Point Source Dischargers Sampling Workshop for the DRBC Stage 2 PCB TMDL

Review of Sampling Protocols

General Overview

Need to collect

2-Liter sample
Replicates
Field/Equipment Blanks

Types of Discharges

1. Variable, continuous flow
   A. Dry-weather
   B. Wet-weather

2. Batch Discharges

3. Storm Water Only

4. Non-contact Cooling Water

1. *Variable, continuous flow*

Dry-weather: 2L time-composite sample

- Equal volume aliquots, collected not greater than 1 per hour / 24 hours

Wet-Weather: 2L time-composite sample

- Equal volume aliquots collected not greater than 1 per hour / 24 hours
- Start window of -2 hours to +15 minutes after rise in hydrograph

2. Batch Discharges (non-continuous flow)

- 2L grab sample
  (use 2L glass amber bottles)
- Collected approximately in middle of discharge period
- Collected from a close-as-possible to outfall

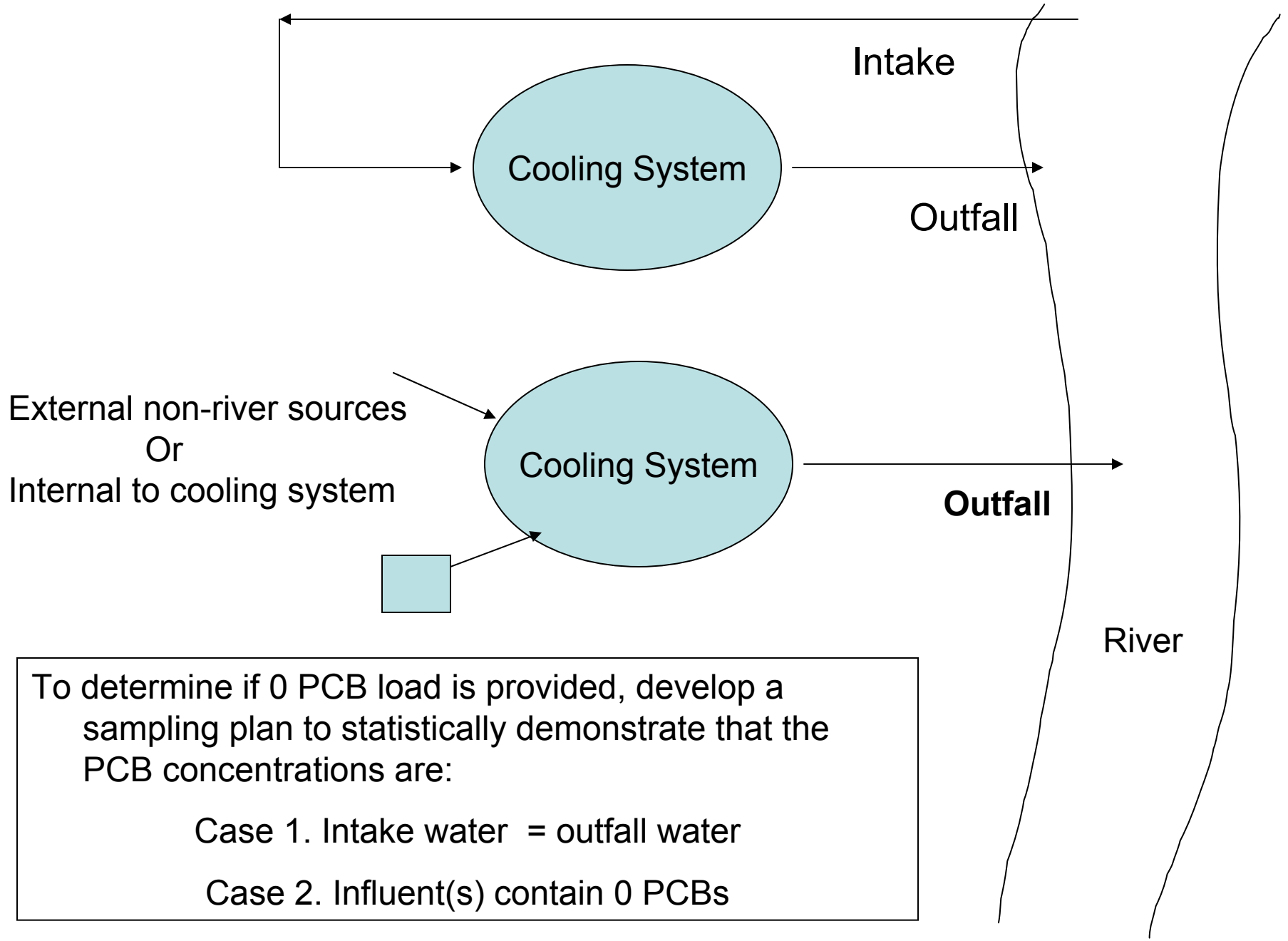
3. Storm Water Only
(Precipitation/surface runoff collected in storm water conduits)

- 2L grab sample (2L glass amber bottles)
- Collected within 30 minutes of initiation of flow
- Collected from as close-as-possible to discharge point

4. Non-Contact Cooling Water

- 2L Composite sample
- Aliquots taken 1 per hour / 24 hours
- Use dry (if steady flow) or wet weather (if variable discharge) sampling procedures

Two sampling strategies for demonstrating Zero PCB load



To determine if 0 PCB load is provided, develop a sampling plan to statistically demonstrate that the PCB concentrations are:

Case 1. Intake water = outfall water

Case 2. Influent(s) contain 0 PCBs

Associated Samples

- Replicates – identical samples collected for each sampled point, provided *only for lab backup* (not duplicate samples)

- Field/Equipment Blank

  A. Composite sampling equipment

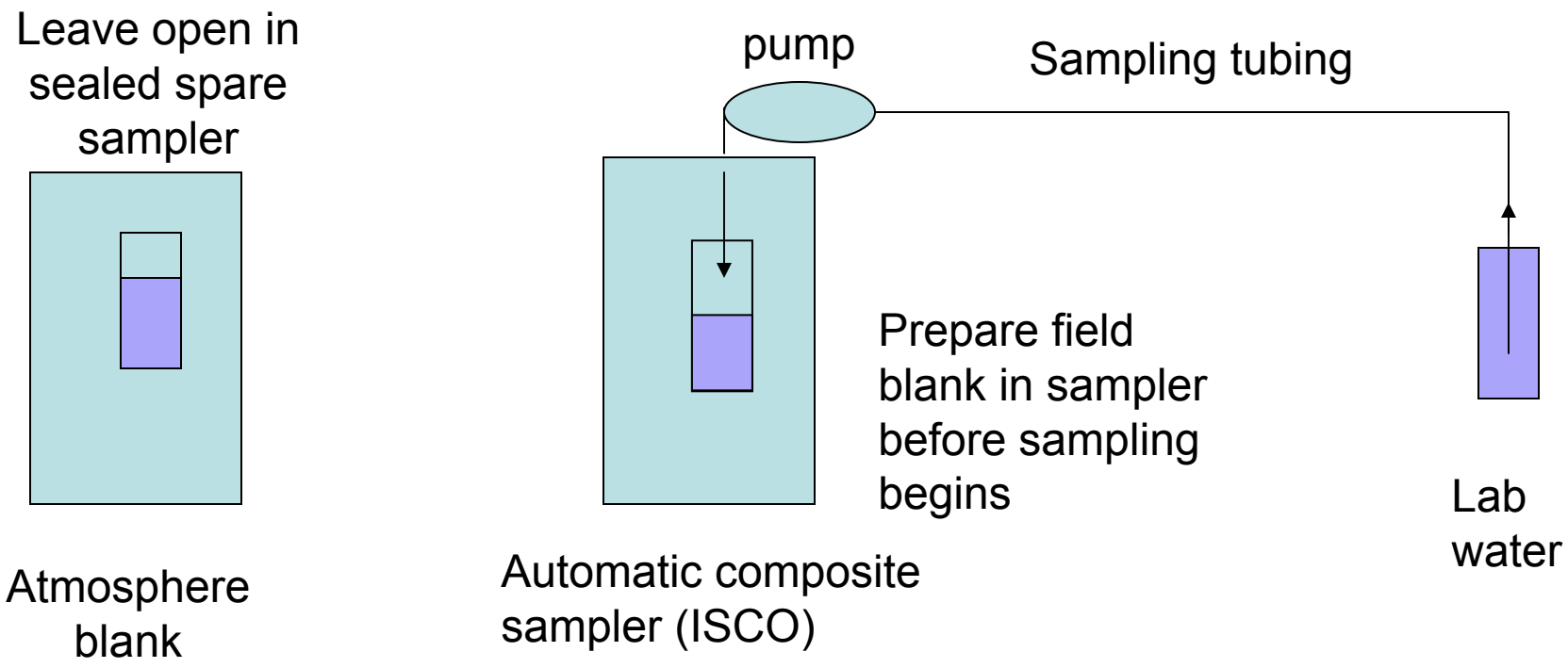
  B. Grab sampling equipment (rinsate blank)

Field/Equipment Blanks

- 2L blank collected at each sampling point
- Only 1 sent for analysis per event, others to be archived
- Lab required to supply water

  (request enough to produce a 2L sample)

Lab water is pumped/run through all sampling lines and equipment used in sampling

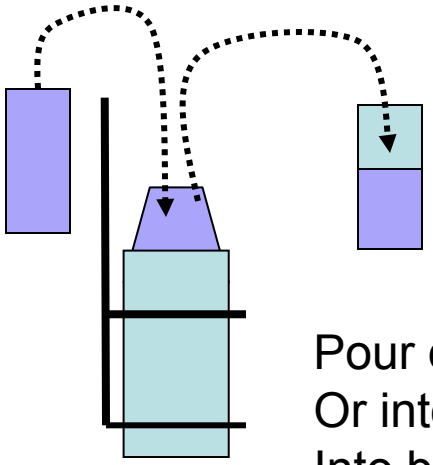


Automatic Samplers (used for composite sampling)

1. Use “main sampler” and tubing to prepare 2L sample
2. Seal and handle as a sample
3. If in a “likely PCB area”, prepare 2nd blank, lab water in a spare sampler, leave bottle open in sealed sampler for duration of sampling, seal, and handle as a sample

Grab sampling using peristaltic pump, teflon sampling tubing, 2L bottles

Grab sampling using hand or rope lowered weighted bottle, or Niskin-type sampler



Pour directly into 2L bottle,
Or into sampler and then
Into bottle

2L sample

Lab-supplied water

Prepared in sampling apparatus

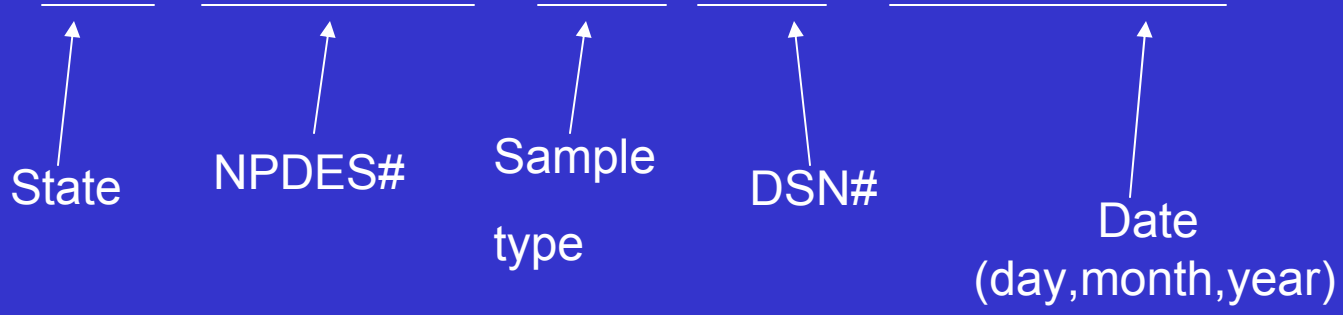
Prepared immediately before conducting sampling

Handle identical to sample

Labeling – Sample ID

(see handout or www.state.nj.us/drbc/PCB-SampleID.pdf)

ST1234567-DW-001-01112005



Codes for sample types:

WW = wet weather

DW = dry weather

RB = blank

IN = influent sample

DSN# is a three digit unique sequential identifier

Chain-of Custody and Field Notes

- COC supplied by labs are sufficient
- Field Notes – see DRBC requirements

Need date, time (start and finish), location, lat., long., hydrograph information, precipitation information, etc.

Description of sampling equipment

Description of point where sample was collected

Discharge at time of sampling

Record any information that would be need to completely replicate the sample!

Miscellaneous Information

- Use new tubing and connectors each time
  (teflon, silicon, and stainless steel only)
- Clean all tubing, connectors, grab samplers…..
  with hot-soapy water, tap rinse, DI rinse,
  and (if possible) methanol-DI rinse
- Wrap in aluminum foil and then bag
- Mechanical fasteners for holding weights and tubing
  (no tape! use cable ties, wire rope cables, etc.)

Gloved hands when handling tubing and bottles

Store caps in foil and bags during sampling

Store samples on ice, refrigerate, ice for shipment

Amber Glass Sample Bottles

- Labs can usually supply 2L bottles
- “Class 100” cleaned, sealed, certified bottles, both I-Chem and Eagle-Picher make suitable 2L bottles

Autosamplers

- ISCOs have ability to hold 2L bottles (8 bottle kit) or 4L bottles (4 bottle kit).

- Eagle-Picher bottle #117-4L have been used successfully in ISCO, no experience with 2L bottles
- Make sure to try 2L bottles before using in field