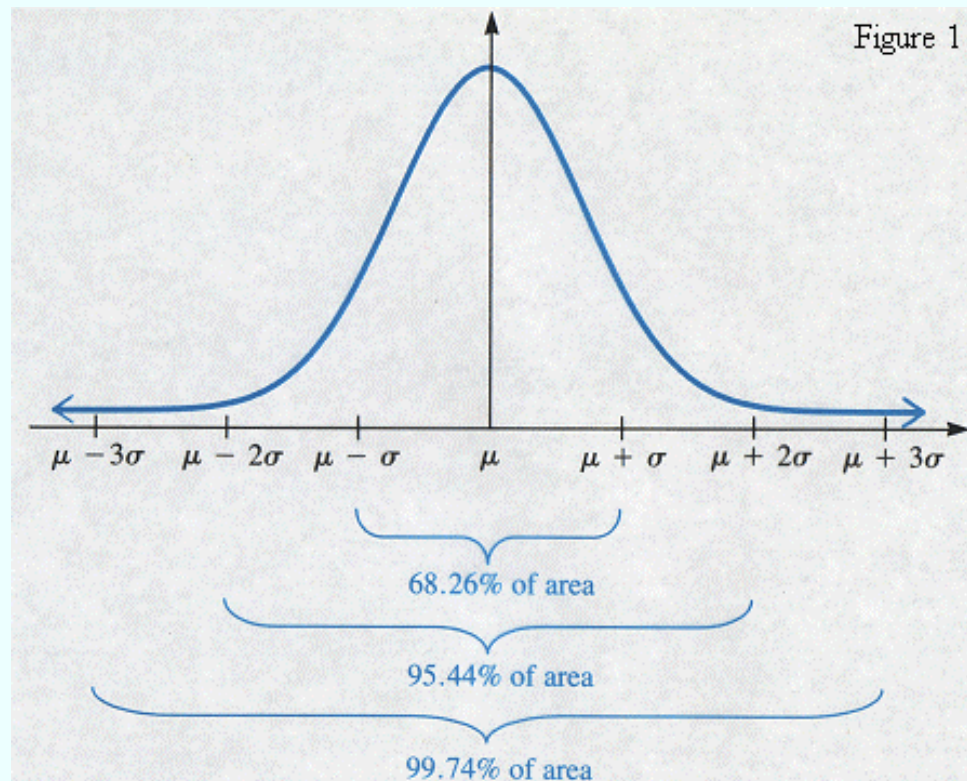


# Data Quality



By Dan Jackson, EBMUD

# NPDES Compliance Risks

1. Industrial dischargers
2. Wastewater operations
3. Data Errors



## Self Monitoring data used for these decisions:

- 💧 Compliance with NPDES permit limits
- 💧 Reasonable Potential

# SIP Section 1.2

## Data Requirements and Adjustments

“...the RWQCB shall use all available, valid, relevant, representative data and information, as determined by the RWQCB.”

Examples of inappropriate data:

- Erroneously reported
- Not representative of water quality
- Questionable QA/QC procedures
- Varying seasonal conditions

# Common data problems

- Sample errors (contamination, wrong sample, unrepresentative)
- Outlier data point – order of magnitude higher than historical data
- Problems with ML or MDL (e.g DNQ with high ML, missing ML or MDL)
- Lab errors or artifacts

# How to manage risks?

- 💧 Be aware – respond early
- 💧 Be proactive – think ahead

# A stitch in time...

- ◆ Report bad data in the cover letter, not the Self-Monitoring report.  
(Need immediate investigation)
- ◆ Much more difficult to correct bad data once it has been reported

# Responding to exceedances

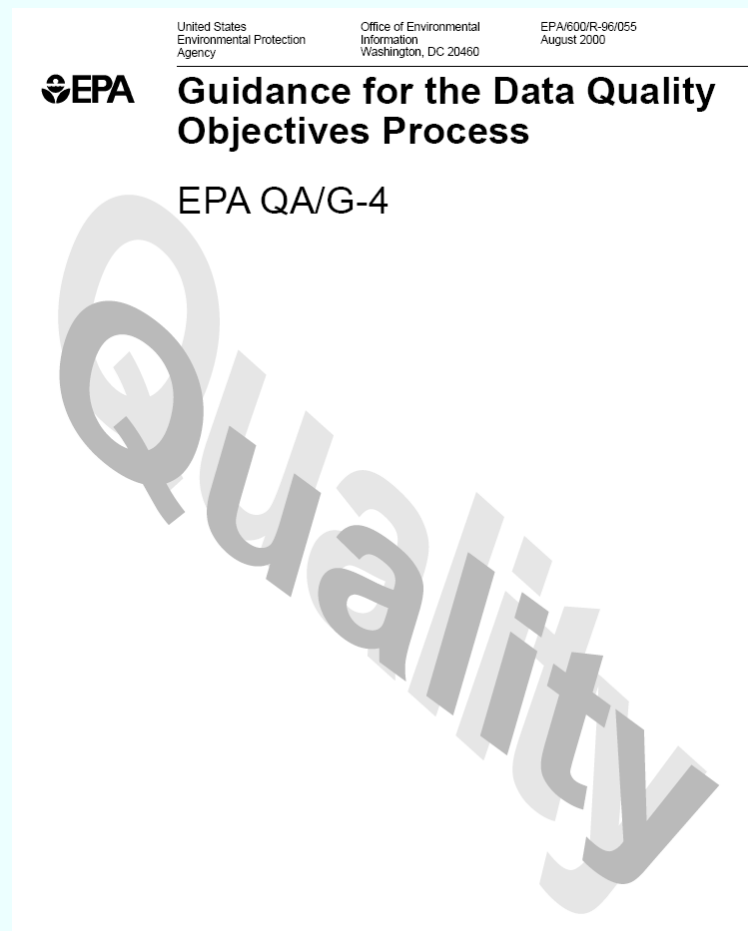
- Investigate whether it is real  
(reanalysis, check records)
- Sample documentation is critical
- Accelerated monitoring
  - Permit requirement
  - May be able to avoid violation of average limit

# Laboratory contracts

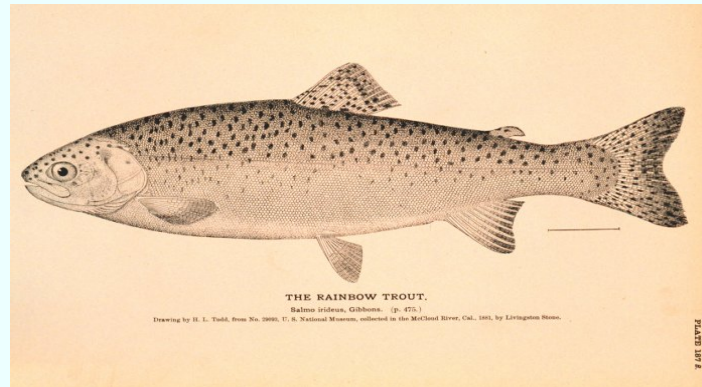
- Early notification (allow time for investigation or corrective action)
- Lab reports only to you!!
  - RWQCB has attempted at times to request data directly from labs
  - Not all valid lab data should be reported (e.g. bad samples)
- Data quality (ML/MDL criteria)

# Planning for Data Quality

- 💧 EPA Data Quality Objectives process
- 💧 7-step planning process for ensuring data is of sufficient quality to support decision-making

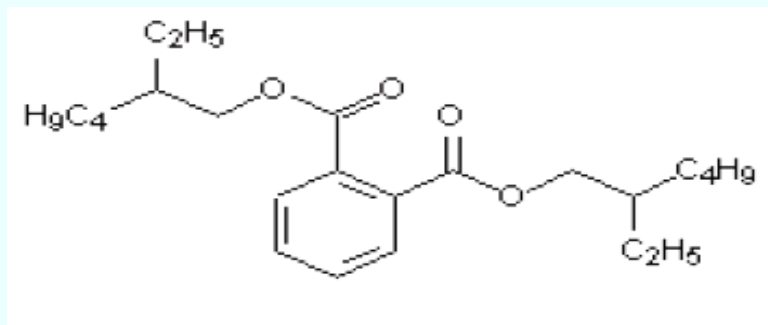


# DQO Case Study -- Bioassay



- 💧 On-line monitoring of critical parameters
- 💧 Mortality due to intermittent low dissolved oxygen – invalidated test and re-ran

# DQO Case Study – phthalates



Bis (2-ethylhexylphthalate)

- 💧 Ubiquitous – sample contamination issue
- 💧 System to identify sample contamination (run duplicates, limits on precision, blank limits)
- 💧 EBMUD did special study, limit was removed from permit

# DQO Case study – Cyanide

- EBMUD daily max limit 10 ug/L.  
Historic data as high as 8 ug/L
- Increase sample frequency to 3 samples: much less chance of random error.

# NPDES Permit Renewal

- NPDES permit renewal data submittal
- 4.5 years, at least 3 samples
- Covers maximum & average
- Form 2A:
  - Part A: conventional pollutants
  - Part B: more conventional pollutants
  - Part D: priority pollutants

# Submit data once or twice?

40 CFR part 122.21(j) *Application requirements for new and existing POTWs.* Unless otherwise indicated, all POTWs and other dischargers designated by the Director must provide, at a minimum, the information in this paragraph to the Director, using Form 2A or another application form provided by the Director. Permit applicants must submit all information available at the time of permit application. **The information may be provided by referencing information previously submitted to the Director.**



You can:

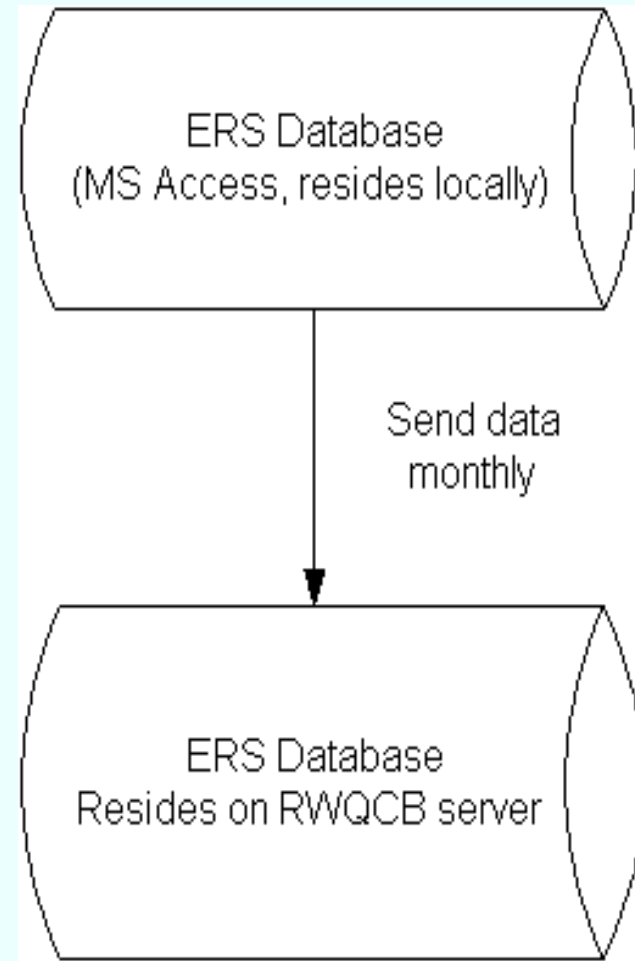
1. Reference data already submitted to ERS.
2. Submit certified data with application and resubmit at the time of RPA.

# RWQCB Process

- 6 months before scheduled permit renewal – Johnson Lam does quality check on agency data
- Sends to permit engineers
- Use data from 2002 onward (all 13267 data)

# Checking your ERS data

- 💧 Parallel databases
- 💧 Can diverge over time
- 💧 Need to check that data is the same
- 💧 Maximum values are the most important



# Region 2 ERS: Advanced query

**ERS Advance Query** [X]

*Enter Search Parameters:* **Exit**

**Cas Number:**  
Not in use.  Cas Number Only

**Pollutant Description:**  
Any Pollutant ▼

**Start Date (mm/dd/yyyy)**  **End Date (mm/dd/yyyy)**  **Get Data**

**Progress Bar:** 0% 50% 100%

**Status:** Waiting...

# Summary

- Manage data on an on-going basis
- Protect yourself from data errors
- Carefully review data submitted for permit renewal. Check what is in the ERS.