Kansas Department of Health and Environment

Bureau of Environmental Remediation, Remedial Section

State Cooperative Program

Engineered Wetlands at Coastal Refinery, El Dorado

Background

The Coastal Refinery Site, located just north of El Dorado, Kansas, encompasses approximately 400 acres. The refinery was built and began operating in 1917. After refining operations were discontinued in 1993, asphalt blending and terminal operations continued until 2004.

The former Coastal Refinery in the 1980s.

Cleanup is being conducted in multiple phases. Interim remedial measures began in 2006 to close the waste water treatment ponds and address petroleum and chlorinated solvents in soil and groundwater.

The refinery area in June 2012.

Solution

Cleanup began in 2006 by demolishing the above grade processing units and storage tanks, and building a groundwater recovery trench. The groundwater was pumped and treated in the refinery's former wastewater treatment ponds. During pond closure in 2011, contaminated soil, pond sediment, and on-site concrete fines were consolidated in the west treatment pond and stabilized to reduce contaminant mobility. Meanwhile, petroleum impacted soil from the central portion of the site was placed in four landfarm cells covering 26.6 acres.

Engineered wetlands constructed in the former wastewater ponds provide a stable, long-term, low energy, and low cost groundwater treatment solution. Impacted groundwater from the interceptor trench and an on-site basin flows into an underground oil water separator, a cascading aerator, and then a precipitation/ settling basin before reaching the first stage of the three stage wetlands. The wetlands use volatilization, biodegradation, sorption, and phytoremediation to treat the water. Wetland construction activities were completed in Spring 2013 and are effectively treating the contaminated groundwater.

Stage 2 of wetlands construction, August 2012.

Benefits

- **The engineered wetlands provide a cost-effective method of removing petroleum and chlorinated solvent contamination from the groundwater.**