



PROJECT:

Anoka County Landfill

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LOCATION

Ramsey, Minnesota

PROJECT TYPE

Industrial

WASTE TYPE

Landfill Leachate

DESIGN FLOW

200,000 gpd

TREATMENT

Subsurface Flow Wetland with Forced Bed Aeration™

NEED

The Anoka County Landfill is a closed landfill facility near Ramsey, Minnesota. A former Superfund site, the old un-lined landfill generates a groundwater contaminant plume that enters a relict glacial tunnel valley, ultimately affecting down-gradient water supplies and Sunfish Lake. A pump-and-treat groundwater remediation system was installed in the late 1980's. Unfortunately, the air stripper system installed had extremely high operating costs, which were exacerbated by the high iron content of the wastewater. Seeking to reduce operating costs and provide a more cost-effective system over the long term, the Minnesota Pollution Control Agency turned towards a wetland treatment system.

SOLUTION

Jacques Whitford NAWE was retained as part of a multi-disciplinary team to solve the contaminant issue. A variety of enhancements to the old system were installed, including an enhanced recovery well system, telemetering, a cascade aerator, a sedimentation pond, and a series of infiltration beds. JW NAWE's specific charge was to design a series of eight 50,000 square foot wetland treatment cells to provide bioremediation of a wide variety of organic compounds, including tetrahydrofuran. Forced Bed Aeration™ systems were installed in all of the wetland treatment cells to create sequential aerobic/anoxic/anaerobic zones within each wetland treatment cell.

BENEFIT

The new system has substantially lower operating cost than the old air stripping system. Viewed on a life cycle cost basis, the wetland treatment system finally provides the State of Minnesota a means to cost-effectively manage this closed landfill for the rest of its degradation lifetime. The system has consistently met drinking water limits at the wetland discharge for all primary and secondary drinking water limits, ensuring that water returned to the environment meets regulatory objectives.



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