Compliance Test - 1/26/99 SC1-Stack 2

Calculated Stack Concentration - Chromium

$$C^{Cr(mg/dscm)} = \frac{(M^{Cr})(T^{m} + 460)}{(499.8)(Y^{m)(Vm)(Pbar)}}$$

$$C_{Cr(\mu g/acm)} = \frac{C^{Cr\,(mg/ds}cm)*1000}{(T^{s}/528^{o}R)*(29.92/P^{abs})*(100/(100-\%H2O))}$$

$$mg/hr = (C^{Cr(\mu g/acm)}*(Q^{acfm}*.02832)*60)/1000$$

$M_{Cr=}$ Amount of Cr in sample (μg)
T_m= Dry gas meter temperature
Y_m= Dry gas meter correction factor
V_m= Dry gas meter volume (ft^3)
P_{bar}= Barometric pressure
$\%H_2O$= Percent H_2O
P_s=Static Pressure

Test #1

$C_{Cr(mg/dscm)}$= 0.0052
$C_{Cr(\mu g/acm)}$= 5.09
mg/hr = 162.63
M_{Cr}= 13.30
T_m= 52
Y_m= 1.042
V_m= 83.55
P_{bar}= 30.24
T_s= 73.5
Assumed $\%H_2O$= 2
P_s=0.46
Q_{acfm} = 18797

Test #2

$C_{Cr(mg/dscm)}$= 0.0042
$C_{Cr(\mu g/acm)}$= 4.11
mg/hr = 131.25
$M_{Cr=}$ 11.00
T_m= 58
Y_m= 1.042
V_m= 85.44
P_{bar}= 30.30
T_s= 75
Assumed $\%H_2O$= 2
P_s=0.46
Q_{acfm} = 18797

Test #3

$C_{Cr(mg/dscm)}$= 0.0031
$C_{Cr(\mu g/acm)}$= 3.04
mg/hr = 96.96
M_{Cr}= 8.24
T_m= 58
Y_m= 1.042
V_m= 86.82
P_{bar}= 30.30
T_s= 75
Assumed $\%H_2O$= 2
P_s=0.46
Q_{acfm} = 18797

Averages:

$C_{Cr(mg/dscm)}$= 0.0042
$C_{Cr(\mu g/acm)}$= 4.08
mg/hr = 130.28

Lab Results

	Total Vol.	ug/ml
Test 1	429	0.031
Test 2	500	0.022
Test 3	549	0.015