



Data Quality Matters

ACWA Toxics Standards Workshop
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That's not fair !!



Don't penalize us, the **Lab** messed
up **not us.**

The permit is between DEQ and the Facility



and **NOT** the Laboratory that does
the testing

• Working with a Laboratory

Check their credentials

Are they accredited?

Do they have references

Do they have a quality system in place?

Ask for an audit report and corrective action response



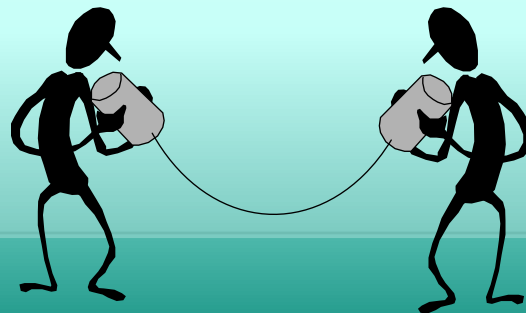
- **Working with a Laboratory**

Communicate with them / Tell them your needs

Ask for specific test methods

- if they offer something else, check with DEQ before saying OK

Ask for specific Reporting Limits

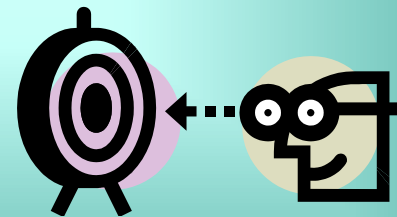


Discuss Measurement Quality Objective (MQO) with the laboratory up front.

- Do their Reporting limits meet your needs?
- Do their control limits meet your needs?

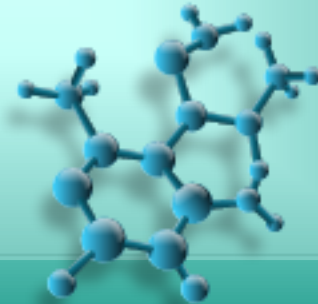
(Note: a zero should not be an acceptable lower control limit)

- Reporting limits, and QC samples with control limits should be easily identifiable on the lab report.



Potential Issues with Very Low Level Analyses

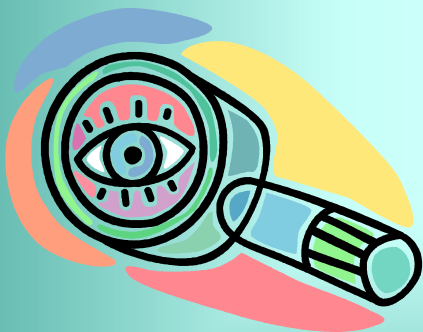
- It is difficult to get blanks clean enough.
- High potential for false positive hits especially when reporting to MDLs
 - CFR MDL procedure may calculate unachievable MDLs
 - MDLs can be lower than laboratory contamination levels
 - Ask lab how/if they verify their MDLs
- Laboratory Control samples are often not representative of low level testing.



Detection Limits

Reporting Limits (RL) = Quantitation Limits (QL) = Limit of Quantitation (LOQ) = Method Reporting limit (MRL)

Method Detection Limits (MDL) = Limits of Detection (LOD)



See Chuck Lytle

Data Comparability

It is likely that there will be data from different facilities along the same water body

The Agency should be looking that the data from the same water bodies and comparing the results.



In Conclusion

- The Facility is responsible for data quality
- Know your laboratory
- Use the right methods (call DEQ if unsure)
- Get the best reporting limits (not just detection limits) you can
- Look at the QC on the lab reports
- Watch for false positive results (check the blanks)
- Compare data and look for outliers





Laboratory and Environmental Assessment Division

Working with laboratories

Importance of Method Selection

Clean Water Act Methods from 40 CFR part 136

Flexibility built in to Method Update rule

Allows for modifications: Chemistry stays the same, performance at least equivalent

e.g. EPA 624 – can increase purge volume to 10-15 mL instead of 5 mL

EPA 625 – reverse order of pH during extraction

Measurement Quality Objectives (MQO's)

Quantitation Limits

Control Limits

show on reports

cannot have 0 as low control limit

Potential concerns when analyzing at very low levels

Blanks Clean enough

Laboratory control samples not representative of low level testing

Data Comparability

May be Ambient data from multiple facilities

Agency should be comparing the results.