



TD*X Associates

PROJECT PROFILE

WARREN COUNTY PCB LANDFILL DETOXIFICATION PROJECT

PROJECT DESCRIPTION

Soil treatment was performed to treat 82,000 tons of soil that were contaminated with polychlorinated biphenyls (PCBs). The site was a TSCA permitted landfill that was constructed by the State of North Carolina in the early 1980s. Soil from the illegal disposal of PCB oil on State roads was placed in the landfill when NCDOT cleaned up the contaminated roadways. State law required on-site detoxification and closure of the landfill in response to environmental justice litigation brought by Warren County



residents. The State required remediation by indirect thermal desorption of the soil followed by destruction of the organic condensate in a stirred tank reactor using the patented Base Catalyzed Decomposition (BCD) process. The State specification required treatment of the soil to 0.2 ppm PCBs, or a factor of 10 below that required by similar national standards and operating permits. The soil treatment was performed from August 2002 through October 2003.

TD*X SCOPE OF WORK

TD*X Associates, LLC was the treatment technology subcontractor for the Warren County project, with the following extensive project responsibilities:

- prepare the detailed process design and the permit documents required to secure both the USEPA TSCA operating permit and the State air emissions permit,
- perform off-site pilot testing to confirm the ability of the treatment process to meet the demanding project requirements,
- prepare the detailed equipment drawings required to modify the processing equipment for the project, making it suitable for operation on PCB and dioxin contaminated soil,
- provide the detailed design to construct the liquid BCD reactor subsystem,
- direct the modification and construction of the equipment, both at the shop facility and at the project site,
- direct the pre-test and full three-run performance demonstration tests and prepare comprehensive test reports required by the project and permits,
- provide thermal treatment system operating personnel, including the Thermal Engineer, Site Engineer and Lead Plant Operators for the duration of the project, with responsibility for operation of the treatment equipment and meeting the stringent requirements of the State performance specification.

PROJECT RESULTS

The total project value was \$14 million. The project was completed on schedule, and at a cost \$3.5 million lower than the next qualified bidder. The indirect heated thermal desorption system operated at sustained treatment rates up to 21 ton/hr, faster than any other treatment unit of its type in the world.



The project average PCB level in the treated soil was 0.137 ppm. The demonstrated system equivalent DRE for PCBs ranged from 99.999999% to 99.9999999% (i.e. “eight-nines” to “nine-nines”); 100 to 1000 times more efficient than required by the PCB treatment permit. Based on the results of the TSCA demonstration, USEPA is issuing a national mobile operating permit for the thermal desorption unit. About 4,500 gallons of concentrated PCB oil was condensed and recovered and ultimately disposed of.

CLIENT

North Carolina Department of Environment and Natural Resources, Division of Waste Management.