

Historical Review of Data Qualifiers and QC Formulation

By
Gary K. Ward
Ward Associates

National Environmental Monitoring Conference

August 10, 2017

Gary Ward

- **ORELAP Administrator - retired**
- **Ward Associates - assessor**
- **Background**
 - **NOAA, Washington DC – Lab Director**
 - **EPA, Washington DC**
 - **Superfund Contract Lab Program – CLP**
 - **Program Manager**
 - **Contracting Officer**
 - **SW-846 3rd Edition Task Group**
 - **Private Industry – Enseco, UL, Intertek, CAS**

Gary Ward

- **WHY this talk**
- **March 2007 – serious incident - heart**
- **July 2015 – serious event – staph, heart**
- **February 2016 - significant health issue**
- **September 2016 – stroke**
- **Jerry Parr request**

Gary Ward

- **1980**
 - **Hazardous Waste Sites**
 - **Lawsuit**
 - **SOPs – dated, archived**
 - **Legally Defensible Data**

Methods

- **SW846 – 1st Edition – 1980, very limited**
- **SW846 – 2nd Edition – 1982, few methods**
- **100,000 samples per year**
- **Data of known and documented quality**

- Target Analyte List

- QC

- **Contamination**
- **Prep**
- **Instrument**
- **Sample Effects**

- Methods don't always work

- Prescriptive Methods

- Comparable results

QC Names

- ICV, CCV**
- LCS**
- 3 letters**
- Level 4 Data Package**

QC Intervals

- **CCV per 10 samples**
- **MS/MSD per 20 samples**
- **SDG – sample delivery group**
- **Beginning & End**

Holding Times – original, Oakridge Study

Other QC

- **2nd Source check**
- **Tunes - TICs**
- **Post/Pre – digest spike**
- **Interference Check Solution (ICS) – for ICP**
- **QC names differ from Drinking Water**

3rd Edition SW846

- **Task Group**
 - Organics
 - Wet Chem
 - Metals
- **Guidance**
- **First Capillary Columns**
- **QC requirements**

Mistakes – 1st Draft

Why

- **Persian Trap**
- **Acid Indigestion**
- **QC - 1 per 20 = 20%**

IDL / MDL

- **No S/N**
- **Best instrument could do**
- **Sample prep effects**
- **Number of replicates**
- **Non-consecutive**

More important now - permits

Flags – Data Qualifiers

Why

- **J Flag – set CRDL at nominal level but MDLs unknown so gave more information**
- **E flag**
- **W flag**
- **No G flag**

CLP Forms

- **First standard reporting**
- **What fit onto my green screen**
- **Organized to split up for review groups**

Electronic Reporting

- **First “EDD”**
- **Format – consecutive fields from Forms**
- **CCS – Contract Compliance Screening**

Before & After Manual Integrations

- **1999 – Intertek Court Case**
- **EPA Region 5 lab issues**
- **EPA IG meeting – Niki Tinsley**
- **Ethics (Data Integrity) Annual Training**

Data Review

Why – Region 2

- **National Guidelines for Data Review – Organics**
- **National Guidelines for Data Review - Inorganics**