

BEST OF
2007
AWARDS

Nyack Manufactured Gas Plant Remediation

AWARD OF MERIT:
Environmental; Park/Site/Landscaping

At less than two acres, the riverfront site of Nyack's former manufactured gas plant is relatively small in size. But removing decades of contamination in order to redevelop the sloped, vacant property into attractive green space as part of a waterfront revitalization effort presented some formidable challenges to the project team led by construction manager and engineer ENSR/AECOM.

Gas extraction processes used at the plant had left the site's bedrock, soil and groundwater tainted with coal tar, polycyclic aromatic hydrocarbons, and volatile organic compounds. Construction elbow-room was also at a premium, as the site was hemmed in by large condominium buildings, commercial properties, underground water and sewer mains, and a damaged seawall—the only structure separating the site from the Hudson River.

And with residences and Nyack's popular shopping and restaurant district just blocks away, controlling noise and odors generated during the two-year project was a must.

"Quite simply, location and logistics drove most of the decisions for the remediation strategy," says ENSR/AECOM project manager Tim Olean. "So did the calendar. We scheduled a lot of work for the winter months when fewer residents would be outdoors."

The \$15 million remediation began by injecting approximately 90,000 gallons of a modified hydrogen peroxide and iron catalyst to oxidize coal tar that had seeped into the fractures of the bedrock underlying the entire site. Approximately 25,000 gallons of groundwater displaced by this process was extracted for treatment and disposal off-site, preventing any contaminants from finding their way into the environment.

For Phases 2 and 3, the project team di-



vided the site into upper and lower terraces to provide sufficient staging room for the remainder of the remediation process. Approximately 36,000 tons of contaminated soil were removed and disposed of at an off-site low-temperature thermal desorption facility. Also removed were concrete and brick subsurface foundations leftover from the gas plant's demolished structures and storage tanks, and timbers from decayed waterfront structures.

Protection of the Hudson River was also a high priority throughout the project. All excavation work was designed and implemented to topographically isolate the site from the river. Stormwater management techniques augmented conventional erosion and sediment controls along the site's perimeter.

Because excavating the lower terrace would have required digging below the water table, approximately 12,000 cu yd of material was treated using in situ solidification (ISS), a process that mixes a binding reagent with the contaminated mate-

Key Players

Owner: Orange & Rockland Utilities, Inc., Spring Valley, N.Y.

Construction Manager/Engineer: ENSR/AECOM, Nyack, N.Y.

Contractors: In-Situ Oxidative Technologies, Inc., West Windsor, N.J.; D.A. Collins Construction Co., Inc., Mechanicville, N.Y.; Severson Environmental Services, Inc., Niagara Falls, N.Y.; GEOCON Environmental; Monroeville, Pa.

rial. A mix of ISS and excavation was also used on approximately 30,000 tons of coal tar-impacted soil beneath an adjacent parking lot.

Olean says that along with eliminating the need for shoring and dewatering systems, ISS also helped minimize disruptions to Nyack's traffic and residents. "Anything that reduced the number of dump trucks on the village streets was a plus," he says. <<