THE NELAC INSTITUTE

LOQ Reporting for PT Samples

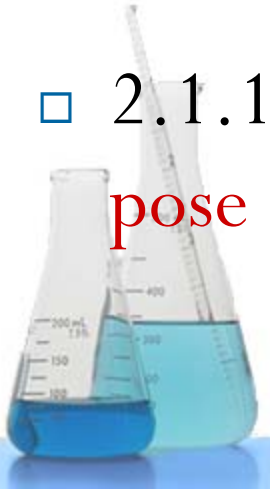
2003 Standard, cont.

- 2003 standard contains language emphasising the requirement for the PT program to support or compliment real world work done by the laboratory

2003 Standard

- 2.1.1.b – "test samples that are as similar to real-world samples as is reasonably possible; it is further expected that the PT samples shall be representative of materials analyzed for environmental regulatory programs, agencies, and communities"

- 2.1.1.e – "quantitation of analytes in the samples pose equivalent difficulty and challenge"



2003 Standard, cont.

- 2.5 – The laboratory's management and all analysts shall ensure that all PT samples are handled in the same manner as real environmental samples utilizing the same staff, methods as used for routine analysis of that analyte, ***procedures***, equipment, facilities, and frequency of analysis.

2003 Standard, cont.

- However, NELAC PT tables contain ambiguous and conflicting language (lots of "should"s) that negates the requirements discussed above.

- NELAC PT program requires labs to report down to the PT reporting limit (PTRL) and results are scored accordingly.

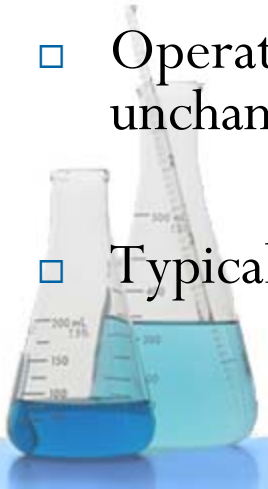
2003 Standard, cont.

- Result – labs that do not calibrate down to the PTRL must generate special calibration curves solely for the analysis of PT samples. These curves are usually well below their normal working range. This puts the lab at a distinct disadvantage.

Basis for LOQ Reporting

EXAMPLE

- In-house permitted industrial laboratory; 19 RCRA groundwater units, each with different standard containing 54 analytes, 1026 numerical permit limits, about 125 RCRA groundwater wells; NPDES permit
- Groundwater permit limits are calculated health-based limits based on exposure pathways; limits vary by factor up to50M
- Operate under CWA & RCRA permits for5-10 years; limits unchanged for long periods of time
- Typical in-house laboratory situation



Basis for LOQ Reporting, cont.

Parameter	PTRL, ug/L	Low Limit, ug/L
Cr	12	100
Co	22	1470
Ni	65	489
Zn	83	1360

Basis for LOQ Reporting, cont.

Parameter	PTRL, ug/L	Low Limit, ug/L
ClBz	7.1	100
Clf	8.1	100
MiBK	4.3	1960
Acee	5.6	1470
Acey	3.0	1470
o-Cresol	9.5	1220
Ant	4.9	1610

5.2 LOQ REPORTING

- Report PT data based on documented Limit of Quantitation (LOQ) or low point in curve.
  - Use LOQ for methods like ICP
  - Use low calibration point for methods with a calibration curve
- This allows the laboratories to analyze and report the PT samples in the same manner as their normal samples.
  - Removes requirement to report to the PTRL.

EVALUATION OF RESULTS

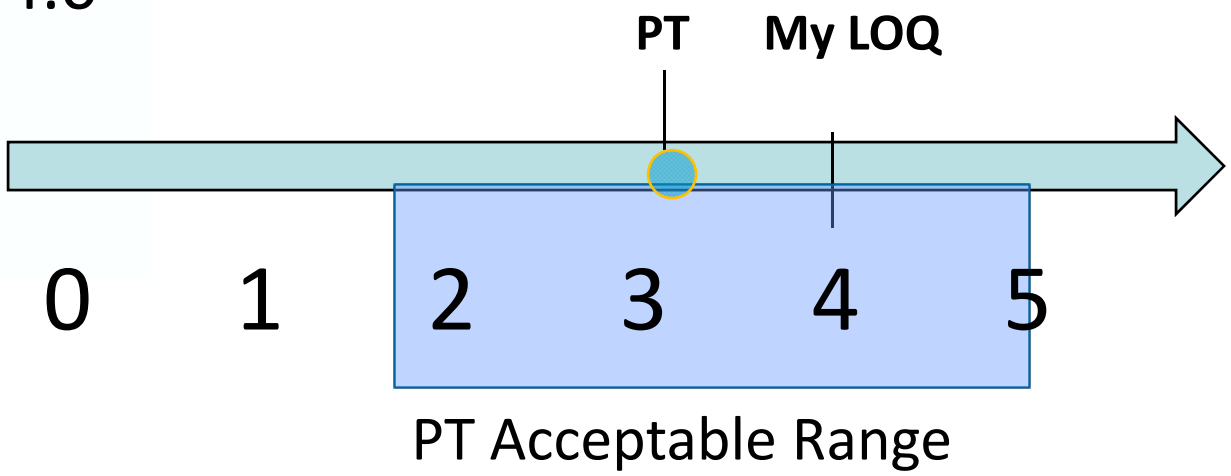
- See Volume 3, Section 10.3
- If the laboratory reports < LOQ and the LOQ value is greater than the lower acceptance limit, the reported < LOQ is evaluated as 'Acceptable"

Evaluation of Results

PT true value = 3.2

PT Acceptance Range = 1.8 – 5.1

LOQ = 4.0



The Lab reports "<4"

Since LOQ value is greater than the lower acceptance limit, 1.8, the statement <4 is true.

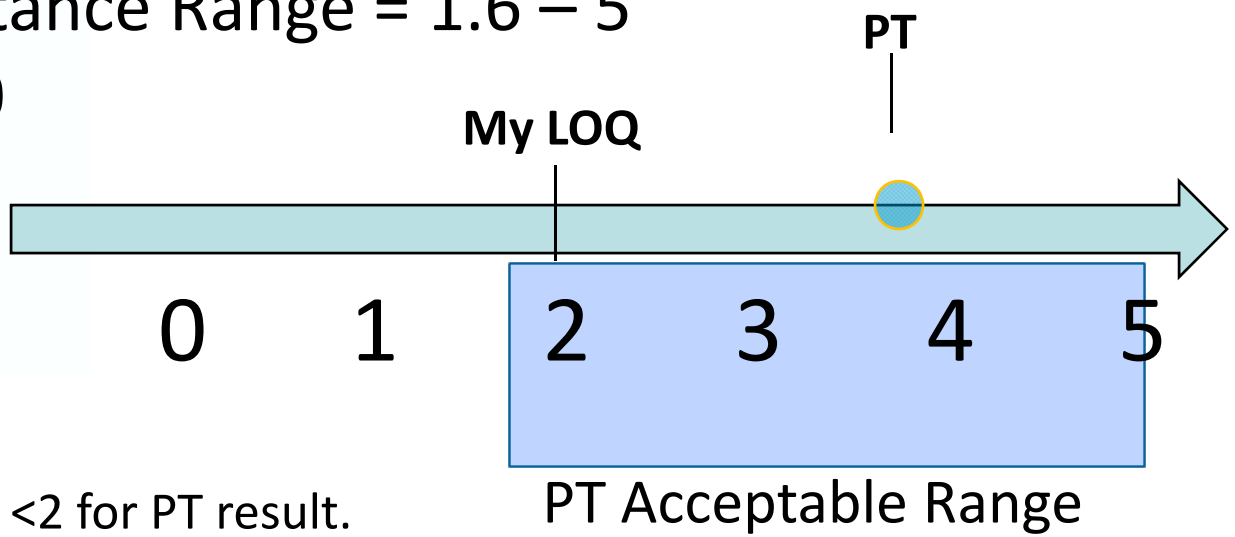
Acceptable

Evaluation of Results

PT true value = 3.8

PT Acceptance Range = 1.6 – 5

LOQ = 2.0



Lab Reports <2 for PT result.

Even if the PT true value is greater than the LOQ, the LOQ value is greater than the lower acceptance limit, so the PT could be less than my LOQ – It still fits within the range.

Acceptable

LOQ Reporting

- No change for most commercial laboratories; primarily impacts in-house permitted labs
- Change for labs that had reported results less than LOQ that were greater that PTRL
- For these labs, continue current practice until July 1, 2011