

Storm Water Sampling Update

South River Science Team
November 10, 2004

M Liberati

M Sherrier

Phase I Results and Conclusions

- Mercury was not detected in any of the base flow or first-flush storm flow samples collected from the outfalls discharging to the South River (MDL = 0.16 $\mu\text{g/l}$) during the Phase I sampling.
- Total mercury was detected at low concentrations (up to 1.7 $\mu\text{g/l}$) in the flow-weighted composite samples collected from 4 of the plant outfalls discharging to the South River.
- Estimated loading rates are low relative to mass observed in the South River.
- Need to better understand concentrations of the dissolved fraction (as surrogate for bio-availability) to determine if loading is significant with respect to fish.
- Need to determine how loading changes with variations in base flow and storm conditions.

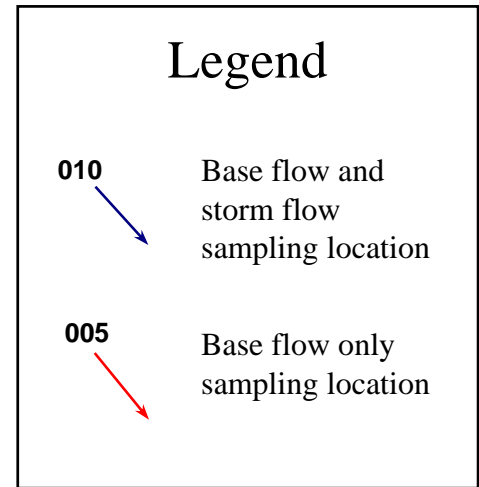
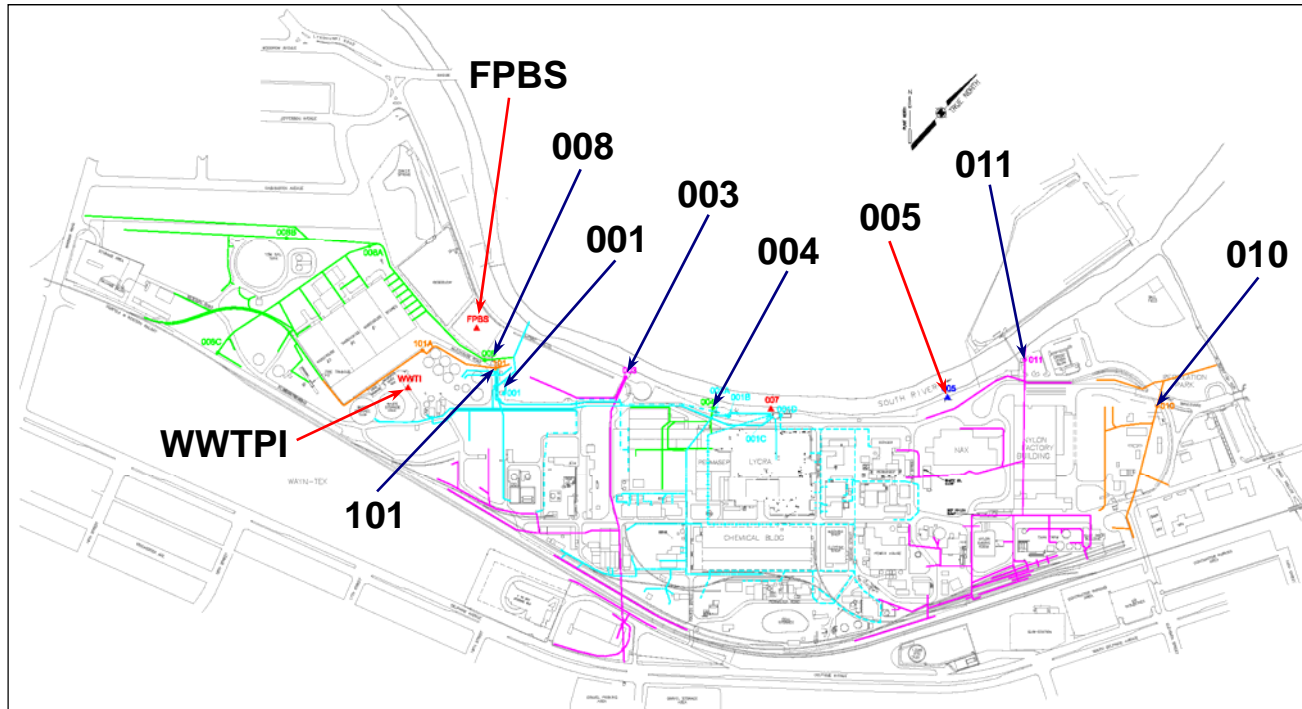
Phase II Storm Sampling Objectives

- Primary - determine if the mercury identified in the site's storm water system is bio-available.
 - Additional base flow and storm flow sampling
 - Use dissolved total Hg as surrogate for bio-available Hg (conservative assumption)
- Secondary - further characterize the up-stream portions of the affected storm water systems at the site.
 - Survey of sediment and water quality within the storm water system

Phase II Sampling Program

- 3 base flow sampling events (varying flow conditions)
 - 10 sampling locations
 - total Hg (1631), dissolved total Hg (1631), high resolution TSS (0.45 μm filtration)
 - all dissolved Hg samples will be filtered during collection
- At least 2 storm flow sampling events (low and medium size storms)
 - 7 sampling locations (3 base flow stations that are not included do not receive storm flow)
 - total Hg (1631), dissolved total Hg (1631), high resolution TSS (0.45 μm filtration)
 - First flush samples for dissolved Hg will be filtered during collection
 - Flow-weighted composite samples will be filtered in the lab (duplicates will be field filtered for confirmation)

Sampling Locations



Sampling Location	Type	Description
001	Outfall	Main plant outfall, discharges to the South River
003	Outfall	Discharges to the South River
004	Outfall	Discharges to the South River
005	Outfall	Discharges to the South River
008	Outfall	Discharges to the South River
010	Outfall	Discharges to the South River
011	Outfall	Discharges to the South River
101	Internal Outfall	Discharge from plant WWTP, contributes flow to 001 outfall
FPBS	Outfall	Frew Pond (Baker Spring) overflow, discharges to the South River
WWTP	Up-stream location	Input to plant WWTP, contributes to flow to 001 outfall

Sediment and Water Quality Survey

- Aim is to identify potential source areas of mercury within the storm water sewer system at the site
- Survey will be conducted under base flow conditions on several of the potentially impacted portions of the storm water sewer system based on Phase I results (001A, 001B, 001D, 008, 011)
- Accessible junction boxes will be visually inspected (lifting manhole covers)
- Water and sediment (if present) samples will be collected
- Water samples will be collected for total and dissolved total mercury and TSS.
- Samples for dissolved mercury will be filtered during collection
- Mercury analyses using low detection limit method (1631)

Activities to Date

- Phase I Work Plan submitted May 03
- Phase I base flow sampling May 03
- Phase I storm slow sampling Sept 03
- Phase I results reported to SRST Feb 04
- Final Phase II scope Feb 04
- Purchase Isco samplers and flume for 008 Mar-Apr 04
- Agree Phase II scope with EPA May 04
- Develop and Submit Phase II Work Plan Jun-Jul 04
- Install Isco samplers Jul-Aug 04
- Procure contractors for sampling and flume installation Aug-Oct 04
- Install flume at 008 Aug 04
- Remove flume at 008 due to flooding Sept 04
- Submit new flow solution for 008 to Invista Sept 04

Schedule for Future Activities

- Base Flow Sampling
 - Round 1 This week!
 - Round 2 Week of 22 Nov. 04
 - Round 3 Week of 6 Dec. 04
- Storm Sampling
 - Spring 2005
 - Will follow installation of channel at 008
 - Currently awaiting approval from Invista for 008 channel improvement
- Sediment and Water Quality Survey
 - Week of 15 Nov. 04 (or 6 Dec. 04)