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.

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-Carlsbad (Unit #2)
3701 Haymar Road
Carlsbad, CA 92008

TEST WITNESS - AUDIT SAMPLE

TEST #: 91212 P.O.# 927 PTA# 000927 TEST DATE: 7/31/91

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

UNIT TESTED: Baghouse

EQUIPMENT: Asphalt batch plant

TESTED BY:	Tracer Technologies	DATE: 7/31/91
SITE PERSONNEL:	Ken Kindler	DATE: 7/31/91
APCD ENGINEER:	Andy Segal	DATE: 7/31/91
LAB ANALYSIS BY:	David Shina	DATE: 8/19/91
REPORT BY:	David Shina DS 10/21/91	DATE: 9/16/91
REVIEWED BY:	Linda Twaddle	DATE: 10/21/91
APPROVED BY:	Robert Yelensky for CWR	DATE: 10/30/91

C.W. RIDENOUR, SENIOR AIR POLLUTION CHEMIST

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

TEST	PERMIT LIMIT	MEASURED	PERFORMANCE
RULE 54 DUST & FUMES	40 lbs/hr	3.80 lbs/hr ✓	PASSED
RULE 260.92	0.04 gr/DSCF	0.01 gr/DSCF ✓	PASSED

SUMMARY:

ITEM	Vm	Bws	Cs	E	I	Qstd	ts	PROD RATE
UNITS	ft^3	%	gr/dscf	lbs/hr	%	dscfm	°F	tons/hr
VALUE	36.990	11.60	0.011	3.800	98	4.18E+04	148	225.40

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 and equipment utilized in these tests are based on EPA New Source Performance Standards Method 5. The sampling train was modified to use a back-end filter between the third and fourth impinger (fig. 1). The 4th impinger contained silica gel. Tracer Technologies performed the source test with District personnel present. Any deviations from standard procedures are listed in Tracer's Source Test Protocol, and were found to acceptable to the District.Tracer followed SDAPCD guidelines and performed the initial sampling train work-up. All analyses of the sampling train catch was performed by District personnel. Tracer provided the inital raw data and the District used this data in the body of the report.

CALCULATIONS

All preliminary assumptions and calculations are based on data obtained from previous tests. All equations are from EPA CFR 40, July 1, 1990, Parts 53-60, Appendix A, Methods 1-5 inclusive.

PARTICULATE SAMPLING:

The test consisted of sampling at 30 traverse points, 5 from each of 6 sample ports (fig.2), collected from 56 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 and rule 260.92 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 or Tracer's Source Test Protocol.

EQUIPMENT:

All testing and analysis equipment was calibrated according to EPA guidelines. (***PROVIDED BY THE CONTRACTOR)

Analysis:	*Collection:*	*Sampling:*	*Temp./Press.:*
CO2-Anarad AR400	Filter-***	L/S Box-***	Thermocouples-***
O2-Teledyne Ryan 320 P4	Holder-***	Umbilical cord-***	Read out-***
Macrobalance-Sargent Welch	Beakers-Pyrex	Cold/Hot box-***	Barometric-calc. by APCD
Microbalance-Sartorious	Impingers-***	Pitobe tube-***	L/S box-***

South Coast-Carlsbad (Unit on 7/31/91 P.O.#: TEST #91212 PTA#000927

Trav. Pt	Vm (ft^3)	ΔP	ΔH	t 1(unc)	t 2(unc)	Stack Temp	Imp Temp	velocity
	539.396	(in H2O)	(in H20)	(°F)	(°F)	(°F)	(°F)	(ft/sec)
F1		0.240	1.300	71.00	70.00	142.00	54	29.91
2		0.290	1.500	72.00	70.00	151.00	46	33.13
3		0.360	1.900	74.00	70.00	153.00	44	36.97
4		0.450	2.350	76.00	71.00	154.00	44	41.37
5		0.450	2.350	78.00	71.00	152.00	46	41.30
E1		0.140	0.750	75.00	71.00	147.00	54	22.94
2		0.170	0.880	76.00	71.00	152.00	51	25.38
3		0.210	1.100	77.00	77.00	154.00	51	28.26
4		0.250	1.300	78.00	72.00	156.00	51	30.88
5		0.260	1.350	80.00	72.00	156.00	52	31.49
D1		0.160	0.850	78.00	73.00	151.00	55	24.81
2		0.150	0.790	79.00	73.00	154.00	51	23.88
3		0.170	0.900	80.00	73.00	151.00	51	25.36
4		0.260	1.400	80.00	74.00	148.00	51	31.29
5		0.320	1.700	82.00	74.00	145.00	50	34.83
C1		0.220	1.200	79.00	74.00	139.00	54	28.57
2		0.200	1.100	81.00	74.00	143.00	50	27.33
3		0.250	1.350	82.00	75.00	143.00	49	30.55
4		0.340	1.830	82.00	75.00	144.00	48	35.66
5		0.340	1.830	82.00	75.00	144.00	48	35.66
B1		0.240	1.300	80.00	75.00	141.00	51	29.89
2		0.210	1.150	81.00	75.00	144.00	48	28.03
3		0.280	1.500	82.00	76.00	144.00	48	32.38
4		0.350	1.840	82.00	76.00	145.00	48	36.21
5		0.370	2.000	82.00	76.00	148.00	48	37.32
A1		0.180	0.970	80.00	76.00	142.00	52	25.90
2		0.190	1.000	81.00	76.00	147.00	49	26.72
3		0.210	1.100	81.00	76.00	149.00	49	28.14
4		0.210	1.100	82.00	76.00	149.00	48	28.14
5	576.386	0.190	1.000	82.00	76.00	149.00	47	26.77

	Vm (ft*^3)	ΔP (in H2O)	ΔH (in H2O)	t 1 (°F)	t 2 (°F)	ts (°F)	ti (°F)	vs (ft/sec)
Average:	36.990	0.2491	1.356	79.17	73.77	148	50	30.62

†† Tracer expressed some reservations about the validity of the values that were obtained by them for the stack gas analysis. Since the district took an integrated bag sample and performed a separate analysis, this number was used.

MISCELLANEOUS:

Ø = 60.0 min
tn = 30 points
ø = 2.0 min

NOZZLE & PROBE:

Dn = 0.286 in
An = 0.0642 in^2
Cp = 0.840

METER BOX PARAMETERS:

ΔH@ = 1.9603
Y = 1.0092
Box ID = 124

PRESSURES:

Pbar = 30.06 in Hg
Pg = -0.10 in H2O
Silica gel(yes/no) YES
Vpw @ ts = 7.202 in Hg
Vpw @ ti = 0.0000 in Hg

VOLUME:

start leak rate = 0.120 cfm
Pass/Fail FAIL
final leak rate = 0.010 cfm
Pass/Fail PASS
Vm 36.990 ft^3

TEMPERATURES:

t1 corr = 0.00 °F
t2 corr = 0.00 °F
tm = 76 °F
ts = 148 °F
ti = 50 °F

STACK PARAMETERS:

circular (yes/no) no
Width = 4.000 ft
Length = 7.375 ft
As = 29.500 ft^2

LAB DATA:

mn(front) = _____ g
mn(back) = 0.02547 g
mn(total) = 0.02547 g
Vlc 103.00 ml

STACK GAS MEASUREMENTS:

†† CO2 = 1.60 %
†† O2 = 18.10 %
CO = 0.00 %
N2 = 80.30 %

TEMPERATURES:

01)	ts = (Σ ts(n))/total n's	148 °F
02)	Ts = ts+460	608 °R
03)	tm= (Σ {(t 1(n)+t 2t(n))/2}/total n's	76 °F
04)	Tm= (t1+t2)/2 + 460	536 °R
05)	ti= (Σ ti(n))/total n's	50 °F
06)	Tstd	528 °R

PRESSURES:

07)	Pbar= {(P @ S.L.)+[ft. above S.L.*(-0.1 in Hg/100ft)]}	30.06 in Hg
08)	Pg= read from pressure sensing device	-0.10 in H2O
09)	Ps= Pbar + (Pg/13.6)	30.06 in Hg
10)	ΔH	1.36 in H20
11)	Pm= Pbar+(ΔH/13.6)	30.16 in Hg
12)	Pstd	29.92 in Hg

VOLUME:

13)	Vm= Vm(end)-Vm(begin)	36.990 ft^3
14)	Y	1.0092
15)	Vm'= Vm*Y	37.330 ft^3
16)	Vpw @ ti = from appendix	0.0000
17)	corr Vwm = {[(Vm'*Vpw@imp/Ps)*Pm*Tstd]/(Tm*Pstd)}	0.0000 ft^3
18)	Vm std = {[Vm'*(Tstd/Tm)*(Pm/Pstd)]-corr Vwm}	37.039 ft^3
19)	Vlc= (Σ Volume of impingers)	103.00 ml
20)	∂	0.002201 lb/ml
21)	R	21.85 Hg-ft^3/°R-lb-mo
22)	MwH2O	18.00 g/g-mo
23)	Vw std = {[(Vlc*∂*R*Tstd)/(Pstd*MwH2O)}+corr Vwm}	4.8616 ft^3

CALCULATIONS:

MOISTURE-

24)	Bws(1) =(Vw std)/(Vw std+Vm std)100	11.60 %	
25)	Vpw @ ts = from appendix	7.20 in Hg	
26)	Bws(2) =[(Vpw @ ts)/Ps]*100	23.96 %	
27)	Bws = lower value of equation 24 or 26		11.60 %

MOLECULAR WEIGHT-

28)	%O2	18.10 %
29)	%CO2	1.60 %
30)	%N2+inerts+%CO	80.30 %
31)	Md=[0.440(%CO2)]+[0.320*(%O2)]+[0.280(%N2+inerts+%CO)]	28.98 g/g*mole
32)	Ms=Md*(1-Bws)+18.0*(Bws)	27.71 g/g*mole

FLOW-

33)	ΔP	0.249 in H2O
34)	Cp	0.840
35)	vs= 85.49*Cp*{[(Ts*ΔP)/(Ps*Ms)]^.5}	30.622 ft/s
36)	As=3.14*[(Ds)^2/4]	29.500 ft^2
37)	Qs = (vs)*As*60	5.42E+04 acfm
38)	Qstd =17.64*Qs*(1-Bws)*Ps/Ts	4.18E+04 dscfm

EMISSIONS-

FRONT HALF

39)	mn (front)		0.00000 g
40)	Cs (front) =15.43*mn(front)/Vm std	0.0000 gr/dscf=	0.000 grains/dscf
41)	E (front) = (0.00857)*(Qsd)*Cs (front)		0.00 lbs/hr

BACK HALF

42)	mn (back)		0.02547 g
43)	Cs (back) =15.43*mn(back)/Vm std	0.0106 gr/dscf=	0.011 grains/dscf
44)	E (back) = (0.00857)*(Qsd)*Cs (back)		3.80 lbs/hr

TOTAL

45)	mn (total) = mn(front)+mn(back)		0.02547 g
46)	Cs (total) =15.43*mn(total)/Vm std	0.0106 gr/dscf=	0.011 grains/dscf
47)	E (total) = (0.00857)*(Qsd)*Cs (total)		3.80 lbs/hr

ISOKINETICS:

48)	An=3.14*[(Dn)^2/4]		0.0642 in^2
49)	I=.09450(Ts*Vm std)/Ps*vsAnØ(1-Bws)	97.70 %=	98 %

APPENDIX

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

LABORATORY ANALYSIS OF PARTICULATE TEST

TEST SITE: South Coast Carlsbad (Unit#2)
3701 Haymar Road
Carlsbad, CA 92008

TEST WITNESS

TEST # 91212.1	PTA.# 000927		TEST DATE: 7/31/91
LAB ANALYSIS BY:	David Shina		DATE: 8/11/91
LAB REPORT BY:	David Shina	DNS 10/21	DATE: 8/11/91
REVIEWED BY:			DATE:

(1) IMPINGER VOLUMES

	FINAL WEIGHT			INITIAL WEIGHT			NET WEIGHT		
#1	638.70	g	-	561.10	g	=	77.60	g	
#2	580.20	g	-	564.40	g	=	15.80	g	
#3	460.00	g	-	457.80	g	=	2.20	g	
#4	681.00	g	-	673.60	g	=	7.40	g	SILICA GEL

TOT. VOL.= 103.00 g

(2) BLANKS

STD = Net Wgt(solv) / Tot. Vol(solv. used)

	ACETONE:	WATER:	ORGANIC:
VOLUMES:			
BKR ID =	91090	91012	
Initial=	200.00 ml	200.00 ml	ml
tot. Rinses=	25.00 ml	50.00 ml	ml
Tot. Vol=	225.00 ml	250.00 ml	0.00 ml
WEIGHTS:			
final=	49.1272 g	30.2579 g	g
initial=	49.1259 g	30.2571 g	g
net=	0.0013 g	0.0008 g	0.0000 g
LIMIT:	0.001% = 10 ppm = 0.000010g/ml	4ppm = 4mg/L = 0.000004g/ml	0.001% = 10 ppm = 0.000010g/ml
STD =	5.77778E-06 g/ml	3.20000E-06 g/ml	N/A g/ml
	0.000578 %	0.000320 %	N/A %
=	5.78 ppm	3.20 ppm	N/A ppm
The Blank	PASSED	PASSED	N/A

(3) WEIGHT

FRONT HALF

ACETONE

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g Wgt. Ac= 0.0000 g

VOLUME:

Initial= _____ ml
tot. rinses= _____ ml
Sep funnel= _____ ml Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Acetone STD = 0.000000 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.000000 g

WATER:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g Wgt. Water= 0.0000 g

VOLUMES:

Initial= _____ ml
tot. Rinses= _____ ml
Tot. Vol = 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Water STD = 0.000000 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.000000 g

ORGANIC:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g Wgt. Org= 0.0000 g

VOLUMES:

tot. Rinses= _____ ml Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Organic STD = N/A g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= N/A g

FILTERS:

WEIGHT:

ID No.= _____
final= _____ g
initial= _____ g Wgt. Filter= 0.0000 g

BACK HALF

ACETONE

WEIGHT (uncorrected):

BKR ID= 91087
final= 49.4001 g
initial= 49.3747 g Wgt. Ac.= 0.0254 g

VOLUME:

Initial= 460.00 ml
tot. Rinses= 170.00 ml
Sep. funnel= _____ ml Tot. Vol= 630.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Acetone STD = 0.003640 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.021760 g

WATER:

WEIGHT (uncorrected):

BKR ID= 91030
final= 28.7040 g
initial= 28.6968 g Wgt. Water= 0.0072 g

VOLUMES:

Initial= 690.00 ml
tot. Rinses= 200.00 ml
Imp. charge= 200.00 ml Tot. Vol= 1090.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Water STD = 0.003488 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.002712 g

ORGANIC:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g Wgt. Org= 0.0000 g

VOLUMES:

tot. Rinses= _____ ml Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Organic STD = N/A g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= N/A g

FILTERS:

WEIGHT:

ID No.= 30033
final= 0.3524 g
initial= 0.3524 g Wgt. Filter= 0.0000 g

PARTICULATE COLLECTED (front half):

ΣWgt corrected + Wgt filter= mn (front)= 0.00000 g

PARTICULATE COLLECTED (back half):

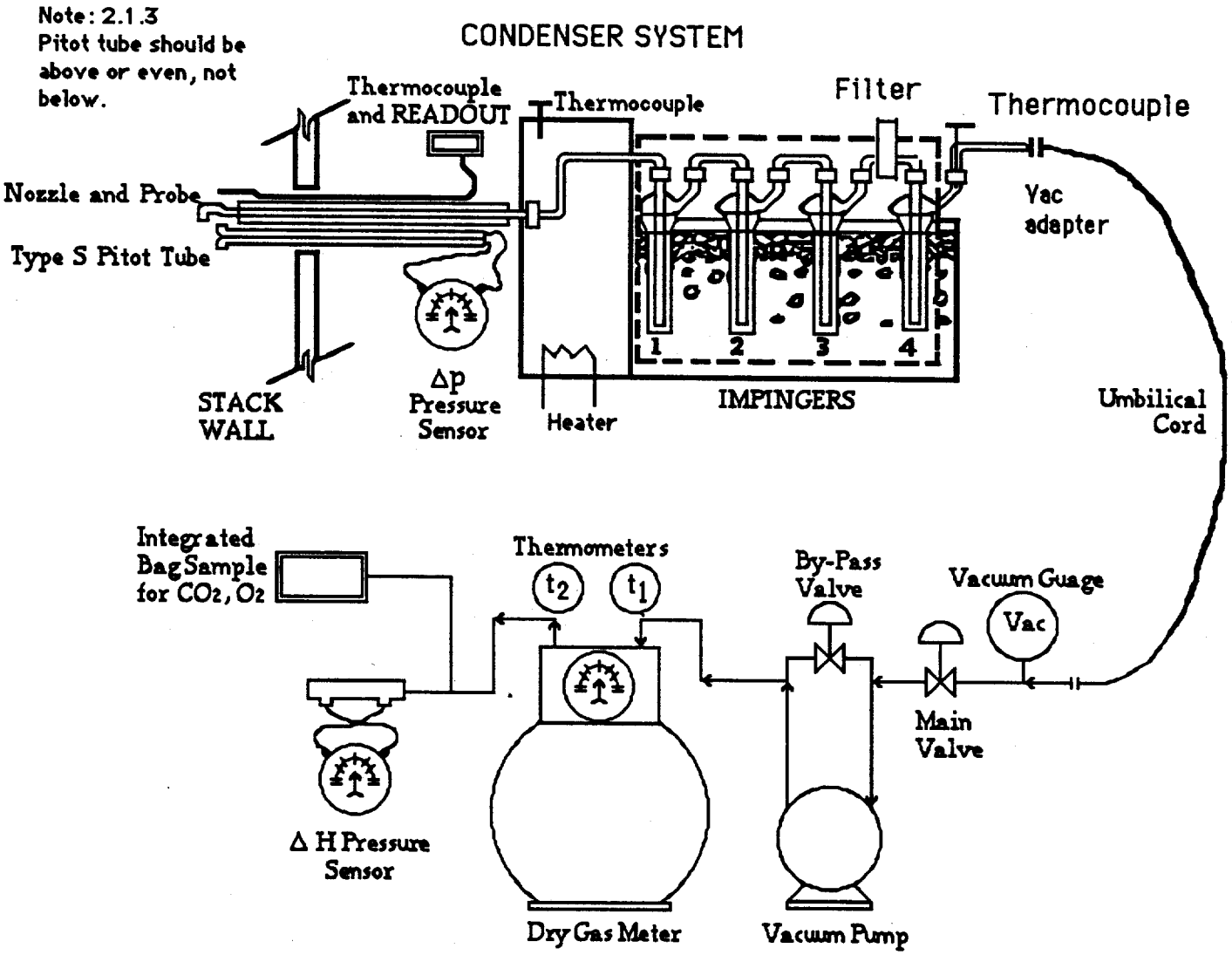
ΣWgt corrected + Wgt filter= mn (back)= 0.02547 g

TOTAL PARTICULATE COLLECTED:

mn(front) + mn(back) = 0.02547 g

SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

FIGURE 1



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 " "

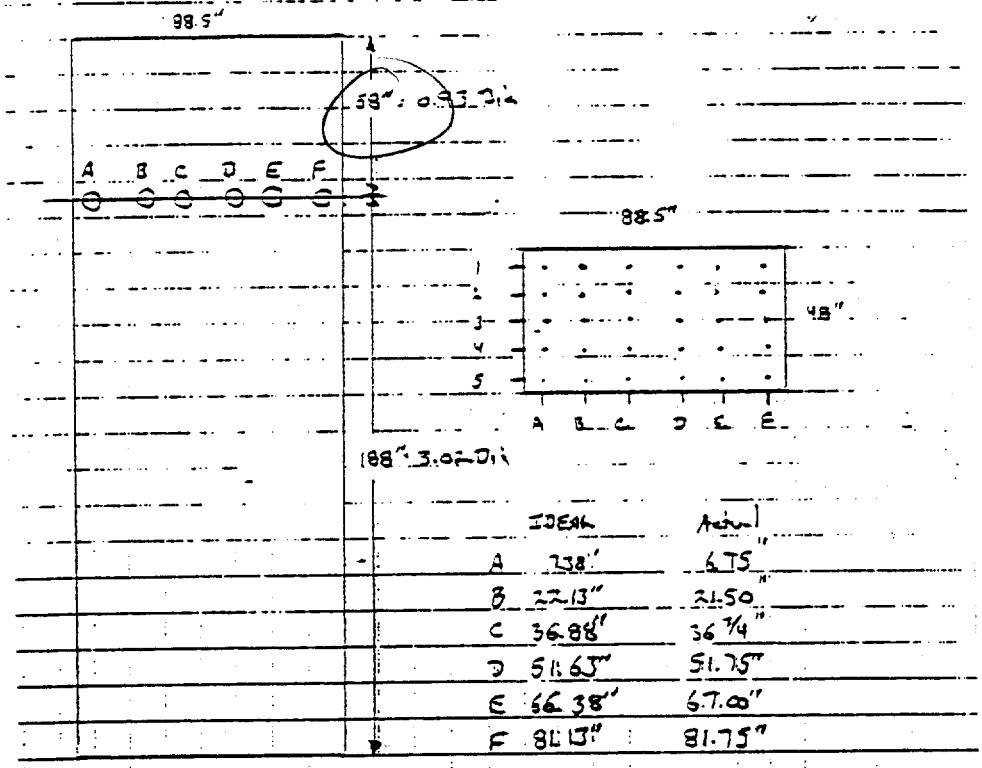
FIELD DATA ABBREVIATIONS

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 1 : PARTICULATE MATTER SAMPLING TRAIN

FIGURE 2

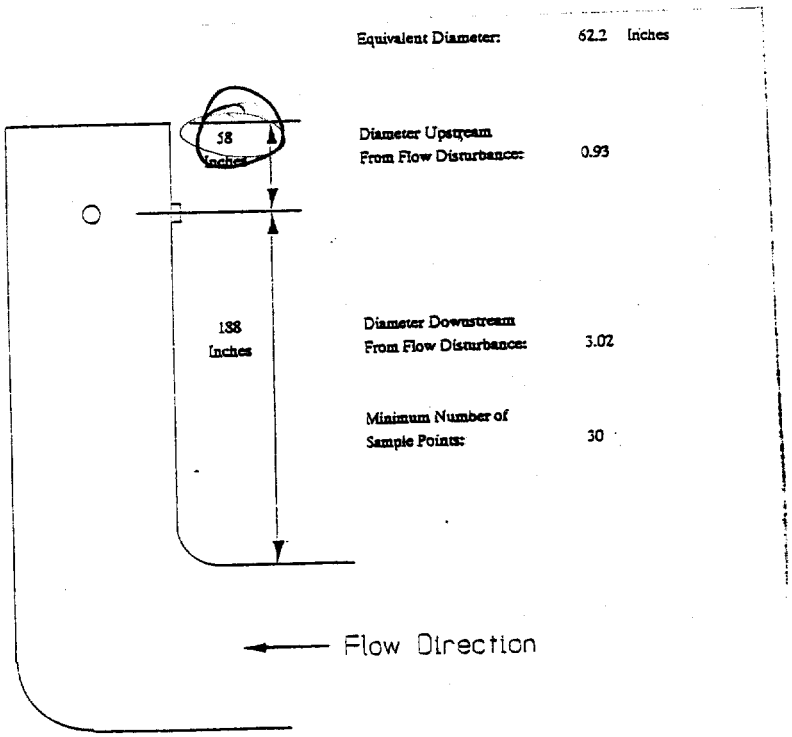
South Coast Materials
Plant #2
7-30-91



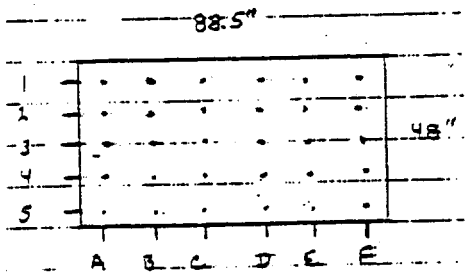
	IDEAL	Actual
A	7.38"	6.75"
B	22.13"	21.50"
C	36.88"	36 3/4"
D	51.63"	51.75"
E	66.38"	67.00"
F	81.13"	81.75"

1	4.80" + 3.50 =	8.30"
2	14.40" + 3.50 =	17.90"
3	24.00" + 3.50 =	27.50"
4	33.60" + 3.50 =	37.10"
5	43.20" + 3.50 =	46.70"

$D_e = 62.21"$



Equivalent Diameter:	62.2 Inches
Diameter Upstream From Flow Disturbance:	0.93
Diameter Downstream From Flow Disturbance:	3.02
Minimum Number of Sample Points:	30



Traverse Point	Distance from Inner Wall (in)	Port Length	Distance from Outside of Port
1	4.800	3.5	8.30
2	14.400		17.90
3	24.000		27.50
4	33.600		37.10
5	43.200		46.70

SOUTH COAST ASPHALT PLANT #2
SAMPLE PORT LOCATION

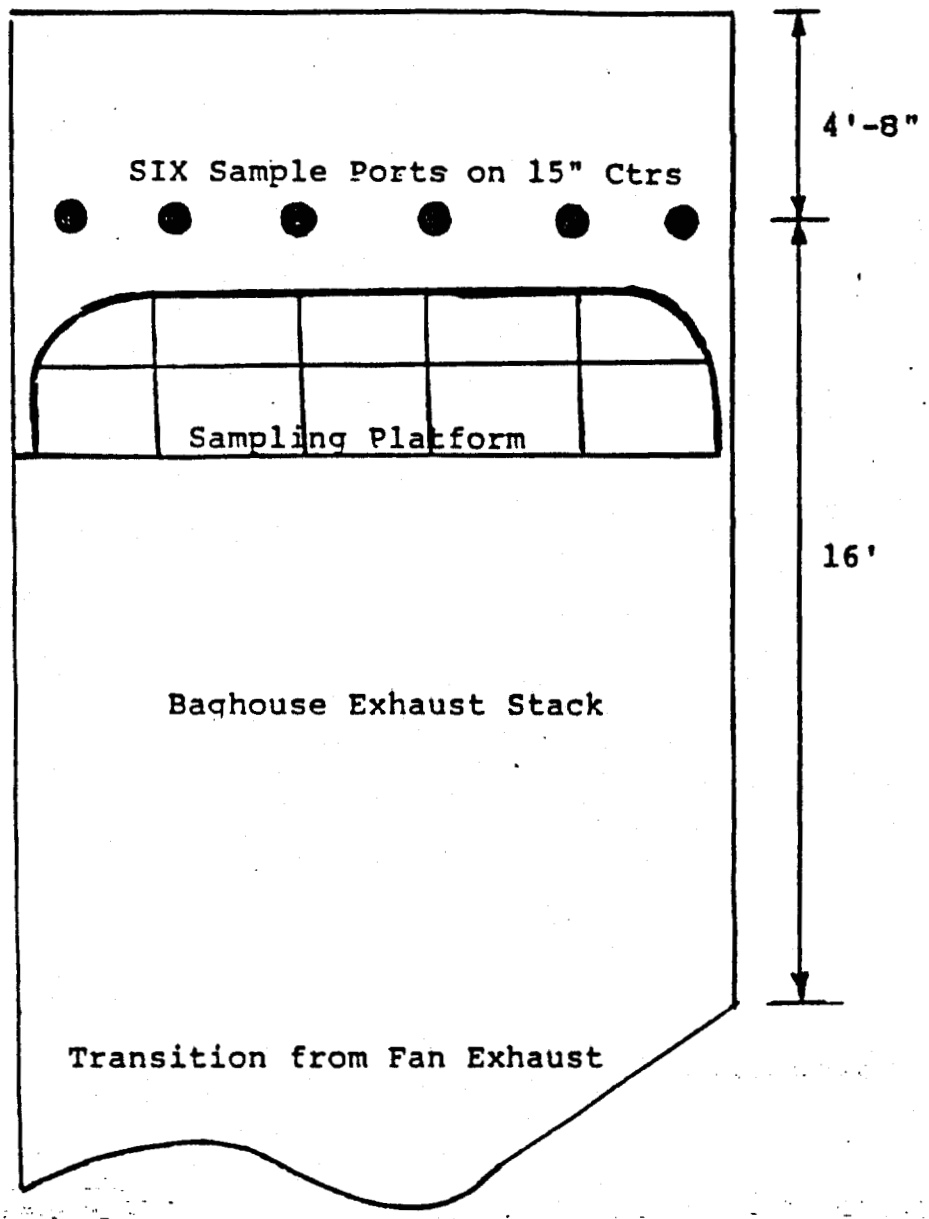


FIG. 3

SAN DIEGO AIR POLLUTION CONTROL DISTRICT P.O. # 0927

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		
C12	gr/dscf	corr for grain loading at 12% CO2	(12*Cs)/(%CO2)
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@ti)/Ps)*Pm*Tstd)/ (Tm*Pstd)
Cp	none	pitot tube correction factor	see EPA method 3
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)
	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-%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*Ø*(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		
ΔP	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	absoulte meter pressure	Pbar+(ΔH/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
ø(theta)	min	sampling time/point	Ø/tn
Ø(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
	V		
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	see Lange's Handbook of Chemistry
0.04707	ft^3/ml	conversion from ml to ft^3	see Lange's Handbook of Chemistry
15.43	gr/g	conversion from g to gr	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

Tracer Technologies

Energy and Environmental Consultants

TELEFAX COVER LETTER

Date: 9/25/91 Time: 9:05

PLEASE DELIVER THIS FAX TO:

Name: David Ahuna

Firm: APCD

Phone #: _____ Fax #: _____

FROM:

Name: Tony Hall

Fax #: (619) 744-8616

This telefax consists of this ***cover letter*** and 9 pages. If you do not receive all the pages, please call as soon as possible.

REMARKS:

970 Los Vallecitos Blvd., Suite 100, San Marcos, CA 92069, (619) 744-9611

Appendix A

Method 5 Data and Calculation Sheets

SDAPCD PARTICULATE EMISSIONS
RAW DATA

PLANT: South Coast Materials
LOCATION: Carlsbad
SAMPLE SITE: Plant #2
TEST NUMBER: 20019

TEST DATE: 07/31/91
SAMPLED BY: DC,GB
CHECKED BY: AJH

Data Entry	SYMBOL	UNITS	DATA
Test Number	--	--	20019
Round Stack, Diameter	ds	inches	
Rectangular Stack, Length	L	inches	88.50
Width	W	inches	48.00
Nozzle Diameter	Dn	inches	0.286
Average Stack Temperature	ts	deg F	147.7
Average Meter Temperature, (Tin+Tout)/2	tm	deg F	76.4
Barometric Pressure	Pbar	in. Hg	30.44
Stack Static Pressure	Pstatic	in. H2O	-0.10
Vapor Pressure at Impinger (w/o silica gel)	Vpw@imp	in. Hg	0
Avg Delta H	dH	in. H2O	1.360
Avg Velocity Head (sum(sq.rt dP)/N)^2	dP	in. H2O	0.2557
Pitot Coefficient	Cp	none	0.84
Gas Sample Volume	Vm	cuft	36.990
Meter Box Coefficient	Y	none	1.0092
Total Sampling Time	min	minutes	60
Stack Gas Oxygen Content	O2	%	17.9
Stack Gas Carbon Dioxide Content	CO2	%	1.4
Total Impinger Gain	Wic	grams	103.0
Back Filter Gain	mnb	mg	0.0
Acetone Gain	Wa	mg	25.4
Water Gain	Ww	mg	7.2
Acetone Blank Correction	Wab	mg	3.64
Water Blank Correction	Wwb	mg	3.49
Impinger Water Blank Correction	Wib	mg	0.64
Solvent Extract Gain	Wsolv	mg	0.0

SDAPCD PARTICULATE EMISSIONS
CALCULATED DATA

PLANT: South Coast Materials TEST DATE: 07/31/91
TEST NUMBER: 20019

Calculated Data	SYMBOL	UNITS	20019
Nozzle Area, An = 3.14*(dn)^2/4	An	sq. in.	0.0642
Stack Area, As = 3.14*(ds)^2/576 (round) = L*W/144 (Rectangular)	As	sq. ft.	29.50
Avg Stack Temperature, Ts = Fs + 460	Ts	deg R	607.7
Avg Meter Temperature, Tm = Fm + 460	Tm	deg R	536.4
Absolute Meter Pressure, Pm = Pbar+(dH/13.6)	Pm	in. Hg	30.54
Sample Gas Volume, corrected, Vm*Y	Vm'	cuft	37.330
Corrected Vwm = ((Vm'*Vpw@imp/Ps)*Pm*Tstd)/(Tm*Pstd) = water volume correction at meter w/o silica gel	corr Vwm	cuft	0.00
Gas Sample Volume at Standard Conditions, Vm(std) = (Vm'*Tstd*Pm/(Pstd*Tm))	Vm(std)	cuft	37.507
Volume of Water Vapor, Vw(std) = Vlc*0.002201*R*Tstd/(Pstd*MwH2O)+corr Vwm	Vw(std)	cuft	4.86
Moisture Fraction, Bws = Vw(std)/(Vm(std)+Vw(std))	Bws	none	0.1147
Dry Stack Gas Moleular Weight, Md = (0.32*O2)+ (0.44*CO2)+(0.28*(100-O2+CO2)) Wet Stack Gas Molecular Weight, Mw = Md*(1-Bws) + 18.0*(Bws)	Md Mw	g/g-mole g/g-mole	28.94 27.685
Absolute Stack Pressure, Ps = Pbar + Pg/13.6	Ps	in. Hg	30.43
Stack Gas Velocity vs = 85.49*Cp*[(dP*Ts)/(Ps)*(Mw)]^0.5 vsm = 0.3048 * vs	vs vsm	ft/sec m/sec	30.84 9.400
Actual Stack Gas Flow Rate, Qs = 60*vs*As	Qs	acf/min	54,587
Dry Stack Gas Flow Rate (Dry, STP), Qstd = 17.64*Qs*(1-Bws)*(Ps/Ts) Qsdm = Qsd/35.32	Qstd Qstdm	dscf/min dscm/min	42,688 1,208.6
Isokinetic Rate, I = 144*100*Ts*(0.002669*Vlc+(Vm'/Tm)*Pm/60*theta*vs*Ps*An)	I	%	96.77
Total Weight of Particulate Collected, Wt = (mnb+Wa+Ww) - (Wab+Wwb+Wib)	Wt	mg	24.83
Grain Loading (dry) = 15.43*mn/Vm std	Cs Csm	gr/dscf mg/dscm	0.010 0.021
Particulate Emissions Rate, (0.00857)*(Qstd)*Cs	E Em	lbs/hr kgs/hr	3.74 8.23

TRACER TECHNOLOGIES
TRAVERSE SOURCE TEST DATA

Test No.: 20017 Date: 31 Jul 91
Sampling Location: South Coast Materials #2 Sample Train: 124
Unit M

Pre-Test Leak Check:
Filter: 0.13 cfm @ 5.0 "Hg vac
Probe: [illegible] cfm @ _____ "Hg vac
(Pitot tube Leak Check: [illegible]) OK

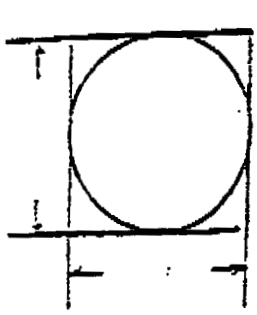
Post-Test Leak Check:
Filter: 0.012 cfm @ [illegible] "Hg vac
Probe: _____ cfm @ _____ "Hg vac
(Pitot tube Leak Check: [illegible]) OK

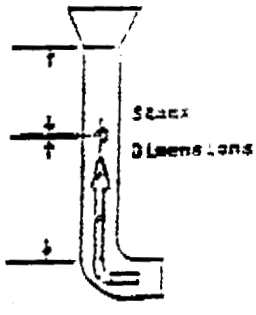
Time On	Sample Point #	Gas Meter Reading (cf)	Stack Velocity Head (H20)	Stack Temp F	DH Calculated dH	DH Set dH	Probe Temp F	Hot Box Temp F	Dryer Temp F	Meter Temp F In	Meter Temp F Out	Vacuum Hg
		[illegible]										
0949		[illegible]										
0951	F1	546.660	0.24	142	1.27	1.30	247	255	54	71	70	3.5
[illegible]	2	547.950	0.29	151	1.51	1.50	246	256	46	72	70	4.6
[illegible]	3	549.380	0.36	153	1.88	1.90	247	256	44	74	70	4.6
[illegible]	4	550.910	0.45	154	2.35	2.35	246	256	44	76	71	5.2
[illegible]	5	[illegible]	0.45	152	2.32	2.35	251	256	46	78	71	5.5
1004	F1	[illegible]	0.14	147	0.75	0.75	248	258	54	75	71	2.5
[illegible]	2	548.535	0.17	152	0.88	0.88	246	256	51	76	71	2.9
[illegible]	3	549.660	0.21	154	1.10	1.10	248	255	51	77	77	3.2
40	4	550.875	0.25	156	1.31	1.30	244	255	51	78	72	3.5
[illegible]	5	552.110	0.26	158	1.36	1.35	246	255	52	80	72	3.6
[illegible]	F1	553.085	0.16	151	0.85	0.87	244	257	55	78	73	2.9
[illegible]	2	554.035	0.15	154	0.79	0.79	244	257	51	79	73	2.9
[illegible]	3	555.060	0.17	151	0.90	0.90	245	256	51	80	73	3.0
[illegible]	4	556.275	0.26	148	1.39	1.40	247	256	51	80	74	3.7
[illegible]	5	557.563	0.32	145	1.71	1.70	248	255	50	82	74	4.0
1029	[illegible]	558.855	0.22	139	1.19	1.20	245	257	54	79	74	3.4
1031	[illegible]	560.050	0.20	143	1.07	1.10	243	256	50	81	74	3.2
[illegible]	[illegible]	561.230	0.25	143	1.35	1.35	242	[illegible]	48	82	75	3.6
[illegible]	4	562.590	0.34	144	1.83	[illegible]	240	[illegible]	48	[illegible]	[illegible]	4.4
[illegible]	5	563.905	0.34	144	1.83	[illegible]	242	[illegible]	45	82	75	4.4
[illegible]	F1	565.275	0.24	141	1.30	1.30	240	251	51	80	[illegible]	3.3
[illegible]	2	566.580	0.21	144	1.13	[illegible]	239	251	48	81	75	3.4
[illegible]	3	567.850	0.28	144	1.50	1.50	241	254	48	82	75	4.0
[illegible]	4	569.323	0.35	145	[illegible]	[illegible]	241	250	48	82	76	4.7
[illegible]	5	570.[illegible]	0.37	145	1.98	2.00	245	254	46	[illegible]	76	4.9

Recorded by: DC
Pitot Factor: 0.84

Nozzle #: 107060
Nozzle Diameter: 0.296
Barometric Pressure: 30.44 "HgA
Static Pressure in Stack: 30.43 "HgA (+/- -0.10 "H20)

Calibration Data
Inclined Manometer: 124 (Cal: NA)
Pitot Tube No.: PT001 (Cal: 5/14/91)
Potentiometer No.: 124 (Cal: 5/14/91; 3/26/91)
Thermocouple No.: TC1 001 (Cal: 5/14/91; 3/26/91)
Gas Meter No.: 124 (Cal: 5/14/91; 6/17/91)
Meter Corr. Factor: 1.0092





Type Sampling Probe: Stainless Steel

F. Hu # 30033 OKAY

#1	638.7	561.1	= 77.6
#2	580.2	564.4	= 15.8
#3	460.0	457.8	= 2.2
SG	680	673.6	7.4

Page 2

TRACER TECHNOLOGIES
TRAVERSE SOURCE TEST DATA

Test No.: 200/9
Sampling Location: [illegible] #2
Date: 31 [illegible]
Sample Train: 124

Pre-Test Leak Check:
Filter: _____ cfm @ _____ " Hg vac
Probe: _____ cfm @ _____ " Hg vac
(Pitot tube Leak Check: _____)

Post-Test Leak Check:
Filter: _____ cfm @ _____ " Hg vac
Probe: _____ cfm @ _____ " Hg vac
(Pitot tube Leak Check: _____)

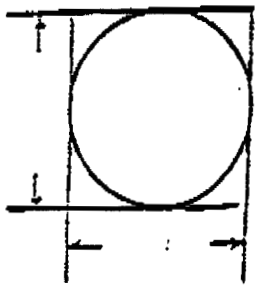
Time On	Sample Point #	Gas Meter Reading (dcf)	Stack Velocity Head (" H2O)	Stack Temp F	dH Calculated dH	dH Set dH	Probe Temp F	Hot Box Temp F	Dryer Temp F	Meter temp F in	Meter temp F out	Vacuum "Hg
	1											
10:1	25	571.[illegible]5	0.16	142	0.97	0.97	242	255	52	80	76	3.0
25	2	572.[illegible]	0.9	147	[illegible]	1.60	244	255	49	81	76	3.0
25	3	574.140	0.21	149	1.12	1.10	241	254	49	81	76	3.2
25	4	575.275	0.21	149	1.12	1.10	243	254	49	82	76	3.2
100	5	576.386	0.9	149	1.02	1.00	248	255	47	82	76	3.0
	v_h =	36.98 $\sqrt{\Delta P}$ =	0.4993	147.7	ΔH	1.36				79.2	73.6	
		ΔP	0.2557							t_m =	76.4	
	@	meter =	29.17									
		B_w =	0.1147									
		m_s =	27.69									
		m_d =	37.492									
		M_d =	30.34									
		% EA =	98.40									

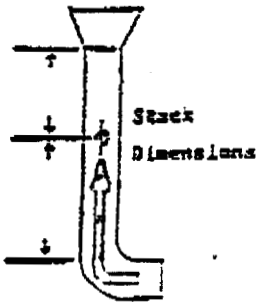
Nozzle #: N0[illegible]8
Nozzle Diameter: 0.256 "
Barometric Pressure: 30.44 "HgA
Static Pressure in Stack: 30.43 "HgA (+/- -0.10 "H20)

Recorded by: D. Crow
Pitot Factor: 0.84

Calibration Data
Inclined Manometer: 124 (Cal: NA)
Pitot Tube No.: PITOO1 (Cal: 5/14/91)
Potentiometer No.: 124 (Cal: 5/14/91 8/10/91)
Thermocouple No.: TCI001/TCS001 (Cal: 5/14/91; 8/12/91)
Gas Meter No.: 124 (Cal: 5/18/91; 6/10/91)
Meter Corr. Factor: 1.0092

Type Sampling Probe: Stainless Steel





TRACER TECHNOLOGIES
METHOD 3 - ORSAT GAS ANALYSIS DATA FORM

SOURCE: South Coast Materials
DATE: 07/31/91
TIME: 1030
LOCATION: Carlsbad
SAMPLE TYPE: grab
TESTED BY: PW

COMMENTS:

RUN									
GAS	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET	AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) Md
CO2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	44/100	0.616
O2	19.3	17.9	19.4	18.0	19.3	17.9	17.9	32/100	5.728
CO	—	—	—	—	—	—	—	28/100	—
N2	—	80.7	—	80.6	—	80.7	80.7	28/100	22.596
								TOTAL	28.94

MOLECULAR WEIGHT OF STACK GAS (WET BASIS) Ms = Md * (1-Bws/100) + 18*Bws/100

Test No. 20019

TRACER TECHNOLOGIES
GAS VOLUME METER CHECK

Pretest: Date: _____ Time: _____

Meter box Number: _____ Barometric Pressure: 30.44

Perform with no probe, filter or train connected.
Set the flow rates at 0.4 cfm, 0.7 cfm, and 1.0 cfm.

delta H (in H20)	Temperature of DGM, Tm	Time, min Theta	DGM Cor Factor, Y	Gas Volume F	S	Vm	delta H@

Meter delta H@: _____

Average: _____
Difference: _____

Performed by: _____
Reviewed by: _____

Post Test: Date: 7-31-91 Time: 1120

Perform with no probe, filter or train connected.
Set the flow rates at 0.4 cfm, 0.7 cfm, and 1.0 cfm.

delta H (in H20)	Temperature of DGM, Tm	Time, min Theta	DGM Cor Factor, Y	Gas Volume F	S	Vm	delta H@
4.0	79	9' 52.90"	1.0092	592.5	582.8	10.7	~~1.950~~
2.0	80	10' 00.71	1.0092	606.7	597.2	7.5	~~2.010~~
.7	80	10' 01.70	1.0092	612.93	607.6	4.63	~~1.850~~

AJK
1.9506
2.0113
1.8532

Meter delta H@: 1.9603

Average: ~~1.9402~~ 1.9384 OK
Difference: ~~-1.04%~~ -1.12%

Performed by: _____
Reviewed by: _____

delta H@ = 0.0324 * deltaH *[Tm * theta2]/[Pbar * (Y2*Vm2)

If the measured deltaH@ differs by more than 3 percent of the actual delta H@ obtained in calibration run, the results are voided.

Test No. 20019

TRACER TECHNOLOGIES
GAS VOLUME METER CHECK

Pretest: Date: 07/31/91 Time: _____

Meter box Number: 124 Barometric Pressure: 30.44

Perform with no probe, filter or train connected.
Set the flow rates at 0.4 cfm, 0.7 cfm, and 1.0 cfm.

delta H Setting (in H20)	Temperature of DGM, Tm	Time, min Theta	DGM Cor Factor, Y	Volume of gas Vm	delta H@

Not Required

Meter delta H@: Average:
Difference:

Performed by: _____
Reviewed by: _____

Post Test: Date: 07/31/91 Time: 1120

Perform with no probe, filter or train connected.
Set the flow rates at 0.4 cfm, 0.7 cfm, and 1.0 cfm.

delta H Setting (in H20)	Temperature of DGM, Tm	Time, min Theta	DGM Cor Factor, Y	Volume of gas Vm	delta H@
0.70	540.0	10.03	1.0092	4.630	1.8532
2.00	540.0	10.01	1.0092	7.500	2.0113
4.00	538.0	9.97	1.0092	10.700	1.9506

Meter delta H@: 1.9603 Average: 1.9384
Difference: -1.12%

Performed by: G. Burch
Reviewed by: A. J. Host

delta H@ = 0.0324 * deltaH *[Tm * theta2]/[Pbar * (Y2*Vm2)

If the measured deltaH@ differs by more than 3 percent of the actual delta H@ obtained in calibration run, the results are voided.

TRACER TECHNOLOGIES
PARTICULATE WEIGHT RECORD

SOURCE: South Coast Materials #2
TEST #: 20019
DATE OF TEST: 7/31/91

DATES: 06/27-06/28
WEIGHED BY: GOB

SAMPLE IDENTIFICATION							
	30033	30035					
INITIAL WT							
1	0.3525	0.3449					
2	0.3524	0.3447					
3		0.3446					
4							
5							
AVG WT	0.3524	0.3446					
FINAL WT							
1							
2							
3							
4							
5							
AVG WT							
FINAL WT							
INITIAL WT							
WT, mg							
BLANK, mg							
PARTICULATE WT, mg							
DESCRIPTION							

Balance: A 200-S

QC

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

SOURCE TEST OF PARTICULATE EMISSIONS TO THE ATMOSPHERE

TEST SITE: So Coast Asphalt Carlsbad

TEST #: 91212 P.O.# 927 TEST DATE: 7/31/91

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

UNIT TESTED:

EQUIPMENT:

TESTED BY:	DATE:
SITE PERSONNEL:	DATE:
APCD ENGINEER:	DATE:
LAB ANALYSIS BY:	DATE:
REPORT BY:	DATE:
REVIEWED BY: LTwaddle	DATE: 10/21/91
APPROVED BY:	DATE:

C.W. RIDENOUR, SENIOR AIR POLLUTION CHEMIST

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

TEST	PERMIT LIMIT	MEASURED	PERFORMANCE
RULE 54 DUST & FUMES	40 lbs/hr	3.80 lbs/hr	PASSED

SUMMARY:

ITEM	Vm	Bws	Cs	E	I	Qstd	ts	PROD RATE
UNITS	ft^3	%	gr/dscf	lbs/hr	%	dscfm	°F	tons/hr
VALUE	36.990	11.60	0.011	3.800	98	4.18E~~+04~~	148	225.4

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 and equipment utilized in these tests are based on EPA New Source Performance Standards Method 5. The sampling train was modified to utilize a back-end filter and 5th impinger filled with silica gel (fig. 1), as outlined by the SDAPCD QA manual.

CALCULATIONS

All preliminary assumptions and calculations are based on data obtained from previous tests. All equations are from EPA CFR 40, July 1, 1990, Parts 53-60, Appendix A, Methods 1-5 inclusive.

PARTICULATE SAMPLING:

The test consisted of sampling at 32 traverse points, 4 from each of 8 sample ports (fig.2), collected from 18 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.

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	Read out-Omega
Macrobalance-Sargent Welch	Beakers-Pyrex	Cold/Hot box-Napp	Barometric-calc. by APCD
Microbalance-Sartorious	Impingers-Ace	Pitobe tube-Napp	L/S box-Dwyer magnehelic

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

LABORATORY ANALYSIS OF PARTICULATE TEST

TEST SITE: South Coast Carlsbad
3701 Haymar Rd.
Carlsbad, CA. 92008

TEST # 91212.1 P.O.# 927 TEST DATE: 7/31/91

LAB ANALYSIS BY: David Shina DATE: 8/11/91

LAB REPORT BY: David Shina DATE: 8/11/91

REVIEWED BY: L. Twaddle DATE: 10/21/91

(1) IMPINGER VOLUMES

	FINAL WEIGHT			INITIAL WEIGHT			NET WEIGHT	
#1	638.70	g	-	561.10	g	=	77.60	g
#2	580.20	g	-	564.40	g	=	15.80	g
#3	460.00	g	-	457.80	g	=	2.20	g
#4	681.00	g	-	673.60	g	=	7.40	g
SILICA GEL CONTAINER:								
#5		g	-		g	=	0.00	g

Tot. Vol.= 103.00 g

(2) BLANKS

STD = Net Wgt(solv) / Tot. Vol(solv. used)

ACETONE:

VOLUMES:

BKR ID = 91090
Initial= 200.00 ml
tot. Rinses= 25.00 ml
Tot. Vol= 225.00 ml

WEIGHTS:

final= 49.1272 g
initial= 49.1259 g
net= 0.0013 g

LIMIT: 0.001% = 10 ppm = 0.000010g/ml

STD = 5.77778E-06 g/ml
0.000578 %
= 5.78 ppm
The Blank PASSED

WATER:

VOLUMES:

BKR ID = 91012
Initial= 200.00 ml
tot. Rinses= 50.00 ml
Tot. Vol= 250.00 ml

WEIGHTS:

final= 30.2579 g
initial= 30.2571 g
net= 0.0008 g

LIMIT: 4ppm = 4mg/L = 0.000004g/ml

STD = 3.20000E-06 g/ml
0.000320 %
3.20 ppm
The Blank PASSED

ORGANIC:

VOLUMES:

BKR ID =
Initial= ml
tot. Rinses= ml
Tot. Vol= 0.00 ml

WEIGHTS:

final= g
initial= g
net= 0.0000 g

LIMIT: 0.001% = 10 ppm = 0.000010g/ml

STD = N/A g/ml
N/A %
N/A ppm
The Blank N/A

(3) WEIGHT

FRONT HALF

ACETONE

WEIGHT (uncorrected):

BKR ID= 0
final= _____ g
initial= _____ g
Wgt. Ac= 0.0000 g

VOLUME:

Initial= _____ ml
tot. rinses= _____ ml
Sep funnel= _____ ml
Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Acetone STD = 0.000000 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.000000 g

WATER:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g
Wgt. Water= 0.0000 g

VOLUMES:

Initial= _____ ml
tot. Rinses= _____ ml
Tot. Vol = 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Water STD = 0.000000 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.000000 g

ORGANIC:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g
Wgt. Org= 0.0000 g

VOLUMES:

tot. Rinses= _____ ml
Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Organic STD = N/A g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= N/A g

FILTERS:

WEIGHT:

ID No.= _____
final= _____ g
initial= _____ g
Wgt. Filter= 0.0000 g

BACK HALF

ACETONE

WEIGHT (uncorrected):

BKR ID= 91087
final= 49.4001 g
initial= 49.3747 g
Wgt. Ac.= 0.0254 g

VOLUME:

Initial= 460.00 ml
tot. Rinses= 170.00 ml
Sep. funnel= _____ ml
Tot. Vol= 630.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Acetone STD = 0.003640 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.021760 g

WATER:

WEIGHT (uncorrected):

BKR ID= 91030
final= 28.7040 g
initial= 28.6968 g
Wgt. Water= 0.0072 g

VOLUMES:

initial= 690.00 ml
tot. Rinses= 200.00 ml
imp. charge= 200.00 ml
Tot. Vol= 1090.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Water STD = 0.003488 g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= 0.002712 g

ORGANIC:

WEIGHT (uncorrected):

BKR ID= _____
final= _____ g
initial= _____ g
Wgt. Org= 0.0000 g

VOLUMES:

tot. Rinses= _____ ml
Tot. Vol= 0.00 ml

WEIGHT FROM SOLVENT:

Total Vol * Organic STD = N/A g

WEIGHT (corrected):

Wgt(corr)= Wgt(unc)-Wgt from solvent= N/A g

FILTERS:

WEIGHT:

ID No.= 30033
final= 0.3524 g
initial= 0.3524 g
Wgt. Filter= 0.0000 g

PARTICULATE COLLECTED (front half):

ΣWgt corrected + Wgt filter= mn (front)= 0.00000 g

PARTICULATE COLLECTED (back half):

ΣWgt corrected + Wgt filter= mn (back)= 0.02547 g

TOTAL PARTICULATE COLLECTED:

mn(front) + mn(back) = 0.02547 g