

# *Quality Assessment for SFWMD TP Analyses*

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*How do we make sure that our TP determinations are accurate and that our method provides “world class” results?*

- Quality Control Program and SPC
- Certification Samples
- “Blind” Studies
- Continued Investigation of Methods

## *Quality Control and SPC (fundamentals)*

- Control solutions prepared from a different source than standards
- Statistical Process Control to evaluate control results and improve performance (3-sigma)
- SPC to evaluate precision and matrix interference

## *Certification Studies (compulsories)*

- Samples analyzed 2 times per year to validate lab performance and retain certification from FHRS and NELAP
- Samples are synthetic and high concentration but are obtained only from a certified provider who has demonstrated homogeneity and stability
- Acceptance ranges are wide and there is only a pass/fail statistical analysis

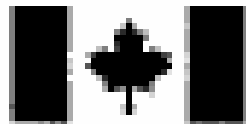
## *Blind Studies (competition)*

- USGS Interlab Comparison Study no longer provides “whole water” for nutrients. Samples are now synthetic and high concentration. USGS verifies stability and homogeneity but is not a certified provider. Excellent statistical evaluation conducted.
- Everglades Round Robin provides whole water samples but does not validate homogeneity and stability. Some statistical evaluation but proficiency is not determined.
- DEP splits do not establish MPV and there is no evaluation of homogeneity and stability. Statistics are “fuzzy” and difficult to interpret.

*So what is the ideal blind study  
to establish world class  
performance?*

- Must be “whole water”
- Must be low concentration
- Must be a certified provider that establishes homogeneity and stability
- Must have many good labs participating (good competition)
- Must provide good statistical evaluation and establish proficiency

# A “New Venue”



Environment  
Canada



TM

National Laboratory for Environmental Testing  
Proficiency Testing Program  
Inorganic Environmental Substances

## *The EC “Program”*

- “Whole water” taken from a wide range of natural sources (very low to mid concentration)
- Many excellent labs
- Full statistical and proficiency evaluation
- Stability and homogeneity tested and verified
- Well established, reasonable cost and conducted twice per year



## *The “Results”*

- PT-84 - 8/06/04 - “Ideal”, NO BIAS
- PT-86 - 6/30/05 - “Ideal”, NO BIAS
- PT-87\*\* - 2/7/06 - ??????

Ideal – 1. *n.* a model of perfection or beauty 2. *adj.* pertaining to an ideal || supremely good or desirable (*Websters New Lexicon Dictionary, Lexicon Publications, 1987*)

\*\* *Analysis conducted with new FIA instrumentation*

## *Conclusions*

- QC and SPC program is working
- Method is providing very accurate results
- No negative impacts from new instrumentation and method
- World Class Performance