



5.1 Sites of Known Chemical Contamination

Three facilities mentioned in the DC SWAP Plan were considered to be potential sources of chronic contamination. Listed below are descriptions of each facility, the contaminant of concern, remediation if any, and an assessment of the likelihood for downstream transport of each contaminant.

5.1.1 Background

(1) PCB contamination is associated with the AVTEX Fibers Superfund Site in Front Royal, VA. The source of contamination was probably from leaky electrical transformers used to regulate electricity and dryers that used PCBs for heat transfer during the fiber production process. Contamination of the sediments downstream of the facility most likely occurred from direct release of wastes from settling ponds during storm events and release of wastes directly to the groundwater and soil via cracks and leaks in the storm water sewers (SDMS 135739). The site has been closed since 1989 and is currently being undergoing remediation.

(2) Mercury contamination of the South Fork of the Shenandoah River stems from chemical processing activities at the DuPont Plant in Waynesboro, VA. The mercury was discharged from the plant between 1929 and 1950 and has led to contamination of the sediments downriver. No action or rehabilitation of the downstream sediments has taken place at the time of this writing and a fish consumption advisory remains in effect for the South River and the South Fork of the Shenandoah because of elevated levels of mercury.

(3) Dioxin contamination in the North Branch of the Potomac River was derived from effluent from a Westvaco paper mill in Luke, MD. Fish advisories were put in place by Maryland and West Virginia in 1990. In reaction to the advisories, Westvaco has spent 40 millions dollars putting controls in place to reduce the level of dioxins being discharged. No remediation has been performed and fish advisories remain in place as water quality monitoring continues.

5.1.2 Site Assessments

Studies have been performed at each site to address the level of contamination and to determine the potential for movement of each contaminant downstream of the source. Results are summarized below.

- 1) Analysis for on-site and off-site contamination of PCBs at the AVTEX facility was performed by the Virginia Department of Environmental Quality (VDEQ,2001). A separate analysis was performed by the USGS for its 1996 NAWQA study of the Potomac River Basin. Sediment and fish tissue samples in both surveys showed a reduction of PCBs with distance downstream from the facility.



Although no testing was performed on the mainstem of the Potomac River, raw water values from sampling at the intakes at Great Falls show no values above the detection limit. There is no MCL for PCBs.

- 2) Sediment and fish tissue sampling was performed for the NAWQA study to determine the level of mercury and its possible movement downstream of the outfall at the DuPont facility. An earlier study by Lawler, Matusky & Skelly Engineers performed fish tissue, sediment and water column analysis upstream and downstream of the facility to determine the level of contamination and feasibility of mercury removal from the sediments.

A similar downward trending was observed for mercury levels in relation to the distance downstream. No testing was performed on the mainstem of the Potomac River but raw water values for samples taken at Great Falls never approached the 50% MCL and in most cases were either non-detect or below the detection limit.

- 3) Fish tissue studies were performed by the West Virginia Department of Fish and Game. In-house testing on outfall affluent has regularly been performed for dioxins since the controls have been put in place.

Fish tissue studies have also shown a trending downward of dioxin levels in relation to distance downstream of the outfall. According to Westvaco, in-house laboratory analyses for dioxins have consistently reported levels at non-detect since control measures were put in place. Historic raw water values for dioxins at Great Falls have never exceeded 50% of the MCL and in most cases are below the detection limit.

5.1.3 Observations

There is no question that the mercury, PCBs and dioxins will remain in the sediments for quite some time and have the potential to be a chronic source of contamination for local aquatic biota and source waters for local downstream communities. There is also the potential for the movement and redeposition during large storm events (USGS NAWQA, VADEQ, LM&S Engineers). But, considering that much of the contaminants are sorbed onto sediment particles, and given the distance downstream to the DC intakes it would appear that the likelihood of these contaminants having a direct impact on DC's water quality is very low. As mentioned, raw water sampling is regularly conducted for dioxins, mercury and PCBs at the Washington Aqueduct and these samples consistently test below the 50% MCL or below the detection limit. So, it is suggested that the three sites of known contamination are not an immediate or direct concern to the District of Columbia for their contamination potential.