

# Spokane River Regional Toxics Task Force

- Working Session #2: QAPP and Data Management



# QAPP and Data Management

- Prior to initiating monitoring activities, a Quality Assurance Project Plan (QAPP) will be developed
- A QAPP outlines the necessary procedures, quality control specifications, data handling, and data management activities needed to ensure that the data meet the project needs



# Items in a QAPP

- Organization and Responsibilities
- Sampling Design
- Sampling Procedures
- Measurement Procedures
- Quality Metrics
- Data Analysis, Interpretation, and Management
- Reporting



# Driving Factors

- The Spokane Watershed endpoint is the Water Quality Standard
  - State: 170 pg/L
  - Tribal: 3.37 pg/L
- What is the endpoint (e.g. fish, water, sediment) you measure against and how does that affect your QAPP and data management choices?

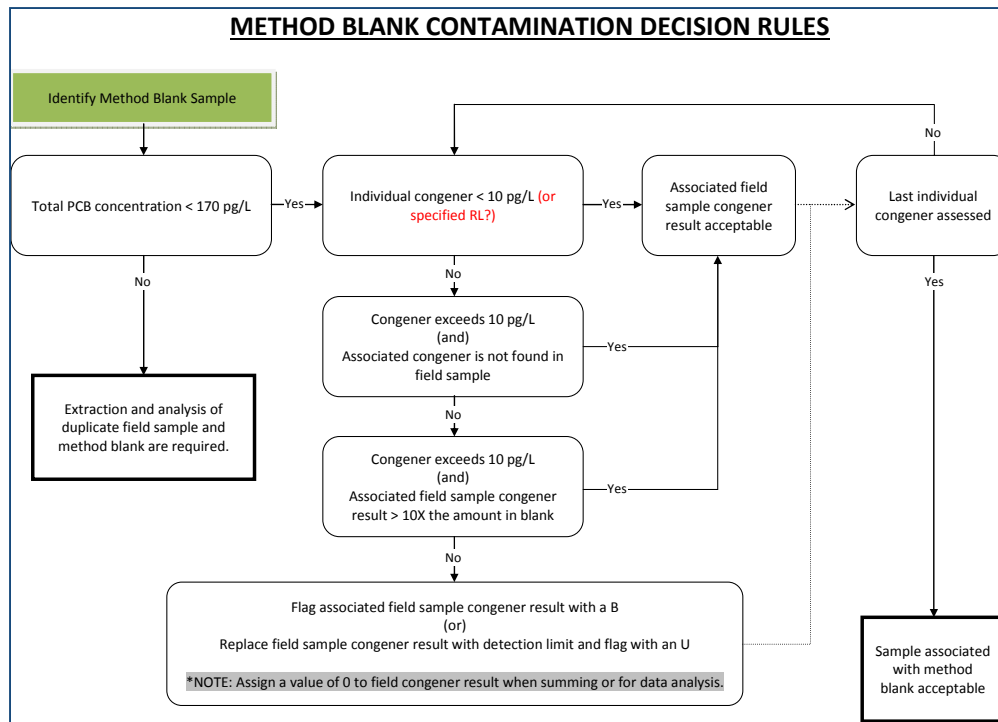


# Driving Factors

- PCB are ubiquitous at part per quadrillion concentrations
- EPA Method 1668 is the only method available that can detect levels this low
- Sample contamination becomes very important
- Low level source tracking



# Quality Assurance Assessment Tools



## Transfer/Rinsate Blank Contamination Assessment

The criteria presented below are set as an interim goal for evaluating transfer/rinsate blank contamination and may be re-evaluated. An overall assessment of the transfer/rinsate blank results with respect to the associated field sample and method blank results will be conducted by the project manager to determine if excessive contamination occurred during sampling or handling procedures.

Rinsate blank contamination acceptance rules:

- An individual congener cannot exceed 50 pg/L.
- If an individual congener exceeds the RL and the associated field sample congener concentration > 5X the amount in the blank, then no action is required.
- If an individual congener exceeds the RL and the associated field sample congener concentration < 5X the amount in the blank, then the associated field sample congener result may not be used. Follow the flagging guidelines / recommendations set out for method blank contamination.
- If an individual congener exceeds the RL and the congener is not found in the associated field sample, then no action is required.
- The total PCB concentration cannot exceed 170 pg/L.

If rinsate blank levels violate the rinsate blank contamination acceptance rules above, the source of external contamination should be investigated and eliminated, if possible. Re-sampling and re-analysis may be required.



# Discussion Questions



# What methods will be required, and for what purpose(s)?

- Analytical: EPA Methods 608, 8082, 1668
  - Aroclor vs. congener
  - Current use
    - 8082 is used for fish trends and hot spot tracking
    - 608 is approved for Water Quality Compliance
    - 1668 is used for low levels, monitoring, and hot spot tracking
- Sampling Methods: Equipment
  - CLAM, Composite Samplers, Sediment Samplers, SPMD, etc.





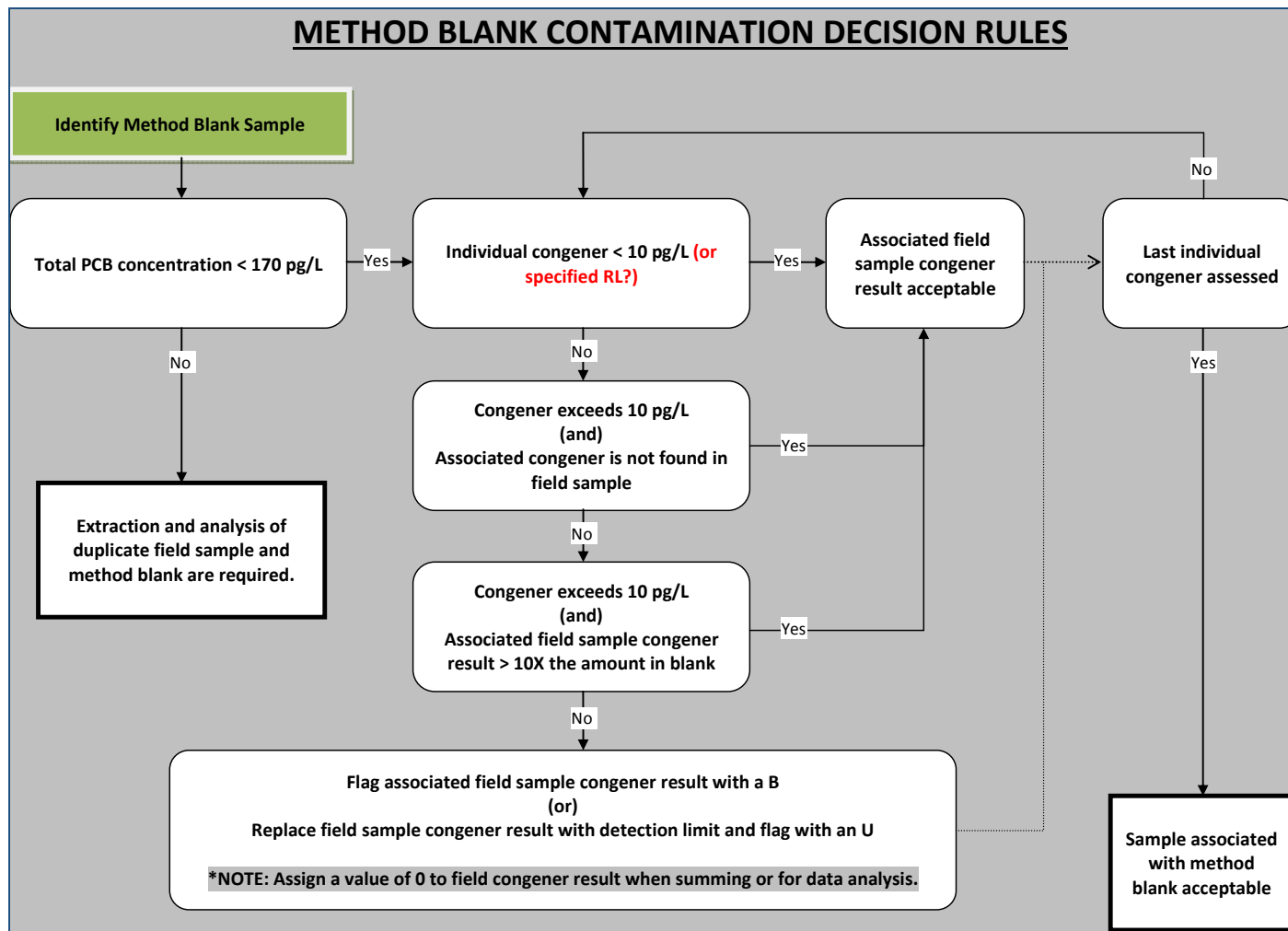
# What project specific requirements will be specified where a method provides options or recommendations?

- Necessary detection limits to quantify sources and monitor Spokane River:
  - Method 1668c MDLs for individual congeners are in the range of 7-30 pg/L, higher than the tribal standard for Total PCBs
  - MDLs depend on matrix interference – more likely to achieve low detection limits in a groundwater sample than a CSO sample
- Discreet sampling versus passive sampling
  - For discreet sampling, individual grabs versus composites
- TEQ evaluation
  - Additional emphasis on dioxin-like PCBs?
- Cost considerations
  - Analyses are in the range of \$1000 per sample for method 1668c



# How will laboratory blank contamination be evaluated?

- Does the matrix affect how to handle blank contamination (e.g. aqueous, soil/sediment)?
- Should we have a tiered approach based on the quantitation limit instead of a set number?



## Do you use the EPA Method 1668C lab blank evaluation definition and if so, how? Pros and cons?

- “If any CB (Table 1) is found in the blank at **greater than two times the minimum level** (Table 2) or **one-third the regulatory compliance limit**, whichever is greater; or if any potentially **interfering compound is found in the blank at the minimum level** for each CB given in Table 2 (assuming a response factor of 1 relative to the quantitation reference in Table 2 at that level of chlorination for a potentially interfering compound; i.e., a compound not listed in this Method), analysis of samples must be halted until the sample batch is re-extracted and the extracts re-analyzed, and the blank associated with the sample batch shows no evidence of contamination at these levels. **All samples must be associated with an uncontaminated Method blank before the results for those samples may be reported or used for permitting or regulatory compliance purposes.**”



# When will transfer (trip) and rinsate (equipment) blanks be necessary and how will they be evaluated with respect to data acceptance?

## **Transfer/Rinsate Blank Contamination Assessment**

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# Recommendations on Quality Control sample numbers

- *SW-846*, developed for RCRA compliance, recommends:
  - 1 duplicate per matrix per sampling day
  - 1 equipment rinsate blank per matrix per sampling day
- *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers* recommends
  - 1 duplicate per 20 samples
  - Equipment rinsate blanks are recommended per regional requirements
- One duplicate per 10 samples and one rinsate blank per 20 samples are also commonly used



What instructions or requirements need to be provided to potential contract accredited laboratories and what information is needed to qualify them?

- *Draft Project Quality Control Requirements*
  - GC column use limits
  - Re-extraction triggers
- *Draft Method 1668 Decision Points and Bidding Boundaries*
  - Standardize terminology: limits and flags
  - Blank contamination cap



Do you have recommendations for sample protocols when dealing with risk assessments for fish consumption?

- Current draft monitoring strategy for 2014 includes sampling of PCB concentrations in biota to:
  - Supplement pattern tracing efforts
  - Support a revised assessment of bioaccumulation in the Spokane River and Lake Spokane food chain



What database structure works well for large datasets such as the full 209-congener suite in regards to data mining and data display?

- MS Access is capable of handling and arranging these types of data, but there may be other options that would better facilitate data sharing





# What combination of database software is available for incorporation and sharing of data in different formats?

- What works well?
- Limitations?

*Equils, Tableau, ArcGIS, Access, Excel, etc.*



With the following knowledge do you have any additional suggestions for how to integrate and manage past, current, and future data?

- We currently have data in many formats. Our database and software will need to integrate with Ecology's online Environmental Information Management System. LimnoTech has also created an Access database that uses a similar format for EIMS for analytical data and houses additional data types, such as facility locations



What are your top five database maintenance tips?

