



## AutoAnalyzer 3 (AA3) HR Ortho-Phosphate in Water Study at 1 ppb (0.03 $\mu\text{mol}$ as P)

The need for low level phosphate analysis is becoming increasingly important due to recent government regulatory changes. Low level ortho-phosphate was analyzed on the SEAL AA3 HR to show the reproducibility and the low detection levels of the results obtained from this instrument. Two types of flowcell were tested. Below is a comparison of the 50 mm flow cell and 10 mm flowcell, using a LED light source.

### Data and Statistics:

	50 mm flowcell (ppb as P)	10 mm flowcell (ppb as P)
	1.083	0.947
	1.074	1.017
	1.076	1.102
	1.086	1.011
	1.089	1.110
	1.108	1.075
	1.103	1.043
	1.147	1.113
	1.121	1.094
	1.075	1.023
<b>Average</b>	<b>1.096</b>	<b>1.054</b>
<b>Std Dev</b>	<b>0.024</b>	<b>0.054</b>
<b>%RSD</b>	<b>2.163</b>	<b>5.171</b>
<b>MDL</b>	<b>0.066 ppb (0.002 <math>\mu\text{mol}</math>)</b>	<b>0.151 ppb (0.005 <math>\mu\text{mol}</math>)</b>

### Calibration Curves:

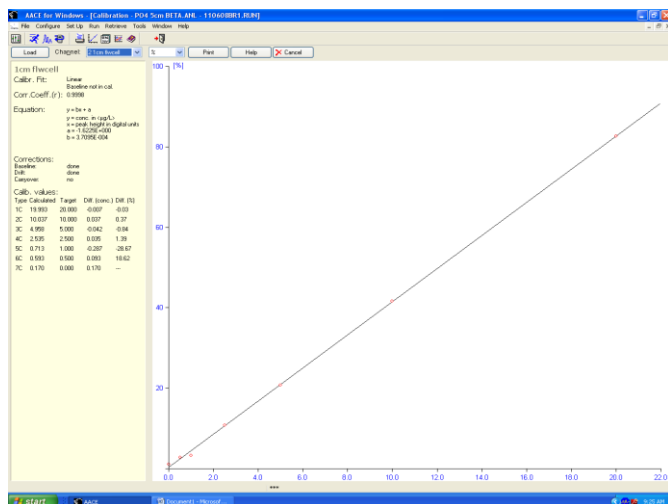


Figure 1: Calibration Curve 10 mm flowcell. Corr. Coeff.= 0.9998

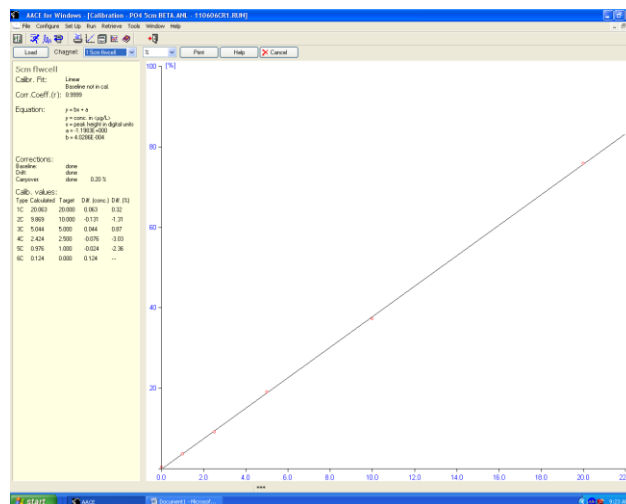


Figure 2: Calibration curve 50 mm flowcell. Corr. Coeff.= 0.9999

Screenshots of 1 ppb (0.03  $\mu\text{mol}$ ) replicates from AACE software:

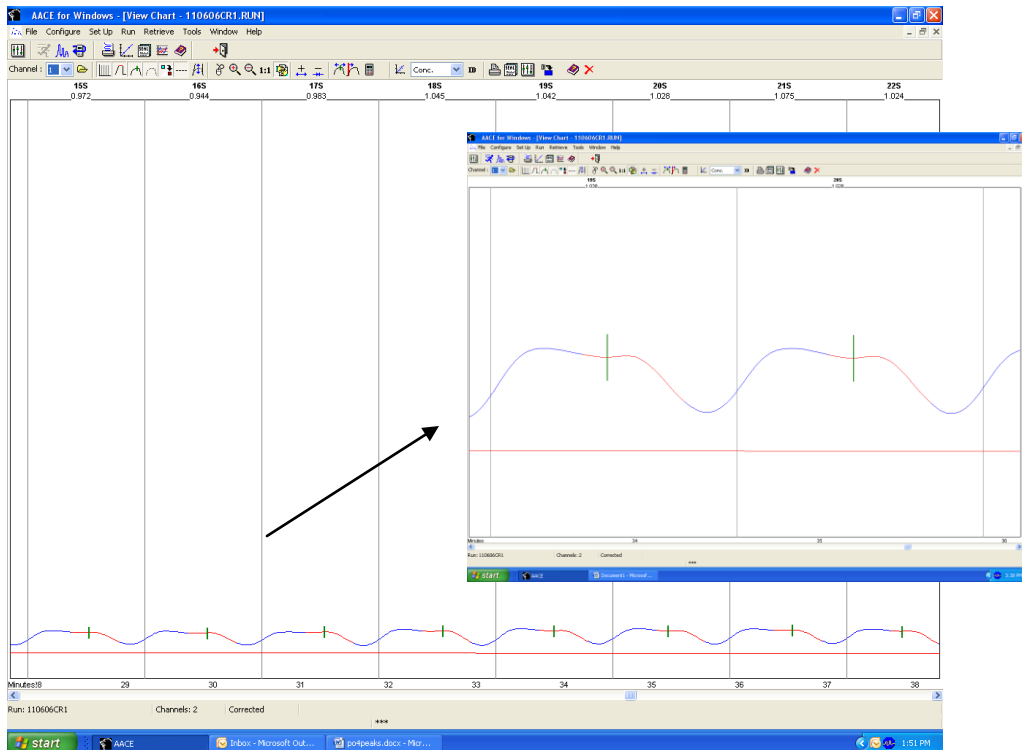


Figure 3: Replicates at 1 ppb  $\text{PO}_4$ , 10 mm flowcell. Gain = 760

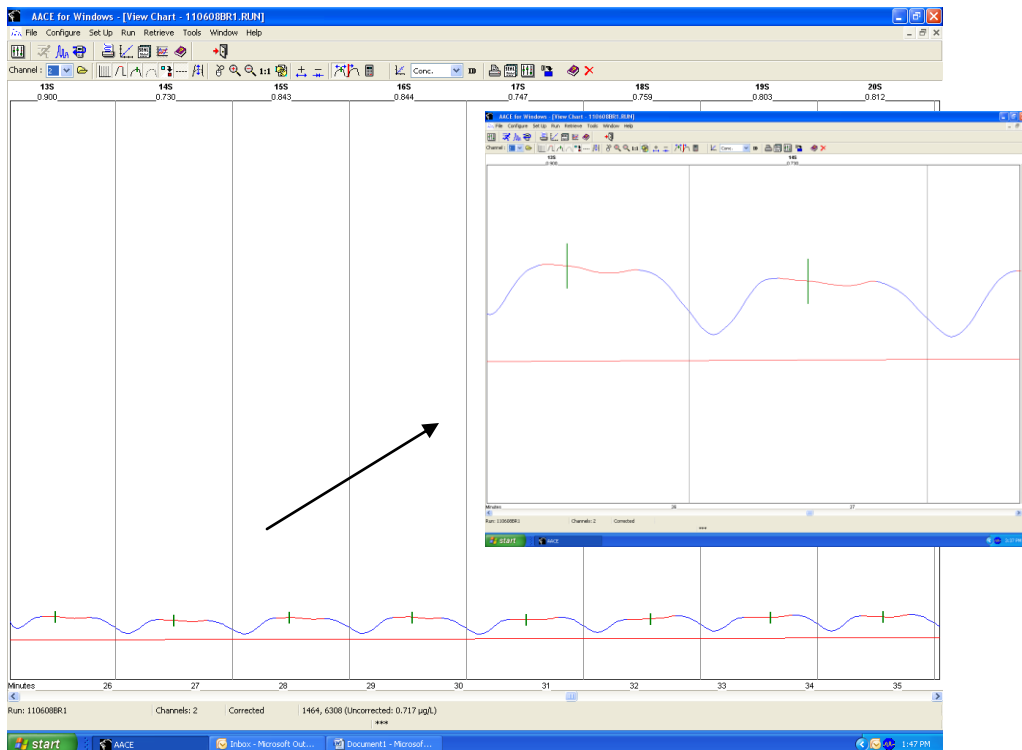


Figure 4: Replicates at 1 ppb  $\text{PO}_4$ , 50 mm flowcell. Gain = 110