SRRTTF – PCB Database

PCB Data Compatibility/Database Functionality Review

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Presentation Overview

- Project Background
- Database Objective
- Dataset Formatting Review
- Functionality Discussion
- Database Modifications Required
- Next Steps
- Summary

Project Background

- Spokane River Regional Toxics Task Force (SRRTTF) is leading efforts to reduce PCBs in Spokane River
- Significant amounts of PCB data from multiple sources are being collected
- No usable data management system is currently in place
- A comprehensive database application is critical to successful execution of the project
- CDM Smith has been tasked to develop such a database application

Database Objective

Develop a comprehensive data management plan and application to streamline data entry and generate tabular and graphical outputs

Dataset Formatting Review

Datasets

Datasets:
CDARoutine (Coeur d'Alene WWTP)
City of Spokane PCB Data
Dept. Ecology 2012 Fish Tissue Sampling
Dept. Ecology GW Sampling Data
HARSBRoutine (Hayden Area Regional Sewer Board WWTP)
IEPRoutine (Inland Empire Paper)
KaiserRoutine (Kaiser Aluminum)
LibertyLakeRoutine (Liberty Lake Sewer & Water WWTP)
Little Spokane PCB Verification Study
PostFallsRoutine (Post Falls WWTP)
Spokane County Water Reclamation PCB Data
SRRTTF 2014 Confidence Level Sampling
SRRTTF 2014 Synoptic Sampling Data
SRRTTF 2015 Synoptic Sampling Data
SRRTTF 2016 Monthly Sampling

Dataset Formats

AXYS 1	AXYS 2	AXYS 3	Pacific Rim	EIM
SRRTTF 2014 Synoptic Sampling Data	PostFallsRoutine	Spokane County Water Reclamation PCB Data	LibertyLakeRoutine	Little Spokane PCB Verification Study
SRRTTF 2015 Synoptic Sampling Data	KaiserRoutine		City of Spokane PCB Data	Dept Ecology 2012 Fish Tissue Sampling
SRRTTF 2016 Monthly Sampling	IEPRoutine			
SRRTTF 2014 Confidence Level Sampling	HARSBRoutine			
Dept Ecology GW Sampling Data	CDARoutine			

Formatting Discussion Items

- Coelution compounds not split up
- Method and Rinsate blanks associated with each sample not clearly identified
- Sample matrix not clearly defined
- CAS # is missing from most of the AXYS 2 format files
- Most of AXYS 2 format files also are missing sample dates
- Combined data fields (e.g; analysis date and time combined in AXYS 3 format)

Functionality Discussion

Data Entry/Edits – Provide User-friendly, Menu-driven point and click forms for

- Adding and editing location information;
- Adding and editing sample information
- Adding and editing fish information
- Adding and editing lookup table information
- Uploading the location, sample, and result EDDs.

Data Summaries

- Result summary tables showing samples down and parameters across
- Summary table of location data for sampling locations
- Summary table of Chain of Custody and other sample collection data by collection period and sample categories
- Summary table showing PCB totals by homolog and grand totals
- Whole water sample comparison tool
- Summary table by fish species (multiple selection, include lipid and moisture data)

Data Summaries (Continued)

- Figures showing Geographic Information System (GIS) layers and contaminant mapping (spatial and temporal, by homolog or total PCBs)
- Figure showing PCB homolog fingerprint summary by zone
- Trend plot tool to show temporal variations in PCB concentrations
- Method blank/rinsate blank comparison and correction tool with options to select the blank correction methodologies such as a user-defined multiplier, subtraction etc. (by homolog)
- Export options to deliver data to Dr. Lisa Rodenburg for positive matrix factorization (PMF) analysis

Database Modifications Required

Modifications Required

- Add a fish tissue table to store taxonomy and other non-chemical related fish data
- Add a form for automated blank correction reporting method
- Add report summarizing method blank/rinsate blank acceptability
- Add criteria selection forms and summary table reports for PCB data
- Add ability to export homolog and fish tissue data for generating spatial GIS reports
- Add ability to generate PCB data summaries by river zones
- Add other non-PCB parameters such as dissolved oxygen content (DOC), chemical oxygen demand (COD), total suspended solids (TSS), and total dissolved solids (TDS) to the master parameter table so that related data can be imported and reported

Next Steps

Next Steps

- Make modifications to the DRBC database
- Set up a conference call with Dr. Lisa Rodenburg to discuss database formatting that enables and streamlines her PMF analysis
- Provide a draft version of the modified database along with a quick reference guide to SRRTTF staff
- Contact data sources to discuss EDD structures and criticality and to convey what specific changes we need from each of them
- Develop protocol for entering location and chain of custody data
- Acquire revised EDDs of past data to load into database and to use for pilot testing
- Initiate pilot testing of database, generate example tables, graphical outputs and spreadsheets, and make recommendations for additional modifications, if any, to enhance functionality

Summary

Summary and Discussion

- EDD files were in 5 different formats
- Fortunately, 3 of the formats were from AXYS which can be regenerated in the desired format
- Convert Pacific Rim and EIM EDDs to more database friendly formats
- Finalize acceptability criteria for blanks
- Develop a flexible blank correction tool
- Reporting should include summaries by homolog and total PCBs
- Database modifications are needed to store and report non-PCB fish and tissue data such as TDS, TSS, TOC, DOC
- Discuss handling of coelution profiles
- Discuss handling of % recovery data