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.

DISTRIBUTION:

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BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street
San Francisco, California 94109
(415) 771-6000

SUMMARY OF SOURCE TEST RESULTS

Report No. 90209

Test Date: 4/24/90

Test Times:

Run A: 1010-1219 (60min)

Run B: 1245-1315 (30min)

Run C: 1438-1458 (20min)

SOURCE INFORMATION

Firm Name and Address
CHEVRON USA, INC.
841 Chevron Way
Richmond, CA 94801

Firm Representative and Title
Jack D. Harris,
Air Compliance Supervisor
Phone No. (415)720-2582

Source:
S-4415 Abated By
A-37 Mist Eliminator
Plant No. 10
Operates 24 hr/day & 360 days/yr

Permit Conditions
#1331

BAAQMD REPRESENTATIVES

Source Test Engineers
C. McClure/B. Bartley/H. Doi

Permit Services Division / Enforcement Division
T. Gambardella

Test Requested by:
B. Nishimura

Operating Parameters:

225 tons of asphalt were loaded during testing. 8 trucks received AR#4000 asphalt. Differential pressure of mist eliminator averaged 6.8" W.C. Fan filter averaged 0.65" W.C. Flow rate of stack varied between 1000 and 1500 SDCFM during testing.

Applicable Regulations: 8-2-301, 6-310, 6-311

VN Recommended: NO

Source Test Results and Comments:

METHOD:	TEST	RUN A	RUN B	RUN C	AVERAGE	LIMIT
ST-17	Stack Volume Flowrate,SDCFM				1,500	
	Stack Gas Temperature ^{O}F	82	94	96	91	
ST-23	Water Content, Volume %	1.5	2.1	1.8	1.8	
ST-28	Hydrogen Sulfide, gr/SDCF	.022	.028	.021	.024	
	Hydrogen Sulfide, ppm, dry	36	46	34	39	
ST-15	Particulate, gr/SDCF	.009	.013	.041	.021	.15
	Particulate, lb/hr	.1	.2	.5	.3	40
	Isokinetic Ratio, Act/Theo.	.96	.97	.97		
	*Trucks Loaded Per Run	4	1.5	1		
ST-7	Non- Methane Organic Carbon, As C1, ppm (dry)	826	1520	840		300
	NMOC, lb/run	2.3	1.7	.8		
	Lb NMOC Per Truck	.6	1.1	.8	.74**	15 lb/day

* 1.5 trucks were loaded between runs.
** Limit is 300 ppm and 15 lb/day, based on these results limit would be exceeded by loading more than 21 trucks per day.

NO COMMERCIAL USE OF THESE RESULTS IS AUTHORIZED

Source Test Team Leader	Date	Senior Source Test Engineer	Date	Approved by Source Test Manager	Date
C. McClure	5/18/90	K. Kunaniec	5/21/90	G. Karels	5/21/90

(ASPHALT PARTICULATE)

CHEURO #10 S-4415
4/24/90

$$G = 15.43 \cdot \frac{W_P}{V_O}$$

$W_{P_A} = 0.0123g$ $V_{O_A} = 20.6$ SDCF

$W_{P_B} = 0.0089g$ $V_{O_B} = 10.24$ SDCF

$W_{P_C} = 0.0149g$ $V_{O_C} = 5.54$ SDCF

ASSUMING $Q_O = 1500$ SDCFM

RUN A)

$$G_A = 15.43 \cdot \frac{W_{PA}}{V_{OA}} = 15.43 \frac{(0.0123)}{20.6}$$

$$\boxed{G_A = 0.009 \text{ gr/SDCF}}$$

$$M_A = \frac{G_A \cdot Q_O}{116.7} = \frac{(0.009)(1500)}{116.7}$$

$$\boxed{M_A = 0.1 \text{ Lb/HR}}$$

RUN B) $G_B = \frac{15.43(0.0089)}{10.24}$ $\boxed{G_B = 0.013 \text{ gr/SDCF}}$

$M_B = \frac{(0.013)(1500)}{116.7}$ $\boxed{M_B = 0.2 \text{ Lb/HR}}$

RUN C) $G_C = \frac{15.43(0.0149)}{5.54}$ $\boxed{G_C = 0.041 \text{ gr/SDCF}}$

$M_C = \frac{(0.041)(1500)}{116.7}$ $\boxed{M_C = 0.5 \text{ Lb/HR}}$

$\underline{G_{AVG} = 0.021 \text{ gr/SDCF}}$

$\underline{M_{AVG} = 0.26 \Rightarrow 0.3 \text{ Lb/HR}}$

C. EUROM #10 S-4415
4/24/90

ISOKINETICS

$$R_I = \frac{(T_s)(V_{std})}{(60)(100-\%H_2O)(A_n)(V_s)(TIME)(T_m)} \times 100$$

$D_n = 3.9mm = .39cm$

$A_n = 0.0002691\,\pi\,(D_{cm})^2 = 0.0002691\,\pi\,(.39)^2$

$A_n = 0.0001286\ ft^2$

$\%H_2O_A = 1.5\%$
$\%H_2O_B = 2.1\%$
$\%H_2O_C = 1.8\%$

RUN A) $T_s = 542.3°R$ $V_m = 20.71\ ft^3$ $T_m = 532.9°R$ $V_{s_{A,B}} = 48.2FPS$

$\%H_2O = 1.5\%$ $100-\%H_2O = \underline{98.5}$

$$R_{I_A} = \frac{(542.3)(20.71) \times 100}{(60)(98.5)(0.0001286)(48.2)(60)(532.9)}$$

$$\boxed{R_{I_A} = 0.96}$$

RUN B) $T_s = 554.5°R$ $V_s = 48.7FPS$ $V_m = 10.262\ ft^3$ $T_m = 531$

$100-\%H_2O = \underline{97.9}$

$$R_{I_B} = \frac{(554.5)(10.262) \times 100}{(60)(97.9)(0.0001286)(48.7)(30)(531)}$$

$$\boxed{R_{I_B} = 0.97}$$

RUN C) $V_s = 39.5FPS$ $T_m = 531°R$ $V_m = 5.555$ $T_s = 555.75°R$ $100-\%H_2O = \underline{98.2}$

$$R_{I_C} = \frac{(555.75)(5.555)(100)}{(60)(98.2)(0.0001286)(39.5)(20)(531)}$$

$$\boxed{R_{I_C} = 0.97}$$

LB/HR EMISSION LIMITATIONS $225\,TONS / 5\,HOURS = 45\,TON/HOUR$ RATE

$$E_{MAX_{LB/HR}} = 4.10\,(P_{TON/HR})^{0.67}$$

$E_{MAX\,LB/HR} = 52.5 \Rightarrow$ LIMITS $\underline{40\,LB/HR}$

H_2S

CHEVRON #10 S-4415

4/24/90

$w = X\mu g$

$\overline{MW}_{H_2S} = H \times 2 = 2.014$
$S = 32.06$
34.074

H_2S CONCENTRATION $= \dfrac{15.43 \cdot w}{V_o}$

$H_2S_{PPM} = \dfrac{(X\mu g)(386.9)}{453.6\,(\overline{MW})(V_o)}$

~~$H_2S\ lb/hr = \dfrac{(X\mu g)(60)(60)}{(453.6 \times 10^6)(V_o)}$~~

RUN A)

IMP A-1 $= 16.8\ mg = 16.8 \times 10^{-3}\ g$
IMP A-2 $= 12.5\ mg = 12.5 \times 10^{-3}\ g$
$29.3 \times 10^{-3}\ g$

$V_{O_A} = 20.6$ SDCF

$H_2S_{CONC_A} = \dfrac{15.43(29.3 \times 10^{-3}\ g)}{20.6\ SDCF} = .022\ gr/SDCF$

$H_2S_{PPM_A} = \dfrac{(29.3 \times 10^3\ \mu g)(386.9)}{(453.6)(34.074)(20.6)} = 35.6\ ppm \Rightarrow 36\ ppm$

~~$H_2S\ lb/hr_A = (29.3 \times 10^3\ \mu g)(60)h$~~

RUN B)

$V_{O_B} = 10.24$ SDCF

$H_2S_{CONC_B} = \dfrac{15.43(19 \times 10^{-3}\ g)}{10.24\ SDCF} = .028\ gr/SDCF$

IMP A-3 $= 11.9 \times 10^3\ \mu g$
IMP A-4 $= 7.1 \times 10^3\ \mu g$
$X\mu g = 19 \times 10^3\ \mu g$

$H_2S_{PPM_B} = \dfrac{(19 \times 10^3\ \mu g)(386.9)}{(453.6)(34.074)(10.24)} = 46.4\ ppm \Rightarrow 46\ ppm$

CHEL_IN #10 S-4415

4/24/90

RUN C)

$VO_C = 5.54$ SDCF

$H_2S_{CONC_C} = \frac{15.43(7.6 \times 10^{-3}\ \mu g)}{5.54\ SDCF}$

RUN C $\begin{cases} \text{IMP A-5} = 5.8 \times 10^{3}\ \mu g \\ \text{IMP A-6} = 1.8 \times 10^{3}\ \mu g \end{cases}$

$W_{H_2S} = 7.6 \times 10^{3}\ \mu g$

$H_2S_{CONC_C} = .021\ gr/SDCF$

$H_2S_{(PPM)_C} = \frac{(7.6 \times 10^{3}\ \mu g)(386.9)}{(453.6)(34.074)(5.54)} = 34.3\ ppm \Rightarrow 34\ ppm$

$H_2S_{PPM_C} = 34\ ppm$

CH₂ RUN #10 S-4415
4/24/90

NON-METHANE ORGANIC CARBON, AS C_1

RUN A) TIME WEIGHTED AVERAGE

760 PPM FOR 29 MIN	$\frac{29}{74} = 0.392$	$760 \times .392 = 298$
695 PPM FOR 15 MIN	$\frac{15}{74} = 0.203$	$695 \times .203 = 141$
956 PPM FOR 30 MIN	$\frac{30}{74} = 0.405$	$956 \times .405 = 387$
74 MIN	1.000	826 PPM

$\boxed{\text{RUN A} = 826 \text{ PPM}}$

$\boxed{\text{RUN B} = 1520 \text{ PPM}}$

$\boxed{\text{RUN C} = 840 \text{ PPM}}$

RUN A ⇒ 4 TRUCKS LOADED
RUN B ⇒ 1½ TRUCKS LOADED
RUN C ⇒ 1 TRUCK LOADED

} TOTAL 6½ TRUCKS LOADED

NOTE: 1½ TRUCKS WERE LOADED BETWEEN RUNS.

(PPM'S) TO LB/RUN

$$\text{Lb/RUN} = \frac{(\text{XPPM})(\overline{MW})(\text{TIME MIN})(Q_0)}{386.9 \times 10^6}$$

$\overline{MW}_{C_1} = 12.011$

RUN A) PPM = 826

$$\frac{(826)(12.011)(60\text{ MIN})(1500)}{386.9 \times 10^6}$$

$\boxed{\text{RUN A} = 2.3 \text{ Lb/RUN}_{C_1}}$

TIME RECORDER GATHERED DATA

RUN B) PPM = 1520

$$\frac{(1520)(12.011)(24\text{ MIN})(1500)}{386.9 \times 10^6}$$

$\boxed{\text{RUN B} = 1.7 \text{ Lb/RUN}_{C_1}}$

RUN C) PPM = 840

$$\frac{(840)(12.011)(20)(1500)}{386.9 \times 10^6}$$

$\boxed{\text{RUN C} = 0.8 \text{ Lb/RUN}_{C_1}}$

Lb NMOC / TRUCK

Ct. URON #10 S-4415
4/24/90

RUN A) 4 TRUCKS at ~~2.13~~ 2.3 Lb

$$\frac{2.3\ Lb_c}{4} = \boxed{0.6\ Lb/_{TRUCK} \Rightarrow RUN\ A}$$

RUN B)

$$\frac{1.7\ Lb_c}{1.5\ TRUCKS} = \boxed{1.1\ Lb/_{TRUCK} \Rightarrow RUN\ B}$$

RUN C)

$$\frac{0.8\ Lb}{1\ TRUCK} = \boxed{0.8\ Lb/_{TRUCK} \Rightarrow RUN\ C}$$

OVERALL AVERAGE:

$$\frac{4.8\ Lb_c,\ TOTAL\ FOR\ TEST}{6.5\ TRUCKS} \Rightarrow \boxed{0.74\ Lb/_{TRUCK}\ FOR\ TEST}$$

LIMITS 300 PPM AND 15 Lb/DAY

300 PPM IS MET

$$\frac{15\ Lb}{0.7385\ Lb/_{TRUCK}} = 20.3\ TRUCKS$$

15 lb/DAY MET WHEN MORE THAN 21 TRUCKS ARE LOADED IN ONE DAY.

VOC EMISSIONS FOR Chevron Richmond Mist Eliminator @ the Asphalt Rack:

Run #	Truck Company	Ave. PPm	Ave. ΔP	Ave. Flowrate SCFm	Time; mins	SDCF/Truck	#NMOC/TRUCK	Estimated gallons	Estimated; #NMOC/1000gal
1	John Lawson Oil Company	760	0.70	1370	29	39,730	0.94	7800	0.120
2 RUN (A)	Miles & Son Trucking	695	0.58	1255	15	18,825	0.41	7800	0.052
3	Granite Rock & Miles & Sons	956	0.70	1380	30	41,400	1.23/2 = 0.615	7800	0.079
4 RUN B	Syar & (½) Telfer	1520	0.74	1380	24	33,140	1.57/2 = 0.78	7800	0.100
5 X	(½) Telfer & (1) Telfer	1250	0.58	1260	30	37,800	1.47/2 = 0.735	7800	0.094
6 RUN C	James Hildebrand	840	0.45	1115	20	22,300	0.582	7800	0.075
Ave							0.677		0.087

SOURCE TEST LAB DATA SHEET

PLANT: Chevron PLT#10, Source 4451
SOURCE OPERATION: Asphalt Loading A-37
SOURCE TEST NO.:
FILTER MEDIA: 110 mm Glass Fibre.

PAGE 1 OF 1
INITIAL HD/CMV
TEST DATE 4/24/90

Drying Procedure: 105 °C 24 hours before and after test, desiccated ✓ Ok CMB

FILTER DATA

RUN NO.	FILTER NO.	TARE WEIGHT (g) 1/5 PM	1/12 AM		FINAL WEIGHT (g) 5/3 PM	5-7 AM	SAMPLE WEIGHT (g)
A	369	.6646	.6646		.6659	.6658	0.0012 ✓
B	370	3/26 AM .7228	3/26 AM .7227		.7243	.7245	0.0015 ✓
C	371	.7225	.7224		.7239	.7240	0.0014 ✓

PROBE & NOZZLE RINSE DATA (total all runs)

RUN NO.	FILTER NO.	FINAL ~~JAR~~ FILTER ~~TARE~~ WEIGHT (g)	JAR FINAL WEIGHT (g)	SAMPLE WEIGHT (g)
A	369	0.0012	0.0111	0.0123 ✓
B	370	0.0015	0.0074	0.0089 ✓
C	371	0.0014	0.0135	0.0149 ✓

PROBE & NOZZLE RINSE DATA (each run)

RUN NO.	PROBE/NOZZLE NOS.	JAR TARE WEIGHT (g) 5-3 PM	5-7 AM	JAR FINAL WEIGHT (g) 5-10 PM	5-14 AM	SAMPLE WEIGHT (g)
A	7	64.4236	64.4237	64.4346	64.4348	0.0109 ✓
B	8	64.2971	64.2970	64.3045	64.3045	0.0074 ✓
C	9	65.5535	65.5531	65.5670	65.5670	0.0135 ✓

IMPINGER DATA

SOLUTION	NO.	A TARE WEIGHT	B FILLED WEIGHT	C FINAL WEIGHT	C-A SAMPLE WEIGHT	C-B CONDENSATE WEIGHT

Form: "Source Test Lab Data Sheet"

FLABDATA : RJ : June 23, 1989

SOURCE TEST LAB DATA SHEET

PLANT: Chevron H/O Source 4451

SOURCE OPERATION: Asphalt Loading A-37

SOURCE TEST NO.:

FILTER MEDIA:

PAGE 1 OF 1

INITIAL HO

TEST DATE 4/24/90

Drying Procedure: 105 °C 24 hours before and after test, desiccated

FILTER DATA

RUN NO.	FILTER NO.	TARE WEIGHT (g)			FINAL WEIGHT (g)	SAMPLE WEIGHT (µg)

PROBE & NOZZLE RINSE DATA (total all runs)

RUN NO.	FILTER NO.	JAR TARE WEIGHT (g)	JAR FINAL WEIGHT (g)	SAMPLE WEIGHT (µg)

PROBE & NOZZLE RINSE DATA (each run)

RUN NO.	PROBE/NOZZLE NOS.	JAR TARE WEIGHT (g)	JAR FINAL WEIGHT (g)	SAMPLE WEIGHT (µg)

IMPINGER DATA

SOLUTION	NO.	A TARE WEIGHT	B FILLED WEIGHT	C FINAL WEIGHT	C-A SAMPLE WEIGHT	C-B CONDENSATE WEIGHT	
Cd SO4	A-1	476.4	577.6	580.0	103.6	2.4	2.6
	A-2	492.7	594.5	594.7	102.0	0.2	
	A-3	517.0	618.8	620.8	103.8	2.0	2.7
	A-4	500.8	602.4	603.1	102.3	0.7	
	A-5	498.8	600.7	601.4	102.6	0.7	1.0
	A-6	484.9	587.6	587.9	103.0	0.3	

Form: "Source Test Lab Data Sheet"

FLARDATA : EJ : June 23, 1989

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, Calif. 94109 • 771-6000

Source Test Data Sheet

Source Operation S-4415
Plant CHEVRON #10
Sample Type PARTICULATE
Process Cycle MIST ELIMINATOR ON SITE
Duct Size 8.5" NO COUP 0725
Duct Pressure +0.6" H_2O ← OK Cp.85 700
ASSUMED H_2O 3%

Source Test No. _____
Run No. A
Date: 4/24/90

BOBB → VAW#
3.9 mm Nozzle Diameter
.84 Pitot Tube
VAW# Gas Collector No.
30.05 Barometric Pressure
0.003 @ 25 Leak Rate @ 15"Hg
5 TIME EACH POINT
12 # OF POINTS
050 TIME EACH RUN

EPA 5 A B SITUATION

Sampling Train: PROBE ⇒ FILTER # _____ ⇒ IMP# A-1 ⇒ IMP# A-2

Traverse Point	Dist. From Z inches	INITIAL TRAVERSE Duct Temp °F	h H_2O	h	SAMPLING Traverse Point	h H_2O	V_s FPS	Time	METER Rate CFM	Temp °F	Volume ft³	Vac "Hg	Sat'd Gas Temp °F	T_s Duct Temp °F	REMARKS Roto CFH	Vm/POINT
T_s = 71°F 460/531°R	Cp=0.84	0.85						1010		53.89	53.39 / ~~54.03~~					
A-1	.32	1.5	.60		A	.80	50.6	5	.3653	73	55.86 / 55.72	4.5	39	79 / 539	21.9	
A-2	.44	1.2	.50		A	.80	50.6	1-TRACK 10	.3649	73	57.54 / 57.53	4.5	39	80 / 540	21.9	
A-3	.24	1.25	.50		A	.80	50.7	15	.3646	73	59.35 / 59.35	4.5	39	81 / 541	21.9	
A-4.	.40	1.5	.65			.80	50.7	10:30 HOLD AT 20 20	.3642	73	61.14 / 61.16	4.5	39	82 / 542	21.8	
B-1	.04	1.1	.50			.60	43.8	BEGIN 1055 25	.3160	76	62.74 / 62.74	3.5	39	80 / 540	18.96	
B-2	.17	1.2	.45			.80	50.6	1-TRACK 30	.3649	76	64.56 / 64.51	4.0	39	80 / 540	21.9	
B-3	.32	1.5.	.50			.75	49.1	HOLD AT 35 35	.3527	76	66.27 / 66.28	4.0	39	82 / 542	21.2	
B-4	.24	1.6	.60			.60	BEGIN 43.96	11:54 40	.3156	71	67.85 / 67.87	4.0	41	83 / 543	18.9	
						.60	44.01	45	.3149	71	69.44 / 69.47	4.0	42	84 / 544	18.9	
FLOWS WITH					1203-2	.70	47.54	50	.3401	71	71.17 / 71.15	4.0	42	84 / 544	20.4	
S TYPE						.70	47.62	55	.3395	71	72.85 / 72.85	5.0	42	86 / 546	20.4	
	SAM 1.6					.75	49.34	1219 60	.3511	71	74.60 / 74.60	5.0	42	87 / 547	21.1	

RUN A

V_s = 2.96

$D_n = 13.7 \left[\frac{T_s + 460}{V_s (100 - \%H_2O)} \right]^{1/2}$ = 3.78 mm (3.9 mm) 3.69

$D_m = \left[(2.638 \times 10^{-3}) \cdot \frac{(100 - \%H_2O)\, D_{nun}^2}{T_s} \right]$

$V_s = 2.9 (K_p) \sqrt{T_s \cdot h_{H_2O}}$ = 71.8 FPS

$V_o = \frac{17.71 (V_m)(P_b)}{}$

Condensate (g)
V_o SAF
$\%H_2O$

48.2 FPS
71.8 FPS 97
531 / 729
532.9 8.5"
20.71
82.3°F / 542.3

MONSANTO MIST ELIMINATOR
2 UNITS
1500 ACFM

SEE PLATE DUCT

1" 2.15 6.4 7.5

Source Test Team
CHUCK McCLURE
Source Test Engineer I
H. DOI
B. BARTLEY

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, Calif. 94109 • 771-6000

Source Test Data Sheet

Source Operation: ASPHALT RACK
Plant: CHEV #10
Sample Type: PART & GAS — H_2S = IMPS, 2 HYDROCARBONS, BOB B.
Process Cycle: MIST ELIMINATOR
Duct Size: 8.5"
Duct Pressure: +0.6" H_2O
ASSUMED H_2O: 3%

Source Test No.:
Run No.: B
Date: 4/24/90

3.9 mm Nozzle Diameter
0.84 Pitot Tube
BOB B → JAN 45 Gas Collector No.
30.05 Barometric Pressure
0.004 at 22 Leak Rate @ 15" Hg
5 TIME EACH POINT
1 # OF POINTS
30 ~~50~~ TIME EACH RUN

Sampling Train: PROBE ⇒ FILTER # ⇒ IMP # A-3 ⇒ IMP # A-4 ⇒ PUMP.

Traverse Point	Dist. From inches	INITIAL TRAVERSE Duct Temp °F	H H_2O	$\sqrt{h}$	SAMPLING Traverse Point	h H_2O	V_s FPS	Time	METER Rate CFM	Temp °F	Volume Ft^3	Vac "Hg	Sat'd Gas Temp °F	T_s Duct Temp °F	REMARKS ROTO CFH	Vm/POINT
					B			1245 0			74.868					
					B	.72	48.52	1TR 5	.3427	71	76.58 76.58	3.5	38	91 551	20.6	
					B	.76	49.94	10	.3515	71	78.34 78.315	4.0	39	93 553	21.1	
					B	.75	49.70	2TR 15	.3485	71	80.06 80.06	4	39	95 555	20.9	
					B	.75	49.74	20	.3482	71	81.80 81.82	4	39	96 556	20.9	
					B	.75	49.74	2TR 25	.3482	71	83.56 83.57	4	39	96 556	20.9	
					B	.60	44.49	1315 30	.31145	71	85.13 85.13	3	39	96 556	18.7	
					B			35		71	10.262			94.5		
					B		48.7	40		531				554.5		
					B			45								
					B			50								

PARTICULATE - LIGHT
H_2S - HEAVY
IMPINGER BREAKING THREW
STOP TEST!

$$D_n = 13.7\left[\frac{T_s + 460}{V_s(100-\%H_2O)}\right]^{1/2}$$

$$V_m = \left[(2.638 \times 10^{-3})\ (100-\%H_2O)\,D^2_{nun}\right]\frac{V_s}{T_s}$$

$$V_s = 2.9(K_p)\sqrt{T_s \cdot h_{H_2O}}$$

$$V_o = 17.71(V_m)(P_b)$$

Condensate (g)
V_o SCF
$\%H_2O$

Source Test Team
CHUCK McCLURE
Source Test Engineer I
R. BARTLT
H. DOL

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, Calif. 94109 • 771-6000

Source Test Data Sheet

Source Operation: ASPHALT RACK
Plant: CHEVRON #10
Sample Type: PART + H_2S + HYDROCARBONS
Process Cycle: MIST ELIMINATOR
Duct Size: 8.5
Duct Pressure: +0.6
ASSUMED H_2O: 3%

Source Test No.
Run No.: C
Date: 4/24/90

$B^2 \rightarrow$ JAM46

3.9	Nozzle Diameter
0.84	Pitot Tube
JAM46	Gas Collector No.
30.05	Barometric Pressu
0.00 at 20	Leak Rate @ 15"Hg
5	TIME EACH POINT
1	# OF POINTS
20 min 50	TIME EACH RUN

Sampling Train: PROBE ⇒ FILTER ⇒ IMPA# A-5 ⇒ IMPA# A-6 ⇒ PUMP

(C)

Traverse Point	Dist. From inches	INITIAL TRAVERSE Duct Temp °F	H H_2O	$\sqrt{h}$	SAMPLING Traverse Point	h H_2O	V_s FPS	1438 Time	METER Rate CFM	Temp °F	Volume Ft^3	Vac "Hg	Sat'd Gas Temp °F	T_s Duct Temp °F	REMARKS ROTO CFH	Vm/POINT
								0			85.31					
					C	.55	42.6	5	.2982	71	86.80 86.82	3	42	96 556	17.9	
					C	.45	38.5	10	.2996	71	88.17 88.18	2.5	43	95 555	16.2	
					C	.45	38.5	15	.2697	71	89.53 89.525	2.5	42	96 556	16.2	
					C	.45	38.5	1458 20	.2697	71	90.87 90.865	2.5	41	96 556	16.2	
					C		39.5	25		71	5.555			95.75		
					C			30		531				555.75		
					C			35								
								40								
								45								
								50								

38 + 58

$$D_n = 13.7\left[\frac{T_s + 460}{V_s(100-\%H_2O)}\right]^{1/2}$$

$$Q_{in} = \left[(2.638 \times 10^{-3})\ (100-\%H_2O)\,D_{nun}^2\right]\frac{V_s}{T_s}$$

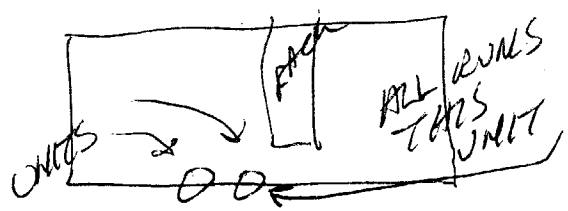
$$V_s = 2.9(K_p)\sqrt{T_s \cdot h_{H_2O}}$$

$$V_o = \frac{17.71(V_m)(P_b)}{T_m\ °R}$$

.6/96

Condensate (g)
V_o SCF
$\%H_2O$

Source Test Team
CHUCK McCLURE
Source Test Engineer I
B BARTLETT
H DOE



H.D.

4/24/90

CHEVRON #10

WE WILL RUN EPA METHOD 5A
↑
ASPHALT.

LIKE A STANDARD PARTICULATE W/EXCEPTIONS OF

1. PROBE & FILTER AT 108°F ± 18°
2. WASH WITH METHYLENE CHLORIDE
   — GLOVES & OPEN AIR & NO WATER
   REDUCE AT ROOM TEMPERATURE
   IN LABS BOOTH.
3. REAGENT (Teflon jumpers) 2% $CdSO_4$ IN IMPINGERS — READY MONDAY (PM)

— ICE
— ~~GLASS PROBE, NOZZLES~~
— CHECK CLEANING — H_2O, Acetone, CHUCK.
— Brush —
→ Knock out impingers.