			
16.8	1.5	53.5	3.8	67.6	0.0	0.0	0.00	1298	134514			
17.0	1.5	52.6	3.7	67.6	0.0	0.0	0.00	1299	134525			
17.0	1.5	53.6	3.8	68.8	0.0	0.0	0.00	1300	134536			
17.0	1.5	55.2	3.9	69.6	0.0	0.0	0.00	1301	134545			
16.6	1.5	55.8	3.9	68.8	0.0	0.0	0.00	1302	134556			
02_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_0	THC_I	CO P	scan	time
17.0	1.5	56.3	4.0	67.6	0.0	0.0	0.00	1303	134605			
16.7	1.5	58.1	4.0	66.4	0.0	0.0	0.00	1304	134616			
16.6	1.5	59.6	4.1	63.5	0.0	0.0	0.00	1305	134625			
16.6	1.5	61.4	4.2	59.6	0.0	0.0	0.00	1306	134636			
16.6	1.5	62.4	4.3	58.1	0.0	0.0	0.00	1307	134645			
16.6	1.5	63.5	4.4	55.9	0.0	0.0	0.00	1308	134656			
16.6	1.5	63.0	4.4	54.7	0.0	0.0	0.00	1309	134706			
16.6	1.5	63.0	4.3	53.7	0.0	0.0	0.00	1310	134716			
16.6	1.5	62.3	4.3	52.0	0.0	0.0	0.00	1311	134727			
16.6	1.5	57.0	4.0	51.8	0.0	0.0	0.00	1312	134738			
16.6	1.5	55.9	3.9	51.8	0.0	0.0	0.00	1313	134749			
16.5	1.5	56.9	4.0	51.5	0.0	0.0	0.00	1314	134759			
16.6	1.5	58.0	4.1	51.8	0.0	0.0	0.00	1315	134810	END OF TEST #2		
16.5	1.5	59.7	4.1	52.7	0.0	0.0	0.00	1316	134819			
16.5	1.5	59.2	4.1	53.7	0.0	0.0	0.00	1317	134830			
16.4	1.5	59.7	4.1	53.7	0.0	0.0	0.00	1318	134839			
16.4	1.5	60.5	4.2	52.7	0.0	0.0	0.00	1319	134850			
16.1	1.5	61.2	4.3	51.8	0.0	0.0	0.00	1320	134901			
16.2	1.5	61.6	4.3	51.8	0.0	0.0	0.00	1321	134911			
16.5	1.5	62.4	4.3	50.5	0.0	0.0	0.00	1322	134921			
16.4	1.5	61.2	4.2	50.8	0.0	0.0	0.00	1323	134931			
16.4	1.5	57.6	4.0	49.9	0.0	0.0	0.00	1324	134941			
16.6	1.5	57.4	4.0	50.8	0.0	0.0	0.00	1325	134952			
16.6	1.5	56.0	3.9	52.7	0.0	0.0	0.00	1326	135003			
16.6	1.5	54.9	3.8	53.7	0.0	0.0	0.00	1327	135013			
16.6	1.5	54.2	3.8	55.7	0.0	0.0	0.00	1328	135022			
16.6	1.5	53.8	3.8	58.6	0.0	0.0	0.00	1329	135033			
16.7	1.5	54.7	3.8	61.8	0.0	0.0	0.00	1330	135043			
16.7	1.5	54.9	3.8	64.5	0.0	0.0	0.00	1331	135052			
16.7	1.5	55.8	3.9	65.4	0.0	0.0	0.00	1332	135103			
16.7	1.5	56.8	4.0	65.4	0.0	0.0	0.00	1333	135112			
16.6	1.5	57.9	4.0	64.9	0.0	0.0	0.00	1334	135123			
16.6	1.5	57.9	4.0	62.5	0.0	0.0	0.00	1335	135132			
16.7	1.5	57.5	4.0	61.8	0.0	0.0	0.00	1336	135143			
16.6	1.5	57.6	4.0	59.6	0.0	0.0	0.00	1337	135152			
16.7	1.5	57.1	4.0	58.6	0.0	0.0	0.00	1338	135203			
17.0	1.5	57.6	4.0	57.9	0.0	0.0	0.00	1339	135212			
16.8	1.5	57.9	4.0	56.9	0.0	0.0	0.00	1340	135223			
16.7	1.5	57.1	3.9	55.9	0.0	0.0	0.00	1341	135234			
16.7	1.5	54.8	3.8	54.7	0.0	0.0	0.00	1342	135244			
16.6	1.5	54.9	3.8	54.7	0.0	0.0	0.00	1343	135254			
16.6	1.5	56.5	3.9	53.7	0.0	0.0	0.00	1344	135305			
16.6	1.5	55.5	3.9	53.7	0.0	0.0	0.00	1345	135315			
16.7	1.5	56.6	3.9	53.7	0.0	0.0	0.00	1346	135326			
16.6	1.5	56.4	3.9	53.7	0.0	0.0	0.00	1347	135337			
16.6	1.5	57.4	3.9	52.7	0.0	0.0	0.00	1348	135347			
16.5	1.5	55.1	4.1	52.7	0.0	0.0	0.00	1349	135358			
16.6	1.5	57.7	4.0	53.5	0.0	0.0	0.00	1350	135408			
16.6	1.5	57.7	4.0	53.7	0.0	0.0	0.00	1351	135417			
16.5	1.5	58.5	4.0	53.7	0.0	0.0	0.00	1352	135428			
16.6	1.5	59.2	4.1	53.7	0.0	0.0	0.00	1353	135437			
16.6	1.5	58.2	4.1	54.7	0.0	0.0	0.00	1354	135448			
16.7	1.5	54.7	3.8	55.2	0.0	0.0	0.00	1355	135457			
16.8	1.5	52.4	3.7	57.9	0.0	0.0	0.00	1356	135508			
16.7	1.5	52.7	3.7	58.1	0.0	0.0	0.00	1357	135517			
16.9	1.5	53.3	3.7	60.1	0.0	0.0	0.00	1358	135528			
16.9	1.5	54.1	3.8	60.8	0.0	0.0	0.00	1359	135537			

16.8	1.5	54.4	3.8	64.5	0.0	0.0	0.00	1360	135548			
16.7	1.5	55.2	3.8	68.4	0.0	0.0	0.00	1361	135558			
17.1	1.5	55.5	3.8	69.1	0.0	0.0	0.00	1362	135607			
16.8	1.5	55.4	3.9	67.6	0.0	0.0	0.00	1363	135618			
16.6	1.5	57.0	3.9	65.9	0.0	0.0	0.00	1364	135627			
16.6	1.5	57.6	4.0	61.8	0.0	0.0	0.00	1365	135638			
16.6	1.5	56.0	3.9	59.8	0.0	0.0	0.00	1366	135648			
16.6	1.5	56.4	3.9	57.9	0.0	0.0	0.00	1367	125659			
16.6	1.5	58.2	4.0	55.7	0.0	0.0	0.00	1368	135709			
16.5	1.5	58.0	4.0	55.7	0.0	0.0	0.00	1369	135719			
16.6	1.5	57.6	4.0	55.7	0.0	0.0	0.00	1370	135728			
16.6	1.5	56.0	3.9	56.6	0.0	0.0	0.00	1371	135739			
16.6	1.5	55.4	3.8	58.6	0.0	0.0	0.00	1372	135749			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.6	1.5	54.8	3.8	59.6	0.0	0.0	0.00	1373	135800			
16.6	1.5	56.0	3.9	59.6	0.0	0.0	0.00	1374	135810			
16.6	1.5	53.2	3.7	59.8	0.0	0.0	0.00	1375	135819			
16.6	1.5	52.0	3.6	61.0	0.0	0.0	0.00	1376	135830			
16.7	1.5	52.7	3.7	60.5	0.0	0.0	0.00	1377	135839			
16.6	1.5	53.0	3.7	62.5	0.0	0.0	0.00	1378	135850			
16.6	1.5	52.9	3.7	63.5	0.0	0.0	0.00	1379	135900			
16.7	1.5	53.1	3.7	65.7	0.0	0.0	0.00	1380	135910			
16.8	1.5	53.3	3.7	66.7	0.0	0.0	0.00	1381	135921			
16.6	1.5	52.5	3.7	67.4	0.0	0.0	0.00	1382	135930			
17.0	1.5	51.9	3.6	67.4	0.0	0.0	0.00	1383	135941			
16.8	1.5	50.8	3.6	67.6	0.0	0.0	0.00	1384	135951			
17.1	1.5	50.2	3.6	70.1	0.0	0.0	0.00	1385	140001			
17.1	1.5	49.3	3.5	71.3	0.0	0.0	0.00	1386	140010			
17.1	1.5	49.0	3.5	74.0	0.0	0.0	0.00	1387	140021			
17.1	1.5	49.4	3.5	75.2	0.0	0.0	0.00	1388	140031			
17.1	1.5	49.6	3.5	78.1	0.0	0.0	0.00	1389	140042			
17.1	1.5	50.8	3.6	78.6	0.0	0.0	0.00	1390	140051			
17.0	1.5	51.8	3.6	77.1	0.0	0.0	0.00	1391	140102			
17.1	1.5	51.8	3.6	72.8	0.0	0.0	0.00	1392	140112			
17.0	1.5	54.2	3.8	67.6	0.0	0.0	0.00	1393	140122			
16.8	1.5	54.7	3.8	63.7	0.0	0.0	0.00	1394	140133			
16.8	1.5	55.7	3.9	62.0	0.0	0.0	0.00	1395	140142			
16.8	1.5	56.9	3.9	59.6	0.0	0.0	0.00	1396	140153			
16.8	1.5	58.0	4.0	57.6	0.0	0.0	0.00	1397	140203			
16.8	1.5	57.7	3.9	56.6	0.0	0.0	0.00	1398	140212			
16.8	1.5	57.0	3.9	55.7	0.0	0.0	0.00	1399	140223			
16.7	1.5	56.2	3.9	56.2	0.0	0.0	0.00	1400	140233			
17.0	1.5	55.5	3.8	57.1	0.0	0.0	0.00	1401	140243			
16.7	1.5	54.9	3.8	55.7	0.0	0.0	0.00	1402	140254			
16.8	1.5	51.6	3.6	56.9	0.0	0.0	0.00	1403	140305			
17.0	1.5	50.9	3.6	57.9	0.0	0.0	0.00	1404	140315			
17.1	1.6	50.9	3.6	59.8	0.0	0.0	0.00	1405	140324			
17.1	1.5	50.9	3.6	61.8	0.0	0.0	0.00	1406	140335			
17.1	1.5	51.0	3.6	63.5	0.0	0.0	0.00	1407	140345			
17.1	1.5	51.9	3.6	65.4	0.0	0.0	0.00	1408	140356			
17.1	1.5	52.7	3.7	67.4	0.0	0.0	0.00	1409	140406			
17.1	1.5	53.6	3.7	68.4	0.0	0.0	0.00	1410	140417			
17.1	1.5	54.0	3.7	68.8	0.0	0.0	0.00	1411	140426			
17.1	1.5	54.4	3.8	67.6	0.0	0.0	0.00	1412	140437			
17.1	1.5	55.7	3.8	65.7	0.0	0.0	0.00	1413	140447			
17.1	1.5	57.3	3.9	63.5	0.0	0.0	0.00	1414	140457			
16.6	1.5	58.5	4.0	62.5	0.0	0.0	0.00	1415	140506			
16.6	1.5	59.2	4.0	60.8	0.0	0.0	0.00	1416	140517			
16.6	1.5	60.1	4.1	59.1	0.0	0.0	0.00	1417	140527			
16.6	1.5	60.3	4.2	56.5	0.0	0.0	0.00	1418	140538			

SYSTEM CALS

FILE: HMT3

16.6	1.5	60.4	4.1	55.7	0.0	0.0	0.00	1419	140548			
20.9	1.8	1.5	0.7	7.8	0.0	0.0	0.00	1420	140957			
02_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
20.9	1.9	2.0	0.8	7.8	0.0	0.0	0.00	1421	141008			
17.5	1.6	12.0	1.3	8.8	0.0	0.0	0.00	1422	141019			
4.9	0.6	1.0	0.7	11.7	0.0	0.0	0.00	1423	141029			
1.6	0.4	1.2	0.7	10.5	0.0	0.0	0.00	1424	141039			
0.5	0.2	1.1	0.7	8.6	0.0	0.0	0.00	1425	141049			
0.5	0.2	1.2	0.7	5.9	0.0	0.0	0.00	1426	141100			
0.2	0.2	1.1	0.7	3.7	0.0	0.0	0.00	1427	141111			
0.0	0.2	1.0	0.7	2.7	0.0	0.0	0.00	1428	141121			
0.2	0.2	1.0	0.7	2.7	0.0	0.0	0.00	1429	141131			
0.2	0.2	1.1	0.7	1.7	0.0	0.0	0.00	1430	141142			
0.1	0.2	1.2	0.7	1.7	0.0	0.0	0.00	1431	141152			
0.4	0.2	1.0	0.7	1.7	0.0	0.0	0.00	1432	141203			
0.2	0.2	1.5	0.7	1.7	0.0	0.0	0.00	1433	141214			
0.2	0.2	1.2	0.7	2.0	0.0	0.0	0.00	1434	141224			
0.4	0.2	0.7	0.6	2.0	0.0	0.0	0.00	1435	141234			
0.4	0.2	1.0	0.6	2.0	0.0	0.0	0.00	1436	141244			
0.1	0.2	0.5	0.6	1.7	0.0	0.0	0.00	1437	141255			
0.1	0.2	0.9	0.6	2.0	0.0	0.0	0.00	1438	141305			
0.2	0.2	1.0	0.6	1.7	0.0	0.0	0.00	1439	141316			
0.2	0.2	0.9	0.6	1.7	0.0	0.0	0.00	1440	141327			
0.2	0.2	0.9	0.6	1.7	0.0	0.0	0.00	1441	141337			
0.4	0.2	1.1	0.6	2.0	0.0	0.0	0.00	1442	141346			
0.1	0.2	0.9	0.6	2.0	0.0	0.0	0.00	1443	141357			
0.2	0.2	1.0	0.6	1.7	0.0	0.0	0.00	1444	141407			
0.0	0.2	0.7	0.6	2.0	0.0	0.0	0.00	1445	141418			
0.1	0.2	1.0	0.6	1.5	0.0	0.0	0.00	1446	141427			
0.1	0.2	0.9	0.6	1.7	0.0	0.0	0.00	1447	141438			
0.1	0.2	0.7	0.6	2.0	0.0	0.0	0.00	1448	141448			
0.1	0.2	0.6	0.6	2.0	0.0	0.0	0.00	1449	141459			
0.1	0.2	0.9	0.6	1.7	0.0	0.0	0.00	1450	141509			
3.4	0.5	1.2	0.6	2.0	0.0	0.0	0.00	1451	141520			
8.4	0.9	0.9	0.6	1.7	0.0	0.0	0.00	1452	141530			
9.9	1.0	1.0	0.6	2.0	0.0	0.0	0.00	1453	141541			
10.4	1.0	0.9	0.6	2.9	0.0	0.0	0.00	1454	141551			
10.6	1.0	0.9	0.5	2.7	0.0	0.0	0.00	1455	141600			
10.7	1.0	0.9	0.5	3.9	0.0	0.0	0.00	1456	141611			
10.7	1.0	1.0	0.6	3.9	0.0	0.0	0.00	1457	141620			
10.7	1.0	0.9	0.5	3.9	0.0	0.0	0.00	1458	141631			
10.7	1.0	1.1	0.6	3.9	0.0	0.0	0.00	1459	141641			
10.7	1.0	1.0	0.5	3.9	0.0	0.0	0.00	1460	141652			
10.7	1.0	0.9	0.6	3.7	0.0	0.0	0.00	1461	141702			
10.7	1.1	1.0	0.5	3.9	0.0	0.0	0.00	1462	141712			
7.0	0.3	48.3	3.3	3.7	0.0	0.0	0.00	1463	141722			
2.9	0.4	50.2	3.4	3.9	0.0	0.0	0.00	1464	141732			
1.0	0.3	50.2	3.4	4.9	0.0	0.0	0.00	1465	141743			
0.5	0.2	50.7	3.4	4.9	0.0	0.0	0.00	1466	141753			
0.4	0.2	50.5	3.4	3.9	0.0	0.0	0.00	1467	141804			
0.1	0.2	50.3	3.4	3.3	0.0	0.0	0.00	1468	141813			
0.1	0.2	50.4	3.4	2.9	0.0	0.0	0.00	1469	141823			

0.1	0.2	50.4	3.4	2.9	0.0	0.0	0.00	1470	141834
0.1	0.2	50.7	3.4	2.9	0.0	0.0	0.00	1471	141843
0.5	0.2	50.2	3.4	2.7	0.0	0.0	0.00	1472	141854
0.1	0.2	50.4	3.4	2.0	0.0	0.0	0.00	1473	141904
0.0	0.2	43.2	3.1	1.2	0.0	0.0	0.00	1474	141914

Quick CAL(SYS.) CHECK

13.2	1.3	15.3	1.2	6.8	0.0	0.0	0.00	1475	153625
12.9	1.2	5.1	0.7	6.8	0.0	0.0	0.00	1476	153634
11.4	1.1	1.6	0.5	9.8	0.0	0.0	0.00	1477	153645
10.7	1.1	1.7	0.5	49.6	0.0	0.0	0.00	1478	153656
10.7	1.0	1.5	0.5	71.8	0.0	0.0	0.00	1479	153706
10.7	1.0	1.7	0.5	59.8	0.0	0.0	0.00	1480	153716
10.7	1.1	1.6	0.5	31.0	0.0	0.0	0.00	1481	153727
10.7	1.0	1.2	0.5	15.6	0.0	0.0	0.00	1482	153736
10.7	1.0	1.5	0.5	15.6	0.0	0.0	0.00	1483	153747
10.7	1.0	1.1	0.4	15.6	0.0	0.0	0.00	1484	153756
10.5	1.0	1.2	0.4	11.7	0.0	0.0	0.00	1485	153807
10.7	1.0	1.0	0.5	7.8	0.0	0.0	0.00	1486	153816

10.7	1.1	1.1	0.5	6.6	0.0	0.0	0.00	1487	153827
9.5	1.0	32.6	2.1	6.8	0.0	0.0	0.00	1488	153836
8.4	0.5	49.4	3.1	5.9	0.0	0.0	0.00	1489	153847
1.5	0.3	49.6	3.2	4.6	0.0	0.0	0.00	1490	153858
0.5	0.3	49.7	3.2	4.6	0.0	0.0	0.00	1491	153907
0.4	0.2	49.3	3.2	3.9	0.0	0.0	0.00	1492	153918
0.4	0.2	49.9	3.2	3.9	0.0	0.0	0.00	1493	153927
0.2	0.2	50.0	3.2	2.7	0.0	0.0	0.00	1494	153938
0.2	0.2	50.3	3.2	2.7	0.0	0.0	0.00	1495	153947
0.1	0.2	50.2	3.2	2.9	0.0	0.0	0.00	1496	153958

14.9	1.4	63.5	4.1	225.3	0.0	0.0	0.00	1497	154956
14.9	1.4	63.6	4.1	223.5	0.0	0.0	0.00	1498	155006
15.1	1.4	63.5	4.0	223.1	0.0	0.0	0.00	1499	155017
15.1	1.4	64.3	4.1	223.5	0.0	0.0	0.00	1500	155027
15.3	1.4	64.5	4.2	217.2	0.0	0.0	0.00	1501	155038
15.5	1.4	65.3	4.2	201.2	0.0	0.0	0.00	1502	155048
15.4	1.4	64.5	4.1	184.6	0.0	0.0	0.00	1503	155058
15.3	1.4	63.7	4.0	169.9	0.0	0.0	0.00	1504	155108
15.5	1.4	62.7	4.0	160.2	0.0	0.0	0.00	1505	155118
15.1	1.4	62.5	4.0	155.0	0.0	0.0	0.00	1506	155128
15.4	1.4	61.8	4.0	148.2	0.0	0.0	0.00	1507	155139
15.5	1.4	62.0	4.0	147.5	0.0	0.0	0.00	1508	155148
15.3	1.4	62.9	4.0	143.6	0.0	0.0	0.00	1509	155159

15.1	1.4	63.6	4.1	142.1	0.0	0.0	0.00	1510	155209			
15.4	1.4	63.6	4.1	138.2	0.0	0.0	0.00	1511	155219			
15.6	1.4	63.6	4.1	133.1	0.0	0.0	0.00	1512	155230			
15.6	1.4	63.0	4.1	126.0	0.0	0.0	0.00	1513	155239			
15.6	1.4	63.0	4.1	119.1	0.0	0.0	0.00	1514	155250			
15.6	1.4	63.2	4.0	111.1	0.0	0.0	0.00	1515	155259			
15.7	1.4	62.4	4.0	103.3	0.0	0.0	0.00	1516	155310			
15.6	1.4	61.8	4.0	95.0	0.0	0.0	0.00	1517	155319			
16.1	1.4	61.3	4.0	88.9	0.0	0.0	0.00	1518	155330			
16.0	1.5	61.2	4.0	85.9	0.0	0.0	0.00	1519	155339			
16.1	1.4	61.2	3.9	85.0	0.0	0.0	0.00	1520	155350			
16.2	1.5	61.6	4.0	83.0	0.0	0.0	0.00	1521	155400			
16.1	1.5	62.3	4.0	80.6	0.0	0.0	0.00	1522	155409			
16.0	1.4	63.2	4.1	79.1	0.0	0.0	0.00	1523	155420			
16.0	1.5	63.8	4.1	75.9	0.0	0.0	0.00	1524	155429			
16.0	1.4	63.6	4.1	74.7	0.0	0.0	0.00	1525	155440			
16.0	1.4	64.1	4.1	74.0	0.0	0.0	0.00	1526	155449			
15.7	1.4	63.2	4.1	72.8	0.0	0.0	0.00	1527	155500			
16.0	1.4	63.0	4.0	72.5	0.0	0.0	0.00	1528	155509			
15.6	1.4	62.3	4.1	73.2	0.0	0.0	0.00	1529	155520			
16.0	1.5	61.3	4.0	76.7	0.0	0.0	0.00	1530	155529			
15.7	1.4	61.0	4.0	80.1	0.0	0.0	0.00	1531	155539			
16.0	1.4	60.2	3.8	82.8	0.0	0.0	0.00	1532	155550			
16.1	1.5	59.3	3.9	85.9	0.0	0.0	0.00	1533	155559			
16.1	1.4	58.5	3.8	89.8	0.0	0.0	0.00	1534	155610			
16.1	1.4	57.9	3.8	93.8	0.0	0.0	0.00	1535	155619	START TEST #3		
16.1	1.5	57.3	3.8	96.7	0.0	0.0	0.00	1536	155630			
16.1	1.5	57.3	3.7	97.7	0.0	0.0	0.00	1537	155639			
16.1	1.5	57.3	3.8	98.6	0.0	0.0	0.00	1538	155650			
16.1	1.5	57.3	3.8	99.6	0.0	0.0	0.00	1539	155659			
16.1	1.4	57.6	3.8	101.6	0.0	0.0	0.00	1540	155710			
16.2	1.5	57.9	3.8	103.8	0.0	0.0	0.00	1541	155720			
16.2	1.5	57.7	3.8	103.5	0.0	0.0	0.00	1542	155730			
16.4	1.5	58.1	3.8	101.8	0.0	0.0	0.00	1543	155741			
16.2	1.5	58.5	3.8	102.8	0.0	0.0	0.00	1544	155750			
16.4	1.4	57.9	3.8	103.0	0.0	0.0	0.00	1545	155801			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.4	1.5	57.5	3.8	102.1	0.0	0.0	0.00	1546	155810			
15.1	1.4	57.1	3.7	99.9	0.0	0.0	0.00	1547	155821			
16.1	1.4	55.8	3.7	97.2	0.0	0.0	0.00	1548	155830			
16.5	1.4	57.0	3.7	95.0	0.0	0.0	0.00	1549	155841			
16.1	1.5	58.1	3.8	93.0	0.0	0.0	0.00	1550	155850			
16.1	1.5	58.6	3.9	90.8	0.0	0.0	0.00	1551	155901			
16.1	1.4	58.8	3.9	90.8	0.0	0.0	0.00	1552	155911			
16.2	1.4	60.3	3.9	91.8	0.0	0.0	0.00	1553	155921			
16.1	1.5	60.1	4.0	93.8	0.0	0.0	0.00	1554	155931			
16.0	1.5	59.8	3.9	94.7	0.0	0.0	0.00	1555	155941			
16.1	1.4	59.4	3.9	95.7	0.0	0.0	0.00	1556	155950			
16.1	1.4	58.6	3.8	99.6	0.0	0.0	0.00	1557	160001			
15.9	1.5	59.3	3.9	104.0	0.0	0.0	0.00	1558	160010			
15.9	1.4	59.3	3.9	107.4	0.0	0.0	0.00	1559	160021			
16.1	1.4	59.2	3.9	109.4	0.0	0.0	0.00	1560	160030			
16.1	1.4	59.4	3.9	111.3	0.0	0.0	0.00	1561	160041			
16.1	1.4	59.3	3.9	113.0	0.0	0.0	0.00	1562	160051			
16.1	1.5	59.1	3.9	114.3	0.0	0.0	0.00	1563	160101			
16.1	1.5	59.1	3.8	115.2	0.0	0.0	0.00	1564	160112			
16.1	1.4	59.0	3.8	115.2	0.0	0.0	0.00	1565	160121			
16.0	1.4	58.7	3.9	117.2	0.0	0.0	0.00	1566	160132			
16.1	1.4	58.7	3.9	118.2	0.0	0.0	0.00	1567	160141			
16.1	1.4	58.5	3.9	118.2	0.0	0.0	0.00	1568	160152			
16.0	1.5	58.1	3.8	118.9	0.0	0.0	0.00	1569	160201			
16.1	1.4	57.7	3.8	119.1	0.0	0.0	0.00	1570	160212			
16.1	1.4	57.3	3.8	120.1	0.0	0.0	0.00	1571	160222			
16.1	1.5	58.0	3.8	123.0	0.0	0.0	0.00	1572	160233			
16.0	1.4	57.4	3.8	124.3	0.0	0.0	0.00	1573	160244			
16.1	1.5	57.3	3.8	124.5	0.0	0.0	0.00	1574	160253			

16.0	1.4	57.6	3.8	124.3	0.0	0.0	0.00	1575	160304
16.1	1.5	57.3	3.8	124.0	0.0	0.0	0.00	1576	160313
16.0	1.5	57.5	3.8	123.0	0.0	0.0	0.00	1577	160324
16.1	1.4	57.1	3.8	120.1	0.0	0.0	0.00	1578	160333
16.0	1.4	56.8	3.8	118.2	0.0	0.0	0.00	1579	160344
16.1	1.4	54.4	3.6	119.1	0.0	0.0	0.00	1580	160353
16.0	1.5	54.4	3.6	119.1	0.0	0.0	0.00	1581	160404
16.0	1.4	55.5	3.7	120.1	0.0	0.0	0.00	1582	160415
16.1	1.4	55.7	3.7	119.4	0.0	0.0	0.00	1583	160425
16.1	1.4	55.8	3.7	119.1	0.0	0.0	0.00	1584	160435
16.1	1.5	57.0	3.8	117.2	0.0	0.0	0.00	1585	160446
16.0	1.5	58.7	3.9	117.2	0.0	0.0	0.00	1586	160456
16.0	1.4	59.8	4.0	118.2	0.0	0.0	0.00	1587	160507
16.1	1.4	59.8	3.9	117.2	0.0	0.0	0.00	1588	160516
16.0	1.4	60.4	4.0	115.2	0.0	0.0	0.00	1589	160527
16.0	1.5	60.2	4.0	114.3	0.0	0.0	0.00	1590	160536
16.1	1.5	59.6	3.9	113.3	0.0	0.0	0.00	1591	160547
16.0	1.5	59.0	3.9	113.3	0.0	0.0	0.00	1592	160556
16.1	1.4	57.3	3.8	112.3	0.0	0.0	0.00	1593	160607
16.1	1.4	56.6	3.8	112.3	0.0	0.0	0.00	1594	160616
16.0	1.5	56.5	3.8	114.3	0.0	0.0	0.00	1595	160627
16.0	1.4	57.4	3.8	119.1	0.0	0.0	0.00	1596	160636
16.1	1.4	57.7	3.8	122.1	0.0	0.0	0.00	1597	160647
16.1	1.4	57.3	3.8	123.0	0.0	0.0	0.00	1598	160656
16.1	1.5	56.9	3.8	123.0	0.0	0.0	0.00	1599	160707
16.1	1.4	57.3	3.8	123.0	0.0	0.0	0.00	1600	160717
16.1	1.5	57.7	3.8	125.0	0.0	0.0	0.00	1601	160728
16.1	1.5	58.6	3.9	127.9	0.0	0.0	0.00	1602	160737
16.1	1.5	59.7	4.0	129.2	0.0	0.0	0.00	1603	160748
16.0	1.5	61.3	4.1	127.0	0.0	0.0	0.00	1604	160757
16.1	1.5	62.4	4.1	122.1	0.0	0.0	0.00	1605	160808
15.7	1.4	63.5	4.1	116.2	0.0	0.0	0.00	1606	160817
15.7	1.4	63.8	4.2	110.1	0.0	0.0	0.00	1607	160828
15.6	1.4	64.2	4.2	106.4	0.0	0.0	0.00	1608	160837
15.6	1.4	64.6	4.3	101.8	0.0	0.0	0.00	1609	160848
15.6	1.4	63.5	4.1	97.9	0.0	0.0	0.00	1610	160858
15.6	1.4	62.3	4.1	95.2	0.0	0.0	0.00	1611	160909
15.6	1.4	61.9	4.1	94.7	0.0	0.0	0.00	1612	160918
15.7	1.5	61.9	4.1	99.6	0.0	0.0	0.00	1613	160929
15.6	1.4	60.8	4.0	106.4	0.0	0.0	0.00	1614	160940
15.7	1.4	58.6	3.9	111.3	0.0	0.0	0.00	1615	160950
15.9	1.5	56.9	3.8	116.2	0.0	0.0	0.00	1616	161001
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.0	1.4	56.6	3.8	120.1	0.0	0.0	0.00	1617	161011
16.0	1.5	56.2	3.8	125.0	0.0	0.0	0.00	1618	161020
16.1	1.4	55.8	3.7	128.9	0.0	0.0	0.00	1619	161031
16.1	1.5	55.5	3.7	132.8	0.0	0.0	0.00	1620	161041
16.1	1.4	54.2	3.7	133.8	0.0	0.0	0.00	1621	161052
16.2	1.4	53.7	3.5	134.8	0.0	0.0	0.00	1622	161102
16.2	1.5	52.9	3.6	137.2	0.0	0.0	0.00	1623	161113
16.2	1.5	51.6	3.5	140.4	0.0	0.0	0.00	1624	161123
16.1	1.5	50.7	3.5	142.3	0.0	0.0	0.00	1625	161133
16.4	1.5	50.2	3.4	143.3	0.0	0.0	0.00	1626	161144
16.4	1.5	49.4	3.4	143.3	0.0	0.0	0.00	1627	161154
16.3	1.4	50.9	3.5	145.5	0.0	0.0	0.00	1628	161205
16.2	1.5	51.4	3.5	149.4	0.0	0.0	0.00	1629	161215
16.4	1.5	52.2	3.6	151.4	0.0	0.0	0.00	1630	161226
16.4	1.5	53.1	3.6	150.4	0.0	0.0	0.00	1631	161236
16.2	1.4	52.2	3.5	144.5	0.0	0.0	0.00	1632	161247
16.2	1.5	53.1	3.6	135.0	0.0	0.0	0.00	1633	161258
16.1	1.5	54.0	3.7	127.9	0.0	0.0	0.00	1634	161307
16.2	1.5	54.7	3.7	123.3	0.0	0.0	0.00	1635	161318
16.4	1.5	55.4	3.7	118.2	0.0	0.0	0.00	1636	161327
16.1	1.4	57.1	3.8	114.3	0.0	0.0	0.00	1637	161338
16.1	1.5	57.6	3.9	111.3	0.0	0.0	0.00	1638	161348
16.1	1.4	58.2	3.9	108.9	0.0	0.0	0.00	1639	161353

16.1	1.4	58.5	3.9	106.0	0.0	0.0	0.00	1640	161409
16.1	1.5	59.1	3.9	105.2	0.0	0.0	0.00	1641	161418
16.1	1.4	57.5	3.8	101.3	0.0	0.0	0.00	1642	161429
16.1	1.5	56.4	3.8	100.8	0.0	0.0	0.00	1643	161438
16.0	1.5	55.1	3.7	98.9	0.0	0.0	0.00	1644	161449
16.1	1.5	53.7	3.7	99.9	0.0	0.0	0.00	1645	161500
16.0	1.4	53.7	3.6	105.2	0.0	0.0	0.00	1646	161510
16.1	1.5	53.5	3.6	112.3	0.0	0.0	0.00	1647	161519
16.1	1.4	53.0	3.6	120.1	0.0	0.0	0.00	1648	161530
16.1	1.5	53.8	3.6	126.2	0.0	0.0	0.00	1649	161540
16.1	1.5	54.6	3.7	127.9	0.0	0.0	0.00	1650	161551
16.1	1.5	55.4	3.7	127.9	0.0	0.0	0.00	1651	161601
16.1	1.4	56.5	3.8	127.0	0.0	0.0	0.00	1652	161610
16.2	1.5	57.0	3.9	126.2	0.0	0.0	0.00	1653	161621
16.1	1.5	56.9	3.8	126.0	0.0	0.0	0.00	1654	161630
16.2	1.5	56.2	3.8	125.0	0.0	0.0	0.00	1655	161641
16.1	1.4	54.6	3.7	123.0	0.0	0.0	0.00	1656	161650
16.2	1.4	53.5	3.6	121.3	0.0	0.0	0.00	1657	161701
16.1	1.5	52.5	3.6	122.1	0.0	0.0	0.00	1658	161710
16.1	1.5	52.9	3.6	125.0	0.0	0.0	0.00	1659	161721
16.2	1.4	53.1	3.6	130.1	0.0	0.0	0.00	1660	161730
16.1	1.5	53.7	3.7	128.9	0.0	0.0	0.00	1661	161741
16.2	1.5	53.7	3.7	131.8	0.0	0.0	0.00	1662	161750
16.1	1.5	52.6	3.6	135.3	0.0	0.0	0.00	1663	161801
16.1	1.5	51.8	3.6	139.2	0.0	0.0	0.00	1664	161810
16.2	1.5	51.4	3.5	142.6	0.0	0.0	0.00	1665	161821
16.2	1.5	50.8	3.5	143.3	0.0	0.0	0.00	1666	161832
16.1	1.5	50.8	3.5	144.3	0.0	0.0	0.00	1667	161841
16.1	1.4	50.3	3.5	146.2	0.0	0.0	0.00	1668	161852
16.2	1.5	49.6	3.5	151.1	0.0	0.0	0.00	1669	161901
16.4	1.5	49.7	3.4	156.2	0.0	0.0	0.00	1670	161912
16.6	1.5	51.0	3.5	158.2	0.0	0.0	0.00	1671	161921
16.4	1.5	50.4	3.5	159.2	0.0	0.0	0.00	1672	161932
16.5	1.5	50.8	3.5	158.2	0.0	0.0	0.00	1673	161941
16.4	1.5	52.1	3.6	158.4	0.0	0.0	0.00	1674	161952
16.1	1.5	53.2	3.7	155.3	0.0	0.0	0.00	1675	162002
16.4	1.5	55.3	3.8	150.4	0.0	0.0	0.00	1676	162012
16.2	1.5	56.4	3.8	144.0	0.0	0.0	0.00	1677	162023
16.2	1.4	57.0	3.8	137.0	0.0	0.0	0.00	1678	162034
16.1	1.5	58.1	4.0	131.1	0.0	0.0	0.00	1679	162043
16.2	1.5	58.7	4.0	124.0	0.0	0.0	0.00	1680	162054
16.1	1.5	58.5	4.0	116.2	0.0	0.0	0.00	1681	162103
16.1	1.5	59.2	4.0	110.4	0.0	0.0	0.00	1682	162114
16.1	1.4	59.8	4.1	105.2	0.0	0.0	0.00	1683	162123
16.2	1.5	59.4	4.0	102.8	0.0	0.0	0.00	1684	162134
16.2	1.5	57.5	3.9	99.6	0.0	0.0	0.00	1685	162144
16.1	1.4	54.6	3.8	98.6	0.0	0.0	0.00	1686	162154
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
16.1	1.5	52.6	3.7	99.6	0.0	0.0	0.00	1687	162205
16.1	1.5	50.8	3.6	106.4	0.0	0.0	0.00	1688	162214
16.1	1.5	49.7	3.5	114.3	0.0	0.0	0.00	1689	162225
16.1	1.5	49.7	3.5	124.3	0.0	0.0	0.00	1690	162234
16.2	1.5	52.9	3.7	135.7	0.0	0.0	0.00	1691	162245
16.5	1.5	56.0	3.8	144.0	0.0	0.0	0.00	1692	162254
16.4	1.5	58.1	4.0	147.5	0.0	0.0	0.00	1693	162305
16.1	1.5	59.3	4.1	140.1	0.0	0.0	0.00	1694	162314
16.1	1.5	61.6	4.2	127.9	0.0	0.0	0.00	1695	162325
16.0	1.4	60.9	4.2	118.2	0.0	0.0	0.00	1696	162335
15.9	1.4	60.5	4.1	110.4	0.0	0.0	0.00	1697	162345
15.9	1.4	58.0	4.0	105.2	0.0	0.0	0.00	1698	162355
16.0	1.4	56.3	3.9	103.9	0.0	0.0	0.00	1699	162405
16.0	1.4	54.8	3.8	103.5	0.0	0.0	0.00	1700	162415
16.1	1.5	54.9	3.8	107.7	0.0	0.0	0.00	1701	162425
16.1	1.4	53.5	3.7	115.2	0.0	0.0	0.00	1702	162436
16.2	1.5	52.2	3.6	123.0	0.0	0.0	0.00	1703	162445
16.1	1.5	51.9	3.5	128.9	0.0	0.0	0.00	1704	162455

CO P	scan	time

16.1	1.4	51.8	3.6	134.8	0.0	0.0	0.00	1705	162505
16.4	1.4	50.5	3.5	140.1	0.0	0.0	0.00	1706	162516
16.4	1.5	49.0	3.4	142.8	0.0	0.0	0.00	1707	162527
16.4	1.5	48.3	3.4	146.0	0.0	0.0	0.00	1708	162538
16.2	1.4	48.2	3.4	150.4	0.0	0.0	0.00	1709	162548
16.4	1.5	49.2	3.4	157.5	0.0	0.0	0.00	1710	162559
16.2	1.5	49.2	3.4	160.9	0.0	0.0	0.00	1711	162610
16.5	1.4	50.9	3.5	162.1	0.0	0.0	0.00	1712	162620
16.4	1.5	53.3	3.7	161.1	0.0	0.0	0.00	1713	162631
16.2	1.5	57.0	3.9	155.3	0.0	0.0	0.00	1714	162642
16.4	1.5	58.7	4.0	145.5	0.0	0.0	0.00	1715	162651
16.1	1.5	58.8	4.0	132.3	0.0	0.0	0.00	1716	162702
16.1	1.4	59.2	4.0	120.1	0.0	0.0	0.00	1717	162713
16.0	1.5	58.5	4.0	112.3	0.0	0.0	0.00	1718	162722
16.1	1.4	59.6	4.1	105.5	0.0	0.0	0.00	1719	162733
16.1	1.4	59.9	4.1	99.9	0.0	0.0	0.00	1720	162742
16.0	1.4	59.7	4.0	96.7	0.0	0.0	0.00	1721	162753
16.0	1.4	59.7	4.0	95.7	0.0	0.0	0.00	1722	162802
16.0	1.4	59.6	4.0	95.7	0.0	0.0	0.00	1723	162813
15.9	1.4	59.1	4.0	97.2	0.0	0.0	0.00	1724	162822
16.0	1.4	57.4	3.9	97.7	0.0	0.0	0.00	1725	162833
16.1	1.4	55.5	3.8	101.3	0.0	0.0	0.00	1726	162843
16.1	1.5	56.0	3.8	108.2	0.0	0.0	0.00	1727	162853
16.1	1.4	54.8	3.8	116.0	0.0	0.0	0.00	1728	162904
16.1	1.4	54.0	3.7	122.1	0.0	0.0	0.00	1729	162914
16.1	1.5	53.2	3.7	127.0	0.0	0.0	0.00	1730	162924
16.1	1.4	53.2	3.6	128.9	0.0	0.0	0.00	1731	162934
16.1	1.4	51.8	3.6	134.0	0.0	0.0	0.00	1732	162944
16.1	1.4	51.4	3.6	138.4	0.0	0.0	0.00	1733	162955
16.1	1.5	52.6	3.6	142.3	0.0	0.0	0.00	1734	163005
16.1	1.5	53.2	3.7	143.6	0.0	0.0	0.00	1735	163016
16.2	1.5	54.0	3.7	143.3	0.0	0.0	0.00	1736	163027
16.1	1.4	54.7	3.7	141.1	0.0	0.0	0.00	1737	163037
16.5	1.4	54.8	3.7	137.5	0.0	0.0	0.00	1738	163047
16.1	1.5	54.7	3.7	132.1	0.0	0.0	0.00	1739	163058
16.2	1.5	54.0	3.7	126.0	0.0	0.0	0.00	1740	163107
16.2	1.5	52.6	3.5	121.1	0.0	0.0	0.00	1741	163118
16.5	1.5	52.0	3.6	118.2	0.0	0.0	0.00	1742	163127
16.4	1.5	50.8	3.5	115.2	0.0	0.0	0.00	1743	163138
16.1	1.5	49.4	3.4	115.2	0.0	0.0	0.00	1744	163147
16.4	1.5	50.8	3.5	118.2	0.0	0.0	0.00	1745	163158
16.1	1.5	53.6	3.6	124.8	0.0	0.0	0.00	1746	163207
16.1	1.4	55.7	3.8	130.1	0.0	0.0	0.00	1747	163217
16.0	1.4	57.5	3.9	131.1	0.0	0.0	0.00	1748	163228
16.0	1.4	58.3	3.9	129.4	0.0	0.0	0.00	1749	163239
15.9	1.5	58.7	4.0	120.1	0.0	0.0	0.00	1750	163249
15.9	1.4	57.9	3.9	116.2	0.0	0.0	0.00	1751	163300
15.9	1.4	56.0	3.8	114.3	0.0	0.0	0.00	1752	163310
15.6	1.4	54.3	3.7	118.2	0.0	0.0	0.00	1753	163321
15.9	1.4	53.3	3.7	128.2	0.0	0.0	0.00	1754	163330
16.1	1.4	52.9	3.6	138.7	0.0	0.0	0.00	1755	163341
16.1	1.4	52.1	3.6	148.4	0.0	0.0	0.00	1756	163351
16.1	1.5	49.8	3.4	154.3	0.0	0.0	0.00	1757	163402
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
16.2	1.5	48.2	3.4	159.2	0.0	0.0	0.00	1758	163413
16.4	1.5	46.8	3.3	164.3	0.0	0.0	0.00	1759	163422
16.5	1.5	45.7	3.2	169.9	0.0	0.0	0.00	1760	163433
16.6	1.5	45.9	3.2	173.2	0.0	0.0	0.00	1761	163442
16.5	1.5	46.5	3.3	186.0	0.0	0.0	0.00	1762	163453
16.5	1.5	48.1	3.3	191.2	0.0	0.0	0.00	1763	163503
16.6	1.5	50.0	3.4	188.2	0.0	0.0	0.00	1764	163513
16.5	1.5	50.7	3.5	173.0	0.0	0.0	0.00	1765	163522
16.5	1.5	51.0	3.5	163.5	0.0	0.0	0.00	1766	163533
16.5	1.5	52.4	3.6	159.2	0.0	0.0	0.00	1767	163542
16.5	1.5	52.7	3.6	150.4	0.0	0.0	0.00	1768	163553
16.6	1.5	53.5	3.5	142.3	0.0	0.0	0.00	1769	163603

CO P scan time

16.4	1.4	55.4	3.7	136.0	0.0	0.0	0.00	1770	163613				
16.1	1.4	56.2	3.8	129.9	0.0	0.0	0.00	1771	163622				
16.2	1.4	56.0	3.8	124.3	0.0	0.0	0.00	1772	163633				
16.1	1.5	55.8	3.8	119.1	0.0	0.0	0.00	1773	163642				
16.2	1.5	54.7	3.7	115.2	0.0	0.0	0.00	1774	163653				
16.1	1.4	54.0	3.7	115.2	0.0	0.0	0.00	1775	163702				
16.1	1.5	54.4	3.7	118.2	0.0	0.0	0.00	1776	163713				
16.5	1.4	54.3	3.7	122.1	0.0	0.0	0.00	1777	163723				
16.4	1.5	55.3	3.7	124.0	0.0	0.0	0.00	1778	163733				
16.2	1.5	55.3	3.8	123.0	0.0	0.0	0.00	1779	163744				
16.2	1.5	56.2	3.8	121.1	0.0	0.0	0.00	1780	163754				
16.1	1.5	58.2	4.0	119.1	0.0	0.0	0.00	1781	163805				
16.1	1.5	58.5	4.0	117.2	0.0	0.0	0.00	1782	163814				
16.1	1.5	58.6	4.0	115.2	0.0	0.0	0.00	1783	163825				
16.1	1.4	58.0	3.9	113.3	0.0	0.0	0.00	1784	163834				
16.1	1.4	57.5	3.9	112.3	0.0	0.0	0.00	1785	163845				
16.1	1.5	58.5	4.0	113.3	0.0	0.0	0.00	1786	163854				
16.0	1.4	57.4	3.9	111.3	0.0	0.0	0.00	1787	163905				
16.2	1.4	55.4	3.8	108.2	0.0	0.0	0.00	1788	163915				
16.0	1.4	54.1	3.7	106.2	0.0	0.0	0.00	1789	163925				
16.1	1.4	54.3	3.7	108.9	0.0	0.0	0.00	1790	163936				
16.1	1.4	53.2	3.7	115.2	0.0	0.0	0.00	1791	163946				
16.2	1.4	51.6	3.6	123.0	0.0	0.0	0.00	1792	163957				
16.1	1.5	49.8	3.5	132.1	0.0	0.0	0.00	1793	164007				
16.2	1.5	48.3	3.4	138.7	0.0	0.0	0.00	1794	164018				
16.4	1.5	49.0	3.5	146.5	0.0	0.0	0.00	1795	164027				
16.5	1.5	49.3	3.4	153.3	0.0	0.0	0.00	1796	164038				
16.5	1.5	48.8	3.4	161.1	0.0	0.0	0.00	1797	164048				
16.2	1.5	49.1	3.4	164.3	0.0	0.0	0.00	1798	164059				
16.4	1.5	49.1	3.4	165.3	0.0	0.0	0.00	1799	164109				
16.1	1.5	49.1	3.4	166.7	0.0	0.0	0.00	1800	164119				
16.1	1.5	49.7	3.5	170.2	0.0	0.0	0.00	1801	164130				
16.4	1.5	50.0	3.5	171.1	0.0	0.0	0.00	1802	164139				
16.2	1.5	50.7	3.5	170.2	0.0	0.0	0.00	1803	164150				
16.5	1.5	50.9	3.5	167.2	0.0	0.0	0.00	1804	164200				
16.4	1.5	51.5	3.6	163.1	0.0	0.0	0.00	1805	164211				
16.4	1.5	53.7	3.7	161.1	0.0	0.0	0.00	1806	164221				
16.2	1.4	54.1	3.7	156.2	0.0	0.0	0.00	1807	164232				
16.2	1.5	54.9	3.8	147.2	0.0	0.0	0.00	1808	164241				
16.1	1.5	55.4	3.8	137.0	0.0	0.0	0.00	1809	164252				
16.1	1.5	55.3	3.8	129.9	0.0	0.0	0.00	1810	164301				
16.1	1.5	54.1	3.7	127.9	0.0	0.0	0.00	1811	164312				
16.1	1.4	53.3	3.7	127.0	0.0	0.0	0.00	1812	164321				
16.1	1.4	53.3	3.7	127.9	0.0	0.0	0.00	1813	164332				
16.1	1.4	53.0	3.6	129.9	0.0	0.0	0.00	1814	164342				
16.1	1.4	52.0	3.6	132.8	0.0	0.0	0.00	1815	164353				
16.1	1.4	51.6	3.6	135.7	0.0	0.0	0.00	1816	164403				
16.0	1.5	51.3	3.5	142.3	0.0	0.0	0.00	1817	164414				
16.1	1.4	51.3	3.5	149.4	0.0	0.0	0.00	1818	164423				
16.1	1.5	51.4	3.5	158.2	0.0	0.0	0.00	1819	164434				
16.2	1.5	50.7	3.5	167.5	0.0	0.0	0.00	1820	164444				
16.1	1.4	49.7	3.5	170.9	0.0	0.0	0.00	1821	164455				
16.2	1.5	48.6	3.4	173.1	0.0	0.0	0.00	1822	164505				
16.1	1.5	48.3	3.4	177.7	0.0	0.0	0.00	1823	164516				
16.2	1.5	47.9	3.4	182.4	0.0	0.0	0.00	1824	164526				
16.2	1.5	48.6	3.4	190.4	0.0	0.0	0.00	1825	164537				
16.2	1.4	48.3	3.4	193.2	0.0	0.0	0.00	1826	164547				
16.2	1.5	49.8	3.5	203.1	0.0	0.0	0.00	1827	164558				
32_1	thc	NOX	SO2	CO2CO	MT	MT	MT	THC_0	THC_I	CO P	scan	file	
16.2	1.5	51.8	3.5	204.1	0.0	0.0	0.00	1828	164607				
16.1	1.5	51.8	3.5	198.2	0.0	0.0	0.00	1829	164618				
16.2	1.5	51.6	3.5	188.2	0.0	0.0	0.00	1830	164627				
16.2	1.5	52.2	3.5	179.4	0.0	0.0	0.00	1831	164638				
16.2	1.5	53.1	3.6	171.1	0.0	0.0	0.00	1832	164648				
16.2	1.5	53.7	3.7	165.3	0.0	0.0	0.00	1833	164659				
16.1	1.5	52.7	3.6	159.4	0.0	0.0	0.00	1834	164709				

16.4	1.5	52.1	3.6	157.2	0.0	0.0	0.00	1835	164718			
16.1	1.5	52.0	3.6	156.2	0.0	0.0	0.00	1836	164729			
16.1	1.5	53.0	3.6	154.8	0.0	0.0	0.00	1837	164739			
16.4	1.5	52.6	3.6	154.3	0.0	0.0	0.00	1838	164750			
16.4	1.4	52.2	3.6	153.6	0.0	0.0	0.00	1839	164759			
16.4	1.5	52.6	3.6	151.4	0.0	0.0	0.00	1840	164810			
16.4	1.4	53.7	3.7	150.6	0.0	0.0	0.00	1841	164820			
16.1	1.5	54.8	3.8	149.2	0.0	0.0	0.00	1842	164830			
16.2	1.5	55.5	3.8	146.2	0.0	0.0	0.00	1843	164840			
16.4	1.5	55.4	3.7	137.7	0.0	0.0	0.00	1844	164850			
16.2	1.5	55.9	3.8	133.5	0.0	0.0	0.00	1845	164900			
16.4	1.5	55.7	3.8	129.2	0.0	0.0	0.00	1846	164910			
16.2	1.5	55.7	3.8	127.0	0.0	0.0	0.00	1847	164921			
16.2	1.5	56.6	3.8	125.0	0.0	0.0	0.00	1848	164931			
16.1	1.5	57.1	3.9	123.8	0.0	0.0	0.00	1849	164941			
16.1	1.4	56.2	3.9	124.0	0.0	0.0	0.00	1850	164952			
16.1	1.5	55.3	3.8	123.0	0.0	0.0	0.00	1851	165001			
16.1	1.4	55.4	3.8	122.8	0.0	0.0	0.00	1852	165012			
16.1	1.5	55.4	3.8	124.0	0.0	0.0	0.00	1853	165021			
16.2	1.4	54.8	3.8	127.9	0.0	0.0	0.00	1854	165032			
16.1	1.5	54.1	3.7	133.1	0.0	0.0	0.00	1855	165041			
16.1	1.5	53.3	3.7	137.9	0.0	0.0	0.00	1856	165052			
16.1	1.4	51.8	3.6	143.1	0.0	0.0	0.00	1857	165101			
16.2	1.5	50.8	3.6	149.7	0.0	0.0	0.00	1858	165112			
16.1	1.4	49.4	3.5	157.2	0.0	0.0	0.00	1859	165122			
16.2	1.4	48.3	3.4	165.0	0.0	0.0	0.00	1860	165132			
16.2	1.4	46.9	3.3	174.3	0.0	0.0	0.00	1861	165142			
16.5	1.5	46.5	3.3	182.4	0.0	0.0	0.00	1862	165152			
16.4	1.5	45.0	3.3	190.4	0.0	0.0	0.00	1863	165203			
16.5	1.5	44.4	3.2	199.2	0.0	0.0	0.00	1864	165213			
16.6	1.5	45.7	3.3	206.3	0.0	0.0	0.00	1865	165224			
16.6	1.5	47.9	3.4	211.9	0.0	0.0	0.00	1866	165235			
16.6	1.5	51.3	3.6	212.6	0.0	0.0	0.00	1867	165245			
16.6	1.5	53.6	3.7	203.1	0.0	0.0	0.00	1868	165256			
16.2	1.5	54.9	3.8	187.3	0.0	0.0	0.00	1869	165306			
16.1	1.5	55.8	3.8	170.9	0.0	0.0	0.00	1870	165315			
16.1	1.4	56.9	3.9	157.2	0.0	0.0	0.00	1871	165325			
16.1	1.4	58.2	4.0	147.5	0.0	0.0	0.00	1872	165335			
15.7	1.4	58.7	4.0	138.9	0.0	0.0	0.00	1873	165346			
16.0	1.4	58.1	4.0	134.0	0.0	0.0	0.00	1874	165355			
15.9	1.4	56.3	3.9	134.0	0.0	0.0	0.00	1875	165406			
16.1	1.4	54.9	3.8	137.9	0.0	0.0	0.00	1876	165415			
16.1	1.5	53.6	3.8	145.3	0.0	0.0	0.00	1877	165426			
16.1	1.5	53.5	3.7	153.8	0.0	0.0	0.00	1878	165436			
16.1	1.4	52.2	3.7	160.2	0.0	0.0	0.00	1879	165446			
16.1	1.5	50.8	3.6	166.3	0.0	0.0	0.00	1880	165456			
16.2	1.4	49.9	3.5	169.9	0.0	0.0	0.00	1881	165505			
16.4	1.5	49.1	3.5	174.1	0.0	0.0	0.00	1882	165516			
16.1	1.5	49.4	3.5	178.2	0.0	0.0	0.00	1883	165525			
16.2	1.5	50.4	3.5	183.3	0.0	0.0	0.00	1884	165536			
16.5	1.5	51.4	3.5	189.5	0.0	0.0	0.00	1885	165545			
16.1	1.5	53.7	3.7	189.5	0.0	0.0	0.00	1886	165555			
16.4	1.4	54.4	3.8	182.4	0.0	0.0	0.00	1887	165605			
16.4	1.5	54.9	3.8	170.9	0.0	0.0	0.00	1888	165616			
16.2	1.5	54.7	3.8	159.4	0.0	0.0	0.00	1889	165625			
16.2	1.5	53.6	3.7	150.4	0.0	0.0	0.00	1890	165636			
16.2	1.5	54.0	3.6	142.3	0.0	0.0	0.00	1891	165647			
16.4	1.5	53.2	3.7	137.9	0.0	0.0	0.00	1892	165656			
16.2	1.5	51.3	3.6	137.0	0.0	0.0	0.00	1893	165707			
16.2	1.5	50.7	3.6	138.9	0.0	0.0	0.00	1894	165717			
16.4	1.5	50.8	3.6	143.3	0.0	0.0	0.00	1895	165727			
16.4	1.5	51.4	3.6	149.4	0.0	0.0	0.00	1896	165737			
16.2	1.5	52.6	3.6	152.3	0.0	0.0	0.00	1897	165747			
16.2	1.5	53.2	3.7	150.4	0.0	0.0	0.00	1898	165757			
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I	CO P	scan	time
16.1	1.5	54.4	3.8	146.5	0.0	0.0	0.00	1899	165807			

END TEST #3

16.1	1.4	54.2	3.8	142.3	0.0	0.0	0.00	1900	165818
16.1	1.4	54.0	3.7	139.2	0.0	0.0	0.00	1901	165829
16.1	1.5	54.6	3.8	137.0	0.0	0.0	0.00	1902	165838
16.1	1.5	55.3	3.8	134.3	0.0	0.0	0.00	1903	165849
16.1	1.5	54.7	3.8	136.0	0.0	0.0	0.00	1904	165858
16.1	1.4	54.8	3.8	136.7	0.0	0.0	0.00	1905	165909
16.1	1.5	54.7	3.9	138.9	0.0	0.0	0.00	1906	165918
16.1	1.5	54.7	3.8	139.9	0.0	0.0	0.00	1907	165929
16.1	1.4	53.8	3.7	140.9	0.0	0.0	0.00	1908	165938
16.1	1.4	51.1	3.6	143.3	0.0	0.0	0.00	1909	165949
16.1	1.4	51.5	3.6	145.3	0.0	0.0	0.00	1910	165958
16.1	1.5	51.8	3.6	155.5	0.0	0.0	0.00	1911	170009
16.1	1.4	51.0	3.6	167.2	0.0	0.0	0.00	1912	170020
16.1	1.4	50.3	3.5	169.7	0.0	0.0	0.00	1913	170029
16.1	1.4	50.2	3.5	178.0	0.0	0.0	0.00	1914	170040
16.2	1.4	50.0	3.5	180.7	0.0	0.0	0.00	1915	170049
16.2	1.5	49.9	3.5	189.5	0.0	0.0	0.00	1916	170100
16.1	1.5	49.8	3.5	189.5	0.0	0.0	0.00	1917	170109
16.1	1.4	50.8	3.5	191.2	0.0	0.0	0.00	1918	170120
16.1	1.5	51.8	3.6	191.9	0.0	0.0	0.00	1919	170129
16.1	1.4	52.1	3.6	193.4	0.0	0.0	0.00	1920	170140
16.1	1.4	52.2	3.6	189.2	0.0	0.0	0.00	1921	170150
16.1	1.5	53.0	3.7	184.3	0.0	0.0	0.00	1922	170200
16.1	1.5	52.2	3.6	179.2	0.0	0.0	0.00	1923	170211
16.2	1.5	52.1	3.6	174.8	0.0	0.0	0.00	1924	170220
16.1	1.4	52.7	3.6	174.3	0.0	0.0	0.00	1925	170231
16.1	1.4	52.2	3.6	174.1	0.0	0.0	0.00	1926	170240
16.1	1.5	52.6	3.6	173.6	0.0	0.0	0.00	1927	170251
16.2	1.5	52.5	3.6	173.1	0.0	0.0	0.00	1928	170300
16.1	1.5	51.5	3.6	175.3	0.0	0.0	0.00	1929	170311
16.4	1.5	50.7	3.5	175.8	0.0	0.0	0.00	1930	170320
16.2	1.5	50.8	3.6	177.2	0.0	0.0	0.00	1931	170331
16.2	1.5	49.8	3.5	179.4	0.0	0.0	0.00	1932	170342
16.2	1.4	49.8	3.5	184.3	0.0	0.0	0.00	1933	170351
16.2	1.4	49.3	3.4	189.2	0.0	0.0	0.00	1934	170402
16.4	1.4	49.2	3.4	192.4	0.0	0.0	0.00	1935	170411
16.1	1.5	48.8	3.4	193.4	0.0	0.0	0.00	1936	170422
16.2	1.5	48.7	3.4	193.4	0.0	0.0	0.00	1937	170431
16.4	1.5	47.6	3.3	195.3	0.0	0.0	0.00	1938	170442
16.2	1.5	47.4	3.4	200.2	0.0	0.0	0.00	1939	170451
16.4	1.5	49.1	3.4	204.1	0.0	0.0	0.00	1940	170502
16.2	1.5	52.1	3.6	209.0	0.0	0.0	0.00	1941	170512
16.1	1.4	54.6	3.7	207.0	0.0	0.0	0.00	1942	170522
16.1	1.5	57.5	3.9	196.3	0.0	0.0	0.00	1943	170533
16.1	1.5	59.0	4.0	180.4	0.0	0.0	0.00	1944	170542
16.0	1.4	59.0	4.0	164.1	0.0	0.0	0.00	1945	170553
16.1	1.5	57.6	3.9	153.3	0.0	0.0	0.00	1946	170603
16.1	1.4	56.9	3.9	146.5	0.0	0.0	0.00	1947	170613
16.0	1.4	54.8	3.8	144.3	0.0	0.0	0.00	1948	170623
16.0	1.5	52.1	3.6	144.3	0.0	0.0	0.00	1949	170633
16.1	1.4	49.2	3.4	148.4	0.0	0.0	0.00	1950	170643
16.1	1.4	48.2	3.4	158.2	0.0	0.0	0.00	1951	170652
16.1	1.4	47.4	3.4	168.7	0.0	0.0	0.00	1952	170703
16.5	1.5	47.4	3.3	178.2	0.0	0.0	0.00	1953	170714
16.2	1.5	48.1	3.4	189.2	0.0	0.0	0.00	1954	170723
16.5	1.4	51.1	3.5	199.2	0.0	0.0	0.00	1955	170734
16.4	1.4	53.7	3.7	203.1	0.0	0.0	0.00	1956	170745
16.1	1.5	55.4	3.8	195.3	0.0	0.0	0.00	1957	170755
16.2	1.4	56.5	3.9	180.9	0.0	0.0	0.00	1958	170804
16.1	1.5	57.2	3.9	166.5	0.0	0.0	0.00	1959	170815
16.0	1.4	56.6	3.9	155.3	0.0	0.0	0.00	1960	170824
15.9	1.4	54.3	3.7	146.5	0.0	0.0	0.00	1961	170835
16.1	1.5	25.5	2.1	142.1	0.0	0.0	0.00	1962	170844
16.1	1.4	5.1	1.0	138.9	0.0	0.0	0.00	1963	170855
16.1	1.5	3.2	0.9	127.2	0.0	0.0	0.00	1964	170906
16.1	1.5	2.0	0.8	102.8	0.0	0.0	0.00	1965	170916

START SYS. CALS

16.1	1.4	3.1	0.8	78.9	0.0	0.0	0.00	1966	170927
16.7	1.5	44.3	3.2	60.5	0.0	0.0	0.00	1967	170936
10.1	1.0	4.4	0.9	51.8	0.0	0.0	0.00	1968	170947
3.4	0.5	1.5	0.8	54.7	0.0	0.0	0.00	1969	170956
O2_t	thc	NOX	SO2	COTCO	MT	MT	MT	THC_O	THC_I
1.0	0.3	1.5	0.7	49.8	0.0	0.0	0.00	1970	171007
0.5	0.2	1.2	0.7	36.1	0.0	0.0	0.00	1971	171017
0.1	0.2	1.6	0.7	20.5	0.0	0.0	0.00	1972	171027
0.0	0.2	1.2	0.7	11.7	0.0	0.0	0.00	1973	171037
0.1	0.2	1.2	0.7	8.8	0.0	0.0	0.00	1974	171048
0.4	0.2	1.3	0.7	6.8	0.0	0.0	0.00	1975	171057
0.1	0.2	1.2	0.7	4.9	0.0	0.0	0.00	1976	171108
0.5	0.2	1.3	0.7	3.9	0.0	0.0	0.00	1977	171118
0.0	0.2	1.1	0.7	2.9	0.0	0.0	0.00	1978	171129
0.2	0.3	1.3	0.7	2.7	0.0	0.0	0.00	1979	171138
0.2	0.2	1.2	0.7	2.7	0.0	0.0	0.00	1980	171149
0.0	0.2	1.5	0.7	1.7	0.0	0.0	0.00	1981	171159
0.4	0.2	1.1	0.7	2.0	0.0	0.0	0.00	1982	171208
0.1	0.2	1.2	0.7	2.0	0.0	0.0	0.00	1983	171219
0.2	0.2	1.3	0.7	2.0	0.0	0.0	0.00	1984	171230

0.0									
	0.2	1.2	0.7	1.7	0.0	0.0	0.00	1985	171241
0.5	0.2	5.7	0.9	2.0	0.0	0.0	0.00	1986	171251
5.6	0.6	1.5	0.7	1.5	0.0	0.0	0.00	1987	171300
9.3	0.9	1.2	0.7	1.7	0.0	0.0	0.00	1988	171311
10.3	1.0	1.2	0.7	2.9	0.0	0.0	0.00	1989	171321
10.6	1.0	1.3	0.7	2.4	0.0	0.0	0.00	1990	171332
10.7	1.0	1.1	0.7	3.7	0.0	0.0	0.00	1991	171342
10.7	1.0	1.3	0.6	3.7	0.0	0.0	0.00	1992	171353
10.7	1.0	1.5	0.7	4.9	0.0	0.0	0.00	1993	171404
10.7	1.0	1.5	0.7	4.9	0.0	0.0	0.00	1994	171414

10.7	1.0	1.5	0.7	4.9	0.0	0.0	0.00	1995	171425
10.7	1.1	1.1	0.6	4.9	0.0	0.0	0.00	1996	171436
3.5	0.9	43.7	3.0	4.4	0.0	0.0	0.00	1997	171446
3.3	0.5	49.9	3.3	4.6	0.0	0.0	0.00	1998	171455
1.5	0.3	50.3	3.3	4.9	0.0	0.0	0.00	1999	171506
0.5	0.2	49.4	3.2	4.6	0.0	0.0	0.00	2000	171516
0.5	0.2	50.0	3.4	3.9	0.0	0.0	0.00	2001	171527
0.2	0.2	50.3	3.4	3.4	0.0	0.0	0.00	2002	171536
0.1	0.2	50.3	3.4	2.9	0.0	0.0	0.00	2003	171547
0.0	0.2	49.9	3.4	2.9	0.0	0.0	0.00	2004	171557

0.2	0.2	50.2	3.4	2.9	0.0	0.0	0.00	2005	171608
0.0	0.2	50.0	3.4	2.9	0.0	0.0	0.00	2006	171617
0.2	0.2	49.9	3.4	2.7	0.0	0.0	0.00	2007	171628

APPENDIX F

Operational Data and Truck Slips

HOT MIX INC.

FUEL FLOW, STACK TEMP., AND BAG HOUSE PRESSURES FOR STACK TEST
DATE OF OCTOBER 25, 1995

FIRST RUN	7:35	7:50	8:05	8:20	8:35	8:50	9:05
FUEL FLOW (gpm)	5.0	5.0	4.5	4.2	4.0	4.0	4.0
STACK TEMP (F)	307	321	314	305	302	293	306
BAG HOUSE PRESSURE	1.6	1.5	1.4	1.4	1.4	1.4	1.5

SECOND RUN	12:20	12:45	13:00	13:15	13:30	13:45	14:00
FUEL FLOW (gpm)	4.0	3.5	3.0	4:0	4.1	4.0	--
STACK TEMP (F)	283	245	243	276	295	283	--
BAG HOUSE PRESSURE	1.4	1.3	1.3	1.3	1.4	1.4	--
BURNER PCT	48.3%	39.0%	46.5%	50.7%	56.8%	59.8%	--

THIRD RUN	15:20	15:50	16:05	16:20	16:35	16:50	17:05
FUEL FLOW (gpm)	5.0	5.0	4.0	3.8	3.8	4.0	4.0
STACK TEMP (F)	256	294	280	275	268	267	264
BAG HOUSE PRESSUE	1.3	1.4	1.2	1.2	1.2	1.2	1.4
BURNER PCT	68.6%	76.6%	44.3%	48.6%	48.4%	40.6%	43.6%

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

START RUN 1

Phone 802-893-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

Ø # 3301

Date 10/26/95

Time 7:47:53

Type Batched

P. O. #	
Truck ID	W13J
Job ID	95119
Customer ID	WILK
Material ID	806

Pounds	-	Tons
36211	Gross	18.10
0	Tare	0.00
36211	Net	18.10

Loads & Tons Today			Loads & Tons To Date		
2	36.24	806	240	4312.60	206
			1	18.05	103
			2	36.24	806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIDLI

Recv.
By: _____

000090

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Phs 802-293-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

O # 3302

Date 10/25/95

Time 7:54:07

Type Batched

P. O. #	
Truck ID	W119
Job ID	95110
Customer ID	WILK
Material ID	806

Pounds		Tons
35405	Gross	17.70
0	Tare	0.00
35405	Net	17.70

Loads & Tons Today			Loads & Tons To Date		
3	53.94	806	240	4313.60	806
			1	18.05	103
			3	53.94	806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIDLI

Recv.
By: _____

000091

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

W # 3303

Date 10/25/95

Time 8:00:23

Type Batched

P. O. #	
Truck ID	W141
Job ID	95115
Customer ID	WILK
Material ID	806

Pounds	-	Tons
36324	Gross	18.16
0	Tare	0.00
36324	Net.	18.16

Loads & Tons Today			Loads & Tons To Date		
4	72.10	806	240	4313.60	806
			1	18.05	103
			4	72.10	806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIGLI

Recv.
By: _____

000092

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5484

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

Q # 3304

Date 10/25/90

Time 8:24:32

Type Batched

P. O. #	
Truck ID	W102
Job ID	95119
Customer ID	WILK
Material ID	006

Pounds		Tons
24195	Gross	12.09
0	Tare	0.00
24195	Net	12.09

Loads & Tons Today		
5	84.19	006

Loads & Tons To Date		
240	4313.60	006
1	18.05	103
5	84.19	006

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrives:_____ Weigh
Depart:_____ Master: TODD WIDLI

Recv.
By:_____

000093

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

Q # 2305

Date 10/25/95

Time 2:12:42

Type Batched

P. O. #	
Truck ID	W28
Job ID	95119
Customer ID	WILK
Material ID	006

Pounds	-	Tons
36171	Gross	18.08
0	Tare	0.00
36171	Net	18.08

Loads & Tons Today	Loads & Tons To Date
6 102.27 006	240 4313.60 206 1 18.05 103 6 102.27 006

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIDLI

Recv.
By: _____

000094

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Sold To-	-Ship To-	
Wilk Paving	DRIVEWAYS	Ø # 3306
		Date 10/25/95
		Time 9:19:16
		Type Batched

P. O. #	
Truck ID	W27
Job ID	95000
Customer ID	WILK
Material ID	800

Pounds	-	Tons
36268	Gross	18.13
.Ø	Tare	Ø.ØØ
36268	Net	18.13

Loads & Tons Today	Loads & Tons To Date		
1 120.40 806	83	1336.91	103
	37	646.85	905
	16	311.49	206
	197	2924.93	806

Unit $	
Net $	
Local $	
State $	
Haul $	Ø.ØØ
Total $	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIDLI

Recv.
By: _____

000095

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Bill To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

0 # 3307

Date 10/25/95

Time 8:28:43

Type Batched

P. O. #	
Truck ID	W139
Job ID	95119
Customer ID	WILK
Material ID	806

Pounds	-	Tons
36119	Gross	18.05
0	Tare	0.00
36119	Net	18.05

Loads & Tons Today			Loads & Tons To Date		
0	130.45	806	240	4313.60	206
			1	18.05	103
			8	130.45	806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive:_____ Weigh
Depart:_____ Master: TODD WIGLI

Recv.
By:_____

000096

HOT MIX INC.
P. O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Sold To-
WILK Paving

-Ship To-
T OF FAIRHAVEN

@ # 3308

Date 10/25/95

Time 8:37:14

Type Batched

P. O. #	
Truck ID	W77
Job ID	95117
Customer ID	WILK
Material ID	806

Pounds	-	Tons
36075	Gross	18.03
0	Tare	0.00
36075	Net	18.03

Loads & Tons Today	Loads & Tons To Date
9 156.40 806	240 4313.60 206 1 18.05 103 9 156.40 806

Unit $	
Net $	
Local $	
State $	
Haul $	0.00
Total $	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIDLI

Recv.
By: _____

000097

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

O # 3309

Date 10/25/93

Time 8:45:32

Type Batched

P. O. #		
Truck	ID	W109
Job	ID	95119
Customer	ID	WILK
Material	ID	806

Pounds	-	Tons
35975	Gross	17.98
0	Tare	0.00
35975	Net	17.98

Loads & Tons Today	Loads & Tons To Date
10 174.46 806	240 4313.60 206 1 18.05 103 10 174.46 806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	0.00
Total	$	

Original Ticket

Arrive:_____ Weigh
Depart:_____ Master: TODD WIGLI

Recv.
By:_____

000098

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

END RUN 1

Ph: 802-293-5243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

O # 3310

Date 10/22/98

Time 8:54:21

Type Batched

P. O. #	
Truck ID	W131
Job ID	95119
Customer ID	WILK
Material ID	806

Pounds	-	Tons
44782	Gross	22.39
0	Tare	0.00
44782	Net	22.39

Loads & Tons Today			Loads & Tons To Date		
11	196.85	806	240	4313.30	206
			1	10.43	103
			11	196.85	806

Unit	$	
Net	$	
Local	$	
State	$	
Haul	$	2.00
Total	$	

Original Ticket

Arrive: _____ Weigh
Depart: _____ Master: TODD WIOLI

Recv.
By: _____

000099

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

START RUN 2

Ph: 802-293-9243 / 802-438-5454

-Sold To-
Wilk Paving

-Ship To-
T OF FAIRHAVEN

O # 3213

Date 10/25/95

Time 13:51:56

Type Batched

P. O. #	
Truck ID	W28
Job ID	95119
Customer ID	WILK
Material ID	S06

Pounds	-	Tons
36426	Gross	18.21
0	Tare	0.00
36426	Net	18.21

Loads & Tons Today			Loads & Tons To Date		
19	287.34	S06	240	4313.60	S06
			1	18.05	103
			19	287.34	S06

Unit	$	
Net	$	
Local	$	
State	$	
Rent	$	0.00
Total	$	

-Original Ticket

Weigh
Master: T300 WIDLI

Rec.
By:

000100

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Ph: 802-293-5243 / 802-438-5454

Sold To
Wiley Paving

Ship To
T B Ashrahmen

O # 3319

Date 10 25/05

Time 13:04:38

Type Batched

P. O. #	
Truck ID	W138
Job ID	95114
Customer ID	WILK
Material ID	806

Pounds	-	Tons
44960	Gross	22.48
0	Tare	0.00
44960	Net	22.48

Loads & Tons Today			Loads & Tons To Date		
17	309.71	806	240	4313.60	806
			1	18.00	103
			17	309.71	806

Unit $	
Net $	
Local $	
State $	
Haul $	0.00
Total $	

Original Tickets

Driver: _____ Weigh Master: TODD WIGLI

Rec'd By: _____

000101

HOT MIX INC.
P.O. BOX 154
Center Rutland VT 05736

Phs 802-293-5243 / 802-438-5454

Sold To	Ship To	
Wilk Paving	T OF FAIRHAVEN	

S # 3300

Date 10/25/95

Time 13:10:58

Type Batched

S. O. #	
Truck ID	W27
Job ID	95110
Customer ID	WILK
Material ID	806

Pounds		Tons
36014	Gross	18.00
0	Tare	0.00
36014	Net	18.00

Loads & Tons Today			Loads & Tons To Date		
18	327.72	806	240	4013.60	206
			1	18.05	103
			18	327.72	806

Unit $	
Net $	
Local $	
State $	
Haul $	0.00
Total $	

Original Ticket

Received _____ Weigh _____ Recv. _____

Department _____ Master: 1000 WIDLI By: _____