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: 290

Title: Source Sampling For Particulate Emissions, South Coast-Escondido, Escondido, CA,

San Diego County Air Pollution, San Diego, CA,

September 16, 1992.

South Coast Escondido on 9/16/92 P.O.#1207 TEST

SAN DIEGO AIR POLLUTION CONTROL DISTRICT, 9150 CHESAPEAKE DRIVE, SAN DIEGO, CA. 92123

SOURCE TEST OF PARTICULATE EMISSIONS TO THE ATMOSPHERE

TEST SITE: South Coast-Escondido
500 Tulip St.
Escondido, CA 92025

TEST #: 92260 P.O.#: 1207 TEST DATE: 9/16/92

Type of plant (Asphalt /Perlite / Combustion): ASPHALT

UNIT TESTED: Baghouse
EQUIPMENT: Asphalt Batch Plant

TESTED BY:	David N. Shina & Guy Allphin III	DATE: 9/16/92
SITE PERSONNEL:	Ken Kindler	DATE: 9/16/92
APCD ENGINEER:	Gary Smith	DATE: 9/16/92
LAB ANALYSIS BY:	David N. Shina	DATE: 9/16/92
REPORT BY:	David N. Shina	DATE: 9/24/92
REVIEWED BY:	Guy Allphin III	DATE: 10/5/92
APPROVED BY:	Robert Yelenosky	DATE: 10/22/92

ROBERT YELENOSKY, SENIOR AIR POLLUTION CHEMIST

This report has been reviewed and found to be representative of the testing that was performed.

SDAPCD RULES

TEST	LIMIT	MEASURED	EXCEEDANCE/NON-EXCEEDANCE
RULE 54 DUST & FUMES	40 lbs/hr	1.827 lbs/hr	NON-EXCEEDANCE

TEST RESULTS SUMMARY:

ITEM	I	Cs	E
UNITS	%	gr/dscf	lbs/hr
VALUE	104	0.0109	1.83

ENGINEERING SUMMARY

Qstd	Fuel	RATE	Asphalt Production
dscfm	------	CFH	tons/hr
19483	Nat. Gas	17000	134.82

TEST PARAMETERS:

SYSTEM DESCRIPTION:

This asphalt plant combines crushed rock and and sand with asphalt oil in batch loads of varying sizes. The rock and sand are heated in a rotary drum to dry them. The exhaust from this dryer is routed through a baghouse and finally to a stack. It is the emissions from this stack that are the subject of this report.

PROCEDURES:

The procedures utilized in these tests are based on EPA's 40 CFR, July 1, 1991, Part 60, Appendix A, Methods 1-5 inclusive. The sampling train was modified to utilize a back-end filter (fig. 1), as outlined in the SDAPCD QA manual.

CALCULATIONS

All equations are from the EPA's 40 CFR, July 1, 1991, Part 60, Appendix A, Methods 1-5 inclusive. All preliminary assumptions and calculations are based on data obtained from previous tests.

PARTICULATE SAMPLING:

The test consisted of sampling at 24 traverse points, 12 from each of 2 sample ports (fig.2), collected from 24 inches below the stack (fig.3). All field data was transferred to the computer printout. All calculations were done by the computer and the emissions were compared to rule 54 of the SDAPCD.

ANALYSES:

Gas: An integrated bag sample was collected during the test and analyzed at the APCD lab.

Particulate: All procedures follow EPA guidelines, except where noted in the SDAPCD QA manual.

EQUIPMENT:

All testing and analysis equipment was calibrated according to EPA guidelines (40 CFR, July 1, 1991, Part 60, Appendix A, Methods 1-5).

Analysis:	Collection:	Sampling:	Temp./Press.:
CO2-Anarad AR400	Filter-Gelman	L/S Box-Napp	Thermocouples-Omega
O2-Teledyne Ryan 320 P4	Holder-Gelman	Umbilical cord-Napp	Temp. read out-Omega
Macrobalance-Sargent Welch	Beakers-Pyrex	Cold/Hot box-Napp	Aneroid Barometer-Taylor
Microbalance-Sartorious	Impingers-Ace	Pitobe tube-Napp	Press. devices-Dwyer magnehelic

FIELD DATA:

Trav. Pt	Vm (ft^3)	ΔP (in H2O)	ΔH (in H2O)	Stack Temp (°F)	Box Temp (°F)	Imp Temp (°F)	t 1 (in) (°F)	t 2 (out) (°F)	velocity (ft/sec)
START	922.120								
1		0.79	1.70	120		55	89.00	110.00	053.21
2		0.90	2.10	139		56	89.00	115.00	056.90
3		1.02	2.40	122		56	90.00	116.00	052.11
4		0.72	1.70	142		54	90.00	116.00	052.61
5		0.62	1.60	142		57	90.00	117.00	058.36
6		1.02	2.40	162		62	91.00	119.00	063.89
7		1.02	2.40	166		65	91.00	131.00	064.29
8		0.97	2.20	166		66	91.00	122.00	062.51
9		1.00	2.30	164		64	92.00	123.00	063.28
10		0.97	2.20	162		60	92.00	123.00	062.31
11		0.92	2.10	162		63	93.00	124.00	060.66
12		0.87	2.00	163		54	93.00	124.00	059.05
1		0.65	1.50	159		56	94.00	108.00	050.47
2		0.66	1.60	157		57	94.00	118.00	051.95
3		0.75	1.70	150		54	95.00	122.00	054.75
4		0.78	1.80	165		66	95.00	123.00	056.01
5		0.62	1.40	137		59	96.00	117.00	046.80
6		0.77	1.80	155		54	98.00	118.00	055.20
7		1.00	2.30	169		60	99.00	123.00	063.57
8		1.00	2.30	173		56	99.00	125.00	063.82
9		1.15	2.70	175		58	99.00	125.00	068.55
10		1.22	2.80	174		59	99.00	123.00	070.55
11		1.25	2.95	175		58	99.00	120.00	071.52
12	970.000	1.22	2.80	176		61	99.00	117.00	070.66

	Vm ft^3	ΔP (in H2O)	ΔH (in H2O)	ts (°F)	tbox (°F)	ti (°F)	t1 (in) (°F)	t2 (out) (°F)	vs (ft/sec)
Average:	47.871	0.911	2.125	158	N/A	60	94.08	120.21	60.22

DATA SUMMARY:

LABORATORY DATA:

IMPINGER CATCH:
Silica gel ? = YES
Vlc = 190.43 ml

GAS ANALYSIS:
CO2 = 2.20 %
O2 = 16.75 %
CO = 0.00 %
N2 = 81.05 %

PARTICULATE ANALYSIS:
mn(front) = 0.014508 g
mn(back) = 0.016392 g
mn(total) = 0.030900 g

SAMPLING PARAMETERS:

METER BOX:
Box ID = C138
ΔH@ = 1.8883
Y = 0.992A

STACK DIMENSIONS:
Circular ? = YES
Ds = 3.13 ft
Length = N/A ft
As = 7.77 ft^2

NOZZLE & PROBE
Dn = 0.226 in
An = 0.0401 in^2
Cp = 0.837

SAMPLING DATA:

VOLUME & TIME:
Ø (total time) = 60.0 min
Final leak rate = 0.002 cfm
Pass/Fail = PASS
Vm = 47.871 ft^3

PRESSURES:
Pbar = 29.32 in Hg
Pg = -0.20 in H2O
Vpw @ ts = 29.9200 in Hg
Vpw @ ti = N/A in Hg

TEMPERATURES:
t1 = 94.08 °F ti = 60 °F
t2 = 120.21 °F tbox = N/A °F
tm = 107.15 °F ts = 158 °F

CALCULATIONS:

TEMPERATURES:

01)	ts = (Σ tstd)/total n's	158 °F
02)	Ts = ts+460	618 °R
03)	tm= [Σ [tc [ts]+t 2tm]]/2]/total n's=(t1+t2)/2	107 °F
04)	Tm= (t1+t2)/2 + 460	567 °R
05)	tt= [Σ tttn]/total n's	60 °F
06)	Tstd	528 °R

PRESSURES:

07)	Pbar= [P @ S.L.]+[ft. above S.L.*[-0.1 in Hg/100ft]]	29.32 in Hg
08)	Pg= read from pressure sensing device	-0.20 in H2O
09)	Ps= Pbar + (Pg/13.6)	29.31 in Hg
10)	ΔH	2.13 in H20
11)	Pm= Pbar+[ΔH/13.6]	29.48 in Hg
12)	Pstd	29.92 in Hg
13)	ΔP	0.0119 in H2O

VOLUME:

14)	Vm= Vmfinal-Vm(begin)	47.671 ft^3
15)	Y	0.9924
16)	Vm= Vm*Y	47.507 ft^3
17)	Vm std = [(Vm*(Tstd/Tm)*(Pm/Pstd)]	43.572 ft^3
18)	Vl= [Σ Volume of impingers]	190.43 ml
19)	∂	0.002201 lb/ml
20)	R	21.85 in Hg-ft^3/°R-lb-mo
21)	MwH2O	18.00 g/g-mo
22)	Vw std = [[Vl*∂*R*Tstd]/[Pstd*MwH2O]]	8.9635 ft^3

MOISTURE:

23)	Bws(1) =(Vw std)/(Vw std+Vm std)100	17.06 %	
24)	Vpw @ ts = from appendix	29.92 in Hg	
25)	Bws(2) =[(Vpw @ ts)/Ps]*100	102.10 %	
26)	Bws = lower value of equation 24 or 25		17.06 %

MOLECULAR WEIGHT:

27)	%O2	16.75 %
28)	%CO2	2.20 %
29)	%N2+Inerts+%CO	81.05 %
30)	Md=[0.440*%CO2]+[0.320*%O2]+[0.280*%N2+Inerts+%CO]	29.02 g/g*mole
31)	Ms=Md*(1-Bws)+18.0*(Bws)	27.14 g/g*mole

VELOCITY:

32)	Cp	0.837
33)	Ds=	3.146 ft
34)	vs= 85.49*Cp*[[Ts*ΔP]/[Ps*Ms]]^.5]	60.219 ft/sec
35)	As=3.14*[(Ds)^2/4]	7.769 ft^2
36)	Qs = (vs)*As*60	28072 acfm
37)	Qstd =17.64*Qs*(1-Bws)*Ps/Ts	19483 dscfm

EMISSIONS:

FRONT HALF

38)	mn (front)	0.01451 g
39)	Cs (front) =15.43*mn(front)/Vm std	0.00514 grains/dscf
40)	7000grains=1lb. 60min=1hr. 60min/hr/7000grains/lb=	0.00857 lbs-min/grains-hr
41)	E (front) = (0.00857)*(Qstd)*Cs (front)	0.86 lbs/hr

BACK HALF

42)	mn (back)	0.01639 g
43)	Cs (back) =15.43*mn(back)/Vm std	0.00580 grains/dscf
44)	7000grains=1lb. 60min=1hr. 60min/hr/7000grains/lb=	0.00857 lbs-min/grains-hr
45)	E (back) = (0.00857)*(Qstd)*Cs (back)	0.97 lbs/hr

TOTAL

46)	mn (total) = mn(front)+mn(back)	0.03090 g
47)	Cs (total) =15.43*mn(total)/Vm std	0.01094 grains/dscf
48)	7000grains=1lb. 60min=1hr. 60min/hr/7000grains/lb=	0.00857 lbs-min/grains-hr
49)	E (total) = (0.00857)*(Qstd)*Cs (total)	1.83 lbs/hr

ISOKINETICS:

50)	Dn=	0.226 in
51)	An=3.14*[Dn]^2/4]	0.0401 in^2
52)	Ø	60 min
53)	I=.09450[Tv*Vm std]/Ps*vsAnØ[1-Bws] 103.97 % =	104 %

South Coast Escondido on 9/16/92 P.O. #:1207 TEST#: 92260

SAN DIEGO AIR POLLUTION CONTROL DISTRICT, 9150 CHESAPEAKE DRIVE, SAN DIEGO, CA 92123

PARTICULATE TEST LABORATORY ANALYSIS DATA SHEET

TEST SITE: South Coast Escondido
500 Tulip St
Escondido, CA 92025

TEST #: 92260 P.O.#: 1207 TEST DATE: 9/16/92

LAB ANALYSIS BY: David N. Shina DATE: 9/16/92

LAB REPORT BY: David N. Shina DATE:

REVIEWED BY: DATE:

(1) IMPINGER VOLUMES

	FINAL WGT.		INIT WGT.		NET WGT.
#1	647.72 g	-	538.76 g	=	108.96 g
#2	523.92 g	-	534.71 g	=	-10.79 g
#3	537.08 g	-	464.43 g	=	72.65 g
#4	789.55 g	-	769.94 g	=	19.61 g
#5	g	-	g	=	N/A g
#6	g	-	g	=	N/A g

Total impinger charge= 200.00 ml

Partiulates from impinger charge
(Total impinger charge * H(water blank) = 0.00040 g

Total weight collected= 190.43 g

Total volume collected,Vlc= 190.43 ml

(2) BLANKS

A	B	C	D	E	F	G	H	I	J	K	L
AREA	SOLVENT	ID	END WGT g	INIT WGT g	NET WGT. (E-F) g	RINSES ml	g/ml (G/D)	% (H*100)	ppm (H*10^6)	PASS FAIL	LIMITS
BLANK	ACETONE	92025	49.4864	49.4837	0.00270	325.00	0.0000083	0.0008308	8.3	P	0.0010%=10ppm
BLANK	WATER	92048	28.8033	28.8027	0.00060	300.00	0.0000020	0.0002000	2.0	P	0.0004%=4ppm
BLANK	ORGANIC	N/A									

(3) WEIGHTS & RINSES

a	b	c	d	e	f	g	h	i	j	k
AREA	SOLVENT	ID	END WGT g	INIT. WGT g	NET WGT. (e-f) g	RINSES ml	SOLV. WGT (g*H) g	WGT (corr) (f-h) g	Subtotal {mn (AREA)} (Σj) g	Total { mn (tot) } (Σj) g
F	ACETONE	92005	28.8643	28.8564	0.0079	300.00	0.002492	0.00541		
R	WATER	92040	28.5854	28.5757	0.0097	300.00	0.000600	0.00910		
O	ORGANIC	N/A								
N	FILTER	N/A								
T								mn(front) =	0.014508 g	
B	ACETONE	92064	29.2956	29.2827	0.0129	350.00	0.002908	0.00999		
R	WATER **	92083	28.7081	28.7002	0.0079	550.00	0.001500	0.00640		
C	ORGANIC	N/A								
K	FILTER	91000	1.1605	1.6109	*0.0000	--------	----------	0.0000		
								mn(back) =	0.016392 g	
TOTAL									mn(total) =	0.03090 g

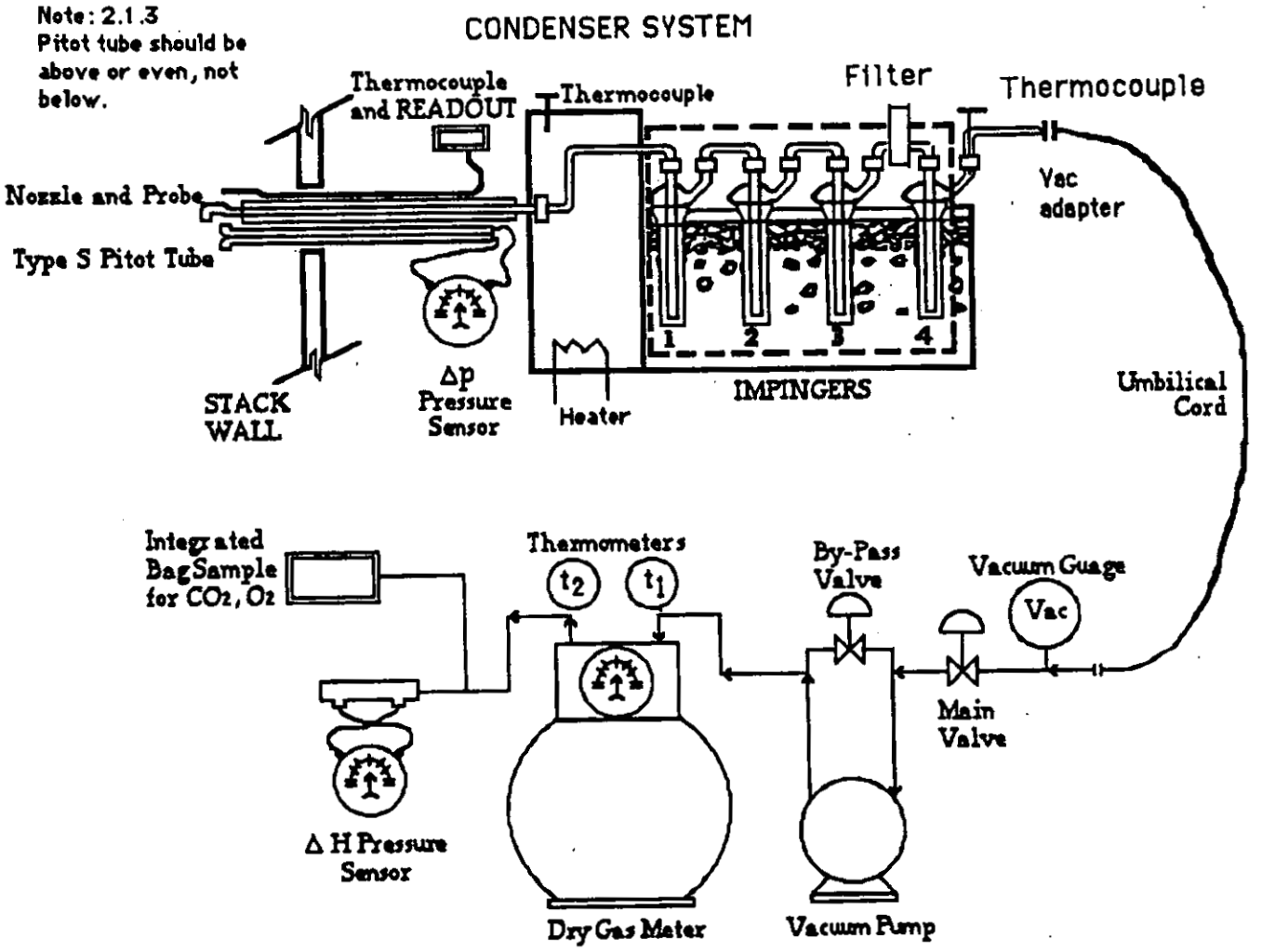
* The filter net weight is corrected to give 0.0000 g.

** The Back Water-SOLV.WGT is corrected for the initial impinger charge
{ [g(back water) * H(blank water)] + [Partiulates from impinger charge] }.

SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

FIGURE

CONDENSER SYSTEM



LEGEND

No. 1 Mod- 100 ML Deionized Water

No. 2 Std - 100 ML Deionized Water

No. 3 Mod- Dry

No. 4 Mod- Silica gel

Mod - Modified Type Greenburg-Smith
Std - Standard Type " "

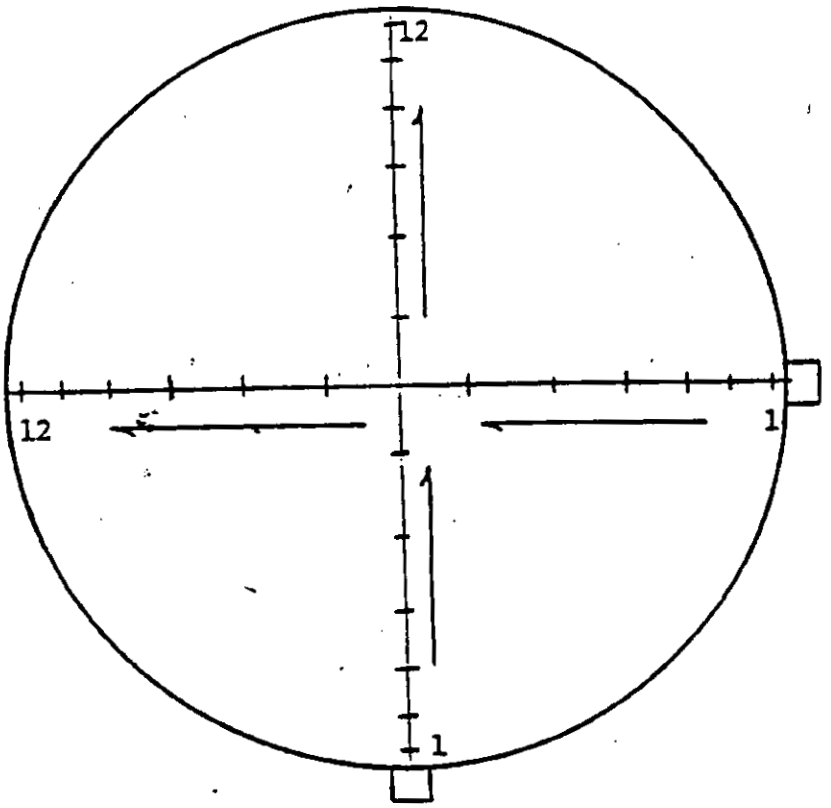
FIELD DATA ABBREVIATIONS

PT = Point Number
T_s = Stack Temperature
Δp = Pitot Tube Pressure Differential, in H_2O
V_s = Stack Velocity, fps
ΔH = Orifice Meter Pressure Drop, in H_2O
t_1 = Meter Inlet Temperature, °F
t_2 = Meter Outlet Temperature, °F
Pm = Pump Vacuum, in Hg
ti = Impinger Temperature
P_{bar} = Barometric Pressure

FIGURE : PARTICULATE MATTER SAMPLING TRAIN

TRAVERSE POINTS

DIAMETER = 37.75"

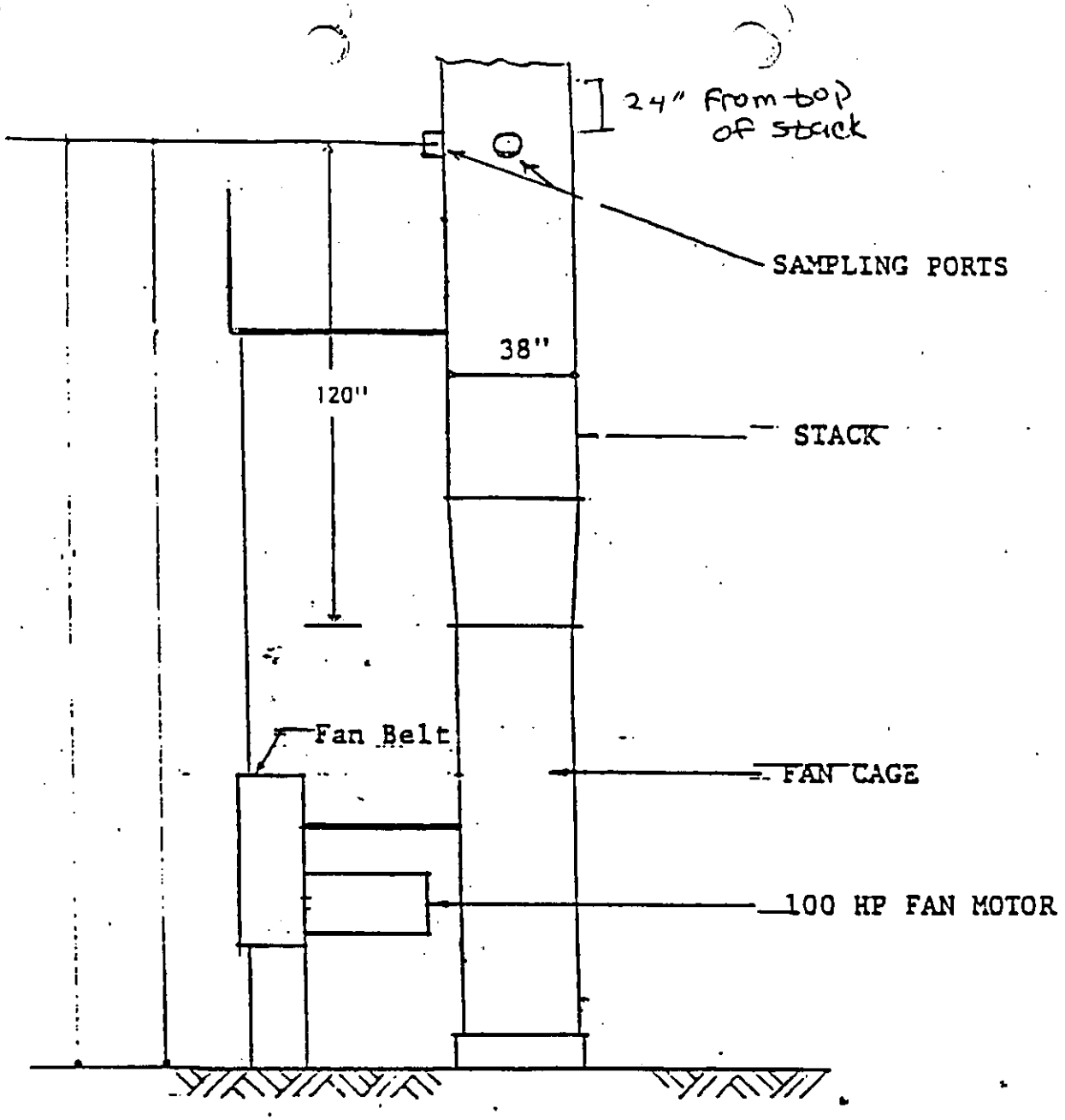


POINT	PERCENT	DISTANCE
1	2.1	1.00"
2	6.7	2.53"
3	11.8	4.45"
4	17.7	6.68"
5	25.0	9.44"
6	35.6	13.44"

POINT	PERCENT	DISTANCE
7	64.4	24.31"
8	75.0	28.31"
9	82.3	31.07"
10	88.2	33.30"
11	93.3	35.22"
12	97.9	36.75"

SAN DIEGO AIR POLLUTION CONTROL DISTRICT P.O.# 1207

(Fig 2)



Side View - No Scale

SAN DIEGO AIR POLLUTION CONTROL DISTRICT P.O.# 1207

(Fig 3)

NOMENCLATURE

symbol	units	explanation	equation
	A		
An	in^2	nozzle area	π/4((Dn)^2)
As	ft^2	stack area	π/4((Ds)^2) or LxW
	B		
Bws(1)	%	fractional stack gas moisture-equ 1	((Vw std)/(Vw std+Vm std))100
Bws(2)	%	fractional stack gas moisture-equ 2	((Vpw @ ts)/Ps)100
Bws	%	water vapor in the gas stream	lower of Bws(1) and Bws(2)
	C		
CO	%	carbon monoxide	read from measuring device(0 for Asphalt plants)
CO2	%	carbon dioxide	read from measuring device
Corr Vwm	ft^3	correction for Vw w/o silica gel	((Vm*(Vpw@td)/Ps)*Pm*Tstd)/ (Tm*Tstd)
Cp	none	pitot tube correction factor	see EPA method 2
Cs(front)	gr/dscf	concentration of particulate in stack gas, corrected to STP-for front	(15.43*mn(front))/(Vm std)
Cs(back)	gr/dscf	concentration of particulate in stack gas, corrected to STP-for back	(15.43*mn(back))/(Vm std)
Cs(total)	gr/dscf	concentration of particulate in stack gas, corrected to STP-for total	(15.43*mn(total))/(Vm std)
Cs12(front, back total)		same as Cs(front,back,total) except corrected for grain loading at 12% CO2	(12/%CO2)*(15.43*mn(fr, back,total))/(Vm std)
	D		
∂ (density)	lb/ml	density of water at STP	0.002201 (see CRC)
Ds	in or ft	stack diameter	measure at site
Dn	in	nozzle diameter	avg of at least three measurements
	E		
E.A.	%	Excess air (for combustion)	(%O2-.5%CO)*100)/ (.264*%N2-%O2-.5*%CO)
E(front)	lbs/hr	part. emissions rate-front	(0.00857)(Qsd*Cs(front))
E(back)	lbs/hr	part. emissions rate-back	(0.00857)(Qsd*Cs(back))
E(total)	lbs/hr	part. emissions rate-total	(0.00857)(Qsd*Cs(total))
	H		
ΔH	in H2O	average differential pressure across the orifice meter	avg of the readings from the pressure measuring device
ΔH@	none	orifice pressure differential at STP	see EPA Method 5 Appendix
	I		
I	%	isokinetics	(0.09450*Ts*Vm std)/ (Ps*Vs*θ*(An/144)*(1-(Bws/100)))
	M		
Md	g/g-mole	dry stack gas molecular wgt	0.44(%CO2)+0.320(%O2)+0.280 (%N2+inerts+CO)
mn(back)	g	particulate in impingers	measurement from lab analysis
mn(front)	g	particulate in nozzle & probe	measurement from lab analysis
mn(total)	g	total particulate collected	measurement from lab analysis
Ms	g/g-mole	wet stack gas molecular wgt	Md(1-Bws)+18.0(Bws)
MW CO2	g/mole	mo. wgt of carbon dioxide	44 (see periodic table)
MW N2	g/mole	mo. wgt of nitrogen	28 (see periodic table)
MW O2	g/mole	mo. wgt of oxygen	32 (see periodic table)
MW H2O	g/mole	mo. wgt of water	18 (see periodic table)
	N		
N2	%	percent nitrogen	100-(%CO2+%O2+%CO+inerts)
	O		
O2	%	percent oxygen	read from measuring device

NOMENCLATURE (cont.)

NOMENCLATURE (concl.)

symbol	units	explanation	equation
	P		
dP	in H2O	pitot diff. press.-velocity head of stack gas	read from measuring device
Pbar	in Hg	barometric pressure at sampling pt.	read from press measuring device
π(pi)	none	the ratio of the circumference of a circle to its diameter	3.14165 (see CRC)
Pm	in Hg	absolute meter pressure	Pbar+(dH/13.6)
Ps	in Hg	absolute stack pressure	Pbar+(Pstatic/13.6)
Pg	in H2O	static pressure of stack	read from pressure sensing device
Pstd	in Hg	press at std conditions (29.92)	see CFR
	Q		
Qs	acfm	flow rate	vs*Ao*60
Qstd	dscfm	dry volumetric stack gas flow rate, corrected to STP	17.64*Qs(1-Bws)*(Ps/Ts)
	R		
R	in Hg-ft^3/°R-lb-mo	ideal gas constant	21.85 (see CRC)
	S		
S.L.	none	Sea Level	read from a relief map
	T		
t1	°F	dry gas meter inlet temp, uncorrected	read from temp sensing device
t2	°F	dry gas meter outlet temp,uncorrected	read from temp sensing device
t1 corr	°F	dry gas meter outlet temp,corrected	t1 + temperature correction
t2 corr	°F	dry gas meter outlet temp,corrected	t2 + temperature correction
θ(theta)	min	sampling time/ point	Θ/tn
Θ(Theta)	min	total sampling time	none
ti	°F	impinger outlet temp	read from temp sensing device
tm	°F	dry gas meter temp in F	(t1+t2)/2
Tm	°R	dry gas meter temp in R	tm+460
tn	none	ttl number or traverse pts	summation of the traverse points
ts	°F	stack temp in F	read from temp sensing device
Ts	°R	stack temp in R	ts+460
Tstd	°R	temp at std conditions (528)	see CFR
	U		
Vlc	ml	water collected from impingers and the silica gel (if applicable)	from lab analysis
Vm	ft^3	sample gas volume, uncorrected	read from dry gas meter
Vm'	ft^3	sample gas volume, corrected	Vm*Y
Vm std	ft^3	volume of gas sample by the dry gas meter,corrected to STP	((Vm'*Tstd)Pm)/((Pstd*Tm)-corr Vm)
Vpw@ts	in Hg	vapor pressure of water at ts	see CRC water vapor press. tables
Vpw@ti	in Hg	vapor pressure of water at ti	see CRC water vapor press. tables
vs	ft/sec	stack gas velocity	85.49*Cp(Ts*ΔP)/(Ps*Ms))^0.5
Vw std	ft^3	Vol. of water vapor in gas sample, corrected to STP	(Vlc*∂*R*Tstd)/(Pstd*MW H2O)+corr Vwm
	Y		
Y	none	dry gas meter calibration factor	see CFR 40 parts 53-60

Conversion Factors

(multiply by the number)			
0.002669	in Hg-ft^3/°R-ml	conversion to get in Hg-ft^3/R	see CRC
0.00857	lb/gr-min/hr	conv from gr/min to lb/hr (60/7000)	see Lange's Handbook of Chemistry
0.04707	ft^3/ml	(∂*R*Tstd)/(Pstd*MW H2O)	see Lange's Handbook of Chemistry
15.43	gr/g	conversion from g to gr	see Lange's Handbook of Chemistry
17.64	°R/in H2O	Tstd/Pstd (528/29.92)	see Lange's Handbook of Chemistry
85.49	(ft/sec)-(lb-in Hg/lb-mo-°R-in H20))^.5	conversion factor to get velocity in ft/sec	see CRC
(divide by the number)			
144	in^2/ft^2	conversion from in^2 to ft^2	see CRC
13.6	in H20/in Hg	conversion from in H20 to in Hg	see CRC
(add to the number)			
460	°R/°F	conversion from F to R	see CRC

MECHANICAL ENGINEERING
SOURCE TEST REPORT
PERMIT RENEWAL TEST

TEST DATE: 16-Sep-92 ENGINEER: GARY SMITH
TEST CREW: DAVID SHINA, GUY ALPHIN

SOURCE: SOUTH COAST ASPHALT
500 TULIP ST. N. ESCONDIDO, CA 92025

PERMIT NUMBER: 1207, HOT MIX ASPHALT BATCH PLANT

EQUIPMENT: ASPHALT BATCH PLANT, HOT-MIX (125 TONS/HR CAPACITY)

SITE PERSONNEL: KEN KINDLER, FOREMAN

VISIBLE EMISSIONS: A LARGE MOISTURE PLUME WAS VISIBLE DURING THE TEST. OPACITY WAS NOT DETERMINED. A WATER TRUCK WAS OBSERVED IN OPERATION DURING THE TEST. VISIBLE EMISSIONS FROM TRAFFIC WERE BELOW 20% OPACITY.

FUEL USAGE: NATURAL GAS USAGE WAS MEASURED FOR 46 MINUTES AT THE SITE GAS METER, ROOTS METER #452747 WITH A MERCURY BRAND GAS VOLUME CORRECTOR. THE METER READINGS INDICATE A FLOW RATE OF 17000 CFH WHICH WOULD BE APPROXIMATELY 22.2 MM BTU/HR. PART OF THIS FUEL WAS USED FOR THE ASPHALT OIL HEATER.

PRODUCTION: 157.29 TONS OF ASPHALT USING THE FOLLOWING MIX DESIGNS WERE PRODUCED DURING THE TEST PERIOD.

3/8 FINE: 25% BIN #2, 75% BIN #1, 6.2% OIL
3/8 MED: 30% BIN #2, 70% BIN #1, 6.0% OIL
1/2 MED: 15% BIN #3, 30% BIN #2, 55% BIN #1, 5.3% OIL
3/4 MED: 10% BIN #4, 20% BIN #3, 25% BIN #2, 45% BIN #1, 5.0% OIL
BERM MIX: 30% BIN #2, 70% BIN #1, 7.0% OIL

BIN #1	BIN #2	BIN #3	BIN #4
25% SAND, 75% DUST	3/8 INCH ROCK	1/2 INCH ROCK	3/4 INCH ROCK

START TIME: 8:15 AM
END TIME: 9:40 AM
ELAPSED TIME: 85 MINUTES
IDLE TIME: 15 MINUTES
NET TIME: 70 MINUTES

PRODUCTION RATE: 134.82 TONS/HR

PRODUCTION:

MIX DESIGN	ASPHALT OIL TONS	BIN #2 3/8 INCH ROCK TONS	BIN #3 1/2 INCH ROCK TONS	BIN #4 3/4 INCH ROCK TONS	BIN #1 25% SAND, 75% DUST TONS	TOTAL WEIGHT TONS
3/8 FINE	0.82	3.30	0.00	0.00	9.91	14.03
3/8 MEDIUM	4.26	21.32	0.00	0.00	49.75	75.33
1/2 MEDIUM	0.51	2.87	1.44	0.00	5.27	10.09
3/4 MEDIUM	2.37	11.87	9.49	4.75	21.36	49.84
BERM MIX	0.52	2.24	0.00	0.00	5.23	8.00
TOTAL	8.49	41.61	10.93	4.75	91.52	157.29