



RAILROAD CLIENT—BALATON, MINNESOTA

TRAIN DERAILMENT—ETHANOL/SOY OIL RELEASE

INITIAL RESPONSE/REMEDIATION

The following is a brief summary of Pinnacle's activities relating to a train derailment in Southern Minnesota, where ethanol and soy oil were released to the environment.

Project Highlights

The Challenge: On the morning of July 28, 2004, Pinnacle was requested to respond to a train derailment in Balaton, Minnesota, to represent a Railroad client as their Environmental Team on the Site. Emergency response actions were in progress, under the supervision of the Minnesota Pollution Control Agency (MPCA), the Balaton Fire Department, and the Railroad. The initial concern was to secure the area, eliminate immediate health, safety and environmental concerns, and finally, get the train traffic flowing again.

Work Scope: Pinnacle initially assisted the railroad by preparing a site-specific health and safety plan to govern response actions conducted by Pinnacle and railroad personnel and manage potential environmental health and safety concerns. A layout map of the spill area was created utilizing aerial photos to assist in preparing a work plan for investigating the extent of impact and coordinate remedial actions to minimize environmental impacts and protect public health. Pinnacle worked with railroad personnel and the MPCA to facilitate response actions, which involved excavating and removing heavily impacted soils and conducting soil borings to investigate the magnitude of impact to soil and groundwater beneath the site.

Site Remediation: Once the train cars and other debris were removed from the Site, a more extensive excavation was completed to remove the grossly impacted surficial soils from the release area, and from the ditch that flowed to Lake Yankton. The excavated areas were refilled with clean, imported fill. The ditch was excavated to a depth of approximately 18-inches, and the surface was covered with packed clay, the area was seeded, and erosion control was installed. The excavated soils were stockpiled on the Site and characterized for treatment/disposal. The treatment method approved by the MPCA consisted of land farming, which was done on two local farms that had been pre-approved for land farming. Approximately 2,100 cubic yards of impacted soil were excavated from the Site.

Containment: Ethanol and soy oil from the spill flowed to a ditch extending to Lake Yankton. As part of the emergency response, a dike was established across the ditch to contain the spill. Additional ethanol and oil were washed into the holding area behind the dike after the spill area was flooded with water to dilute and remove the spilled liquids. The impacted water was subsequently pumped to a nearby sewer on site, which flowed to the City of Balaton's wastewater treatment plant. Water was also pumped into trucks and transported directly to the Balaton primary wastewater treatment pond.

Wastewater Treatment: Once again, Pinnacle was called upon to assist when dissolved oxygen levels decreased in the City of Balaton's waste treatment ponds. Pinnacle's engineers developed and implemented a plan involving the use of skimmers to remove free product and pumps to aerate the pond to improve dissolved oxygen levels. With consistent monitoring and water quality testing, the water quality of the ponds improved rapidly. This remedial method saved the Railroad over 50% of typical wastewater remedial costs.

Project Summary: Throughout this project, Pinnacle staff interacted with a number of emergency response contractors, city and county personnel, Balaton Public Works department, local fire and police departments, MNDOT and the MPCA. As the primary response facilitator for the Railroad, Pinnacle was able to improve the efficiency of the overall clean up operation by monitoring the efforts of the contractor crews. Repetitive and unnecessary tasks were eliminated, and clean up procedures were organized to take advantage of the location of various contractor equipment on the site. The clean up cost came in significantly under the Railroad's anticipated expenses for the project.

Project Team:

Jim Holland, P.E. —CEO/Consulting Engineer

John Landwehr —Project Manager

Alex McLean —Field Operations Manager

