

# Lower Fox River Operable Unit 2 – 5 Remediation Works

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This poster presents information on the remediation of polychlorinated biphenyls (PCBs) in the so-called Operable Units (OUs) 2 to 5 of the Lower Fox River and Green Bay Site.

The lower Fox River is the most industrialized river in Wisconsin, USA. Near Green Bay, it flows into Lake Michigan, one of the Great Lakes. The river bed is seriously contaminated with PCBs over a distance of almost 19 miles. PCBs were mostly used in the 1970s and 1980s by local paper factories. The waste flows with PCB were discharged straight into the river.

The remediation works include both dredging and capping of contaminated sediments, processing of contaminated sediments, beneficial use of separated and washed sand, disposal of dewatered filter cake and surplus water treatment. It is expected to take a total period of 10 years. During a 7 year period, almost 3 million m<sup>3</sup> contaminated sediment will be dredged and processed.



**Fig. 1:** Lower Fox river

Starting in 2009, contaminated sediments will be dredged from the OUs 2 to 5 target areas, using two 8-inch hydraulic dredges and one 12-inch hydraulic dredge. The sediments will be slurried with river water and transported at a rate of approximately 1.350 m<sup>3</sup>/hr to a purpose built Sediment Desanding and Dewatering Plant (SDDP). The primary objective of the SDDP is to separate the dredged sediment from the water slurry in the form of sand and filter cake. Available sand will be separated from the finer grained material, washed and beneficially reused. The finer grained, contaminated material will be

mechanically dewatered using a total of 8 large membrane type filter presses.



**Fig. 2:** membrane type filter presses

Dredging and dewatering operations are performed during a window from May 1 until November 15. During the first 15 weeks of the operations, approximately 200.000 m<sup>3</sup> contaminated sediment has been removed and processed. Approximately 15.500 ton sand has been separated and washed for beneficial use and 145.000 ton dewatered filter cake for disposal has been produced. Assuming a situ density of 1,25 – 1,30 ton/m<sup>3</sup>, the above numbers indicate an approximately 45% reduction in disposal weight.

Main contractor for the works is Tetra Tech EC, Inc. Tetra Tech is responsible for the remedial design works and all operations related to the site infrastructure, transport and disposal and water treatment. Dredging will be performed by J.F. Brennan. The SDDP is designed and build by Boskalis Dolman and will be operated by Stuyvesant Dredging Inc, a US based Boskalis affiliate.

Boskalis Dolman involvement in sediment remediation works goes back as far as 1985. Over 20 large projects were completed successfully and during a period of 15 years the Amsterdam canal sludge was processed in a fixed de-sanding and dewatering plant. In the early nineties, Boskalis Dolman designed, built and operated a sand separation and classification plant for the Mitra II in Hamburg. Approximately 1,7 million m<sup>3</sup> sandy sediment was processed here over a 4 year period.