

EXTRA PROBLEM 2-BSOLUTION

0.064	0.004096
0.084	0.007056
0.043	0.001849
0.032	0.001024
0.066	0.004356
0.053	0.002809
0.049	0.002401
<u>Σ 0.391</u>	<u>0.023591</u>

$$\bar{y} = 0.391/7 = 0.055857$$

$$S_{\text{BLANK}} = \sqrt{\frac{0.023591 - 0.391^2/7}{6}} = 0.017082$$

$$RSD = S_{\text{BLANK}}/\bar{y} = 0.017082/0.055857 = \underline{\underline{0.309}}$$

$$y_q = \bar{y}_{\text{BLANK}} + 10 S_{\text{BLANK}} = 0.055857 + 0.17082 = 0.226677$$

$$y_D = \bar{y}_{\text{BLANK}} + 3 S_{\text{BLANK}} = 0.055857 + 3(0.017082) = 0.1071$$

<u>X</u>	<u>Y</u>
100 ppm	14.543
10	1.513
1	0.165

$$n = 3$$

$$\Sigma x = 111$$

$$\Sigma y = 16.221$$

$$\Sigma x^2 = 10101$$

$$\Sigma xy = 1469.595$$

$$\bar{x} = \frac{\Sigma x}{n} = \frac{111}{3} = 37$$

$$\bar{y} = \frac{\Sigma y}{n} = \frac{16.221}{3} = 5.407$$

$$S_{xx} = 10101 - 111^2/3 = 3994$$

$$S_{xy} = 1469.595 - (111)(16.221)/3 = 869.418$$

$$\beta = 0.145 = \frac{869.418}{5994}$$

$$\alpha = 5.407 - 0.145(37) = 0.04022$$

$$LOQ = \frac{Y_Q - \bar{Y}_{BLANK}}{\beta} = \frac{0.2267 - 0.055857}{0.145}$$

$$= \underline{\underline{1.18 \text{ ppm Cl}^-}}$$

$$LOD = \frac{Y_D - \bar{Y}_{BLANK}}{\beta} = \frac{0.1071 - 0.055857}{0.145}$$

$$= \underline{\underline{0.35 \text{ ppm Cl}^-}}$$