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

SUMMARY:
SOURCE TEST OF PARTICULATE EMISSIONS TO THE ATMOSPHERE

TEST SITE: CALMAT CO.
Highway 76
Pala, Ca. 92059

TEST #: 89290 P/O # : 117 TEST DATE: 17 Oct. 89

EQUIPMENT: Asphalt batch plant, Hot-mix(220-Ton/hr cap), Barber-Greene Model BE-60, 6000-lb/batch, vented to wet scrubber.

UNIT TESTED: Baghouse

SITE PERSONNEL: Chris Rhinebeck
APCD PERSONNEL: T. Wood, J. Jackson, A. Segal, and A. Abreu
REPORT BY: J.Jackson DATE 13 Dec. 89
APPROVED BY: C.W. Ridenour DATE: 1/31/90
C.W. RIDENOUR
SENIOR AIR POLLUTION CHEMIST

PARAMETERS:	MEASURED:
STACK GAS FLOW RATE (DSCFM):	18,902
STACK GAS TEMPERATURE °F (AVG):	131
PRODUCTION RATE (AVG):	177 ton/hr

RESULTS:

TEST	PERMIT LIMIT	MEASURED	PERFORMANCE
RULE 54 DUST AND FUME	40.00 lb/hr	22.54 lbs/hr	PASSED
RULE 50: GENERAL	20 %	0 %	PASSED
RULE 50: DROP ZONE	40 %	35 %	PASSED

TEST REFERENCE:
San Diego Air Pollution Control District Quality Assurance Manual Method 5 for Particulate Emissions from Stationary Sources.

TEST DESCRIPTION

Introduction: This report presents the results of particulate loading and gas volume tests at CALMAT CO. The test was performed on a wet scrubber serving the hot mix plant.

System Description:
This asphalt plant combines crushed rock and sand with hot asphalt oil in batch loads of varying sizes. The rock and sand are dried in a rotary dryer which is heated by diesel fuel. The exhaust from this dryer is vented through a wet scrubber, the emissions to the atmosphere from this wet scrubber are the subject of this report.

Procedures:
The procedures and equipment utilized in performing these tests are based on EPA New Source Performance Standards Method 5. The sampling train was modified to exclude the front-end filter and include a back-end filter, per the San Diego Air Pollution Control District Method 5 testing guidelines. The calculations were designed to include the impinger catch so that the test results can be compared to Rule 54 of SDAPCD.

Velocity Traverse:
An exploratory traverse was performed on 28 September, 1989. Temperature and pitot tube measurements were attained at that time. Temperature and pitot tube data collected during actual sampling were used to calculate stack volume.

Particulate Sampling:
This sample consisted of 24 traverse points, 12 from each of 2 sample ports as shown in Figure 1&2. The sample was collected 24 inches below the top of the stack. Field data associated with sample collection has been transferred to computer printout and is shown in the report. Calculations were done by computer and are also shown within the report.

Gas Analysis:
An integrated bag sample was collected on site and measured. The oxygen and carbon dioxide content of the stack gas was measured using a Teledyne model #320P-4 serial #66676, and an Anarad gas analyzer model #AR-400, serial #305, respectively, as per Method 3 in SDAPCD test guidelines.

SITE: CALMAT CO. OPERATOR: J.Jackson

TEST DATE: 17 Oct. 89 TEST: 89290

DATA SUMMARY: #

TRAVERSE POINT NUMBER	GAS METER READING (Vm), ft3	PRESS. DIFF. ACROSS PITOT TUBES	PRESS. DIFF. ACROSS ORIF. ACTUAL	DRY GAS METER TEMPERATURE		STACK TEMP	IMP. TEMP	STACK FLOW (velocity)
				INLET	OUTLET			
	549.194							
1		0.19	1.55	85	95	123	58	27.07
2		0.10	0.80	82	102	129	46	19.74
3		0.12	0.97	83	110	129	47	21.63
4		0.10	0.81	83	112	125	49	19.67
5		0.22	1.95	84	114	123	48	29.13
6		0.19	1.55	84	114	132	48	27.28
7		0.08	0.66	85	115	133	48	17.72
8		0.25	2.10	85	115	132	65	31.29
9		0.30	2.40	85	113	128	50	34.17
10		0.18	1.45	85	116	131	48	26.53
11		0.22	1.95	85	118	131	48	29.33
12		0.25	2.11	85	118	131	48	31.27
13		0.39	3.10	88	100	131	53	39.05
14		0.50	4.10	87	110	132	49	44.26
15		0.51	4.30	88	113	132	46	44.70
16		0.50	4.10	88	116	131	46	44.22
17		0.34	2.80	88	116	132	50	36.50
18		0.35	2.91	88	116	133	48	37.06
19		0.18	1.41	88	116	134	48	26.60
20		0.46	3.75	88	119	134	47	42.52
21		0.29	2.35	88	114	134	47	33.76
22		0.12	0.97	88	115	133	50	21.70
23		0.08	0.65	88	115	133	49	17.72
24		0.06	0.50	88	117	131	52	15.32
25								
26								
27								
28								
29								
30								
31								
32	595.2670							

Pressures are in inches of water, temperatures are in degrees Fahrenheit, velocities are in ft/sec. All measurements are actual - uncorrected - values.

Average:	Vm	ΔP	ΔH	t1	t2	ts	ti	vs
	46.073	0.25	2.05	86	113	131	50	29.93

DATA SUMMARY:

PRESSURES

P bar 29.5 in Hg

P static -0.16 in H2O

Ps 29.5 in Hg

AVERAGE TEMPERATURES

ts = 131 F

tm = 1/2(ave.t1+ave.t2) = 99 F

ti = 50 F

VOLUMES

Vm, meter 46.073 ft^3

Vlc, impingers 272.5 ml

VAPOR PRESSURES

Vpw @ imp = 0.363 in Hg

METER BOX PARAMETERS

ΔH@ = 1.93 inH2O

ΔP = 0.25 inH2O

ΔH = 2.05 inH2O

METER BOX I.D.# C138

NOZZLE AND PROBE

Dn = 0.308 in

An = Dn^2*π/4 = .0745 in^2

Cp = 0.840

Y = .9822

STACK MEASUREMENTS

%CO2 4.20

%CO 0.00

%O2 14.10

%N2 81.70

Ø = sampling time 60 minutes

mn=particulate collect'd 0.3814 grams

STACK PARAMETERS

Stack Diameter = 4.50 ft

Ao=Area stack = 15.90 ft^2

CALCULATIONS:

				EQUATION NUMBER
corr Vwm = ((Vm*Vpw@imp/Ps)*Pm*Tstd)/(Tm*Pstd) = water volume correction at meter w/o silica gel	=	0.5298	ft^3	1
Vm std = (Vm*Y*Tstd*Pm/(Pstd*Tm))-corr Vwm = meter volume corrected to STP	=	41.79	ft^3	2
Pm= Pbar+(ΔH/13.6)= corrected pressure of meter	=	29.65	in Hg	3
Tm= (t1+t2)/2 + 460 = meter temperature	=	559.5	°R	4
Ts = ts+460 = corrected stack temperature	=	590.7	°R	5
Ps= Pbar + (P static/13.6)= corrected stack pressure	=	29.49	in Hg	6
Vw std = Vlc*∂*R*Tstd/(Pstd*Md)+corr Vwm = water volume at STP	=	13.39	ft^3	7
Bws = (Vw std+corr Vwm)/(Vw std+corr Vwm+Vm std) = moisture	=	0.2499		8
mn= grams of particulate (from laboratory sheet)	=	0.3814	grams	9
Cs = 15.43*mn/Vm std = grain loading (dry)	=	0.1408	grains/dscf	10

GAS ANALYSIS

component	gas comp.	Bws	Mw g/g*mole	Mw wet
H2O	24.99%	0.2499	18	4.50
		1 - Bws		
Oxygen	14.1%	0.7501	32	3.38
Carbon monoxide	0.00%	0.7501	28	0.00
Carbon dioxide	4.20%	0.7501	44	1.39
N2 + inerts	81.70%	0.7501	28	17.28

Md = 0.32*%O2+0.44*%CO2+0.28*(100-%O2-%CO2) = average molecular weight, dry	(g/g*mol)=	26.55
vs= 85.49*Cp*((Ts*ΔP)/(Ps*Ms))^.5 = stack velocity	(ft/s)=	29.93
Qs = (vs)*Ao*60 = stack flow rate	(acfm)=	28,550
Qstd =17.68*Qs*(1-Bws)*Ps/Ts =flow rate at STP	(dscfm)=	18,902
I = 144*100*Ts*(.002669*Vlc+(Vm/Tm)*Pm)/(60*Ø*vs*Ps*An) =isokinetic	(%) =	105.77
E = (0.00847)*(Qstd)*Cs = particulate emission rate	(lbs/hr) =	22.54

SUMMARY OF CALCULATIONS:

I = % isokinetics = 105.8 %

Cs = grain loading (dry) = 0.141 grains/dscf

E = particulate emission rate = 22.54 lbs/hr

% CO2 = 4.20 %

C12 = grain loading at 12% CO2
= (12)*(Cs)/%CO2 = 0.402 grains/dscf

$$\% \text{ Excess Air} = \frac{(\%O2 - \%CO) * 100}{(.264(\%N2) - (\%O2) - 0.5(\%CO))} = 188.8 \%$$

NOMENCLATURE:

* = multiplication
/ = division
^ = exponentiation
Vm = sample gas volume, uncorrected = (ft^3)
ΔP = root mean pitot tube differential pressure
= (summation(press.diff. across pitot tubes^.5)/number entries)^2 = (in H2O)
ΔH = average differential pressure across the orifice = (in H2O)
t1 = dry gas meter inlet temperature = (°F)
t2 = dry gas meter outlet temperature = (°F)
ts = stack temperature = (°F)
ti = Impinger out temperature = (°F)
vs = stack gas velocity = 85.49*Cp*(Ts*ΔP/(Ps*Ms))^.5 = (ft/s)
Pbar = barometric pressure = (in Hg)
Pstatic = stack static pressure = (in Hg)
Ps = Absolute stack pressure = Pbar +(Pstatic/13.6) = (in Hg)
tm = dry gas meter temperature =(t1+t2)/2 = (°F)
Vlc = collected water,impingers = (ml)
Vpw = Vapor pressure of water = (in Hg)
ΔH @ = orifice pressure differential that equates to 0.75 cfm of air @ 68ºF and 29.92 in Hg
Dn = nozzle diameter = (in)
An = nozzle area = π*Dn^2/4 = (in^2)
π = the ratio of circumference of a circle to its diameter = 22/7 (dimensionless)
Cp = pitot tube coefficient = (dimensionless)
Y = meter box coefficient = (dimensionless)
CO2 = carbon dioxide = (%)
CO = carbon monoxide = (%)
O2 = oxygen = (%)
N2 = nitrogen = (%)
Ø = sampling time = (minutes)
mn = particulate found in sample train = (grams)
Ao = stack area = stack diameter^2*π/4 if round; length *width if rectanglar = (ft^2)
Corr Vwm = ((Vm*Vpw@imp/Ps)*Pm*Tstd)/(Tm*Pstd) = (ft^3)
Pm = absolute meter pressure = Pbar+(ΔH/13.6) = (in Hg)
Tstd = temperature at standard conditions = (528°R)
Tm = dry gas meter temperature =(t1+t2)/2+460 = (°R)
Pstd = pressure at standard condition = (29.92 in. Hg)
Vm std = corrected volume of meter = Vm*Y*T std*Pm/(Pstd*Tm) = (ft^3)
Ts = stack temperature = (°R)
Vw std = water volume at STP = Vlc*∂*R*Tstd/(Pstd*Md) = (ft^3)

NOMENCLATURE: cont.

∂ = density of water at STP = 0.002201 = (lb/ml)
R = ideal gas constant = 21.85 in. Hg*ft^3/°R*lb*mole
Md = dry stack gas molecular weight = 0.32*%O2+0.44*%CO2+0.28(100-%O2-%CO2)
= (g/g*mole)
Bws = fractional stack gas moisture content = (Vw std+Corr Vwm)/(Vwstd+Corr Vwm+Vm std
= (%/100)
Cs = grain loading = 15.430*mn/Vm std = (grains/dscf)
Mw = molecular weight = (g/g*mole)
Ms = wet stack gas molecular weight = Md*(1-Bws)+Bws*18 = (g/g*mole)
Qs = flow rate = vs*Ao*60 = (acfm)
Qstd = flow rate at standard conditions = 17.68*Qs*(1-Bws)*Ps/Ts = (dscfm)
I = isokinetics = 144*100*Ts*(.002669*Vlc+Vm/Tm)*Pm/(60*Ø*vs*Ps*An) = (%)
E = particulate emissions rate = 0.00847*Cs*Qstd = (lbs/hr)

CONSTANTS:

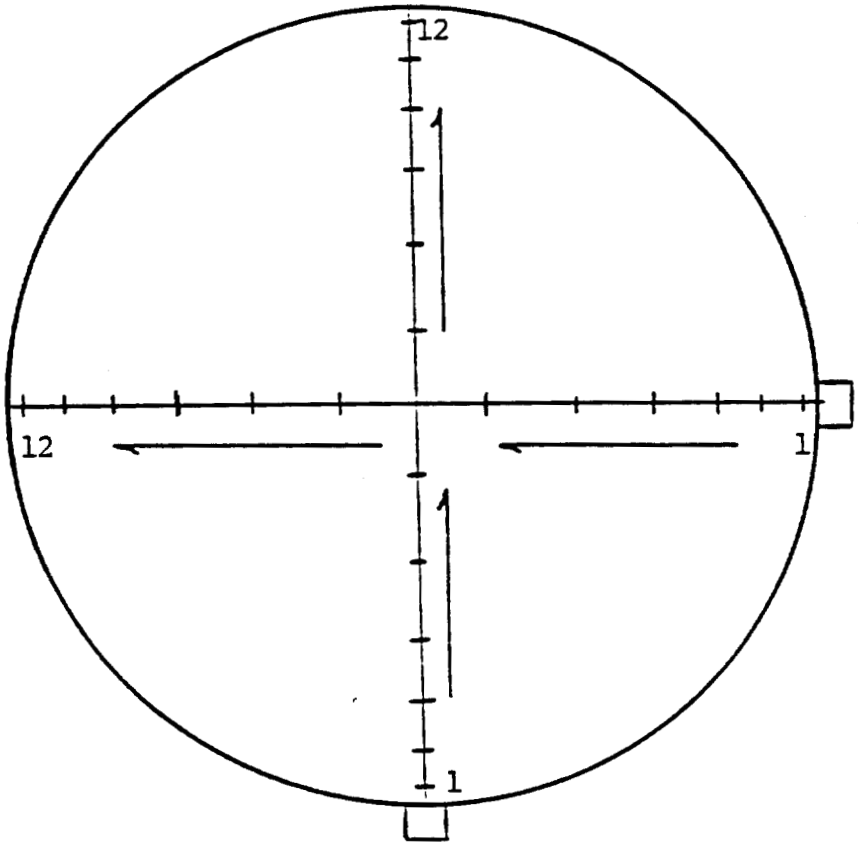
0.00847 lb/(gr*min/hr) = 1 lb/7000grains*60 min/hr
13.6 in H2O/in Hg
17.68 °R/in Hg
60 sec/min
32 g/g*mole = O2 molecular weight
44 g/g*mole = CO2 molecular weight
28 g/g*mole = N2 molecular weight
18 g/g*mole = H2O molecular weight
85.49 (ft/sec)*(lb*in Hg/(lb*mole*°R*in H2O))^.5
0.04707 = ft^3/ml
460 (dimensionless) = conversion °F to °R
144 in^2/ft^2
15.43 gr/g
0.002669 in Hg*ft^3/(°R*ml)

SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

SOUTH COAST ASPHALT PRODUCTS CO. PALA, CA.

TRAVERSE POINTS

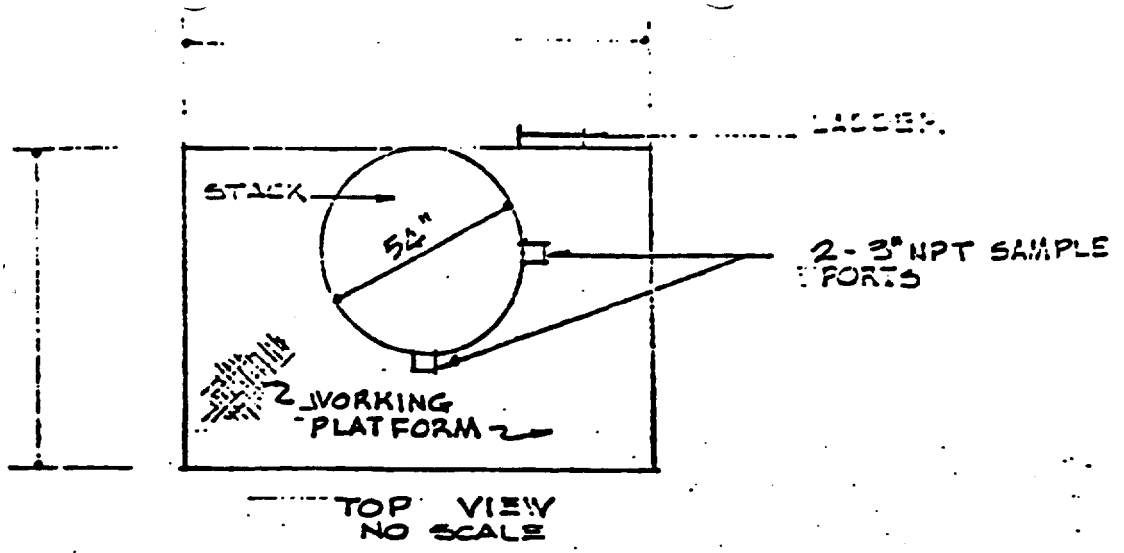
DIAMETER 54"



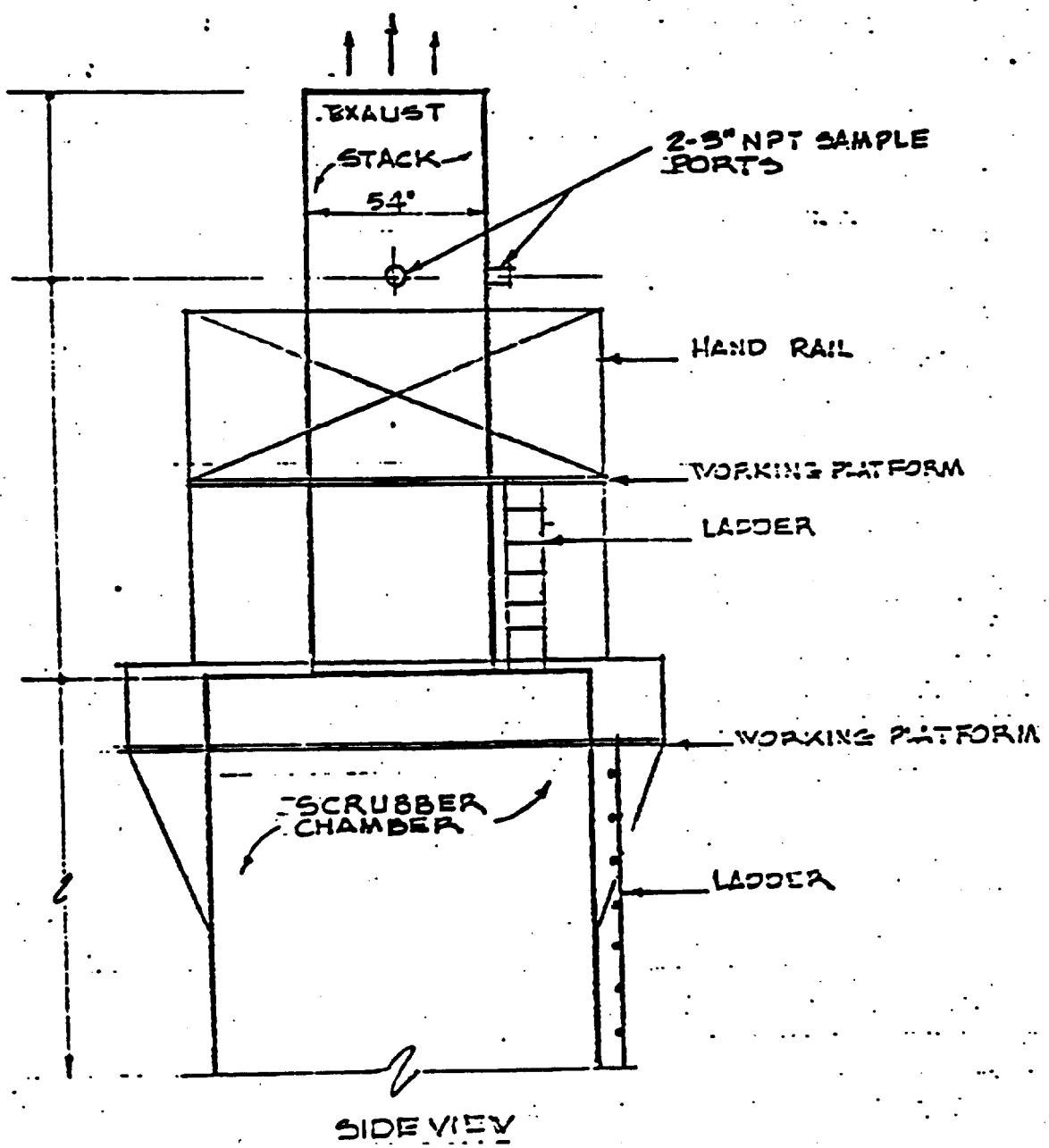
POINT	DISTANCE	POINT	DISTANCE
1	1.1"	7	34.8"
2	3.6"	8	40.5"
3	6.4"	9	44.4"
4	9.6"	10	47.6"
5	13.5"	11	50.4"
6	19.2"	12	52.9"

FIGURE 1

SOUTH COAST ASPHALT PRODUCTS, INC.
PALA, CALIFORNIA



TOP VIEW
NO SCALE



SIDE VIEW

FIGURE 2

ENGINEERING OBSERVATION REPORT

Location CALMAT Company
Highway 76
Pala, CA 92059

Test Date: October 17, 1989

Engineers: Andy Segal & Alberto Abreu

P/O #: 000117

Findings:

This facility is an asphalt batch plant which is approximately 30 years old. The equipment at this facility consists of conveyor (for dryer loading), diesel fuel fired dryer, totally enclosed elevator for hot material transfer to asphalt mixer, hot material screening and storage, asphalt mixer, asphalt oil storage tank with heater and diesel fuel storage tank. The dryer and screen are vented to a water scrubber to control particulate matter emissions.

Source test was conducted on the scrubber exhaust. Sampling was started at approximately 9:24 AM and completed at approximately 10:31 AM. There were no interruptions during the sampling period, although the conveyor feeding aggregate and sand to the dryer had to be stopped several times because the material was too moist and would not readily flow into the dryer. The material feed chute into the dryer had to be cleared occasionally. If the material did not clear right away, the feed conveyor was stopped for short periods of time to prevent spillover. No other anomalies were noticed during the sampling period.

Three different types of asphalts were prepared during the test:

	3/8" Fine (AR8000)	1/2" Fine (AR4000)	1/2" Coarse (AR4000)
Bin #1 - Sand & Dust	3,398 lbs	2,778 lbs	2,280
Bin #2 - 3/8" Rock	2,142 lbs	2,268 lbs	1,980
Bin #3 - 1/2" Rock	---	624	1,416
Asphalt Oil	360 lbs	330 lbs	324 lbs
	6,000 lbs	6,000 lbs	6,000 lbs

Production Time: 0917 - 1042 = 85 minutes (1.42 hrs)

Production:		
	3/8" Fine	55.22 tons
	1/2" Fine	122.99 tons
	1/2" Coarse	72.97 tons
		251.18 tons

Average Production Rate: 251.18 tons/1.42 hrs = 176.9 tons/hr

Notes & Observations:

1. This test was conducted by the San Diego Air Pollution Control District (APCD) Source Test Team.

2. The baghouse exhaust stack was evaluated for APCD Rule 54 particulate emissions (40 lbs/hr maximum) and APCD Rule 50 (visible emissions not to exceed Ringelmann No. 1 (20% opacity) for excess of three minutes in any 60 minute consecutive period).

3. Scrubber exhaust exhibited a large and very noticeable steam plume; no visible emissions were noticed after dissipation of the steam.

4. Maximum visible emissions from truck drop were 20% opacity. The range was 5%-20%, averaging 5%-10% opacity.

5. Rotary dryer was fired with diesel fuel no natural gas is available at this site.

6. No "fugitive" visible emissions from the dryer, ducting, etc. were noticed during the test.

7. The water used for scrubbing is pumped to a settling pond where the particles settle and the water is recirculated to the scrubber. The pond was recently modified to three sections to improve the fine particle settling.

8. There is an asphalt storage silo at this facility which is unheated and stores previously made asphalt. The silo was being used to store and load SC800 asphalt mixture. The trucks being loaded were for the San Diego County Roads Department. Visible emissions from this truck drop were in the 25%-35% opacity range. The asphalt plant was in compliance with APCD Rule 50.

9. A diesel fuel oil sample was obtained in order to test for Rule 62 compliance.

10. Diesel fuel flow was 4 gal/min.

11. Sampling was conducted on two ports, 12 points per port, 2.5 minute sample time per point.

12. Loads are made in three ton batches and take approximately 35 seconds to prepare.

AA:AS:jl

ASPHALT PRODUCTION DURING SOURCE TEST

Time	Test Point	Material Temp (F)	Oil Temp (F)	Scrubber H_2O Pressure (psig) (CR/SL)*	Comments
0917	None	---	325	---	Begin Producation Count
0924	S-1	---	---	---	Begin Test Sampling
0928		---	---	70/70	---
0933		---	---	---	Diesel Oil Pres. 27 psig
0935		---	---		---Steam Plume @ Stack; No VE
0945		293	345	70/70	Truck Drop VE: 5%-10%
0954	S-12	---	---	---	End of 1st Traverse
1000		295	345	70/70	---
1001	W-1	---	---	---	Start 2nd Traverse
1019		294	345	70/69	Truck Drop VE: 10%-15%
1031	W-12	---	---	---	End of 2nd Traverse & Testing
1035		285	350	70/68	
1042					End Production Count

*CR: Control room pressure gage
SL: Supply line pressure gage (next to exhaust stack)

SAN DI[illegible] COUNTY AIR POLLUTION CONTROL DI[illegible]ICT

TEST # 89290 DATE: 16 Oct 89

SITE Cal-Mat, Rla

Pm, absolute	30.0
Ps, absolute	29.8[illegible]
Tm, absolute	75°
∂H@ across meter	1.928
% moisture of stack	14%
correction factor	0.94
Ts, absolute	116
∂P stack	0.124
ideal nozzle diameter	0.30
nozzle used	0.31 0.308
test dfferential pressure	0.2.3

k = 1.25

Ave ΔH = 3.0

ΔH@3.0 = 0.[illegible] ft³/min

50 ft³ / 0.[illegible] = [illegible] 2 min < 60 min

60 min / 2[illegible] pts = [illegible].5 min

SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

TRAVERSE POINT NUMBER	SAMPLING TIME, min	GAS METER READING (Vm), ft3	VELOCITY HEAD (dP), inHg	ORIFICE PRESSURE DIFFERENTIAL (dH), in Hg		STACK TEMPERATURE (Ts), F	DRY GAS METER TEMPERATURE		PUMP VACUUM in Hg	SAMPLE BOX TEMPERATURE	IMPINGER TEMPERATURE
				DESIRED	~~ACTUAL~~ Stop		INLET (T1)	OUTLET (T2)			
	10:01	569 78									
w-1	10:03½	572.183	0.39	3.1		131	88	100	9	135	53
2	10:06	574.808	0.50	4.1		132	87	110	~~13~~	135	49
3	10:08½	577.755	0.51	4.3		132	88	113	14	138	46
4	10:11	580.400	0.50	4.1		131	88	116	15	139	46
5	10 13 ½	582.791	0.34	2.8		132	88	116	12	141	50
6	10 16	585.181	0.35	2.91		133	88	116	12	147	48
7	10 18½	586.832	0.18	1.41		134	88	116	8	153	48
8	1021	589.402	0.46	3.75		134	88	119	15	147	47
9	1023½	591.489	0.29	2.35		134	88	114	12	153	47
10	10:26	593.000	0.12	0.97		133	88	115	7	154	50
11	10:28½	594.940	0.08	0.65		133	88	115	6	156	49
12	10:31	595.267	0.06	0.50		131	88	117	6	152	52

COMMENTS: During test Pitot Lines were crack to empty water out

GEORGE MAZIS
AIR POLLUTION CONTROL DISTRICT
SEPTEMBER 29, 1989

CAL-MAT, PALA
TEST # 89290
TEST DATE = 10-17-89

Sample No. Box #2

Impinger No.	Solution Used	Amount of Solution (ml)	Imp. Tip Configuration	Weight (grams)
1	$DI H_2O$	100	MOD	Final ____ Initial 538.7 Wt. gain 253.6 *
2	$D.I. H_2O$	100	STD	Final 557.9 Initial 539.6 Wt. gain 18.3
3			MOD	Final 459.4 Initial 458.9 Wt. gain 0.5
4			MOD	Final 449.4 Initial 449.3 Wt. gain 0.1
~~5~~				Final ____ Initial ____ Wt. gain ____
~~6~~				Final ____ Initial ____ Wt. gain ____
Flask				Final ____ Initial ____ Wt. gain ____

TOTAL WEIGHT GAIN OF IMPINGERS (grams) 272.5

TRFR SOME OF IMP. #1 INTO CAPTURE BEAKER TO BE ABLE TO WEIGH IT:

597.2
− 414.3
182.9

	TARE WTS	FINAL WTS
Date	10-16-89	10-17-89
Signature	T. Wood	T. Wood & J.S.

ORSAT ANALYSIS RESULTS

609.4
− 538.7
70.7

IMP #1
182.9
+ 70.7
253.6

Gas Fractional Part

CO_2	4.2%
O_2	14.1%
CO	—
N_2	81.7%

Date ____

Time ____

Signature ____

FILTER # 89030 LOADED 10-16-89

SDC APCD METHOD 5 LAB SHEET

SITE = Cal-Mat Asphalt Plant, Pala P.O. # 117

TEST # = #89290

VOLUMES

(1) IMPINGER VOLUMES

	final			initial			Δ
#1	792.3	ml	-	538.7	ml	=	253.6
#2	557.9	ml	-	539.6	ml	=	18.3
#3	459.4	ml	-	458.9	ml	=	0.5
#4	449.4	ml	-	449.3	ml	=	0.1

TOTAL VOLUME LIQUID COLLECTED = 272.5

comments: Imps. #1 & #2 had significant amt. of dark grey-brown particles. Probe and nozzle acetone rinses had med. brown particles.

(2) BEAKER RINSES

ACETONE

BKR ID = #90

FRONT HALF = _____ ml

BACK HALF = 350 ml

BEAKER RINSES = 25 ml

total acetone = 375.0 ml

WATER

BKR ID = #94

FRONT HALF = _____ ml

BACK HALF = 755 ml

BEAKER RINSES = 100 ml

IMPINGERS = 200 ml

total water = 1055.0 ml

* All data and calculations may be found on file at the San Diego County

SDC APCD METHOD 5 LAB SHEET

Air Pollution Control District.

TEST # = #89290

STANDARDS

volume Ac = 500 ml volume water = 1000 ml

	ACETONE	WATER
BKR ID =	#89	#92
f:	49.9356 g	49.3906 g
i:	49.9354 g	49.3906 g
Δ:	0.0002 g	0.0000 g

Limits:

limit for acetone is 7.9 µg/ml (7.9 * 10^-6 g/ml)
limit for water is 4 µg/ml (4 * 10^-6 g/ml)

The Acetone **PASSED** The Water **PASSED**

4E-07 g/ml 0 g/ml

(3) CORRECTIONS- (volume used)*(std wt)

	ACETONE	**WATER**
FRONT HALF =	0 g	0 g
BACK HALF =	0.00014 g	0 g
BKR RINSES =	1E-05 g	0 g

total front ha = 0 g ›tal impingers = 0 g

tal back half = 0.00014 g

SDC APCD METHOD 5 LAB SHEET

total rinses = 1E-05 g
TEST # = #89290

total grams = 0.0001 g
from solvents

WEIGHTS

	FRONT HALF	BACK HALF
ACETONE		
BKR ID =		#90 ✓
f:	g	49.3810 ✓ g
i:	g	49.3399 ✓ g
Δ:	0.0000 g	0.0411 g
WATER		
BKR ID =		#94 ✓
f:	g	49.6200 ✓ g
i:	g	49.2968 ✓ g
Δ:	0.0000 g	0.3232 g
ORGANIC		
BKR ID =		
f:	g	g
i:	g	g
Δ:	0.0000 g	0.0000 g
FILTERS		
ID =		#89030 ✓
f:	g	0.1356 ✓ g

SDC APCD METHOD 5 LAB SHEET

i:	_____ g	i:	0.1184 ✓ g
Δ:	0.0000 g	Δ:	0.0172 g

TEST # = #89290

(4) FINAL WEIGHTS

(total weight gained)

FRONT HALF= 0.0000 BACK HALF= 0.3643 ORGANIC= 0.0000 (front and back)

TOTAL WEIGHT GAINED = 0.3643 g

correction for solvents (acetone and water)

TOTAL WEIGHT GAINED FROM SOLVENTS = 0.0001 g

(5) CORRECTED WEIGHTS

TOTAL WEIGHT GAINED CORRECTED = 0.3642 g

(6) FILTERS

FRONT HALF= 0.0000 BACK HALF= 0.0172

TOTAL WEIGHT GAINED = 0.3814 g

Comments -

Traverse Points:

% of Dia	distance from wall	
2.1	~~1.218~~	1.13
6.7	~~3.886~~	3.618
11.3	~~6.554~~	6.102
17.7	~~10.266~~	9.56
25.0	~~14.50~~	13.50
35.6	~~20.64~~	19.22
64.4	~~37.35~~	34.78
75.0	~~43.50~~	40.50
82.3	~~47.73~~	44.44
88.2	~~51.16~~	47.63
93.3	~~54.11~~	50.38
97.9	~~56.49~~	52.60

Port Length
8"

Marking	
9.13	~~9.218~~ 16 of 89
11.618	~~11.886~~
14.102	~~14.554~~
17.56	~~18.266~~
21.50	~~22.50~~
27.64	~~28.64~~
42.78	~~45.55~~
48.58	~~51.50~~
52.44	~~53.73~~
55.63	~~58.16~~
58.38	~~62.11~~
60.60	~~64.49~~

TEST # 89290
DATE = 10-17-89

CAL-MAT, PALA ASPHALT PLANT

T.C.W.

10-17-89

RECOVER PROBE + NOZZLE (T.C.W. + J.S.)

NOZZLE OPENING WAS COVERED AFTER TEST + LEAK CHECK.
P+N (probe + Nozzle) WERE CLEANED ON THE OUTSIDE BEFORE RECOVERY.
P+N WERE RINSED + BRUSHED WITH ACETONE THEN DI WATER.
P+N HAD MED. BROWN PARTICLES IN ACETONE RINSE.

RECOVER IMPINGERS (T.C.W.) (10-18-89)

BOTH IMP # 1 & 2 HAD SIGNIFICANT AMT. OF MED. BROWN PARTICLES.
IMPS. WERE RINSED + BRUSHED WITH DI WATER, THEN ACETONE.

RECOVER FILTER # 89030 (10-17-89)

FILTER HAD SIG AMT. OF DARK GREY, BROWN PARTICLES.
FILTER PLACED IN PLASTIC PETRI DISH.
FILTER MTL. ON RUBBER GASKET WAS SCRAPED ONTO FILTER.
FILTER PLACED IN DESSICATOR (10-17-89).

ACETONE RINSES

USED EM SCIENCE, OMNISOLV, GLASS DISTILLED ACETONE, LOT # 9301,
EVAP. RESIDUE = 0.1 PPM.
TRFR TO BKR # 90 (10-19-89)

BKR #90

USED 180 ml FOR P+N/F IMPINGER RINSES.
+ 170
350 ml + 25 ml = 375 ml
(Beaker Rinse)

DI WATER @ IMP CHARGE + CATCH

USED APCO DI WATER.

TOTAL AMT EVAPORATED: 955 ml. (INCLS. CHARGE + CATCH)
IMPINGER CHARGE WATER: 200 ml
IMPINGER CATCH:

BKR #94

USED 100 ml to transfer from 500 ml BKR to '94 (J.S.)
BKR #94 transferred to dessicator 10-24-89 @ 10:53.

TEST # 89290

CAL-MAT, PALA ASPHALT PLANT

TEST DATE: 10-17-89

T.C.W.

ACETONE BLANK (SAME AS ACETONE RINSES: OMNISOLV, LOT # 9301)

TRFR TO BKR # 89 (10-19-89)

BKR #89 500 ml

DI WATER BLANK (APCD LAB DI WATER)

TRFR TO BKR #92 (10-25-89)

BKR #92 1000 ml. BKR TO DESSICATOR (10-26-89 @ 0813)

Sample pots:

BKR/ Filter	wt. 1	wt. 2	wt. 3		FINAL WT.	INIT. WTS
#90 Acetone Sample	10-24 @ 1611 49.3808	10-26 @ 0801 49.3811	10-25 @ 1614 49.3810	Pot in Dec. @ 0.189	49.3810	49.3379 g
#94 Water Sample	10-25 @ 1519 49.6199	10-26 @ 0803 49.6201	10-26 @ 1540 49.6201	Boiled Dry in 500 BKR	49.6200	49.2968
#89 Acetone Blank	10-24 @ 1610 49.9356	10-25 @ 0759 49.9357	10-25 @ 1513 49.9355	Pot in Dec @ 0.189	49.9356	49.9334 g
#92 DI Water Blank	10-30 @ 0954 49.3902	10-31 @ 0750 49.3900	10-31 @ 1613 49.3901		49.3901	49.3906
Filter # 89030	10-24 @ 1616 0.1357	10-25 @ 1551 0.1356	10-26 @ 0807 0.1356		0.1356	0.1184