

In-Situ Soil Mix - Arsenic

Historic Arsenic Spill Cleanup

Northeast Wisconsin

Soil Treatment Application

Project Summary: Excavators were used to thoroughly mix the arsenic contaminated sediment with the treatment additives. The impacted area was divided into twenty six 100-cubic yard cells where ~ 2,600 gallons of 5% hydrogen peroxide, 70 T of ferric sulfate, 59 T of limestone, and 120 T of bentonite were added and mixed. Two soil types were treated during the process. Peat sediment was treated within the marsh area adjacent to a former railroad bed and sand ballast material was treated below the railroad bed. Restoration of the site was completed by rebuilding the railroad bed, adding and grading top soil over the surface of the marsh mixing area to cap it, installing erosion control features, and seeding the disturbed area with a native vegetation mixture.

Project Results: The hydrogen peroxide, granular ferric sulfate, crushed limestone, and bentonite treatment mixture stabilized the arsenic to achieve the clean up goals. ORIN and ORIN's subcontractors were able to create minimal disturbance to the surrounding sensitive environment and treat approximately 2,600 cubic yards of material.

Exceeds 98% Reduction

Site Conditions:

Soil Contaminants –

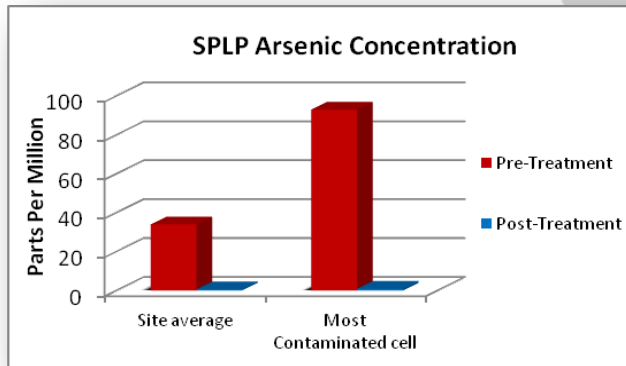
Arsenic: 34 mg/L
(average pretreatment SPLP)

Impacted Matrix –

Peat sediment and sand ballast
overlying silty clay
2,600 cubic yards

Treatment Chemistry –

Granular Ferric Sulfate
Hydrogen Peroxide
Crushed Limestone
Bentonite



	Pre-Treatment	Post-Treatment	Percent Reduction
Site average	34 mg/L	0.56 mg/L	98.40%
Most Contaminated cell	93 mg/L	0.89 mg/L	99.00%

Units mg/L (SPLP) Synthetic Precipitation Leaching Procedure, (Potential of a contaminant leaching from sediment/soil)

