2014 ANNUAL REPORT
ADAPTIVE MANAGEMENT PLAN FOR REDUCING PCBs IN STORMWATER DISCHARGES
SRRTTF JULY 23, 2014
Study Area
Stormwater Management in Spokane

- Pathway for PCBs to enter the Spokane River
  - MS4: Municipal Separate Storm Sewer System
  - CSO: Combined Sewer Overflow (less frequent)
Adaptive Management Plan

- Reduce PCBs in stormwater and CSO discharges
  1) Analyze and interpret existing data
  2) Identify likely sources of PCBs.
  - Design and implement remedial actions and BMPs.
  3) Adaptive approach – further data collection and remedial action
Catch Basin Investigation Areas

Legend
- 2011 Groups
- 2010 Groups
- CSO
- Drywell
- Stormwater
Zoning
- Heavy Industrial
- City Boundary
- CSO 34

Drywells

2012 Re-Sample

MS4

CSO
2010 and 2011 Catch Basin Sampling

Highest in Heavy Industrial Zone = Re-sample in 2012
2012 Catch Basin Sampling
Remedial Maintenance

- Review Aroclor analysis results
  - Residential cleanup standard: 1.0 mg/kg
- Remove all sediments from catch basins
- Dump on separate pad, mix with sawdust
- Haul to lined cell at landfill
Curb Markers

- Install markers at each basin after cleaning

Installation in progress throughout City on normal maintenance routes
- Over 7,000 Installed
2010 – 2012 Sampling Recap

2010 - 2012 Catch Basin Samples

- 765 Catch Basins – broken into 76 Groups + individual basin re-samples
- 590,000 lbs sediments removed
- 32.4 grams PCBs removed

Individual Samples

- Helped identify contaminated CB near City Parcel
  -Disconnected from MS4
- PCBs still found in CBs after thorough cleaning in 2010 = continual PCB source in area
  - Average ~ 30% reduction in re-sampled CBs
  - Multiple older industrial sources: wind-blown and track-off
- Ecology re-evaluating City Parcel site to investigate residual contamination off property
Stormwater Sampling: 2012-2014
Stormwater Sampling

- Automatic composite samplers

- Depth

- Flow Rate

- Sample
Stormwater Sampling

Legend
- Maximum
- Third Quartile
- Median
- First Quartile
- Minimum

PCB Concentration (pg/L)

- Heavy Industrial
- Commercial
- "Average" City stormwater
- Near PCB Cleanup Site

Liberty Lake Study, urban stormwater "background"
April 2013 windiest month since 2/1999;

Temperature inversion trapped wood smoke near ground surface

"First flush" storm

8/25 Large dust storm from Columbia Basin; wind at SIA 62 mph

Dry, windy Spring

SRRTTF Aerial Deposition Study
Union Basin Disconnection

- PCBs ubiquitous
  - Sources too numerous to track down individually
- Solution: treat and infiltrate stormwater
  - San Francisco Estuary Institute BMP Toolbox for reducing PCBs in stormwater

Image from www.filterra.com

Tree Box Filter

Vegetated Swale

Image from www.filterra.com
PCBs are still incidentally produced in manufacturing processes. City is sampling products in summer 2014:

- Road paint: Yellow and white
  - Liquid and dried
  - Thermoplastic tape
- Hydrant Paint (Aluminum)
- Utility locate paint (green)
- Firefighting foam
- Deicer
- Vehicle wash soap
- Pesticide/herbicide
- Motor oil (new and used)
- Diesel and gasoline
- Dust suppressant
- Antifreeze
- Lubricant
- Asphalt sealer
- Crack sealer
- Asphalt release agent
- Hydroseed
- PVC pipe
- CIPP liner and Shortliner
Product Sampling

- **Backup Samples**
  - DEF
  - Brake Fluid
  - Hydraulic Fluid
  - Motor oil (other brands)
  - Utility locate paint (other)
  - Windshield fluid
  - Vehicle wax

- **Additional wastewater-related samples**
  - Hand soap
  - Laundry soap
  - Dish soap
  - Shampoo
  - Toothpaste
Decant Facility
City shall provide preference for products and packaging that do not contain PCBs.

No City department may knowingly purchase products containing PCBs above the PQL unless it is not cost-effective (increasing the purchase price more than 25%) or feasible to do so.

PQL = practical quantification limit, the lowest concentration that can be reliably measured using EPA 1668.

Testing results may be requested from suppliers.

Ordinance effective 7/16/2014.
Conclusions

- Individual sources difficult to identify
- Widespread, diffuse source of PCBs
  - Legacy sources from historic industrial activity
  - PCBs found in everyday items (motor oil, hydraulic fluid, etc.)
- Designing treatment and infiltration in Union basin (disconnect MS4 from river)
- Integrated Clean Water Plan
  - Treat and infiltrate Cochran basin stormwater (and others)
  - CSO controls installed by 2017
  - NLT operating year-round