

Plant Giant
 Run Number #3
 Location Stack
 Date March 16/81 13:45
 Operator Robinson & Olesen
 Sample case number
 Monitor Unit number

VERY IMPORTANT - FILL IN ALL BLANKS

Read and record at the start of each test point.

Ambient temperature, °F 16.34
 Barometric pressure, in. Hg 29.76
 Assumed moisture, % 7
 Heater box setting, °F
 Pitot tip diameter, in. .5
 Pitot length, ft. 10
 Pitot heater setting Hi

Inathal Ist. imp 100 ml		2nd. 100 ml		3rd. Empty		4th.		199g Silica gel				
Final		L86		113ml		1ml			213 g			
Point	Clock Time mins.	Dry Gas Meter ft ³	Pitot, in. H ₂ O ΔP	Orifice ΔH, in. H ₂ O		Dry gas temperature, °F		Pump Vacuum in. Hg Gauge	Sample Case Temp-erature, °F	Impinger Temp-erature, °F	Stack Pressure, in. Hg	Stack Temp-erature °F
				Desired	Actual		R					
3	5	983.6	.017	.580	.580	32	492	3.5	20	120	29.74	120
4	10	985.7	.017	.570	.570	32	492	3.5	25	130		130
5	15	987.88	.02	.620	.620	32	492	3.2	25	135		180
6	20	989.5	.021	.634	.634	32	492	3.4	25	138		200
7	25	992.12	.025	.76	.76	32	492	4.0	25	145		200
8	30	994.5	.025	.76	.76	32	492	3.8	25	168		200
9	35	996.85	.032	.97	.97	32	492	4.2	32	187		200
10	40	999.49	.035	1.06	1.06	32	492	4.5	33	214		200
11	45	1002.2	.034	1.04	1.04	40	500	4.5	30	230		200
12	50	1004.4	.038	1.17	1.17	40	500	4.5	30	255		200
12	55	1007.78	.038	1.18	1.18	43	503	5.00	35	255		200
11	60	1010.67	.038	1.18	1.18	45	505	4.9	35	235		200
10	65	1013.67	.038	1.18	1.18	45	505	4.9	35	225		200
9	70	1016.61	.038	1.18	1.18	47	507	4.9	38	220		200
8	75	1019.58	.032	1.00	1.00	48	508	4.8	40	220		200
7	80	1022.35	.032	.99	.99	45	505	4.8	45	185		200
6	85	1025.05	.032	.99	.99	45	505	4.8	45	175		200
5	90	1027.78	.030	.94	.94	44	504	4.6	40	170		190
4	95	1030.44	.027	.89	.89	42	502	4.4	40	155		160

Comments:

Figure 36. Suggested Particulate Field Data Form

Plant Giant YK Mines
 Run Number #3
 Location Stack
 Date March 16/81 10:45-13:45
 Operator Robinson & Olesen
 Sample case number _____
 Monitor Unit number _____

VERY IMPORTANT - FILL IN ALL BLANKS

Read and record at the start of each test point.

Ambient temperature, °F 16.34
 Barometric pressure, in. Hg 29.76
 Assumed moisture, % 7
 Heater box setting, °F 7
 Pitobe tip diameter, in. .5
 Pitobe length, ft. 10
 Pitobe heater setting Hi

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O ΔP	Orifice ΔH, in. H ₂ O		Dry gas temperature, °F		Pump Vacuum in. Hg Gauge	Sample Case Temperature, °F	Impinger Temperature, °F	Stack Pressure, in. Hg	Stack Temperature, °F
				Desired	Actual							
3	100	1033.01	.022	.74	.74	40	500	4.2	150	40	29.74	140
3	105	1035.03	.022	.74	.74	38	498	4.0	165	38		140
4	110	1037.80	.024	.81	.81	38	498	4.0	165	37		140
5	115	1040.26	.026	.85	.85	38	498	4.0	162	40		160
6	120	1042.77	.027	.83	.83	38	494	4.2	162	35		200
7	125	1045.26	.027	.83	.83	38	494	4.0	170	40		200
8	130	1047.76	.029	.88	.88	36	496	4.2	170	38		200
9	135	1050.38	.030	.91	.91	36	496	4.5	214	42		200
10	140	1052.95	.034	1.04	1.04	37	497	4.5	244	41		200
11	145	1055.69	.035	1.07	1.07	40	500	4.8	249	40		200
12	150	1058.51	.036	1.11	1.11	43	503	4.9	245	43		200
Avg.		1061.40	.029	.92	.92		498.47					

Comments:

Figure 36. Suggested Particulate Field Data Form

Total Particulate Rate

$$C_p = \frac{Mn}{1000} \left(\frac{1}{V} \right)$$

$$C_p = \frac{Mn}{V}$$

$$\begin{aligned} Mn &= 7.3 & \text{mg} \\ V &= 83.6504 & \text{ft}^3 \\ C_p &= .00008727 & \text{gr/scf} \end{aligned}$$

$$\begin{aligned} Mn &= 7.3 & \text{mg} \\ V &= 2.3686 & \text{M}^3 \\ C_p &= 3.082 & \text{mg/m}^3 \end{aligned}$$

Total As Rate

$$Cas = \frac{MASV + MASP}{1000} \left(\frac{1}{V} \right)$$

$$\begin{aligned} MASV &= 14.17 & \text{mg} \\ MASP &= .41 & \text{mg} \\ V &= 83.6504 & \text{ft}^3 \\ Cas &= 0.0001743 & \text{gr/scf} \end{aligned}$$

$$Cas = \frac{MASV + MASP}{V}$$

$$\begin{aligned} MASV &= 14.17 & \text{mg} \\ MASP &= .41 & \text{mg} \\ V &= 2.3686 & \text{M}^3 \\ Cas &= 6.156 & \text{mg/m}^3 \end{aligned}$$

Percent Isokinetic

$$I = \frac{1.667 \left[(.00267) Vic + \frac{Vm}{Tm} \left(Pbar + \frac{AH}{13.6} \right) \right] Ts}{\theta Us Ps An}$$

$$\begin{aligned} An &= .001364 & \text{ft}^2 \\ Vic &= 114 & \text{ml} \\ Vm &= 77.80 & \text{ft}^3 \\ Tm &= 498 & \text{R}^\circ \\ Pbar &= 29.76 & \text{IN Hg} \\ AH &= .07 & \text{IN H}_2\text{O} \\ Ts &= 645.33 & \text{R}^\circ \\ \theta &= 150 & \text{MINS} \\ Ps &= 29.74 & \text{IN Hg} \\ Us &= 10.7695 & \text{fps} \\ I &= 81.53\% \end{aligned}$$

Emission Rate

$$\begin{aligned} G &= C (0.002205) Qs (60) 24 \\ &= C (Qs) 3.175 \end{aligned}$$

$$\begin{aligned} G &= 17.331 & \text{lb/day} \\ C &= 0.000174 & \text{g/scf} \\ Qs &= 31,317 & \text{ft}^3/\text{min} \\ 0.002205 &= \text{g to lb} \\ 60 &= \text{min/hr} \\ 24 &= \text{hr/day} \end{aligned}$$