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: 63

Title: Braun Intertec Report Number CMXX-94-0548,

Braun Intertec Corporation, Mendota Heights, MN,

September 1994.

2310

AP-42 Section 11.1
Reference
Report Sect. 4
Reference 63

Braun Intertec Report Number CMXX-94-0548

CERTIFICATIONS

1. **Certification of sampling procedures by the team leader of the personnel conducting the sampling procedures:**

"I certify under penalty of law that the sampling procedures were performed in accordance with the approved test plan and that the data presented in this test report are, to the best of my knowledge and belief, true, accurate, and complete. All exceptions are listed and explained below."

Signature: _____ Printed Name of Person Signing: James Thyka
Title: Project Manager Date: 9/21/94

2. **Certification of analytical procedures by the person responsible for the laboratory analysis of field samples:**

I certify under penalty of law that the analytical procedures were performed in accordance with the requirements of the test methods and that the data presented for use in the test report were, to the best of my knowledge and belief, true, accurate, and complete. All exceptions are listed and explained below."

Signature: _____ Printed Name of Person Signing: Jayson Olson
Title: Lab Technician Date: 9/30/94

3. **Certification of test report by the senior staff person at the testing company who is responsible for compiling and checking the test report:**

I certify under penalty of law that this test report and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the test information submitted. Based on my inquiry of the person or persons who performed sampling and analysis relating to the performance test, the information submitted in this test report is, to the best of my knowledge and belief, true, accurate, and complete. All exceptions are listed and explained below."

Signature: _____ Printed Name of Person Signing: Bruce Randall
Title: Manager, Source Testing Date: 9/30/94

4. **Certification of test report by owner or operator of the emission facility:**

I certify under penalty of law that the information submitted in this test report accurately reflects the operating conditions at the emission facility during this performance test and describes the date and nature of all operational and maintenance activities that were performed on process and control equipment during the month prior to the performance test. Based on my inquiry of the person or persons who performed the operational and maintenance activities, the information submitted in this test report is, to the best of my knowledge and belief, true, accurate, and complete. All exceptions are listed and explained below."

Signature: _____ Printed Name of Person Signing: Bruce M. Sherbrooke
Title: President Date: 10/4/94

Table of Contents

Table of Tables

INTRODUCTION

This report presents the results of a compliance test performed by Braun Intertec Corporation (Braun Intertec) at the Sherbrooke Asphalt, Inc. Astec asphalt plant located near Vergas, Minnesota. The test was performed on August 22 and 23, 1994 on the asphalt plant's baghouse exhaust stack. The purpose of the test was to determine the facility's compliance status with the conditions of the Minnesota Pollution Control Agency's (MPCA) permit number 99000164-002.

The Braun Intertec test team consisted of Messrs. James Tryba and Jayson Olson. Sherbrooke Asphalt was represented throughout the test period by Mr. Bruce Sherbrooke, Plant Manager. The test proceedings were witnessed on August 22, 1994 by Mr. Craig Averman, Pollution Control Specialist for the MPCA.

DESCRIPTION OF TEST PROGRAM

The purpose of the test was to quantify the emissions of particulate matter (PM) and visible emissions (opacity) from the asphalt plant's baghouse exhaust stack. The asphalt plant, manufactured by Astec Industries, Inc., was a double barrel drum dryer portable plant capable of producing virgin and recycled hot mix asphalt. The particulate emissions from the asphalt plant were controlled by an Astec filter baghouse system. The asphalt plant was producing recycled hot mix asphalt and was fired by reclaimed used oil during the two day test period. Please refer to Appendix A for a detailed operating conditions and plant schematics.

A pre-test meeting was conducted on Friday, August 19, with the MPCA for the purpose of discussing the test plan and testing requirements for this facility. The test plan was approved as written at that time. On Monday, August 22, the MPCA further reviewed the facility's operating permit and determined that three (3) sets of one hour opacity readings were to be conducted on the diesel generator supplying electricity to the asphalt plant. These additional opacity readings were performed on the generator on Tuesday, August 23. On Tuesday, August 23, the MPCA had further determined that two (2) additional sets of one hour opacity readings had to be conducted on the asphalt plant's baghouse emissions. The test plan had originally called for one (1) hour of opacity readings. The additional opacity readings were performed on Tuesday, August 23.

The filterable (front half) and condensible (back half) catches were analyzed in accordance with the appropriate test methods. The facility's compliance status is based solely upon the filterable portions of the samples. Please refer to Table 2 for a summary of the compliance test results.

The test methods utilized in the test program are presented in Table 1. These methods are as referenced in Code of Federal Regulations, Title 40 Part 60 Appendix A.

Table 1: Test Methods

Method #	Purpose
1	Determination of traverse point location, verification of flow conditions
2	Determination of duct velocity and volume flow rate
3	Determination of duct fixed gas content
4	Determination of duct moisture content
5	Determination of filterable particulate matter concentration and emission rate
9	Visual determination of the opacity of emissions
202	Determination of condensible particulate emissions

TEST RESULTS

The results of the compliance tests are presented in Tables 2, 3 and 4. Table 2 summarizes the particulate emissions. Table 3 summarizes the visible emissions. Table 4 presents the individual test results for the source tested.

Table 2: Particulate Matter Emission Summary

SOURCE TESTED	ALLOWABLE (gr/dscf)	MEASURED (gr/dscf)			
		Average	Run #1	Run #2	Run #3
Asphalt Plant Baghouse	0.0400	0.0052	0.0057	0.0047	0.0051

Table 3: Visible Emission Summary

SOURCE TESTED	ALLOWABLE	MEASURED			
		Average	Run #1	Run #2	Run #3
Asphalt Plant Baghouse	20%	0.0%	0.0%	0.0%	0.0%
Diesel Generator	20%*	9.9%	10.0%	10.1%	9.6%

*Not to exceed 20% opacity for more than 10 consecutive seconds once operating temperatures have been obtained.

Table 4: Individual Run Results - Baghouse Particulate Matter Compliance Test

TEST DATE: August 22, 1994	Run #1	Run #2	Run #3	Average
Sample Period	14:06-15:18	16:12-17:31	18:07-19:24	
Total Sampling Time (min)	60	60	60	60
PROCESS CONDITIONS				
Average Duct Temperature (°F)	352	350	357	353
Average Duct Velocity (ft/s)	96.2	96.1	93.8	95.4
Duct Moisture Content (% vol.)	21.6	24.6	22.7	23.0
Duct O_2 Content (%vol. dry)	15.4	19.6	20.0	18.3
Duct CO_2 Content (%vol. dry)	4.6	1.0	0.9	2.2
Wet Molecular Weight (g.gmole)	26.89	26.25	26.45	26.53
Volume Flow Rate (ACFM)	44,600	44,600	43,500	44,233
Volume Flow Rate (SCFM)	28,600	28,600	27,700	28,300
Volume Flow Rate (DSCFM)	22,400	21,600	21,400	21,800
PRODUCTION DATA				
Process Equipment Operating Parameters -				
Material Usage-				
Recycle Aggregate (ton/hr)	106	110	112	109
Virgin Aggregate (ton/hr)	94	100	104	99
Asphalt Cement (ton/hr)	10.5	11.0	11.3	10.9
Fuel Input (gal/hr)	360	360	360	360
Aggregate Moisture Content-				
Recycle Aggregate (%)	3.86	5.15	3.49	4.17
Virgin Aggregate (%)	7.21	4.69	4.02	5.31
Control Equipment Operating Parameters-				
Pressure Drop (in.H_2O)	5.1	5.2	5.5	5.3
SAMPLE DATA				
Sample Volume (dscf)	45.743	47.307	46.357	
PM Collected (mg)				
Filterable	16.9	14.3	15.5	15.6
Organic Condensible	43.0	56.2	52.9	50.7
Aqueous Condensible	5.5	8.6	21.7	11.9
Total	65.4	79.1	90.1	78.2
PM Concentration (gr/dscf)				
Filterable	0.0057	0.0047	0.0051	0.0052
Organic Condensible	0.0145	0.0183	0.0176	0.0168
Aqueous Condensible	0.0019	0.0028	0.0072	0.0040
Total	0.0221	0.0258	0.0299	0.0260
Isokinetic Variation (%)	95.4	102.3	101.0	

DISCUSSION OF TEST RESULTS

As indicated in the preceding tables, the average filterable particulate matter concentration for the baghouse was 0.0052 grains per dry standard cubic feet (gr/dscf) of exhaust gas. This concentration is below the maximum allowable limit of 0.0400 gr/dscf. The average hourly opacity for the baghouse was 0.0%. The average hourly opacity for the diesel generator was 9.9%. It should be noted that the opacity for the diesel generator did not exceed 20% for any 10 second period during the three test runs. The process equipment was operating at worst case conditions as defined in the test plan. Copies of the operating condition data sheets and production records are included in Appendix A.

SAMPLING PROCEDURES

1.0 Determination of Particulate Matter Concentration and Emission Rate

REF: Code of Federal Regulations, Title 40, Part 60, Appendix A, Methods 1-5, July, 1991.
Code of Federal Regulations, Title 40, Part 51, Appendix M, Method 202

Apparatus:

A "goose-neck" nozzle constructed of stainless steel was connected via a "Swage-Lok" fitting to a heated glass probe liner. The probe liner was attached to a heated glass filter holder containing a glass fiber mat filter. The back half of the filter holder was connected to the impinger train which consisted of a set of pre-weighed impinger/absorbers connected in series and immersed in an ice bath. The absorption train was followed in series by a carbon vane pump, a dry test meter and calibrated orifice connected to an inclined manometer. Type K thermocouples were used to measure the following temperatures: probe heater, filter heater, impinger outlet, and dry test meter inlet and outlet.

A combination Stausscheibe (Type S) pitot tube and type K thermocouple were used to measure duct velocity head and temperature. The pitot tube was connected via flexible tubing to an inclined manometer. The thermocouple was connected to a digital potentiometer.

Sampling Procedure:

Prior to sampling, traverse points were selected based on Method 1 requirements. The locations of the traverse points are presented in the reduced field data sheets. A preliminary traverse of the duct was performed to determine duct velocity head and temperature distributions, as well as duct static pressure. If necessary, preliminary runs of Methods 3 and 4 were performed to determine duct moisture and fixed gas content. Based on this information, a sample nozzle of appropriate inside diameter was selected, and the impinger train charged as presented in the reduced field data sheets.

Traverse points were marked on the probe using a permanent marking pen. Sample time per traverse point was estimated in order that a minimum of 32 DSCF of sample would be collected.

The apparatus was assembled as completely as possible in the staging area and transported to the sample site. Potential contamination of the sample train was prevented by sealing all openings with aluminum foil. Once in the sampling area, the probe and filter heaters were brought to temperatures of 250 $\pm$ 25°F, and the apparatus was leak checked. Upon successful completion of the leak check, the initial dry test meter reading was recorded, and the probe inserted at the first traverse point.

Sampling Procedure (cont'd.)

The duct temperature, dry test meter temperature and duct velocity head were measured and recorded on the data sheet. The isokinetic sampling rate in terms of pressure drop across the calibrated orifice was calculated and recorded on the data sheet. The pump and timer were turned on, and the sample rate adjusted to correspond to the calculated isokinetic rate.

Once the sample rate was set, the following data was recorded:

- Dry test meter outlet temperature
- Sample vacuum
- Probe heater temperature
- Filter heater temperature
- Impinger outlet temperature

At the end of the sample time for the first point, the probe was moved to the next point, and the measurements, calculations and recording of data was repeated. Upon completion of sampling from a port, the pump was turned off and the dry test meter reading recorded. The probe was removed from the duct, and placed in the next sample port. The previously described procedure was repeated for each sample port.

When the sample run was completed, the final dry test meter reading was recorded and the probe removed from the port. A post-test leak check was performed at a vacuum at least 1"Hg higher than the highest sample vacuum measured during the sample run. The final leak rate was recorded on the data sheet. The sample line was detached from the back of the filter holder, and rinsed into the first impinger using a known volume of distilled water. The sample train was sealed from contamination and transported to the staging area for recovery.

Sample Recovery:

Sample was recovered in two fractions: filterable and condensible. The filterable fraction consisted of the filter itself as well as acetone rinses and brushings of: the nozzle and connector to the probe liner; the probe liner; and the front half of the filter holder. The filter was recovered to a labeled petri dish made of either glass or plastic. Acetone rinses were recovered to a labeled, clean polyethylene bottle. The liquid level in the polyethylene bottle was marked upon completion of recovery.

Prior to recovery of the condensible fraction, the exterior of each impinger/absorber was cleaned and dried, and the net weight gain of each was determined to the nearest 0.5 gram. The condensible fraction consisted of the liquid impinger catch and rinses of the impingers and all connecting glassware. Glassware rinses were recovered to a clean, labeled polyethylene bottle. The liquid level of the polyethylene bottle was marked upon completion of recovery.

At the conclusion of each day of sampling, reagent and recovery solvent blanks were collected into the same types of containers as were used for sample recovery. The blank containers were clearly labeled, and the liquid levels marked.

Analytical Procedure:

The filterable fraction and rinse blank were analyzed gravimetrically. Filters were placed in a 105°C oven for two to three hours, then cooled in a desiccator. Filter weighings were repeated until two consecutive weighings agreed to within 0.5 mg. Prior to analysis, the filterable rinses were checked for liquid loss, and the liquid volume of each sample bottle determined. The liquid samples from each run and blanks were transferred to individual tared weighing dishes, and the liquid allowed to evaporate at ambient temperature and pressure. The weighing dishes were then desiccated for twenty four hours and weighed until consecutive weighings agreed to within 0.5 mg.

The condensible fraction and blank were extracted with methylene chloride and analyzed gravimetrically. Prior to analysis, condensible fractions and blanks were checked for liquid loss, and the liquid volume of each sample bottle determined. Each sample was extracted three times with 25 ml of methylene chloride in a separatory funnel. After each extraction, the organic (methylene chloride) fraction was decanted. The organic and aqueous (water) fractions were placed in individual tared weighing dishes. The organic fraction was evaporated at ambient temperature and pressure, while the aqueous fraction was evaporated at just below the boiling point. After evaporation, the sample weighing dishes were desiccated for 24 hours, and weighed until consecutive weighings agreed to within 0.5 mg.

EQUATIONS

Equation 1a - Dry Molecular Weight:

$$MW_d = 0.440(\%CO_2) + 0.320(\%O_2) + 0.280(\%N_2 + \%CO)$$

Equation 1b - Wet Molecular Weight:

$$MW_w = MW_d(1-B_{ws}) + 18.0(B_{ws})$$

Equation 2a - Meter Volume at Standard Conditions:

$$V_{m(std)} = V_m Y \frac{(T_{std})(P_{bar} + \Delta H/13.6)}{(T_m)(P_{std})}$$

Equation 2b - Volume of Water Vapor Condensed:

$$V_{wc(std)} = K_1(W_f - W_i)$$

Equation 2c - Moisture Content:

$$B_{ws} = V_{wc(std)}/(V_{wc(std)} + V_{m(std)})$$

Equation 3a - Velocity at a Traverse Point:

$$V_d = K_p C_p (T_s \Delta P / P_s MW_w)^{1/2}$$

Equation 3b - Volumetric Flow Rate (Actual Basis):

$$Q = V_{d(avg)} A_d \, 60$$

EQUATIONS (cont'd.)

Equation 3c - Volumetric Flow Rate (Standard Basis):

$$Q_{std} = \frac{Q(T_{std})(P_s)}{(T_s)(P_{std})}$$

Equation 3d - Volumetric Flow Rate (Standard Dry Basis):

$$Q_{std(dry)} = Q_{std}(1-B_{ws})$$

Equation 4a - Isokinetic Sampling Nozzle Inside Diameter:

$$D_n = \left[\frac{(0.0358)Q_m P_m}{T_m C_p (1-B_{ws})} \left[\frac{T_s M W_w}{P_s \Delta P} \right]^{0.5} \right]^{0.5}$$

Equation 4b - Isokinetic Sampling "X" Factor:

$$X = 846.72 \times D_n^4 \times \Delta H@i \times C_p^2 \times (1-B_{ws})^2 \times \frac{(MW_d \times P_s)}{(MW_w \times P_m)}$$

Equation 4c - Orifice Pressure Drop at Isokinetic Sampling Rate:

$$\Delta H = X \times \Delta P \times \frac{(T_m)}{(T_s)}$$

Equation 4d - Sample Percentage of Isokinetic:

$$\%ISO = \frac{(T_{savg} V_{mstd} P_{std} 100)}{(T_{std} V_{davg} \theta A_n P_s 60(1-B_{ws}))}$$

Equation 4e - Particulate Concentration:

$$Co = \frac{M \times 0.0154}{V_{mstd}}$$

SYMBOL IDENTIFICATION

A_n	=	Nozzle area (ft^2)
A_d	=	Area of duct (ft^2)
B_{ws}	=	Water vapor in gas stream, proportional by volume
Co	=	Total suspended particulate matter concentration (grains/DSCF)
C_p	=	Pitot tube calibration factor (unitless)
D_n	=	Inside diameter of sample nozzle (inches)
ER	=	Total suspended particulate matter emission rate (lb/MMBtu)
F	=	Fuel factor (dscf/MMBtu)
K_1	=	Constant (0.04715 ft^3/g)
K_p	=	Constant (85.49)
M	=	Net mass of total suspended particulate matter collected (mg)

SYMBOL IDENTIFICATION (cont'd.)

MW_d	=	Duct gas dry molecular weight (lb/lb-mole)
MW_w	=	Duct gas wet molecular weight (lb/lb-mole)
P_{bar}	=	Barometric pressure ("Hg)
P_m	=	Meter pressure (assumed to be 30"Hg)
P_s	=	Absolute stack pressure ("Hg)
P_{std}	=	Standard pressure (29.92"Hg)
Q	=	Duct volumetric flow rate (actual cfm)
Q_m	=	Assumed sampling rate (cfm)
Q_{std}	=	Duct volumetric flow rate (scfm)
$Q_{std(dry)}$	=	Duct volumetric flow rate (dscfm)
T_m	=	Absolute temperature at meter (°R)
T_s	=	Absolute temperature of duct gas (°R)
T_{std}	=	Standard temperature (528°R)
V_d	=	Duct velocity at a traverse point (ft/s)
V_m	=	Dry test meter volume (cf)
$V_{m(std)}$	=	Dry test meter volume at standard conditions (scf)
$V_{wc(std)}$	=	Volume of water vapor condensed at standard conditions (scf)
W_f	=	Final weight of impinger/absorber train (g)
W_i	=	Initial weight of impinger/absorber train (g)
X	=	Isokinetic orifice pressure drop sampling coefficient
Y	=	Dry test meter calibration factor (unitless)
$\%CO_2$	=	Duct gas carbon dioxide content (%volume)
%CO	=	Duct gas carbon monoxide content (%volume)
%ISO	=	Sample percentage of isokinetic (must be $100 \pm 10\%$)
$\%N_2$	=	Duct gas nitrogen content (%volume)
$\%O_2$	=	Duct gas oxygen content (%volume)
θ	=	Total sample time (minutes)
ΔH	=	Pressure drop across orifice ("H_2O)
$\Delta H@i$	=	Orifice calibration coefficient ("H_2O)
ΔP	=	Pressure drop across pitot tube ("H_2O)

2.0 Determination of Visible Emissions

REF: Code of Federal Regulations, Title 40, Part 60, Appendix A, Method 9.

The opacity test consisted of three (3) sixty minute opacity observation period on each emission point and was conducted in accordance with EPA Method 9 entitled "Visual Determination of the Opacity of Emissions From Stationary Sources".

APPENDIX A

PROCESS OPERATING DATA
and
MPCA OPERATING DATA SUMMARIES

ASPHALT PLANT OPERATING CONDITIONS DURING STACK TESTING

05/27/94

Test Date(s) 8-22-94

lant Mfr. & Model Astec 7' Double Barrel Type(circle one): (Drum Mix) Conventional

his plant is (circle one): (portable) stationary Other: _____

ollution Control Equipment(circle one): (Baghouse) Venturi Scrubber Wet Scrubber Cyclone Multiclone

If wet scrubbing: ____ %scrubber water recycled

List Model: 7' Double Barrel

ormal pressure drop across control equipment is 5 inches water

Was control equipment operating normally during test? YES

Date & procedure of last maintenance/cleaning of control equipment: 8-20-94 Inspected Bags / Cleaned Plenum

uel: Used Oil

emize all fuels and materials added to the combustion process during the test period. List fuel type used during testing (if oil, specify type) _____. If other units of measure are used, specify and calculate appropriate heat input.

Test No.	Fuel Input (Gal/hr)	Btu/gal(As Received)	Heat Input (Btu/hr)
Run 1	360		
Run 2	360		
Run 3	360		

the above fuel substantially the highest sulfur containing fuel normally burned? YES

Production specific fuel usage: (circle one) measured or calculated: ____ cubic foot/ton hot mix (gal/ton hot mix)

o. of burners: 1 Burner(s) rating: 96.7 MMBTU/HR=100% setting

Test No.	% Recycle %R=Recycle ÷ (Aggregate + Recycle+Asphalt)	Estimated % moisture of aggregate (or aggregate & recycle)
Run 1	50	4.3
Run 2	50	4.3
Run 3	50	4.3

Other Control Equipment Parameters	Design	During Testing
Cleaning Cycles	28 @ 7 seconds Apart	Pulse
Air to Cloth Ratios	5.68 / 1	5.68 / 1
No. of spray bars including delivery pressure		

Describe the location of the thermocouples reading exiting dryer temperature: Asphalt Discharge Chute, Inlet Gas Therm. At Primary Dust Collector Entrance Baghouse

Plant Operator's Certification: I certify that the information submitted herein is accurate and correct and that no formation requested was withheld from the Division Manager.

By: _____, Phone: (218) 849-3085

ote: All information required must be completed and submitted as part of the performance test. Failure to submit the required information will result in an incomplete performance test report.

Time in 15 min. intervals	Burner Setting %	Aggregate Material TPH	Recycle Material TPH	Asphalt Material TPH	Total Material TPH (Aggregate +Recycle+Asphalt)	Temperature of Gases Exiting Dryer deg F	Dust Collector Pressure Drop inches water	Scrubber Water Flow Rate GPM	Water Supply Pressure psi	Other (list)	Other (list)
2:05	35	94.5	108	10.5	213	265	5				
2:20	35	93.5	104	10.5	208	270	5.5				
2:35	35	94.5	103	10.5	208	270	5				
2:50	35	94.5	105	10.5	210	266	5				
3:05	35	93.5	106	10.5	210	273	5				
3:20	35	93.5	107	10.5	211	271	5				
4:15	34.5	95.5	104	10.5	210	268	5				
4:30	37	99.5	112.5	11	223	267	5				
4:45	37	99.5	111.5	11	222	267	5.5				
5:00	37	100.5	107.5	11	219	269	5.2				
5:15	37	100.5	109.5	11	223	268	5.5				
5:30	37	101.5	114	11.5	227	266	5.2				
6:10	37	101.5	112.5	11	225	266	5.5				
6:25	37	101.5	109.5	11	222	273	5.5				
6:40	37	105.5	113	11.5	230	282	5.2				
6:55	37	105.5	112.5	11.5	230	274	5.5				
7:10	37	104.5	116	11.5	232	268	5.5				
7:25	37	103.5	111.5	11	226	266	5.5				

Plant Operator's Certification: I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the Division Manager.

By: _____, Position _____. Phone: (208) 849 3085

Time in 15 min. intervals	Burner Setting %	Aggregate Material TPH	Recycle Material TPH	Asphalt Material TPH	Total Material TPH (Aggregate +Recycle+Asphalt)	Temperature of Gases Exiting Dryer deg F	Dust Collector Pressure Drop inches water	Scrubber Water Flow Rate GPM	Water Supply Pressure psi	Other (list)	Other (list)
9:45	38	96.5	102	10.5	209	282	5.5				
10:00	38	105	113.5	11.5	230	297	5.5				
10:15	40	102.5	112	11.5	226	272	5.5				
10:30	40	101	113.5	11.5	226	275	5.5				
10:45	38	99	111	11	221	291	5.5				
11:00	38	101.5	111	11.5	224	301	5.5				
11:15	38	99	109	11	215	295	5.5				
12:00	37	90	98	10	198	305	5.5				
12:15	37	100	111.5	11.5	223	282	5.5				
12:30	38	102.5	56	10.5		302	5.5				
12:45	38	94.5	103	10.5		298	5.5				

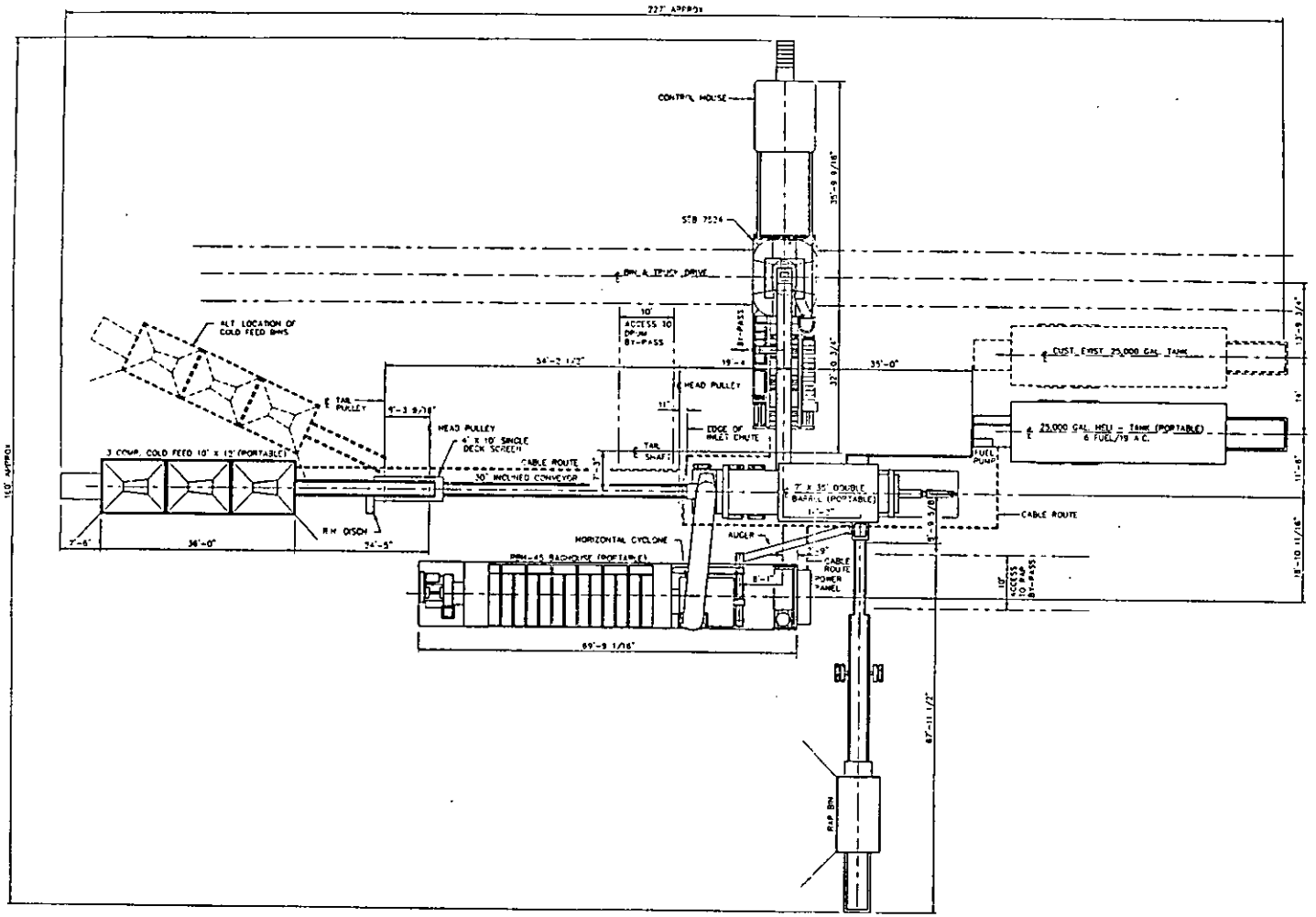
Plant Operator's Certification: I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the Division Manager.

By: _____, Position _____, Phone: (218) 849-3085

Time in 15 min. intervals	Burner Setting %	Aggregate Material TPH	Recycle Material TPH	Asphalt Material TPH	Total Material TPH (Aggregate +Recycle+Asphalt)	Temperature of Gases Exiting Dryer deg F	Dust Collector Pressure Drop inches water	Scrubber Water Flow Rate GPM	Water Supply Pressure psi	Other (list)	Other (list)
12:50	37	105	113.5	11.5	230	300	5.5				
1:05	37	103.5	114	11.5	229	280	5.5				
1:20	37	103	114.5	11.5	229	271	5.5				
1:35	37	99	115	11	225	265	5.5				
1:50	37	104	113.5	11.5	229	262	5.5				
2:05	37	103.5	114	11.5	229	268	5.5				
2:20	37	101	113.5	11.5	226	263	5.5				
2:35	37	101	109	11		280	5.5				
2:50											

Plant Operator's Certification: I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the Division Manager.

By: _____, Position _____, Phone: (218) 849-3085



NO	REVISION	APPR	BY	DATE
1	CHECKED & COMPLETED		BK	4-12-94

ASTEC INDUSTRIES, INC.
P.O. BOX 72787 • 4101 JEROME AVENUE • CHATTANOOGA, TN 37407

CUSTOMER: SHERBROOKE SODDING, INC.

PART NAME: PLANT LAYOUT

MACHINE: 7'Ø DOUBLE BARREL PORTABLE PLANT

DRN: B.K. | CHK: | APPR: | DATE: 3-15-94

JOB NO: 94-026 | SCALE: - NONE - | DRWG NO: 94-026-1 | REV: 1

D94026-1

APPENDIX B

PARTICULATE FIELD DATA SHEETS

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

Plant: Sherbrooke Asphalt
Sample Location: Bag House
Run #: 1
Date: 8-22-94
Ambient Temp. (°F): 70° F
Pbar ("Hg): 29.56
Pstatic ("H2O): -1.3

Bws (assumed): 0.25
MWwet (assumed): 26.13 / 28.84
Ps ("Hg): 29.45
Probe Material: Glass
Probe Heater Setting: 250
Filter Heater Setting: 250
Nozzle #: ~~6-T~~ 7-1

Meter Box #: 80664
ΔH@: ~~2.0~~ 2.001
Y: 0.998
Pitot #: 3-2
Cp: 0.846
Nozzle Material: SS
Nozzle Diameter: ~~0.188~~ 0.225

Pre-test leak rate: 0.010 CFM at 15 "Hg.
Post-test leak rate: ~~0.020~~ CFM at 12 "Hg.
X-Factor: ~~0.9436~~ 1.895

		DUCT DATA		METER DATA				HEATER DATA		Impinger	Dry Test
POINT	TIME	Temp (°F)	ΔP ("H2O)	Temp i (°F)	Temp (°F)	ΔH ("H2O)	VAC ("Hg)	Probe (°F)	Filter (°F)	Outlet (°F)	Meter Vol. (CF)
A 5	14:06	330	1.80	92	91	2.38	4	257	252	65	223.110
4	14:08	335	2.10	92	93	2.76	5	258	253	56	
3	14:10	341	2.45	93	93	3.38	5	258	254	48	
2	14:12	344	2.15	93	93	2.80	5	258	253	46	
1	14:14	346	1.55	94	94	2.02	4	258	254	46	
B 5	14:18	339	1.45	94	93	1.91	4	257	253	51	231.576
4	14:20	345	1.30	94	93	1.70	4	257	253	48	
3	14:22	351	2.00	94	93	2.59	5	255	254	47	
2	14:24	352	1.75	95	94	2.27	5	256	254	49	
1	14:26	352	1.40	96	94	1.82	4	257	251	48	
C 5	14:31	348	1.35	96	95	1.76	4	259	258	54	239.312
4	14:33	352	1.60	99	96	2.09	4	261	258	53	
3	14:35	356	1.95	99	97	2.53	5	260	258	51	
2	14:37	357	1.80	100	97	2.34	5	257	258	51	
1	14:39	359	1.50	101	98	1.95	4	258	255	51	
D 5	14:43	354	1.45	99	98	1.89	4	258	255	58	247.252
4	14:45	356	1.60	99	98	2.08	4	254	255	52	
3	14:47	358	1.80	98	98	2.33	5	256	254	50	
2	14:49	360	1.80	100	100	2.46	5	259	256	52	
1	14:51	353	1.65	104	101	2.17	5	261	257	54	
E 5	14:56	357	1.40	104	101	1.83	4	259	259	58	255.368
4	14:58	359	1.30	105	103	1.70	4	258	257	55	
3	15:00	361	1.75	105	101	2.28	5	259	253	52	
2	15:02	360	2.0	107	101	2.60	5	257	257	52	
1	15:04	362	1.80	106	103	2.35	5	257	257	53	
F 5	15:08	351	1.35	104	102	1.78	4	259	255	59	263.438
4	15:10	355	1.45	103	102	1.90	4	256	254	54	
3	15:12	359	1.95	104	103	2.54	5	258	255	54	
2	15:14	358	2.45	105	103	3.21	6	259	257	52	
1	15:16	358	2.15	104	103	2.81	5	256	255	52	
											271.966

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

PLANT: SHERBROOKE ASPHALT DATE: 8/22/94

SAMPLE LOCATION: BAGHOUSE RUN #: 1

RUN TIME: 60

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
6.5.1	DEIO H_2O	850.6	576.4	274.2
6.5.2	" "	603.8	568.2	35.3
6.5.3	EMPTY	437.7	434.0	3.7
6.5.4	SILICA GEL	747.7	736.8	10.9
LINE RINSE		1097.1	1041.5	-56.2
FILTER #E	0.3286			
			TOTAL	267.9

ORSAT ANALYSIS

	CO_2	O_2	N_2
Run 1	4.6	15.4	
Run 2	4.5	15.4	
Run 3			
Average	4.55	15.4	
Air Audit			

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

Plant: SHERBROOKE ASPHALT | Bws (assumed): 0.25 | Meter Box #: 80664
Sample Location: BAGHOUSE | MWwet (assumed): 26.13/28.84 | ΔH@i: 2.001
Run #: 2 | Ps ("Hg): 29.45 | Y: 0.998
Date: 8-22-94 | Probe Material: GLASS | Pitot #: 3-2
Ambient Temp. (°F): 75°± | Probe Heater Setting: 250 | Cp: 0.846
Pbar ("Hg): 29.56 | Filter Heater Setting: 250 | Nozzle Material: SS
Pstatic ("H2O): -1.3 | Nozzle #: 7-1 | Nozzle Diameter: 0.225

Pre-test leak rate: 0.006 CFM at 10 "Hg. | Post-test leak rate: 0.010 CFM at 16 "Hg. | X-Factor: 2.024

		DUCT DATA		METER DATA				HEATER DATA		Impinger	Dry Test
POINT	TIME	Temp (°F)	ΔP ("H,O)	Temp i (°F)	Temp (°F)	ΔH ("H,O)	VAC ("Hg)	Probe (°F)	Filter (°F)	Outlet (°F)	Meter Vol. (CF)
A 5	16:12	348	1.70	96	96	2.37	4	257	240	67	272.360
4	16:14	354	2.15	97	97	2.98	5	256	244	57	
3	16:16	356	2.15	96	97	2.97	5	253	249	50	
2	16:18	357	1.90	97	99	2.62	5	257	257	50	
1	16:20	356	1.50	98	98	2.08	4	257	254	49	
B 5	16:24	343	1.45	97	97	2.04	4	257	242	60	281.115
4	16:26	345	1.70	97	98	2.38	5	256	244	55	
3	16:28	349	1.80	97	98	2.51	5	251	254	52	
2	16:30	350	1.70	99	99	2.37	4	256	260	52	
1	16:32	350	1.30	99	100	1.82	4	257	264	55	
C 5	16:38	346	1.35	101	100	1.90	4	261	245	67	289.560
4	16:40	354	1.60	105	102	2.25	4	257	246	59	
3	16:42	351	1.75	101	102	2.45	4	254	245	55	
2	16:44	351	1.65	101	100	2.31	4	256	255	54	
1	16:46	352	1.50	102	102	2.10	4	255	255	56	
D 5	16:51	348	1.55	102	101	2.18	4	257	241	68	297.727
4	16:53	349	1.50	100	102	2.10	4	254	243	61	
3	16:55	353	1.80	102	102	2.52	5	256	247	60	
2	16:57	353	1.80	102	103	2.52	5	257	260	60	
1	16:59	351	1.50	101	103	2.10	4	257	267	60	
E 5	17:06	348	1.45	103	102	2.05	4	259	249	65	305.992
4	17:08	348	1.40	104	106	1.98	4	260	250	63	
3	17:10	349	1.70	103	104	2.39	5	257	253	60	
2	17:12	350	1.90	102	104	2.67	5	256	267	60	
1	17:14	350	1.75	103	104	2.46	5	256	255	61	
F 5	17:21	345	1.35	103	103	1.91	4	258	244	67	314.348
4	17:23	347	1.50	100	103	2.10	4	253	238	61	
3	17:25	347	1.75	98	103	2.45	5	251	259	61	
2	17:27	347	2.25	100	103	3.16	5	257	270	61	
1	17:29	346	2.00	99	103	2.81	5	253	255	62	
											322.970

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

PLANT: SHERBROOKE ASPHALT DATE: 8-22-94

SAMPLE LOCATION: BAGHOUSE RUN #: 2

RUN TIME: 60

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
G.S.1	DI-10 H_2O	855.7	554.3	301.4
G.S.2	" "	626.6	569.5	57.1
G.S.3	EMPTY	451.0	445.4	5.6
G.S.4	SILICA GEL	751.2	736.4	14.8
LIQUID RINSE		564.3 ~~616.0~~	616.0 ~~564.3~~	-51.7
FILTER 116	.3243			
			TOTAL	327.2

ORSAT ANALYSIS

	CO_2	O_2	N_2
Run 1	1.0	19.5	
Run 2	1.0	19.6	
Run 3			
Average	1.0	19.55	
Air Audit			

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

Plant: SHAMROCK ASPHALT | Bws (assumed): 0.25 | Meter Box #: DGGM
Sample Location: BAGHOUSE | MWwet (assumed): 26.13 / 28.84 | ΔH@i: 2.001
Run #: 3 | Ps ("Hg): 29.45 | Y: 0.998
Date: 8-22-94 | Probe Material: GLASS | Pitot #: 3-2
Ambient Temp. (°F): 75°F | Probe Heater Setting: 250 | Cp: 0.846
Pbar ("Hg): 29.56 | Filter Heater Setting: 250 | Nozzle Material: SS
Pstatic ("H2O): -1.3 | Nozzle #: 7-1 | Nozzle Diameter: 0.225

Pre-test leak rate: 0.010 CFM at 10 "Hg. | Post-test leak rate: 0.014 CFM at 12 "Hg. | X-Factor: 2.024

		DUCT DATA		METER DATA				HEATER DATA		Impinger	Dry Test
POINT	TIME	Temp (°F)	ΔP ("H2O)	Temp i (°F)	Temp (°F)	ΔH ("H2O)	VAC ("Hg)	Probe (°F)	Filter (°F)	Outlet (°F)	Meter Vol. (CF)
A S	18:07	344	1.80	100	98	2.54	5	257	256	67	323.290
4	18:09	349	2.00	96	100	2.78	5	256	255	53	
3	18:11	352	2.20	97	100	3.05	6	257	254	50	
2	18:13	353	1.90	98	100	2.64	5	257	257	48	
1	18:15	353	1.30	98	100	1.81	4	257	255	49	
B S	18:20	350	1.75	100	100	1.89	4	260	257	61	332.086
4	18:22	355	1.55	100	101	2.16	5	258	255	53	
3	18:24	360	1.80	100	102	2.49	5	257	255	51	
2	18:26	361	1.75	100	102	2.42	5	258	256	52	
1	18:28	361	1.30	101	103	1.80	4	259	256	53	
C S	18:34	357	1.20	102	102	1.67	4	258	254	63	340.189
4	18:36	362	1.50	101	104	2.08	5	258	253	56	
3	18:38	364	1.75	100	103	2.41	5	257	258	53	
2	18:40	365	1.75	99	103	2.40	5	257	258	54	
1	18:42	367	1.25	99	103	1.71	4	257	256	56	
D S	18:47	358	1.35	100	102	1.87	4	262	272	67	348.114
4	18:49	360	1.45	98	102	2.00	4	256	256	59	
3	18:51	360	1.75	97	102	2.41	5	256	256	57	
2	18:53	361	1.75	97	102	2.40	5	257	257	56	
1	18:55	362	1.45	97	101	1.99	4	257	255	57	
E S	19:00	355	1.45	98	99	2.01	4	257	255	66	356.165
4	19:02	356	1.25	96	100	1.72	4	258	258	61	
3	19:04	359	1.60	98	100	2.21	5	259	258	59	
2	19:06	357	1.90	97	100	2.62	5	257	256	58	
1	19:08	359	1.55	97	100	2.13	5	258	255	58	
I S	19:14	350	1.30	98	97	1.81	5	257	257	66	364.217
4	19:16	354	1.35	96	99	1.87	5	258	257	60	
3	19:18	356	1.75	95	98	2.41	5	255	257	58	
2	19:20	356	2.15	95	98	2.96	6	255	255	58	
1	19:22	356	2.10	95	99	2.59	6	256	256	59	
											372.717

Comments:

BRAUN INTERTEC ENVIRONMENTAL, INC.
PARTICULATE FIELD DATA
PROJECT NUMBER: CMXX - 94 - 0548

PLANT: SHENANDOAH HOSPITAL DATE: 8-22-94

SAMPLE LOCATION: BAGHOUSE RUN #: 3

RUN TIME: 60

Absorber Type	Contents	Final Weight (grams)	Tare Weight (grams)	Net Water (grams)
G.S.1	DI-H2O	865.4	572.8	292.6
G.S.2	"	601.6	567.3	34.3
G.S.3	IMPY	439.7	436.6	3.1
G.S.4	Silica Gel	759.2	747.2	12.0
		496.8	500.1	-5.3
FILTER #M	0.3342			
			TOTAL	288.7

ORSAT ANALYSIS

	CO_2	O_2	N_2
Run 1	0.9	~~20.8~~ 19.9	
Run 2	0.8	~~20.9~~ 20.1	
Run 3			
Average	0.85	~~20.85~~ 20.0	
Air Audit			

APPENDIX C

REDUCED PARTICULATE FIELD DATA SHEETS

Reduced Particulate Field Data

Plant:	Sherbrooke Asphalt	Bws(assumed):	0.25	Meter Box #:	80664
Sample Loc:	Baghouse Stack	MWs(assumed):	26.13	dH@:	2.001
Run #:	1	MWd(assumed):	28.84	Gamma:	0.998
Date:	8/22/94	Pstatic ("H2O):	-1.30	Pitot #:	3-2
Pbar ("Hg):	29.56	Probe Mat:	Glass	Cp:	0.846
Ps ("Hg):	29.46	Nozzle Mat:	SS	X-Factor:	1.895
Sample time/pt:	2.0	Dn (in.):	0.225	# of Ports:	6

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	14	6	330	1.80	92	91	4.0	257	252	65	223.110	2.38	
4	14	8	335	2.10	92	93	5.0	258	253	56		2.76	
3	14	10	341	2.45	93	93	5.0	258	254	48		3.21	
2	14	12	344	2.15	93	93	5.0	258	253	46		2.80	
1	14	14	346	1.55	94	94	4.0	258	254	46		2.02	
	14	16									231.576		
Run Time:		10	339	2.01	93	93	4.6	258	253	52	8.466	2.63	95.6

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	14	18	339	1.45	94	93	4.0	257	253	51	231.576	1.91	
4	14	20	345	1.30	94	93	4.0	257	253	48		1.70	
3	14	22	351	2.00	94	93	5.0	255	254	47		2.59	
2	14	24	352	1.75	95	94	5.0	256	254	49		2.27	
1	14	26	352	1.40	96	94	4.0	257	251	48		1.82	
	14	28									239.312		
Run Time:		10	348	1.58	95	93	4.4	256	253	49	7.736	2.05	98.8

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	14	31	348	1.35	96	95	4.0	259	258	54	239.312	1.76	
4	14	33	352	1.60	99	96	4.0	261	258	52		2.09	
3	14	35	356	1.95	99	97	5.0	260	258	51		2.53	
2	14	37	357	1.80	100	97	5.0	257	258	51		2.34	
1	14	39	359	1.50	101	98	4.0	258	255	51		1.95	
	14	41									247.252		
Run Time:		10	354	1.64	99	97	4.4	259	257	52	7.940	2.13	99.0

PORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	14	43	354	1.45	99	98	4.0	258	255	58	247.252	1.89	
4	14	45	356	1.60	99	98	4.0	254	255	52		2.08	
3	14	47	358	1.80	98	98	5.0	256	254	50		2.33	
2	14	49	360	1.90	100	100	5.0	259	256	52		2.46	
1	14	51	353	1.65	104	101	5.0	261	257	54		2.17	
	14	53									255.368		
Run Time:		10	356	1.68	100	99	4.6	258	255	53	8.116	2.18	99.8

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	14	56	357	1.40	104	101	4.0	259	259	58	255.368	1.83	
4	14	58	359	1.30	105	103	4.0	258	257	55		1.70	
3	15	0	361	1.75	105	101	5.0	259	253	50		2.28	
2	15	2	360	2.00	103	101	5.0	257	257	50		2.60	
1	15	4	362	1.80	106	103	5.0	257	257	53		2.35	
	15	6									263.438		
Run Time:		10	360	1.65	105	102	4.6	258	257	53	8.070	2.15	99.7

PORT:	F		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	15	8	351	1.35	104	102	4.0	259	255	59	263.438	1.78	
4	15	10	355	1.45	103	102	4.0	256	254	54		1.90	
3	15	12	359	1.95	104	103	5.0	258	255	54		2.54	
2	15	14	358	2.45	105	103	6.0	259	257	52		3.21	
1	15	16	358	2.15	104	103	5.0	256	255	52		2.81	
	15	18									271.966		
Run Time:		10	356	1.87	104	103	4.8	258	255	54	8.528	2.45	99.2
Post Test Leak Rate:				0.02	CFM @	12	"Hg						
Summary		60	352		99	98	5	258	255	52	48.856	2.27	

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Sherbrooke Asphalt	Time:	14:06-15:16
Sample Location:	Baghouse Stack		
Date:	8/22/94	Run #:	1

Duct Diameter (in.):	27.5	Ps ("Hg):	29.46
Rectangular Duct:	40.5	Bws:	0.216
Area (sq.ft.):	7.73	MWw:	26.89
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.85

		Port: A			Port: B			Port: C			Port: D			Port: E			Port: F		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
5	24.75	1.80	330	96.9	1.45	339	87.5	1.35	348	84.9	1.45	354	88.3	1.40	357	86.9	1.35	351	85.0
4	19.25	2.10	335	105.0	1.30	345	83.1	1.60	352	92.6	1.60	356	92.8	1.30	359	83.8	1.45	355	88.3
3	13.75	2.45	341	113.8	2.00	351	103.5	1.95	356	102.5	1.80	358	98.6	1.75	361	97.4	1.95	359	102.7
2	8.25	2.15	344	106.8	1.75	352	96.9	1.80	357	98.5	1.90	360	101.4	2.00	360	104.1	2.45	358	115.0
1	2.75	1.55	346	90.8	1.40	352	86.6	1.50	359	90.1	1.65	353	94.1	1.80	362	98.8	2.15	358	107.8

RESULTS:

Average Duct Velocity = 96.2 at 352 deg. F and 29.46 "Hg

Q	=	44.6 x1000	ACFM
Qstd	=	28.6 x1000	SCFM
Qstd(dry)	=	22.4 x1000	DSCFM

PARTICULATE RESULTS

Plant:	Sherbrooke Asphalt	Tstd:	68	MWw:	26.89
Sample Loc:	Baghouse Stack	Pstd:	29.92	An:	0.0003 sq. ft.
Date:	8/22/94	Vmstd:	45.743	%ISO:	95.4
Run #:	1				

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Greenberg Smith	100 ml H2O	850.6	576.4	274.2
Greenberg Smith	100 ml H2O	603.5	568.2	35.3
Greenberg Smith	Empty	437.7	434.0	3.7
Greenberg Smith	Silica Gel	747.7	736.8	10.9
	Line Rinse			-56.2
			TOTAL	267.9

FIXED GAS ANALYSIS

%CO2:	4.6
%O2:	15.4
%C0:	0.0
%N2	80.1
Bws:	0.216

Concentration and Emission Rate Data

	Final (grams)	Tare (grams)	Net (grams)
Filterable Fraction:			
Filter:	0.3371	0.3286	0.0085
Glassware Rinse:	77.2606	77.2519	0.0087
Less Acetone Blank:			-0.0003
Total:			0.0169
Condensable Fraction:			
Aqueous:	74.7883	74.7451	0.0432
Less Water Blank:			-0.0002
Aqueous Total:			0.0430
Organic:	77.8731	77.8673	0.0058
Less MeCl2 Blank:			-0.0003
Organic Total:			0.0055
TOTAL			**0.0654**

Particulate Concentration, (gr/DSCF)

Filterable:	**0.0057**
Aqueous Condensable:	0.0145
Organic Condensable:	0.0019
Total:	**0.0221**

Particulate Emission Rate, (lb/hr)

Filterable:	**1.09**
Aqueous Condensable:	2.78
Organic Condensable:	0.36
Total:	**4.23**

Reduced Particulate Field Data

Plant:	Sherbrooke Asphalt	Bws(assumed):	0.25	Meter Box #:	80664
Sample Loc:	Baghouse Stack	MWs(assumed):	26.13	dH@:	2.001
Run #:	2	MWd(assumed):	28.84	Gamma:	0.998
Date:	8/22/94	Pstatic ("H2O):	-1.30	Pitot #:	3-2
Pbar ("Hg):	29.56	Probe Mat:	Glass	Cp:	0.846
Ps ("Hg):	29.46	Nozzle Mat:	SS	X-Factor:	2.024
Sample time/pt:	2.0	Dn (in.):	0.225	# of Ports:	6

PORT:	A		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	16	12	348	1.70	96	96	4.0	257	240	67	272.360	2.37	
4	16	14	354	2.15	97	97	5.0	256	244	57		2.98	
3	16	16	356	2.15	98	97	5.0	253	249	50		2.98	
2	16	18	357	1.90	97	99	5.0	257	257	50		2.62	
1	16	20	355	1.90	98	98	4.0	257	254	49		2.63	
	16	22									281.115		
Run Time:		10	354	1.96	97	97	4.6	256	249	55	8.755	2.72	96.8

PORT:	B		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	16	24	343	1.45	97	97	4.0	257	242	60	281.115	2.04	
4	16	26	345	1.70	97	98	5.0	256	244	55		2.38	
3	16	28	349	1.80	97	98	5.0	251	254	52		2.51	
2	16	30	350	1.70	99	99	4.0	256	260	52		2.37	
1	16	32	350	1.30	99	100	4.0	257	264	55		1.82	
	16	34									289.560		
Run Time:		10	347	1.59	98	98	4.4	255	253	55	8.445	2.22	103.2

PORT:	C		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	16	38	346	1.35	101	100	4.0	261	245	67	289.560	1.90	
4	16	40	354	1.60	105	102	4.0	257	246	59		2.25	
3	16	42	351	1.75	101	101	4.0	254	249	55		2.45	
2	16	44	351	1.65	101	100	4.0	256	255	54		2.31	
1	16	46	352	1.50	102	102	4.0	255	255	56		2.10	
	16	48									297.727		
Run Time:		10	351	1.57	102	101	4.0	257	250	58	8.167	2.20	99.8

PORT:	D		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	16	51	348	1.55	102	101	4.0	257	241	68	297.727	2.18	
4	16	53	349	1.50	100	102	4.0	254	243	61		2.10	
3	16	55	352	1.80	102	102	5.0	256	247	60		2.52	
2	16	57	353	1.80	102	103	5.0	257	260	60		2.52	
1	16	59	351	1.50	101	103	4.0	257	267	60		2.10	
	17	1									305.992		
Run Time:		10	351	1.63	101	102	4.4	256	252	62	8.265	2.28	99.2

PORT:	E		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	17	6	348	1.45	103	102	4.0	259	249	65	305.992	2.04	
4	17	8	348	1.40	104	106	4.0	260	250	63		1.98	
3	17	10	349	1.70	103	104	5.0	257	253	60		2.39	
2	17	12	350	1.90	102	104	5.0	256	267	60		2.67	
1	17	14	350	1.75	103	104	5.0	256	255	61		2.46	
	17	16									314.348		
Run Time:		10	349	1.64	103	104	4.6	258	255	62	8.356	2.31	99.7

PORT:	F		Duct Data			Meter Data			Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	17	21	345	1.35	103	103	4.0	258	244	67	314.348	1.91	
4	17	23	347	1.50	100	103	4.0	253	238	61		2.11	
3	17	25	347	1.75	98	103	5.0	251	259	61		2.45	
2	17	27	347	2.25	100	103	5.0	257	270	61		3.16	
1	17	29	346	2.00	99	103	5.0	253	255	62		2.81	
	17	31									322.970		
Run Time:		10	346	1.77	100	103	4.6	254	253	62	8.622	2.49	99.7
Post Test Leak Rate:				0.01	CFM @	16	"Hg						
Summary		60	350		100	101	4	256	252	59	50.610	2.37	

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Sherbrooke Asphalt	Time: 16:12-17:29	
Sample Location:	Baghouse Stack		
Date:	8/22/94	Run #:	2
Duct Diameter (in.):	27.5	Ps ("Hg):	29.46
Rectangular Duct:	40.5	Bws:	0.246
Area (sq.ft.):	7.73	MWw:	26.25
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.85

		Port: A			Port: B			Port: C			Port: D			Port: E			Port: F		
Point #	In From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
5	24.75	1.70	348	96.4	1.45	343	88.7	1.35	346	85.8	1.55	348	92.0	1.45	348	89.0	1.35	345	85.7
4	19.25	2.15	354	108.8	1.70	345	96.2	1.60	354	93.9	1.50	349	90.6	1.40	348	87.5	1.50	347	90.5
3	13.75	2.15	356	108.9	1.80	349	99.2	1.75	351	98.0	1.80	352	99.4	1.70	349	96.4	1.75	347	97.7
2	8.25	1.90	357	102.5	1.70	350	96.5	1.65	351	95.1	1.80	353	99.5	1.90	350	102.0	2.25	347	110.8
1	2.75	1.90	355	102.3	1.30	350	84.4	1.50	352	90.8	1.50	351	90.7	1.75	350	97.9	2.00	346	104.4

RESULTS:

Average Duct Velocity = 96.1 at 350 deg. F and 29.46 "Hg

Q	=	44.6 x1000	ACFM
Qstd	=	28.6 x1000	SCFM
Qstd(dry)	=	21.6 x1000	DSCFM

PARTICULATE RESULTS

Plant:	Sherbrooke Asphalt	Tstd:	68	MWw:	26.25
Sample Loc:	Baghouse Stack	Pstd:	29.92	An:	0.0003 sq. ft.
Date:	8/22/94	Vmstd:	47.307	%ISO:	102.3
Run #:	2				

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Greenberg Smith	100 ml H2O	855.7	554.3	301.4
Greenberg Smith	100 ml H2O	626.6	569.5	57.1
Greenberg Smith	Empty	451.0	445.4	5.6
Greenberg Smith	Silica Gel	751.2	736.4	14.8
	Line Rinse			-51.7
			TOTAL	327.2

FIXED GAS ANALYSIS

%CO2:	1.0
%O2:	19.6
%C0:	0.0
%N2	79.5
Bws:	0.246

Concentration and Emission Rate Data

	Final (grams)	Tare (grams)	Net (grams)
Filterable Fraction:			
Filter:	0.3314	0.3243	0.0071
Glassware Rinse:	75.1518	75.1443	0.0075
Less Acetone Blank:			-0.0003
Total:			0.0143
Condensable Fraction:			
Aqueous:	78.9174	78.8610	0.0564
Less Water Blank:			-0.0002
Aqueous Total:			0.0562
Organic:	77.8363	77.8274	0.0089
Less MeCl2 Blank:			-0.0003
Organic Total:			0.0086
TOTAL			**0.0791**

Particulate Concentration, (gr/DSCF)

Filterable:	**0.0047**
Aqueous Condensable:	0.0183
Organic Condensable:	0.0028
Total:	**0.0258**

Particulate Emission Rate, (lb/hr)

Filterable:	**0.87**
Aqueous Condensable:	3.39
Organic Condensable:	0.52
Total:	**4.78**

Reduced Particulate Field Data

Plant:	Sherbrooke Asphalt	Bws(assumed):	0.25	Meter Box #:	80664
Sample Loc:	Baghouse Stack	MWs(assumed):	26.13	dH@:	2.001
Run #:	3	MWd(assumed):	28.84	Gamma:	0.998
Date:	8/22/94	Pstatic ("H2O):	-1.30	Pitot #:	3-2
Pbar ("Hg):	29.56	Probe Mat:	Glass	Cp:	0.846
Ps ("Hg):	29.46	Nozzle Mat:	SS	X-Factor:	2.024
Sample time/pt:	2.0	Dn (in.):	0.225	# of Ports:	6

PORT:	A		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	18	7	344	1.80	100	98	5.0	257	256	67	323.290	2.54	
4	18	9	349	2.00	96	100	5.0	256	255	53		2.78	
3	18	11	352	2.20	97	100	6.0	257	254	50		3.05	
2	18	13	353	1.90	98	100	5.0	257	257	48		2.64	
1	18	15	353	1.30	98	100	4.0	257	255	49		1.81	
	18	17									332.096		
Run Time:		10	350	1.84	98	100	5.0	257	255	53	8.806	2.56	100.4

PORT:	B		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	18	20	350	1.35	100	100	4.0	260	257	61	332.096	1.89	
4	18	22	355	1.55	100	101	4.0	258	255	53		2.16	
3	18	24	360	1.80	100	102	5.0	257	255	51		2.49	
2	18	26	361	1.75	100	102	5.0	258	256	52		2.42	
1	18	28	361	1.30	101	103	4.0	259	256	53		1.80	
	18	30									340.189		
Run Time:		10	357	1.55	100	102	4.4	258	256	54	8.093	2.15	100.4

PORT:	C		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	18	34	357	1.20	102	102	4.0	258	254	63	340.189	1.67	
4	18	36	362	1.50	101	104	5.0	258	253	56		2.07	
3	18	38	364	1.75	100	103	5.0	257	258	53		2.41	
2	18	40	365	1.75	99	103	5.0	257	258	54		2.40	
1	18	42	367	1.25	99	103	4.0	257	256	56		1.71	
	18	44									348.114		
Run Time:		10	363	1.49	100	103	4.6	257	256	56	7.925	2.05	100.7

PORT:	D		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	18	47	358	1.35	100	102	4.0	262	272	67	348.114	1.87	
4	18	49	360	1.45	98	102	4.0	256	256	59		2.00	
3	18	51	360	1.75	97	102	5.0	256	256	57		2.41	
2	18	53	361	1.75	97	102	5.0	257	257	56		2.40	
1	18	55	362	1.45	97	101	4.0	257	255	57		1.99	
	18	57									356.165		
Run Time:		10	360	1.55	98	102	4.4	258	259	59	8.051	2.13	100.4

PORT:	E		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	19	0	355	1.45	98	99	4.0	257	255	66	356.165	2.01	
4	19	2	356	1.25	96	100	4.0	258	258	61		1.72	
3	19	4	359	1.60	98	100	5.0	259	258	59		2.21	
2	19	6	357	1.90	97	100	5.0	257	256	58		2.62	
1	19	8	359	1.55	97	100	5.0	258	255	58		2.13	
	19	10									364.217		
Run Time:		10	357	1.55	97	100	4.6	258	256	60	8.052	2.14	100.4

PORT:	F		Duct Data			Meter Data		Heater Data		Impinger	Meter	Theo.	Quick
Point	Time		Td	dP	Tmi	Tmo	Vac.	Probe	Filter	Outlet	Volume	dH	
#	hr	mi	(F)	("H2O)	(F)	(F)	("Hg)	(F)	(F)	(F)	(CF)	("H2O)	%iso
5	19	14	350	1.30	98	97	5.0	257	257	66	364.217	1.81	
4	19	16	354	1.35	96	99	5.0	258	257	60		1.87	
3	19	18	356	1.75	95	98	5.0	259	257	58		2.41	
2	19	20	356	2.15	95	98	6.0	255	255	58		2.96	
1	19	22	356	2.10	95	99	6.0	256	256	59		2.89	
	19	24									372.717		
Run Time:		10	354	1.73	96	98	5.4	257	256	60	8.500	2.39	100.8
Post Test Leak Rate:				0.014	CFM @	12	"Hg						
Summary		60	357		98	101	5	258	257	57	49.427	2.24	

VELOCITY TRAVERSE AND VOLUME FLOW RATE DATA

Plant:	Sherbrooke Asphalt	Time:	18:07-19:22
Sample Location:	Baghouse Stack		
Date:	8/22/94	Run #:	3

Duct Diameter (in.):	27.5	Ps ("Hg):	29.46
Rectangular Duct:	40.5	Bws:	0.227
Area (sq.ft.):	7.73	MWw:	26.45
		Tstd (F):	68
		Pstd ("Hg):	29.92
		Cp:	0.85

		Port: A			Port: B			Port: C			Port: D			Port: E			Port: F		
Point #	In. From Edge	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)	dP ("H2O)	Ts (F)	Vd (ft/s)
5	24.75	1.80	344	98.6	1.35	350	85.7	1.20	357	81.1	1.35	358	86.1	1.45	355	89.1	1.30	350	84.1
4	19.25	2.00	349	104.2	1.55	355	92.1	1.50	362	91.0	1.45	360	89.3	1.25	356	82.7	1.35	354	85.9
3	13.75	2.20	352	109.5	1.80	360	99.5	1.75	364	98.4	1.75	360	98.1	1.60	359	93.8	1.75	356	97.9
2	8.25	1.90	353	101.8	1.75	361	98.2	1.75	365	98.4	1.75	361	98.2	1.90	357	102.1	2.15	356	108.5
1	2.75	1.30	353	84.2	1.30	361	84.6	1.25	367	83.3	1.45	362	89.4	1.55	359	92.3	2.10	356	107.2

RESULTS:

Average Duct Velocity = 93.8 at 357 deg. F and 29.46 "Hg

Q	=	43.5 x1000	ACFM
Qstd	=	27.7 x1000	SCFM
Qstd(dry)	=	21.4 x1000	DSCFM

PARTICULATE RESULTS

Plant:	Sherbrooke Asphalt	Tstd:	68	MWw:	26.45
Sample Loc:	Baghouse Stack	Pstd:	29.92	An:	0.0003 sq. ft.
Date:	8/22/94	Vmstd:	46.357	%ISO:	101.0
Run #:	3				

IMPINGER ANALYSIS

TYPE	CONTENTS	Wf (g)	Wi (g)	Net (g)
Greenberg Smith	100 ml H2O	865.4	572.8	292.6
Greenberg Smith	100 ml H2O	601.6	567.3	34.3
Greenberg Smith	Empty	439.7	436.6	3.1
Greenberg Smith	Silica Gel	759.2	747.2	12.0
	Line Rinse			-53.3
			TOTAL	288.7

FIXED GAS ANALYSIS

%CO2:	0.9
%O2:	20.0
%C0:	0.0
%N2	79.2
Bws:	0.227

Concentration and Emission Rate Data

	Final (grams)	Tare (grams)	Net (grams)
Filterable Fraction:			
Filter:	0.3435	0.3342	0.0093
Glassware Rinse:	68.3603	68.3538	0.0065
Less Acetone Blank:			-0.0003
Total:			0.0155
Condensable Fraction:			
Aqueous:	74.3580	74.3049	0.0531
Less Water Blank:			-0.0002
Aqueous Total:			0.0529
Organic:	78.1277	78.1057	0.0220
Less MeCl2 Blank:			-0.0003
Organic Total:			0.0217
TOTAL			**0.0901**

Particulate Concentration, (gr/DSCF)

Filterable:	**0.0051**
Aqueous Condensable:	0.0176
Organic Condensable:	0.0072
Total:	**0.0299**

Particulate Emission Rate, (lb/hr)

Filterable:	**0.95**
Aqueous Condensable:	**3.23**
Organic Condensable:	1.33
Total:	**5.51**

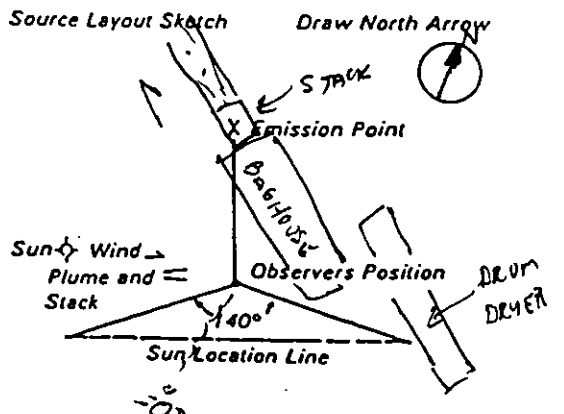
APPENDIX D-1

ASPHALT PLANT BAGHOUSE
VISIBLE EMISSIONS DATA SHEETS

Visible Emission Observation Form

SOURCE NAME	SHERBROOKE ASPHALT
ADDRESS	1 MILE N.E OF INTERSECTION OF HWY. 95 + HWY. 35, OTTERTAIL CO.
CITY	VERGAS
STATE	MN
ZIP	
PHONE	(218)841-2492
SOURCE ID NUMBER	99000164-002
PROCESS EQUIPMENT	ASTEC ASPHALT PLANT
OPERATING MODE	215 TPH
CONTROL EQUIPMENT	ASTEC BAGHOUSE
OPERATING MODE	100%
DESCRIBE EMISSION POINT	START BAGHOUSE EXHAUST STACK STOP BAGHOUSE EXHAUST STACK
HEIGHT ABOVE GROUND LEVEL	START 20' STOP 20'
HEIGHT RELATIVE TO OBSERVER	START 20' STOP 20'
DISTANCE FROM OBSERVER	START 75' STOP 75'
DIRECTION FROM OBSERVER	START NORTH STOP NORTH
DESCRIBE EMISSIONS	START BAGHOUSE EXHAUST STOP BAGHOUSE EXHAUST
EMISSION COLOR	START CLEAR STOP CLEAR
PLUME TYPE: CONTINUOUS ☒	FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT:	NO ☒ YES ☐
IF WATER DROPLET PLUME:	ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	START 6' ABOVE STACK STOP 6' ABOVE STACK
DESCRIBE BACKGROUND	START SKY STOP SKY
BACKGROUND COLOR	START BLUE STOP
SKY CONDITIONS	START CLEAR STOP CLEAR
WIND SPEED	START 10-15 STOP 10-15
WIND DIRECTION	START SOUTH STOP SOUTH
AMBIENT TEMP.	START 80° STOP 81°
WET BULB TEMP.	67°
RH, percent	47%

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
8/22/94	2:11 p.m.	3:11 PM

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	0%
NUMBER OF READINGS ABOVE	20 % WERE 0
RANGE OF OPACITY READINGS	0% MINIMUM 0% MAXIMUM
OBSERVER'S NAME (PRINT)	JAMES TRUBA
OBSERVER'S SIGNATURE	
DATE	8/22/94
ORGANIZATION	BRAUN INTERTEC
CERTIFIED BY	ETA
DATE	9/6/94
VERIFIED BY	
DATE	

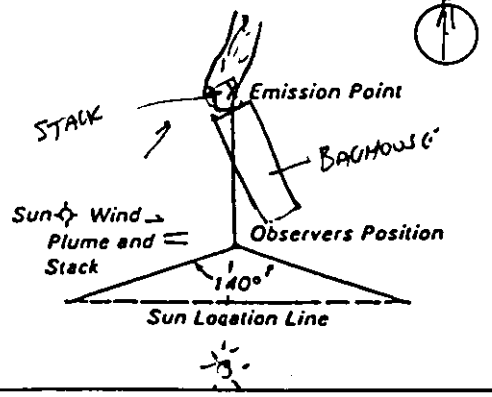
COMMENTS: 50% RECYCLE MATERIAL

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE
TITLE
DATE

Visible Emission Observation Form

SOURCE NAME	SHERBROOKE ASPHALT
ADDRESS	1 MILE N.E. OF INTERSECTION OF HWY. 83 & HWY. 35 OTTERTAIL CO.
CITY	VERGAS
STATE	MN
ZIP	–
PHONE	(218) 841-2492
SOURCE ID NUMBER	99000164-002
PROCESS EQUIPMENT	ASTEC ASPHALT PLANT
OPERATING MODE	
CONTROL EQUIPMENT	ASTEC BAGHOUSE
OPERATING MODE	100%
DESCRIBE EMISSION POINT START	BAGHOUSE EXHAUST STACK
DESCRIBE EMISSION POINT STOP	BAGHOUSE EXHAUST STACK
HEIGHT ABOVE GROUND LEVEL START	20'
HEIGHT ABOVE GROUND LEVEL STOP	20'
HEIGHT RELATIVE TO OBSERVER START	20'
HEIGHT RELATIVE TO OBSERVER STOP	20'
DISTANCE FROM OBSERVER START	150'
DISTANCE FROM OBSERVER STOP	150'
DIRECTION FROM OBSERVER START	NORTH
DIRECTION FROM OBSERVER STOP	NORTH
DESCRIBE EMISSIONS START	BAGHOUSE EXHAUST
DESCRIBE EMISSIONS STOP	BAGHOUSE EXHAUST
EMISSION COLOR START	CLEAR
EMISSION COLOR STOP	CLEAR
PLUME TYPE: CONTINUOUS	☒
FUGITIVE ☐ INTERMITTENT	☐
WATER DROPLETS PRESENT: NO	☒
YES	☐
IF WATER DROPLET PLUME: ATTACHED	☐
DETACHED	☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START	6' ABOVE STACK
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED STOP	6' ABOVE STACK
DESCRIBE BACKGROUND START	SKY
DESCRIBE BACKGROUND STOP	SKY
BACKGROUND COLOR START	DARK GREY
BACKGROUND COLOR STOP	DARK GREY
SKY CONDITIONS START	CLOUDY
SKY CONDITIONS STOP	P/C 10%
WIND SPEED START	10-15
WIND SPEED STOP	5-10
WIND DIRECTION START	S.W
WIND DIRECTION STOP	SOUTH
AMBIENT TEMP. START	71°
AMBIENT TEMP. STOP	75°
WET BULB TEMP.	67°
RH.percent	64%

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
8/23/94	12:50 P.M.	1:30 P.M.

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	0%
NUMBER OF READINGS ABOVE 20 % WERE	0
RANGE OF OPACITY READINGS MINIMUM	0%
RANGE OF OPACITY READINGS MAXIMUM	0%
OBSERVER'S NAME (PRINT)	JAMES TRYBA
OBSERVER'S SIGNATURE	[signature]
DATE	8/23/94
ORGANIZATION	BRAUN INTERTEC
CERTIFIED BY	[signature]
DATE	9/6/94
VERIFIED BY	
DATE	

COMMENTS

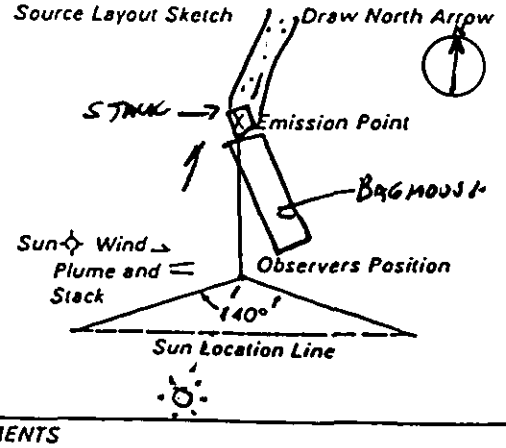
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE

TITLE

DATE

Visible Emission Observation Form

SOURCE NAME	SHERBROOKE ASPHALT
ADDRESS	1 MILE N.E. OF INTERSECTION OF HWY. 85 + HWY. 35, OTTERTAIL CO.
CITY	VERGAS
STATE	MN
ZIP	-
PHONE	(218) 841-2492
SOURCE ID NUMBER	99000164-002
PROCESS EQUIPMENT	ASTEC ASPHALT PLANT
OPERATING MODE	
CONTROL EQUIPMENT	ASTEC BAGHOUSE
OPERATING MODE	
DESCRIBE EMISSION POINT START	BAGHOUSE EXHAUST STACK
STOP	EXHAUST STACK
HEIGHT ABOVE GROUND LEVEL START	20' STOP 20'
HEIGHT RELATIVE TO OBSERVER START	20' STOP 20'
DISTANCE FROM OBSERVER START	150' STOP 150'
DIRECTION FROM OBSERVER START	NORTH STOP NORTH
DESCRIBE EMISSIONS START	BAGHOUSE EXHAUST STOP BAGHOUSE EXHAUST
EMISSION COLOR START	CLEAR STOP CLEAR
PLUME TYPE: CONTINUOUS	☒
FUGITIVE	☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO	☒ YES ☐
IF WATER DROPLET PLUME: ATTACHED	☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START	6' ABOVE STACK STOP 6' ABOVE STACK
DESCRIBE BACKGROUND START	SKY STOP SKY
BACKGROUND COLOR START	DARK GREY STOP DARK GREY
SKY CONDITIONS START	P/CLOUDY STOP P/CLOUDY
WIND SPEED START	5-10 STOP 5-10
WIND DIRECTION START	SOUTH STOP SOUTH
AMBIENT TEMP. START	71° STOP 75°
WET BULB TEMP.	67°
RH.percent	64%



OBSERVATION DATE	START TIME	STOP TIME
8/23/94	1:30 PM	2:50 P.M.

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE 20 % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT)	JAMES TRUBA
OBSERVER'S SIGNATURE	DATE 8/25/94
ORGANIZATION	BARR ENGINEERING
CERTIFIED BY ETA	DATE 4/6/94
VERIFIED BY	DATE

COMMENTS	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	
TITLE	DATE

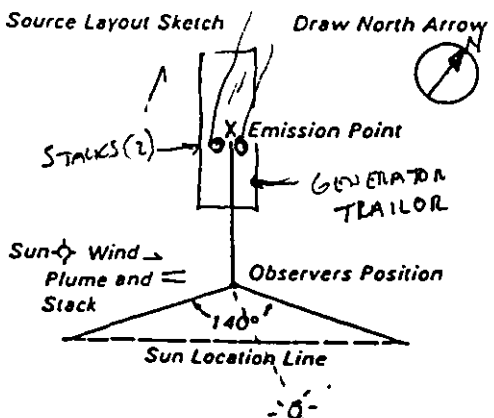
APPENDIX D-2

DIESEL GENERATOR
VISIBLE EMISSIONS DATA SHEETS

Visible Emission Observation Form

SOURCE NAME: SHERBROOKE ASPHALT	OBSERVATION DATE: 8/23/94
ADDRESS: 1 MILE N.E. OF INTERSECTION OF HWY 85 & HWY 35	START TIME: 9:45 A.M.
CITY: VERGAS / STATE: MN / ZIP: -	STOP TIME: 10:45 A.M.
PHONE: (218) 84/-2492	SOURCE ID NUMBER: 79000164-002
PROCESS EQUIPMENT: GENERATOR	OPERATING MODE: 100 %
CONTROL EQUIPMENT: NONE	OPERATING MODE: -
DESCRIBE EMISSION POINT: START GENERATOR EXHAUST STACKS	STOP GENERATOR EXHAUST STACKS
HEIGHT ABOVE GROUND LEVEL: START 14' STOP 14'	HEIGHT RELATIVE TO OBSERVER: START 14' STOP 14'
DISTANCE FROM OBSERVER: START 150' STOP 150'	DIRECTION FROM OBSERVER: START NW STOP NW
DESCRIBE EMISSIONS: START ENGINE EXHAUST	STOP ENGINE EXHAUST
EMISSION COLOR: START BLACK STOP BLACK	PLUME TYPE: CONTINUOUS ☒ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☒ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 2' ABOVE STACKS	STOP 2' ABOVE STACKS
DESCRIBE BACKGROUND: START SKY	STOP SKY
BACKGROUND COLOR: START BLUE STOP GREY	SKY CONDITIONS: START CLEAR STOP P/CLOUDY
WIND SPEED: START 5-10 STOP 5-10	WIND DIRECTION: START S.E. STOP S.E.
AMBIENT TEMP.: START 76° STOP 76°	WET BULB TEMP.: 67° / RH.percent: 73 %

Source Layout Sketch / Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	10	10	10	10	31	10	10	10	10
2	10	10	10	10	32	10	10	10	10
3	10	10	10	10	33	10	10	15	10
4	10	5	10	10	34	10	10	10	10
5	5	10	10	10	35	10	10	10	10
6	10	10	10	10	36	10	10	10	10
7	10	10	10	10	37	10	10	10	10
8	10	10	5	10	38	10	10	10	15
9	10	10	10	10	39	10	10	10	10
10	10	10	10	10	40	10	5	10	10
11	15	10	10	10	41	10	10	10	10
12	10	10	10	10	42	10	10	10	10
13	10	10	10	10	43	10	10	10	10
14	10	10	10	10	44	10	10	10	10
15	10	10	10	10	45	10	10	10	10
16	10	10	10	10	46	10	10	10	10
17	10	5	10	10	47	10	10	10	10
18	10	10	10	10	48	10	10	10	10
19	10	10	10	10	49	10	10	10	15
20	10	10	10	5	50	10	10	10	10
21	10	10	10	10	51	10	10	10	10
22	10	10	10	10	52	10	10	10	10
23	10	10	10	10	53	10	10	10	10
24	10	10	10	10	54	10	10	10	10
25	10	10	10	10	55	10	10	10	10
26	10	10	10	15	56	10	10	10	10
27	10	10	10	10	57	10	10	10	10
28	10	10	10	10	58	10	10	10	10
29	10	10	10	10	59	10	10	10	10
30	10	10	10	10	60	10	10	5	10

AVERAGE OPACITY FOR HIGHEST PERIOD: 10.4 %	NUMBER OF READINGS ABOVE 20 % WERE: 0
RANGE OF OPACITY READINGS: 5% MINIMUM	15% MAXIMUM
OBSERVER'S NAME (PRINT): JAMES TRYBA	
OBSERVER'S SIGNATURE: James Tryba	DATE: 8/23/94
ORGANIZATION: BRAUN INTERTEC	
CERTIFIED BY: ETA	DATE: 4/6/94
VERIFIED BY:	DATE:

COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE

TITLE / DATE

EPA METHOD 9 OPACITY CALCULATIONS

Facility: Sherbrooke Asphalt
Process Tested: Diesel generator
Date: 8/23/94
Time: 9:45-10:45 am

Results:

Average Opacity --> 10.4%
(FOR HIGHEST 6 MINUTE PERIOD)

Average Opacity --> 10.0%
for Test Period

Minimum Reading - 5 %

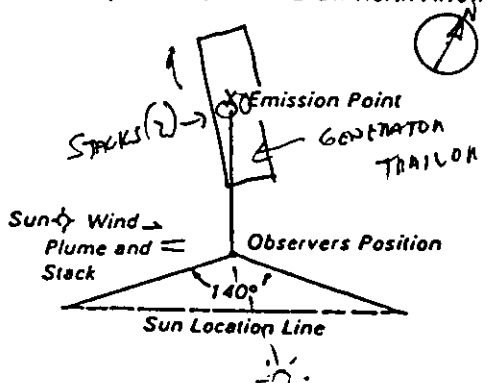
Maximum Reading - 15 %

#	0	15	30	45	6 Minute Average
1	10	10	10	10	
2	10	10	10	10	
3	10	10	10	10	
4	10	5	10	10	
5	5	10	10	10	
6	10	10	10	10	9.6%
7	10	10	10	10	9.6%
8	10	10	5	10	9.4%
9	10	10	10	10	9.4%
10	10	10	10	10	9.6%
11	15	10	10	10	10.0%
12	10	10	10	10	10.0%
13	10	10	10	10	10.0%
14	10	10	10	10	10.2%
15	10	10	10	10	10.2%
16	10	10	10	10	10.2%
17	10	5	10	10	9.8%
18	10	10	10	10	9.8%
19	10	10	10	10	9.8%
20	10	10	10	5	9.6%
21	10	10	10	10	9.6%
22	10	10	10	10	9.6%
23	10	10	10	10	9.8%
24	10	10	10	10	9.8%
25	10	10	10	10	9.8%
26	10	10	10	15	10.2%
27	10	10	10	10	10.2%
28	10	10	10	10	10.2%
29	10	10	10	10	10.2%
30	10	10	10	10	10.2%
31	10	10	10	10	10.2%
32	10	10	10	10	10.0%
33	10	10	15	10	10.2%
34	10	10	10	10	10.2%
35	10	10	10	10	10.2%
36	10	10	10	10	10.2%
37	10	10	10	10	10.2%
38	10	10	10	15	10.4%
39	10	10	10	10	10.2%
40	10	5	10	10	10.0%
41	10	10	10	10	10.0%
42	10	10	10	10	10.0%
43	10	10	10	10	10.0%
44	10	10	10	10	9.8%
45	10	10	10	10	9.8%
46	10	10	10	10	10.0%
47	10	10	10	10	10.0%
48	10	10	10	10	10.0%
49	10	10	10	15	10.2%
50	10	10	10	10	10.2%
51	10	10	10	10	10.2%
52	10	10	10	10	10.2%
53	10	10	10	10	10.2%
54	10	10	10	10	10.2%
55	10	10	10	10	10.0%
56	10	10	10	10	10.0%
57	10	10	10	10	10.0%
58	10	10	10	10	10.0%
59	10	10	10	10	10.0%
60	10	10	5	10	9.8%

Visible Emission Observation Form

SOURCE NAME	Svenbooc Asphalt
ADDRESS	1 mile N.E. of intersection of Hwy. 85 + Hwy. 35, Ottentic Co.
CITY	Verndale
STATE	MN
ZIP	-
PHONE	(218) 894-2492
SOURCE ID NUMBER	99000164-002
PROCESS EQUIPMENT	Generator
OPERATING MODE	100 %
CONTROL EQUIPMENT	None
OPERATING MODE	-
DESCRIBE EMISSION POINT START	Generator Exhaust Stack
DESCRIBE EMISSION POINT STOP	Generator Exhaust Stack
HEIGHT ABOVE GROUND LEVEL START	14'
HEIGHT ABOVE GROUND LEVEL STOP	14'
HEIGHT RELATIVE TO OBSERVER START	14'
HEIGHT RELATIVE TO OBSERVER STOP	14'
DISTANCE FROM OBSERVER START	150'
DISTANCE FROM OBSERVER STOP	150'
DIRECTION FROM OBSERVER START	N.W.
DIRECTION FROM OBSERVER STOP	N.W.
DESCRIBE EMISSIONS START	Engine Exhaust
DESCRIBE EMISSIONS STOP	Engine Exhaust
EMISSION COLOR START	Black
EMISSION COLOR STOP	Black
PLUME TYPE	CONTINUOUS ☒ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT	NO ☒ YES ☐
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START	2' Above Stack
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED STOP	2' Above Stack
DESCRIBE BACKGROUND START	Baghouse Stack
DESCRIBE BACKGROUND STOP	Baghouse Stack
BACKGROUND COLOR START	Tan
BACKGROUND COLOR STOP	Tan
SKY CONDITIONS START	Cloudy
SKY CONDITIONS STOP	Cloudy
WIND SPEED START	10-15
WIND SPEED STOP	10-15
WIND DIRECTION START	S.E.
WIND DIRECTION STOP	S.W.
AMBIENT TEMP. START	78°
AMBIENT TEMP. STOP	74°
WET BULB TEMP.	66°
RH, percent	66%

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
8/23/94	10:45 a.m.	11:45 am

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	10	10	10	10	31	10	5	10	10
2	10	10	10	5	32	10	10	10	10
3	10	10	10	10	33	10	10	10	10
4	10	10	10	10	34	10	10	10	10
5	10	10	10	10	35	10	10	10	10
6	10	10	10	10	36	10	10	10	10
7	10	10	10	10	37	10	10	10	10
8	5	10	10	10	38	10	10	10	10
9	10	10	10	10	39	10	10	15	10
10	10	10	10	10	40	10	10	10	10
11	10	10	10	10	41	10	10	10	10
12	10	10	10	5	42	10	10	10	10
13	10	10	10	10	43	10	10	10	10
14	10	10	10	10	44	10	10	15	10
15	10	10	10	10	45	10	10	10	10
16	10	10	10	10	46	10	10	10	10
17	10	10	10	10	47	10	10	10	10
18	10	10	10	10	48	10	10	10	10
19	10	10	10	5	49	10	10	15	10
20	10	10	10	10	50	10	10	10	10
21	10	10	10	10	51	10	10	10	10
22	10	10	10	10	52	10	10	10	10
23	10	10	10	15	53	10	10	10	10
24	10	10	10	10	54	10	10	10	15
25	10	10	10	10	55	15	10	10	10
26	10	10	10	10	56	10	10	10	10
27	10	10	10	10	57	15	15	10	10
28	10	10	10	10	58	10	10	10	10
29	10	10	10	10	59	10	15	10	10
30	10	10	10	10	60	10	10	10	10

AVERAGE OPACITY FOR HIGHEST PERIOD	11.0 %
NUMBER OF READINGS ABOVE 20 % WERE	0
RANGE OF OPACITY READINGS	5 % MINIMUM 15 % MAXIMUM
OBSERVER'S NAME (PRINT)	James Trnka
OBSERVER'S SIGNATURE	[signature]
DATE	8/23/94
ORGANIZATION	Braun Intertec
CERTIFIED BY	ETA
DATE	4/6/94
VERIFIED BY	
DATE	

COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

EPA METHOD 9 OPACITY CALCULATIONS

Facility: Sherbrooke Asphalt
Process Tested: Diesel generator
Date: 8/23/94
Time: 10:45-11:45 am

Results:

Average Opacity --> 11.0%
(FOR HIGHEST 6 MINUTE PERIOD)

Average Opacity --> 10.1%
for Test Period

Minimum Reading - 5 %

Maximum Reading - 15 %

#	0	15	30	45	6 Minute Average
1	10	10	10	10	
2	10	10	10	5	
3	10	10	10	10	
4	10	10	10	10	
5	10	10	10	10	
6	10	10	10	10	9.8%
7	10	10	10	10	9.8%
8	5	10	10	10	9.8%
9	10	10	10	10	9.8%
10	10	10	10	10	9.8%
11	10	10	10	10	9.8%
12	10	10	10	5	9.6%
13	10	10	10	10	9.6%
14	10	10	10	10	9.8%
15	10	10	10	10	9.8%
16	10	10	10	10	9.8%
17	10	10	10	10	9.8%
18	10	10	10	10	10.0%
19	10	10	10	5	9.8%
20	10	10	10	10	9.8%
21	10	10	10	10	9.8%
22	10	10	10	10	9.8%
23	10	10	10	15	10.0%
24	10	10	10	10	10.0%
25	10	10	10	10	10.2%
26	10	10	10	10	10.2%
27	10	10	10	10	10.2%
28	10	10	10	10	10.2%
29	10	10	10	10	10.0%
30	10	10	10	10	10.0%

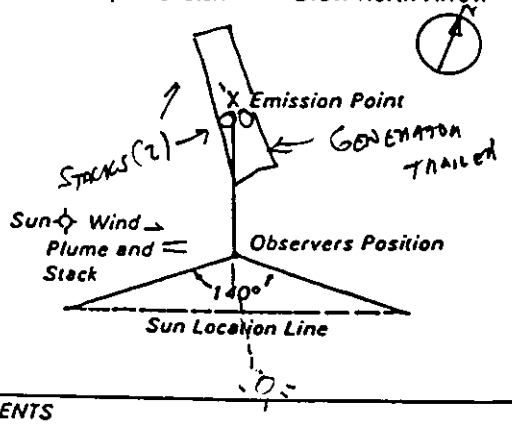
#	0	15	30	45	6 Minute Average
31	10	5	10	10	9.8%
32	10	10	10	10	9.8%
33	10	10	10	10	9.8%
34	10	10	10	10	9.8%
35	10	10	10	10	9.8%
36	10	10	10	10	9.8%
37	10	10	10	10	10.0%
38	10	10	10	10	10.0%
39	10	10	15	10	10.2%
40	10	10	10	10	10.2%
41	10	10	10	10	10.2%
42	10	10	10	10	10.2%
43	10	10	10	10	10.2%
44	10	10	15	10	10.4%
45	10	10	10	10	10.2%
46	10	10	10	10	10.2%
47	10	10	10	10	10.2%
48	10	10	10	10	10.2%
49	10	10	15	10	10.4%
50	10	10	10	10	10.2%
51	10	10	10	10	10.2%
52	10	10	10	10	10.2%
53	10	10	10	10	10.2%
54	10	10	10	15	10.4%
55	15	10	10	10	10.4%
56	10	10	10	10	10.4%
57	15	15	10	10	10.8%
58	10	10	10	10	10.8%
59	10	15	10	10	11.0%
60	10	10	10	10	10.8%

Visible Emission Observation Form

SOURCE NAME: SHERBROOKE ASPHALT	OBSERVATION DATE: 8/23/94
ADDRESS: 1 MILE N.E. OF INTERSECTION OF HWY 85 & HWY 35 ATTENTAIC CO.	START TIME: 11:45 a.m.
CITY: VERGAS / STATE: MN / ZIP: -	STOP TIME: 12:45 p.m.
PHONE: (218) 841-2492	SOURCE ID NUMBER: 99000164-002
PROCESS EQUIPMENT: GENERATOR	OPERATING MODE: 100%
CONTROL EQUIPMENT: NONE	OPERATING MODE: -
DESCRIBE EMISSION POINT: START GENERATOR EXHAUST STACKS	STOP GENERATOR EXHAUST STACKS
HEIGHT ABOVE GROUND LEVEL: START 14' STOP 14'	HEIGHT RELATIVE TO OBSERVER: START 14' STOP 14'
DISTANCE FROM OBSERVER: START 150' STOP 150'	DIRECTION FROM OBSERVER: START N.W. STOP N.W.
DESCRIBE EMISSIONS: START ENGINE EXHAUST	STOP ENGINE EXHAUST
EMISSION COLOR: START BLACK STOP BLACK	PLUME TYPE: CONTINUOUS ☑ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 2' ABOVE STACK	STOP 2' ABOVE STACK
DESCRIBE BACKGROUND: START BAGHOUSE STACK	STOP BAGHOUSE STACK
BACKGROUND COLOR: START TAN STOP TAN	SKY CONDITIONS: START CLOUDY STOP CLOUDY
WIND SPEED: START 5-10 STOP 5-10	WIND DIRECTION: START S.W. STOP S.W.
AMBIENT TEMP.: START 74° STOP 71°	WET BULB TEMP.: 66° / RH.percent: 66%

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	15	15	10	10	31	10	10	10	10
2	10	10	10	10	32	10	10	10	10
3	10	10	15	10	33	10	10	10	10
4	10	10	15	10	34	10	10	10	10
5	10	10	10	10	35	10	10	10	10
6	10	10	10	10	36	10	10	10	10
7	10	10	10	10	37	5	5	10	10
8	15	10	10	10	38	10	10	10	10
9	10	10	10	10	39	10	10	10	10
10	10	10	5	10	40	10	10	10	10
11	10	10	10	10	41	10	10	10	10
12	10	10	10	10	42	10	10	10	10
13	10	10	10	10	43	10	10	5	5
14	10	5	5	10	44	10	10	10	10
15	10	10	10	10	45	5	5	5	10
16	10	5	10	10	46	10	10	5	10
17	10	10	10	10	47	10	10	10	10
18	10	10	10	10	48	10	10	10	10
19	10	10	10	10	49	10	10	10	10
20	10	10	10	10	50	5	5	10	10
21	10	10	10	5	51	10	10	10	10
22	10	10	5	10	52	10	10	10	10
23	10	10	10	10	53	10	10	10	10
24	10	10	10	10	54	10	10	10	10
25	10	10	10	10	55	10	10	10	10
26	10	10	10	5	56	10	5	10	10
27	5	10	10	10	57	10	10	5	10
28	10	10	10	10	58	10	10	10	10
29	10	10	10	10	59	10	10	10	10
30	10	10	10	5	60	10	10	5	10

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD: 10.4%	NUMBER OF READINGS ABOVE 20 % WERE: 0
RANGE OF OPACITY READINGS: 5% MINIMUM	15% MAXIMUM
OBSERVER'S NAME (PRINT): James Traba	
OBSERVER'S SIGNATURE: [signature]	DATE: 8/23/94
ORGANIZATION: Braun Intertec	
CERTIFIED BY: ETA	DATE: 9/6/94
VERIFIED BY	DATE
COMMENTS	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	
TITLE / DATE	

EPA METHOD 9 OPACITY CALCULATIONS

Facility: Sherbrooke Asphalt
Process Tested: *Diesel generator*
Date: 8/23/94
Time: 11:45-12:45

Results:

Average Opacity --> 10.4%
(FOR HIGHEST 6 MINUTE PERIOD)

Average Opacity --> 9.6%
for Test Period

Minimum Reading - 5 %

Maximum Reading - 15 %

#	0	15	30	45	6 Minute Average	#	0	15	30	45	6 Minute Average
1	10	10	10	10		31	10	10	10	10	9.4%
2	10	10	10	10		32	10	10	10	10	9.6%
3	10	10	10	10		33	10	10	10	10	9.8%
4	10	10	15	10		34	10	10	10	10	9.8%
5	10	10	10	10		35	10	10	10	10	9.8%
6	10	10	10	10	10.2%	36	10	10	10	10	10.0%
7	10	10	10	10	10.2%	37	5	5	10	10	9.6%
8	15	10	10	10	10.4%	38	10	10	10	10	9.6%
9	10	10	10	10	10.4%	39	10	10	10	10	9.6%
10	10	10	5	10	10.0%	40	10	10	10	10	9.6%
11	10	10	10	10	10.0%	41	10	10	10	10	9.6%
12	10	10	10	10	10.0%	42	10	10	10	10	9.6%
13	10	10	10	10	10.0%	43	10	10	5	5	9.6%
14	10	5	5	10	9.4%	44	10	10	10	10	9.6%
15	10	10	10	10	9.4%	45	5	5	5	10	9.0%
16	10	5	10	10	9.4%	46	10	10	5	10	8.8%
17	10	10	10	10	9.4%	47	10	10	10	10	8.8%
18	10	10	10	10	9.4%	48	10	10	10	10	8.8%
19	10	10	10	10	9.4%	49	10	10	10	10	9.2%
20	10	10	10	10	9.8%	50	5	5	10	10	8.8%
21	10	10	10	5	9.6%	51	10	10	10	10	9.4%
22	10	10	5	10	9.6%	52	10	10	10	10	9.6%
23	10	10	10	10	9.6%	53	10	10	10	10	9.6%
24	10	10	10	10	9.6%	54	10	10	10	10	9.6%
25	10	10	10	10	9.6%	55	10	10	10	10	9.6%
26	10	10	10	5	9.4%	56	10	5	10	10	9.8%
27	5	10	10	10	9.4%	57	10	10	5	10	9.6%
28	10	10	10	10	9.6%	58	10	10	10	10	9.6%
29	10	10	10	10	9.6%	59	10	10	10	10	9.6%
30	10	10	10	5	9.4%	60	10	10	5	10	9.4%

APPENDIX E

EQUIPMENT CALIBRATION INFORMATION

DRY GAS METER CALIBRATIONS

DATE: 8/4/94 Meter box: 80664

Barometric press: 29.31 Calibrated by JDO

Orifice setting (dH) in. H2O	Gas volume				Temperatures			Time	Yi	dH@i
	Wet tes meter (Vw) L	Wet test meter (Vw) ft^3	Dry gas meter (Vd) ft^3		Wet test meter average (tw) C	Wet test meter average (tw) F	Dry gas meter average (td) F	min.		in. H2O
0.5	initial 726.18 final 867.83	5.002	initial 954.437 final 959.486		23.3	74	81	13.0	1.002	1.925
1	initial 571.91 final 722.63	5.322	initial 948.938 final 954.307		23.3	74	82	10.0	1.004	2.009
2	initial 395.63 final 566.58	6.036	initial 942.644 final 948.735		23.3	74	81	8.0	0.999	2.002
3	initial 260.53 final 389.62	4.558	initial 937.830 final 942.442		23.3	74	78	5.0	0.988	2.069

Average: 0.998 2.001
Deviation: 0.010 0.076

Meter Yi must be +-.01 of Yavg and .98< Yavg <1.02 for each run.
The Yavg of this meter is unacceptable.

Meter dH@ should be +- 0.15 of dH@avg for each run.
Recommended range of dH@avg is 1.69< dH@avg <2.09 (not required).
The d@Havg of this meter is acceptable.

PITO TUBE CALIBRATION

UNIT: 3-2 CALIBRATED BY: JDO

DATE: 7/18/94

A SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(A)
1	0.64	0.87	0.849	0.000
2	0.64	0.87	0.849	0.000
3	0.64	0.87	0.849	0.000
		Cp(A)	0.849	

B SIDE CALIBRATION

RUN No.	dPstd "H20	dP(s) "H20	CP(s)	DEVIATION Cp(s)-Cp(B)
1	0.64	0.90	0.835	0.009
2	0.64	0.88	0.844	0.000
3	0.63	0.85	0.852	0.008
		Cp(B)	0.844	

AVG DEVIATION (A)	0.000	|Cp(A)-Cp(B)|	0.005
AVG DEVIATION (B)	0.006		

VISIBLE EMISSIONS EVALUATOR

This is to certify that

James Stybar

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

Thomas Lore
President

242993
Certificate Number

Vice President

Minneapolis
Location

David B. Savage, Jr.
Program Manager

April 6, 1994
Date of Issue

© GOES 445

LITHO IN U.S.A.

TSP EXAMPLE CALCULATIONS

PROJECT NUMBER: CMXX-94-0548

DATE: SEPTEMBER 21, 1994

PERFORMED BY: JAMES TRYBA **PAGE: 1**

EXAMPLES FOR RUN#: 3 **UNLESS OTHERWISE NOTED**

Equation 1a - Dry Molecular Weight:

$MW_d = 0.440(\%CO_2) + 0.320(\%O_2) + 0.280(\%N_2 + \%CO)$

$\%CO_2 =$ 0.9 $\%O_2 =$ 20.0 $\%N_2 =$ 79.1 $\%CO =$ 0.0

$MW_d = 0.440($ 0.9 $) + 0.320($ 20.0 $) + 0.280($ 79.1 $+$ 0.0 $)$

$MW_d =$ 28.94

Equation 1b - Wet Molecular Weight:

$MW_w = MW_d(1-B_{ws}) + 18.0(B_{ws})$

$MW_d =$ 28.94 $B_{ws} =$ 0.127

$MW_w =$ 28.94 $(1-$ 0.127 $) + 18.0($ 0.127 $)$

$MW_w =$ 26.45

Equation 2a - Meter Volume at Standard Conditions:

$$V_{m(std)} = V_m Y \frac{(T_{std})(P_{bar} + \Delta H/13.6)}{(T_m)(P_{std})}$$

$V_m =$ 49.427 $Y =$ 0.998 $T_{std} =$ 528 °R $P_{bar} =$ 29.56

$\Delta H =$ 1.62 $T_m =$ 558 °R $P_{std} =$ 29.92

$$V_{m(std)} = \frac{(49.427)(0.998)(528)(29.56 + 1.62/13.6)}{(558)(29.92)}$$

$V_{m(std)} =$ 46.36

TSP EXAMPLE CALCULATIONS

PROJECT NUMBER: CMXX-94-0548

DATE: SEPTEMBER 21, 1994

PERFORMED BY: JAMES TRYBA **PAGE: 2**

EXAMPLES FOR RUN#: 3 **UNLESS OTHERWISE NOTED**

Equation 2b - Volume of Water Vapor Condensed:

$V_{wc(std)} = K_1(W_f - W_i)$

$K_1 = 0.04715$ $W_f =$ 2665.9 $W_i =$ 2377.2

$V_{wc(std)} = 0.04715$ (2665.9 - 2377.2)

$V_{wc(std)} =$ 13.61

Equation 2c - Moisture Content:

$B_{ws} = V_{wc(std)}/(V_{wc(std)} + V_{m(std)})$

$V_{wc(std)} =$ 13.61 $V_{m(std)} =$ 46.36

$B_{ws} =$ 13.61 / (46.36 + 13.61)

$B_{ws} =$ 0.227

Equation 3a - Velocity at a Traverse Point: **EXAMPLE FOR PORT** C, **POINT #:** 1

$V_d = K_p C_p (T_s \Delta P / P_s MW_w)^{1/2}$

$K_p = 85.49$ $C_p =$ 0.846 $T_s =$ 817 °R $\Delta P =$ 1.20 $MW_w =$ 26.13

$V_d = (85.49)(0.846)((817)(1.20) / (29.46)(26.13))^{1/2}$

$V_d =$ 81.1

Equation 3b - Volumetric Flow Rate (Actual Basis):

$Q = V_{d(avg)} A_d 60$

$V_{d(avg)} =$ 92.8 $A_d =$ 7.73

$Q =$ (92.8)(7.73)(60)

$Q =$ 43,503

TSP EXAMPLE CALCULATIONS

PROJECT NUMBER: CMXX-94-0548

DATE: SEPTEMBER 21, 1994

PERFORMED BY: JAMES TRYBA **PAGE: 3**

EXAMPLES FOR RUN#: 3 **UNLESS OTHERWISE NOTED**

Equation 3c - Volumetric Flow Rate (Standard Basis):

$$Q_{std} = Q\frac{(T_{std})(P_s)}{(T_s)(P_{std})}$$

$Q =$ 43,500 $T_{std} =$ 528 °R $P_s =$ 27.46 $T_s =$ 517 °R
$P_{std} =$ 29.92

$$Q_{std} = 43{,}500\ \frac{(528)(27.46)}{(517)(29.92)}$$

$Q_{std} =$ 27,600

Equation 3d - Volumetric Flow Rate (Standard Dry Basis):

$$Q_{std(dry)} = Q_{std}(1-B_{ws})$$

$Q_{std} =$ 27,680 $B_{ws} =$ 0.227

$Q_{std} =$ 27,680 (1- 0.227)

$Q_{std} =$ 21,397

Equation 4a - Isokinetic Sampling Nozzle Inside Diameter:

$$D_n = \left[(0.0358)Q_m P_m \left[\frac{T_s M W_w}{P_s \Delta P}\right]^{0.5}\right]^{0.5} \Big/ \left[T_m C_p (1-B_{ws})\right]$$

$Q_m = 0.75$ $P_m = 30.00$ $T_m =$ 560 °R $C_p =$ 0.846 $B_{ws} =$ 0.227
$T_s =$ 517 °R $MW_w =$ 26.45 $P_s =$ 29.46 $\Delta P =$ 1.62

$$D_n = \left[\frac{(0.0358)(0.75)(30.00)}{(560)(0.846)(1-0.227)}\left[\frac{(517)(26.45)}{(29.46)(1.62)}\right]^{0.5}\right]^{0.5}$$

$D_n =$ 0.216

TSP EXAMPLE CALCULATIONS

PROJECT NUMBER: CMXX-94-0548

DATE: SEPTEMBER 21, 1994

PERFORMED BY: JAMES TRYBA **PAGE: 4**

EXAMPLES FOR RUN#: 3 **UNLESS OTHERWISE NOTED**

Equation 4b - Isokinetic Sampling "X" Factor:

$$X = 846.72 \times D_n^4 \times \Delta H@i \times C_p^2 \times (1-B_{ws})^2 \times \frac{(MW_d \times P_s)}{(MW_w \times P_m)}$$

D_n = 0.225 $\Delta H@i$ = 2.001 C_p = 0.8416 B_{ws} = 0.25
MW_d = 28.84 P_s = 29.46 MW_w = 26.13 P_m = 30.00

$$X = 846.72 \times (0.225)^4 \times 2.001 \times (0.8416)^2 \times (1- 0.25)^2 \times \frac{(28.84)(29.46)}{(26.13)(30.00)}$$

X = 2.02

Equation 4c - Orifice Pressure Drop at Isokinetic Sampling Rate:

EXAMPLE FOR PORT: C **, POINT#:** 1

$$\Delta H = X \times \Delta P \times \frac{(T_m)}{(T_s)}$$

X = 2.02 ΔP = 1.20 T_m = 561 °R T_s = 517 °R

$$\Delta H = 2.02 \times 1.20 \times \frac{(561)}{(517)}$$

ΔH = 1.67

TSP EXAMPLE CALCULATIONS

PROJECT NUMBER: CMXX-94-0548

DATE: SEPTEMBER 21, 1994

PERFORMED BY: JAMES TRYBA **PAGE: 5**

EXAMPLES FOR RUN#: 3 **UNLESS OTHERWISE NOTED**

Equation 4d - Sample Percentage of Isokinetic:

$$\%ISO = \frac{(T_{savg}V_{mstd}P_{std}100)}{(T_{std}V_{davg}\theta A_n P_s 60(1-B_{ws}))}$$

T_{savg} = 817 °R V_{mstd} = 46.357 P_{std} = 29.92 T_{std} = 528 °R
V_{davg} = 93.8 θ = 60 A_n = 0.002761 P_s = 29.46
B_{ws} = 0.227

$$\%ISO = \frac{(817)(46.357)(29.92)(100)}{(528)(93.8)(60)(0.002761)(29.46)(60)(1-0.227)}$$

%ISO = 101.1

Equation 4e - Particulate Concentration:

$$Co = \frac{M \times 0.0154}{V_{mstd}}$$

M = 15.5 V_{mstd} = 46.357

$$Co = \frac{(15.5)(0.0154)}{(46.357)}$$

Co = 0.0051

Equation 4g - Particulate Emission Rate (lb/hr):

$$ER = Co \times 0.00858 \times Q_{std(dry)}$$

Co = 0.0051 $Q_{std(dry)}$ = 21,397

ER = 0.0051 x 0.00858 x 21,397

ER = 0.94

Test Plan for an Asphalt Plant Performance Test

Date test plan written: August 15, 1994
Scheduled test date: Week of August 22, 1994

Part 1: General Information

1. Name and address of emission facility: Sherbrooke Asphalt, Inc.
   Route 2, Box 224
   Pelican Rapids, MN 56572

2. Emission facility contact person: Bruce Sherbrooke
   Plant Manager
   (218) 841-2492

3. Permit number: 99000164-002

4. Reason emission points are to be tested: Compliance demonstration for particulate matter and opacity as required by the referenced permit.

5. Drawing of emission points: See Attachment #1
   30 traverse points (five in each of six ports) will be utilized.

6. Physical location of emission unit: Portable - will be located approximately 1 mile NE of the intersection of County Road 85 and County Road 35 in Ottertail County, MN at the time of testing.

7. Independent Testing Company Contact: Bruce Randall
   Manager, Source Testing

   Name of Independent Testing Company: Braun Intertec Corporation
   1345 Northland Drive
   Mendota Heights, MN 55120

   Telephone Number: (612) 683-8790

Part II. Testing Requirements

1. The following is a description of each Pollutant to be tested, the applicable emission limits, and the applicable rule or regulation for each emission limit:

EP #	Pollutant	Emission Limit	Applicable Rule or Regulation	Fuel Type During Test
1	PM	0.04 grains per dscf	40 CFR 60, Subp. I., Minn. Rules pt. 7011.0910	100% Waste Oil
	Opacity	Not to equal or exceed 20% Opacity	Minn Rules pt. 7011.0910	100% Waste Oil

2. We propose to utilize fuel analysis as provided by the vendor. This analysis will include:

Gross Heating Value	Lead, % by weight
Sulfur, % by Weight	PCB's (ppm by weight)
Ash, % by Weight	Organic Halogens (% by weight)
Density	

In the event that this approach is not acceptable, we will collect and analyze fuel samples as described in Part III.

Part III. Operating Conditions

1. Process to be tested:

EP #	Process Equipment Description	Process Rate During Test	Control Equipment Description	Control Equipment Operating Parameter During Test
1	Astec Drum Dryer	55% Virgin aggregate (~ 137.5 tph) 45% RAP (~ 112.5 tph)	Filter Baghouse	ΔP = 2.5-3" H2O

Fuel Sampling and Analysis

In the event that analysis provided by the fuel vendor is not acceptable, we propose to collect and analyze fuel samples as follows:

a. One tap sample per particulate test run will be taken. The sample will be taken as close as possible to the burner in order to be representative of the fuel burned at the time of the test. The sample will be taken in a pint-size container according to the procedures listed in Permit Exhibit D. ~~The three samples will be mixed to form a composite.~~ Composite OK

b. The composite fuel sample will be analyzed as follows:

Parameter	Analytical Method
Gross Heating Value	ASTM Method D 240
Lead, % by weight	ASTM Method D 3605
Sulfur, % by Weight	ASTM Method D 1552 or D 129
PCB's (ppm by weight)	U.S. EPA document SW-846, Method 8080 or Method 8081
Ash, % by Weight	ASTM Method D 874
Organic Halogens (% by weight)	ASTM Method D 1317, modified to include ion chromatography as the analytical procedure for the Halogens, or ASTM Method D 808
Density	ASTM Method D 1481 or D 1298

Moisture content in the virgin and recycle aggregate

a. One sample each of the virgin and recycle aggregate shall be collected per test run of particulate. Sample will be taken as close as possible to the feeding conveyor and during the corresponding run. The samples of Virgin and recycle aggregate will be mixed in the same proportion as the enter the dryer to generate one composite aggregate sample per test run.

b. The moisture content of each composite sample will be performed using ASTM Method D 3302.

2. Explanation of why the proposed test conditions are considered to be the worst case in accordance with part 7017.2025, subpart 2:

EP #	Rationale For Worst Case
1	Waste oil is defined as being the highest emitting fuel. The unit will be run at maximum rated capacity.

3. The following are the normal ranges of process operating rates:

EP #	Normal Range of Process Operating Rates
1	150 - 250 tph

4. The following is a description of how each piece of process and control equipment will be monitored:

EP #	Process Equipment Description	*Description of How This Will Be Monitored During Testing*
1	Drum Dryer	Plant operating parameters will be recorded in the control house at fifteen minute intervals using the attached "Asphalt Plant Operating Conditions During Stack Testing" (APOCDST) form.

EP #	Air Pollution Control Description	Description of How This Will Be Monitored During Testing
1	Filter Baghouse	Pressure drop across the baghouse is read on a Magnehelic differential pressure gauge located in the control house. Pressure drops will be recorded at fifteen minute intervals using the APOCDST form.

Part IV. Test Methods

1. Listed below in section 2 are the methods to be used for this test.

2. The following is a description of the number of test runs, length of test runs, and sampling rate for each pollutant.

   A. EPA Method 1 for location of sampling ports and location of traverse points.
   A single run of this method will be performed to determine traverse point locations and evaluate cyclonic flow conditions at each emission point prior to the performance of the remaining test methods.

   B. EPA Method 2 for duct velocity and volumetric flow rate. Three determinations: one measurement concurrently with each test run for Particulate Matter at each emission point.

   C. EPA Method 3 for fixed gas analysis. One test run on an integrated sample collected concurrently with each test run for Particulate Matter at each emission point. Approximate sample rate of 0.75 CFM, approximate sample time of 60 min.

   D. EPA Method 4 for the determination of moisture in the flue gas. One test run concurrently with each test run for Particulate Matter at each emission point. Approximate sample rate of 0.75 CFM, approximate sample time of 60 min.

   E. EPA Method 5 as amended by Minn. Rules pt. 7005.2060 and 7001.0725 for the concentration of Particulate Matter including condensibles. Condensible analysis will be performed according to EPA Method 202. Three sample runs will be conducted with approximate sample rate of 0.75 CFM, and an approximate sample time of 60 min at each emission point. Results will be reported as total particulate matter including organic and aqueous condensibles.

   F. EPA Method 9 as amended by Minn. Rules pt. 7017.2060 for the visual determination of opacity. One hour of observations, concurrently with a test run for Particulate Matter at each emission point.

Part VI. Other

1. Particulate Matter concentrations will be reported in terms of concentration (gr/dscf).
   Opacity will be reported as percent, based on a six minute average.

2. The Asphalt Plant Operating Conditions During Stack Testing form is included as part of this test plan, and will be filled out during the performance test.

3. One complete test report will be submitted within 45 days after the date of the test.

4. One copy of the microfiche report will be submitted within 105 days after the date of the test.

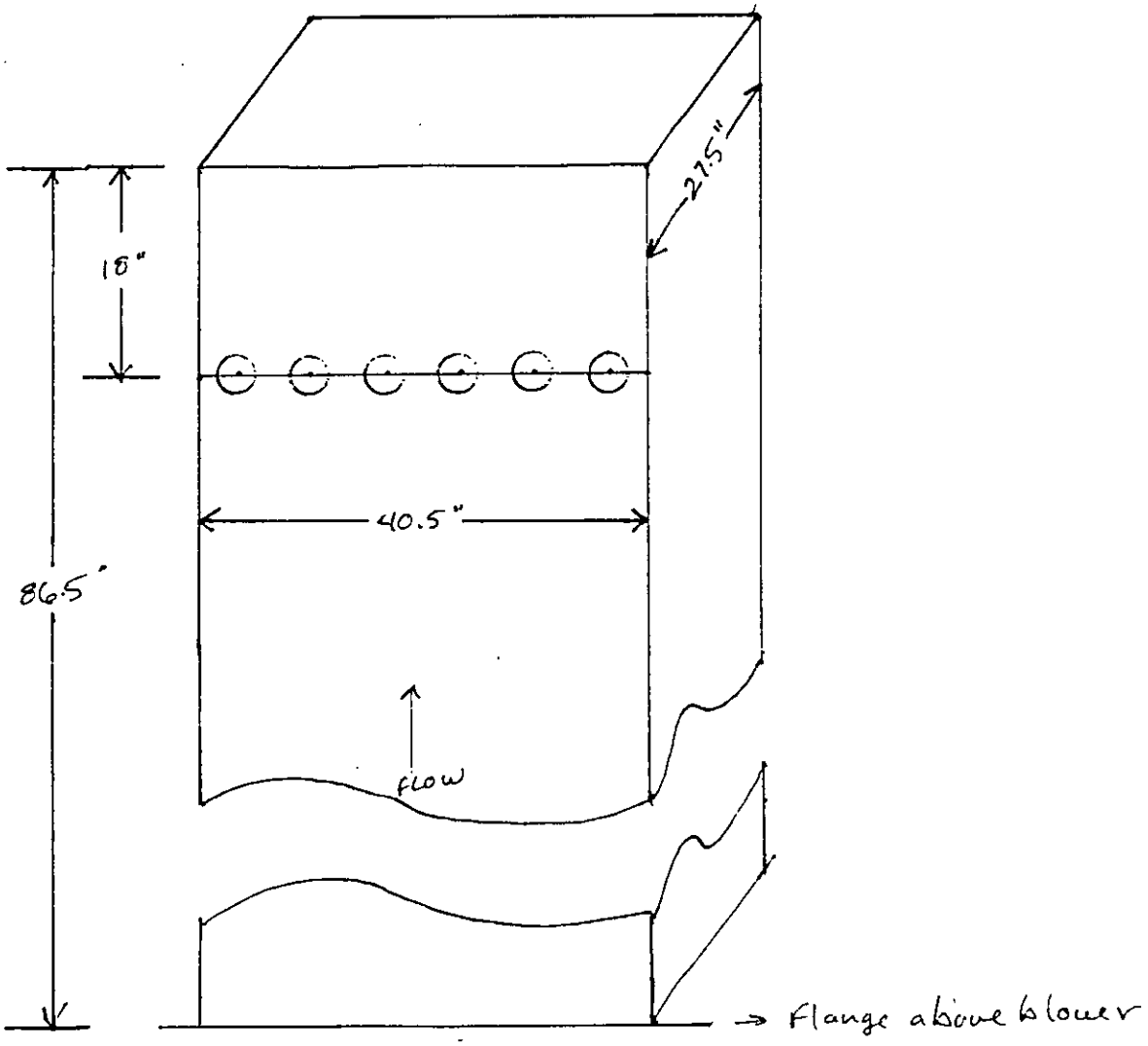
5. Test schedule: Testing will be performed the week of August 22, 1994, weather permitting. MPCA will be informed immediately if this date changes.

BRAUN INTERTEC

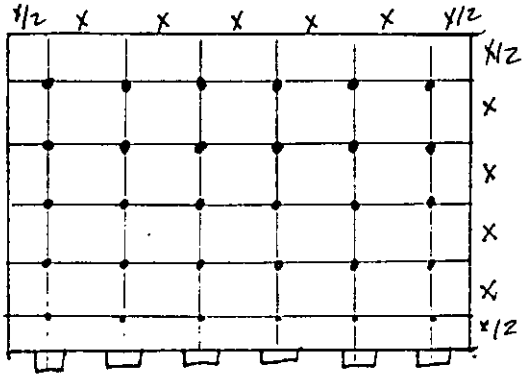
Description: Sherbrooke Asphalt Stack Sketch

Project No: CWXX-94-0458

Date: 01/15/94 By: B. Randall



LOCATION of TRAVERSE POINTS



X = 5.5"

BRAUN
SEP 27 1994

Minnesota Pollution Control Agency

Air Quality Division
520 Lafayette Rd
St. Paul, Minnesota 55155-4194
(612)296-6300 (voice); (612)282-5332 (TTY)

FACSIMILE TRANSMITTAL SHEET

To:	**Mr. Bruce Sherbrooke**
Company or Agency:	Sherbrooke Asphalt, Inc.
Telephone Number:	(218)841-2492
Facsimile Number:	(218)532-2481
Subject:	Opacity Approval Letter
From:	Craig D. Averman
Agency:	Minnesota Pollution Control Agency
Telephone Number:	(612)297-8301
Facsimile Number:	(612)297-7709
Date:	August 23, 1994
Pages including this cover page:	**3**

If you have questions regarding this transmittal, please contact me.

Comments:

DRAFT TO BE FOLLOWED BY FORMAL RESPONSE

August 23, 1994

Mr. Bruce Sherbrooke
President
Sherbrooke Asphalt, Inc.
Route 2, Box 224
Pelican Rapids, Minnesota 56572

RE: Amendment to August 2, 1994, Test Plan Submittal for the August 22, 1994, Performance Test on the Hot Mix Asphalt Plant

Dear Mr. Sherbrooke:

This is a supplemental letter to the Test Plan Approval Letter dated August 23, 1994 for the Sherbrooke Asphalt, Inc. (Company) facility located near Pelican Rapids, Minnesota, as discussed during our telephone conversation pretest meeting of August 19, 1994.

The Air Quality Division (AQD) staff of the Minnesota Pollution Control Agency (MPCA) has reviewed the submittal, and has amended the approved test plan with the following provisions:

1. Company shall conduct 3 hours of opacity observations for emission point 1 as required for initial compliance in 40 CFR pt 60.11 Subp. B. The submitted test plan indicated only 1 hour of opacity readings.

2. Company shall conduct 3 hours of opacity observations for emission point 2, the generator, as required for initial compliance in 40 CFR pt 60.11 Subp. B. The submitted test plan did not indicate that opacity observations would be recorded.

These provisions are modifications to the test plan, and are to be incorporated into the proposed test.

A copy of the test plan, including this letter, must be included as part of the performance test report.

Remember, it is not the Testing Consultant's responsibility to submit the Company report or microfiche or to certify that the microfiche submitted is an exact copy of the original test report by the deadlines specified in the applicable compliance document (i.e., Permit, Stipulation Agreement, Administrative Penalty Order, etc.). The responsibility for these submittals lies solely with the Company.

If you have any questions or comments on the content of this letter, please contact me at (612)297-8301.

Sincerely,

Craig D. Averman
Performance Test Coordinator
Compliance Determination Unit
Compliance and Enforcement Section
Air Quality Division

CDA:

cc: Cary Hernandez, MPCA Detroit Lakes Regional Office
Ed Hoefs, AQD
AQD File No. 2310

APPENDIX H

LABORATORY RESULTS

BRAUN INTERTEC

Particulate Sample Analysis

Client: Sherbrooke Asphalt

Project No.: cmxx-94-0548

Sample Location: Bag House Stack Run 1

Log-in No.:

Sample Date: 8/22/94

Analysis Date:

Analyst: JO

Log-In #	Tare (grams)	W1 (grams)	W2 (grams)	W3 (grams)	W4 (grams)	Net (grams)	Liquid Weight (grams)
Filters:		8/26/94 13:00	8/26/94 14:15				
RIF 1LE	0.3286	0.3369	0.3371			0.0085	
Acetone Rinses:		8/29/94 09:30	8/29/94 10:45				
RIP K8	77.2519	77.2607	77.2606			0.0087	123.96
P3							
Blank: AD	66.8282	66.8283	66.8285			0.0003	108.38
Aqueous Conden:							
RIC 13I	74.7451	74.7882	74.7883			0.0432	736.11
		8/29/94 09:30	8/29/94 10:45				
Blank: 13P	67.8571	67.8571	67.8573			0.0002	202.73
Organic Conden:		8/26/94 12:45	8/26/94 13:45				
RIC W9	77.8673	77.8728	77.8731			0.0058	145
Blank W10	78.5509	78.5509	78.5512			0.0003	≥150

Comments:

\forms\part.jul92

BRAUN™
INTERTEC

Particulate Sample Analysis

Client: Sherbrooke Asphalt
Project No.: CMXX-94-0548
Sample Location: Bag House Stack Run 2
Log-in No.:
Sample Date: 8/22/94
Analysis Date:
Analyst: JO

Log-In #	Tare (grams)	W1 (grams)	W2 (grams)	W3 (grams)	W4 (grams)	Net (grams)	Liquid Weight (grams)
Filters:		8/26/94 13:00	8/26/94 14:15				
R2F 116	0.3243	0.3310	0.3314			0.0071	
Acetone Rinses:		8/29/94 09:30	8/29/94 10:45				
R2P 141	75.1443	75.1516	75.1518			0.0075	101.69
Blank:							
Aqueous Conden:							
R2C 118	78.8610	78.9174	78.9174			0.0564	664.62
Blank:							
Organic Conden:		8/29/94 09:30	8/29/94 10:45				
R2C 130	77.8274	77.8362	77.8363			0.0089	145
Blank							150

Comments:

INTERTEC

Particulate Sample Analysis

Client: Sherbrooke Asphalt

Project No.: CMXX-94-0548

Sample Location: Bag House Stack Run 3

Log-in No.: _____

Sample Date: 8/22/94

Analysis Date: _____

Analyst: JO

Log-In #	Tare (grams)	W1 (grams)	W2 (grams)	W3 (grams)	W4 (grams)	Net (grams)	Liquid Weight (grams)
Filters:		8/26/94 13:00	8/26/94 14:15				
B3F 11M	0.3342	0.3433	0.3435			0.0093	
Acetone Rinses:		8/29/94 09:30	8/29/94 10:45			0.0002	
B3P A5	68.3536	68.3604	68.3603			0.0075	120.59
Blank:							
Aqueous Conden:							
B3C with A4	24.3049	24.3582	24.3580			0.0531	66662
Blank:							
Organic Conden:		8/29/94 09:30	8/29/94 10:45				
B3C 13P	78.1057	78.1281	78.1277			0.0220	146
Blank							144

Comments: _____

\forms\part.jul92

SINCE 1972
TWIN PORTS TESTING INC.

1301 NORTH THIRD STREET • SUPERIOR, WISCONSIN 54880
(715) 392-7114 • FAX (715) 392-7163

728 GARFIELD AVENUE • DULUTH, MINNESOTA 55802
(218) 722-1911 • FAX (218) 722-3295

8 INDUSTRIAL PARK ROAD • NEGAUNEE, MICHIGAN 49866
(906) 226-6653 • FAX (906) 226-3699

LABORATORY REPORT

Firm BRAUN INTERTEC

TPT Lab No. 2643-94C

Material OIL

Taken By CLIENT

Date Received 08/29/94

Date Tested 08/30/94

Sample Designation SHERBROOKE ASPHALT FUEL ANALYSIS 8-22-94

DATA

HEATING VALUE (BTU/GAL):	133,820	ASTM D 240 MODIFIED
SULFUR (WT %):	0.57	ASTM D 129 MODIFIED
ASH (WT %):	0.52	ASTM D 874
HALOGENS (DETERMINED AS Cl^-, mg/L):	95	ASTM D 808
LEAD (ppm):	55	ASTM D 3605 MODIFIED
PCB (ppm):	< 2	
DENSITY (@ 15 °C):	0.8766	ASTM D 1298

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Jim T / Jeff J.	From Kari Maass
Co. Braun Intertec	Co. TPT
Dept.	Phone #
Fax # 1-612-683-8888	Fax #

PREPARED BY Kari L Maass **DATE** 9/30/94

REVIEWED BY Gary E Hoge **DATE** 9/30/94

AS MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS. AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

BRAUN INTERTEC

Description: % Moisture.
SHERBROOKE ASPHALT
Project No: CMXX-94-0548
Date: 9-30-94 By:

Run	Beaker #	Beaker Tare	Beaker + wet Sample	Wet Sample	Beaker + Dry Sample	Dry Sample	% Moisture
Virgin							
1	I	78.77	252.26	173.49	245.31	166.54	7.21
2	123	78.24	240.62	162.38	233.01	154.77	4.69
3	S13	78.93	266.62	187.69 ~~178.69~~ wt	259.08	180.15	4.02
Rec.							
1	229	77.33	265.76	188.43	258.99	181.61	3.86
2	1 H13	78.01	235.44	157.43	227.33	149.32	5.15
3	CI	77.57	285.01	207.44	277.77	200.02	3.49