



# **An On-Line Cyanide Analyzer for Measurement of Cyanide in Hydrometallurgical Processing of Precious Metal Ores**

**William Lipps  
OI Analytical**



$\text{H}_3$



H<sub>3</sub>



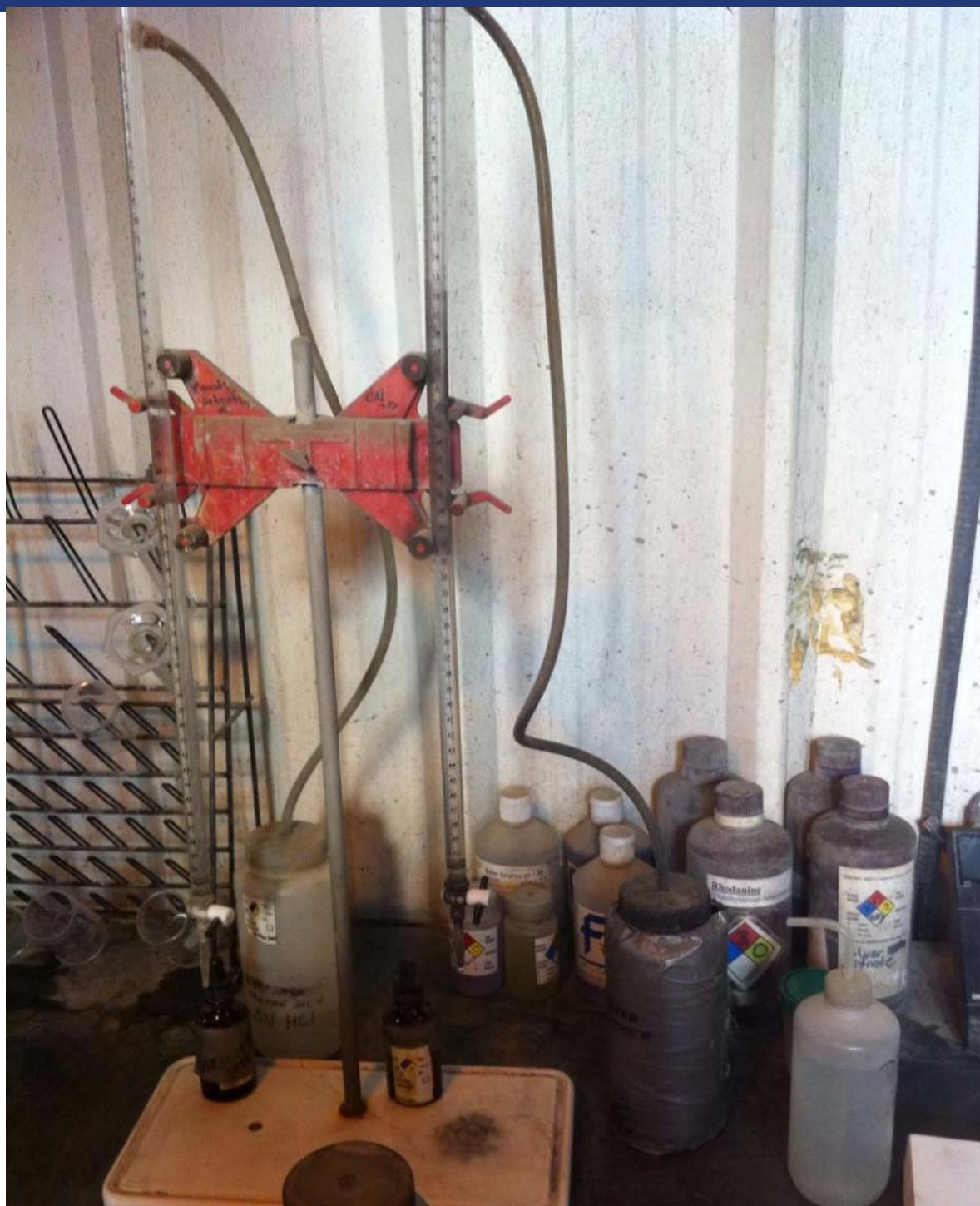
H<sub>3</sub>



H<sub>3</sub>



H<sub>3</sub>





$\text{H}_3$



NEXT WEEK

TOMORROW

OTHER DAY

**NOW**

NEXT YEAR

SOMEDAY

IN THE FUTURE

LATER

H<sub>3</sub>







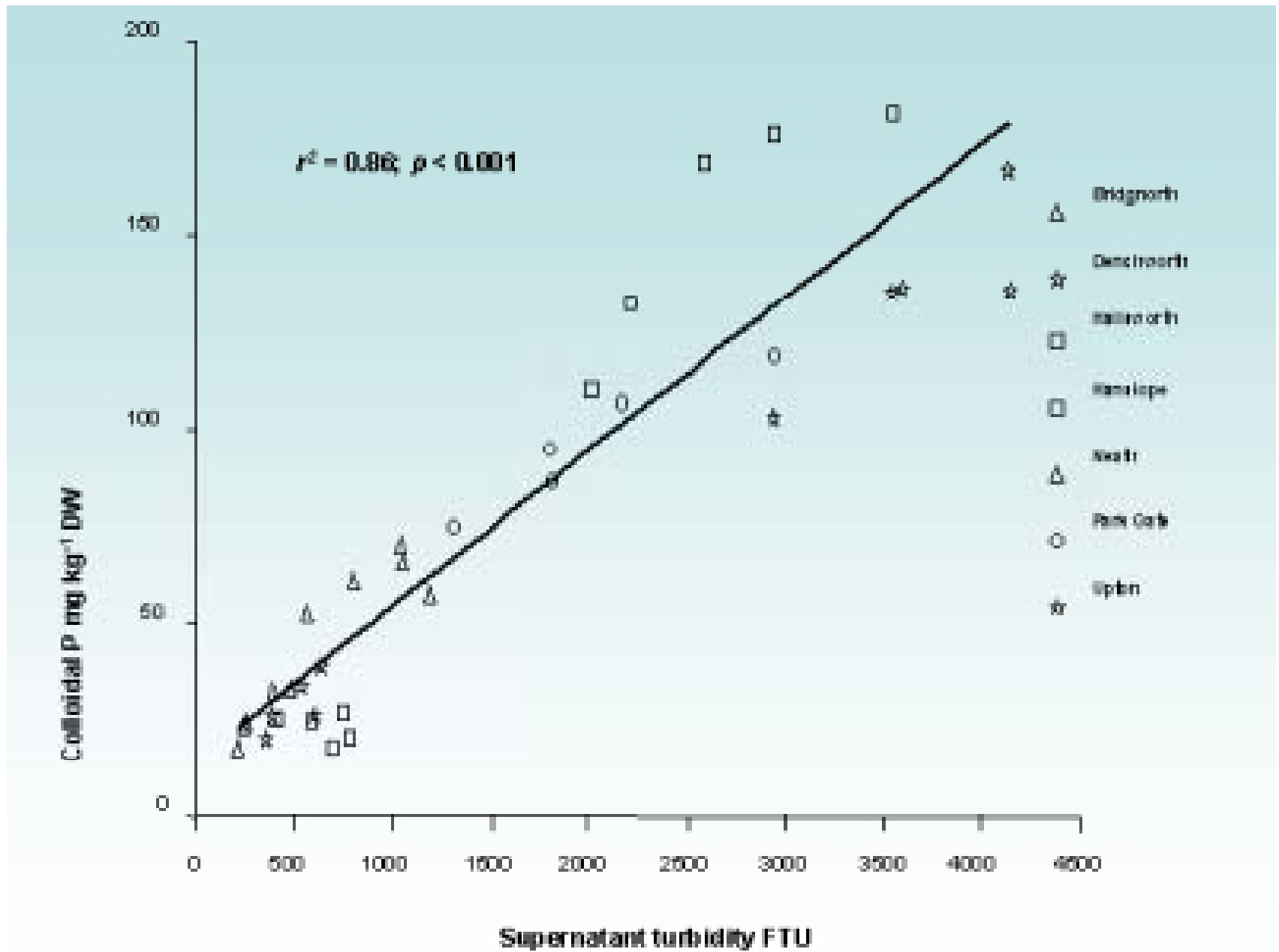
H<sub>3</sub>

# technically sound



H<sub>3</sub>

# Phosphorus







# Analyzer

- **For leach and tailings control**
- **Runs OIA-1677**
  - **Same method**
  - **More reliable**
  - **Simpler in operation**

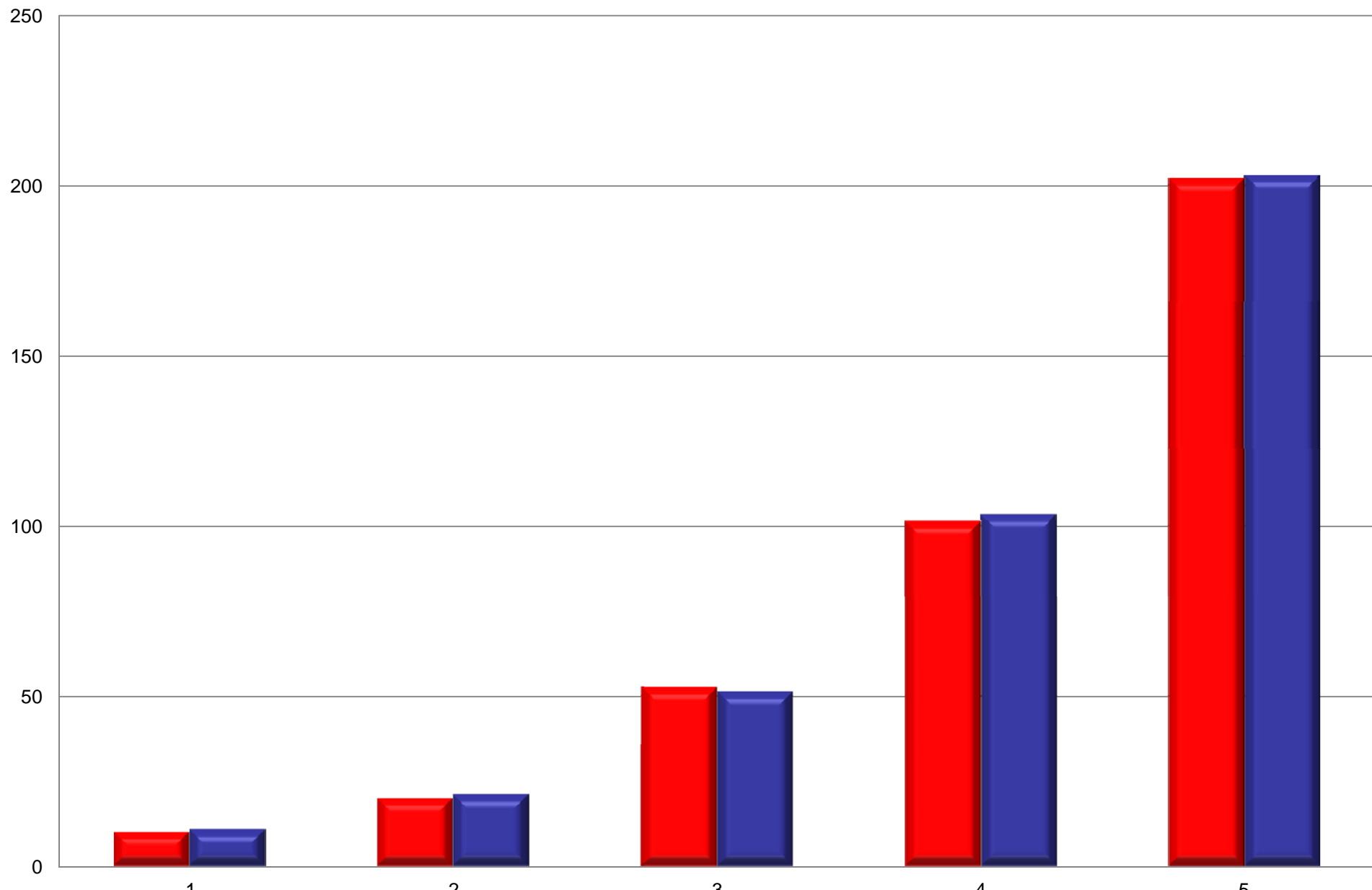
# Analyzer

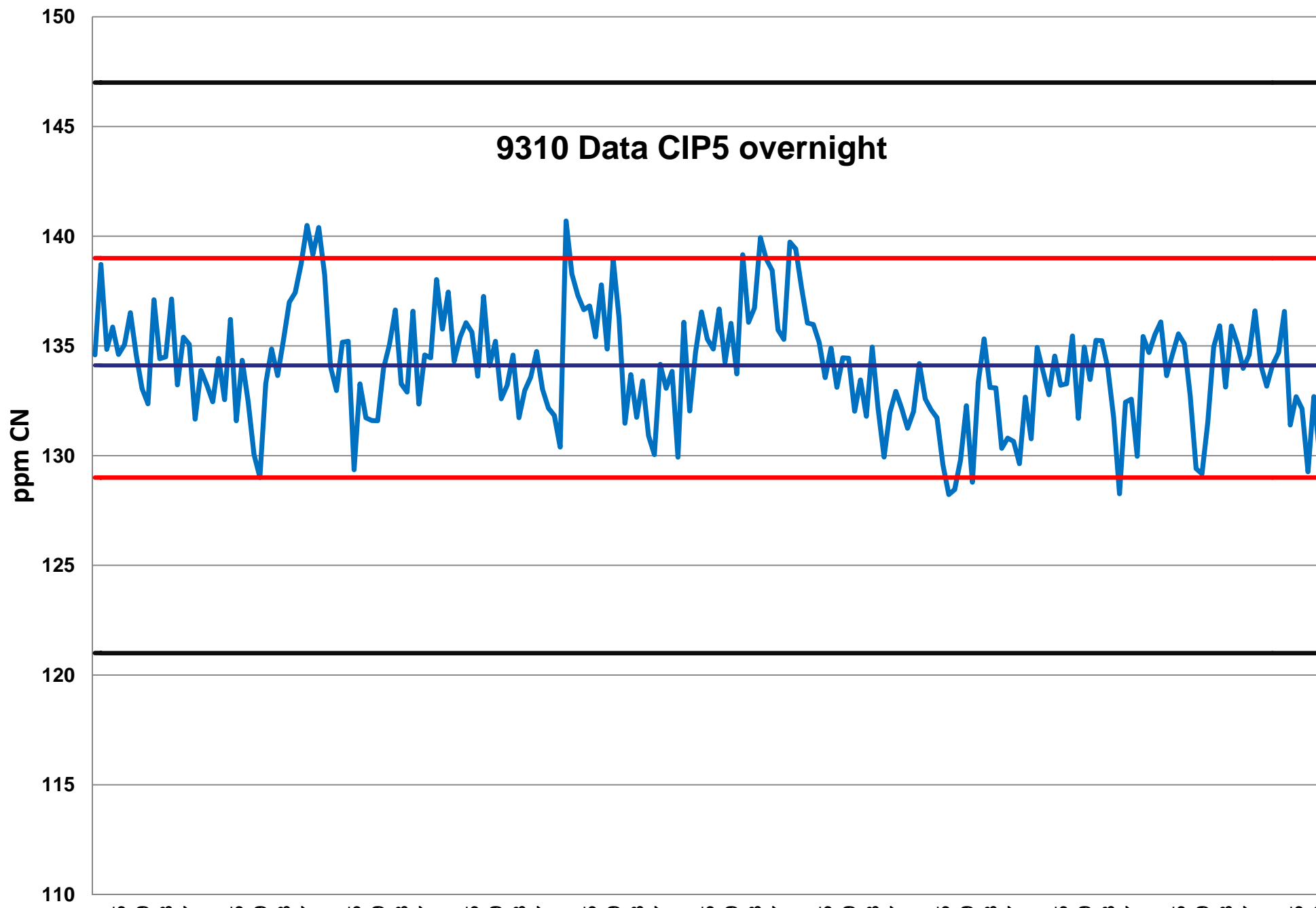
OIA 1677	9310
FIA	FIA
Gas diffusion - amperometry	Gas diffusion - amperometry
Aqueous calibration	Aqueous Calibration
Control Samples	Control Samples

<b>Standard (ppm CN)</b>	<b>Result (ppm CN)</b>	<b>% RSD</b>
<b>2</b>	<b>2.17</b>	<b>3.5</b>
<b>5</b>	<b>5.25</b>	<b>1.3</b>
<b>10</b>	<b>10.2</b>	<b>0.7</b>
<b>20</b>	<b>21.5</b>	<b>1.1</b>
<b>50</b>	<b>50.7</b>	<b>1.7</b>
<b>100</b>	<b>101</b>	<b>0.6</b>
<b>200</b>	<b>199</b>	<b>0.4</b>



## Lab Data versus 9310 Data Spiked Samples





H<sub>3</sub>

- Periodic auto-calibration
- Calibration Verification
  - Entire range
- Results comparable to accepted method
  - Grab samples
  - $\pm 15\%$  and better
- Equivalent to accepted method

- **Calibration Verification capability**
- **Grab Sample capability**
  - **Paired grab  $\pm 15\%$**
- **Approved methods/techniques**
- **Auto-recalibration if needed**
- **Auto QC samples**





H<sub>3</sub>

H<sub>3</sub>

**William Lipps**  
**[www.oico.com](http://www.oico.com)**