Little Pond on the Prairie

Problem: Industrial settling ponds and landfill at capacity.
Solution: Prairie establishment protects groundwater and surface water from contamination.


British Petroleum planted a prairie at a former storage site to prevent surface and groundwater contamination.

Located at the former British Petroleum (BP; London) refinery in Fort Shawnee Township, Ohio, the E-Pond facility was previously used for the treatment and storage of refinery sludge. The 9-ha (23-ac) facility was the former location of two settling ponds and one landfill. A prairie establishment — a prairie created through the planting of native vegetative species such as prairie grasses and wildflowers — was part of site corrective measures that served to prevent possible contamination of surface water and groundwater resources.

Following the sale of the petroleum refinery in 1998, the E-Pond facility was at capacity and had to be closed and capped in an environmentally safe manner. To meet the goals of the Resource Conservation and Recovery Act, BP proposed creating a prairie habitat to complement other corrective procedures. The prairie establishment was part of a larger corrective action approved by the U.S. Environmental Protection Agency.

Once the two settling ponds and refinery sludge landfill reached capacity, BP instituted a plan to close the storage ponds and cap the entire area to prevent the pollution of nearby surface waters and local groundwater resources. North American Wetland Engineering LLC (NAWE; White Bear Lake, Minn.) developed the prairie establishment in 2003.


First-year growth at the prairie establishment. The restoration planting included species that provide food and shelter to wildlife.

A previous native prairie establishment had been deemed unsuccessful, as only 5% of the site had germinating prairie plants in the year following the initial planting. The failure was due to poor site preparation, poor soils in the landfill cap, and lack of site maintenance activities, such as mowing and weed control.

NAWE worked with BP and the Cleveland office of URS Corp. (San Francisco) to prepare the site properly and develop a planting work plan. Grasses and forbs (broad leafed plants) native to western Ohio were identified and planted on the site with a Truax seed drill. During the initial growing season, mowing and herbicide applications were completed periodically to aid in the full establishment of a prairie community. A plan also was developed to control cool-season grasses and manage the growth of cottonwood seedlings, teasel, and other pioneering or invasive species. Two years following the initial planting, prairie species are established on 95% of the site and thriving

as a low-maintenance landscape.

The restoration planting included grass and wildflower species that provide food and shelter to birds, insects, and mammals. Walking trails alongside the Ottawa River and E-Pond prairie have been established to provide educational tools on native Ohio habitats. Besides aiding in pollution removal and increasing plant, insect, and mammal biodiversity, the prairie restoration also helps preserve Ohio's natural heritage.

NAWE visits the established prairie in Lima four times a year to perform general prairie maintenance, such as mowing and weed control. These visits are necessary to control the advance of invasive species encroaching on the prairie from adjacent properties.

The initial prairie establishment was completed at a total cost of $43,000, which includes expenses for prairie seed supplies and mobilization. First-year prairie maintenance was completed at a cost of $19,000, including expenses, and each subsequent year, NAWE has received an annual maintenance budget of $10,000 to perform the mowing and herbicide tasks.

Mowing is required only once per year during the initial years of prairie development. Following full establishment, mowing will not be required, as the fully developed native grass and flower species will provide a natural resistance to invasive species.

For more information, contact NAWE hydrogeologist Shane Sparks at ssparks@nawe-pa.com, or contact Nancy Sauer, project engineer at URS Corp., at nancy_sauer@urscorp.com.

Third-year growth shows sawtooth sunflowers. Regular prairie maintenance is required to ward off invasive species.