

Remediation and Restoration of an Urban Hudson River Site under New York State Oversight

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Background/Objectives. The Rensselaer, New York manufacturing site produced dyes and related products beginning in the 1880s. One of the oldest such facilities in the US, the plant was demolished and the 90 acre upland site has been remediated under the oversight of the New York State Department of Environmental Conservation. Upland portions of the site are currently a sustainable remediation showcase and house an electrical generation plant, an environmental educational classroom, a 10-acre wildlife habitat, and a LEED platinum certified building.

The site is on east bank of Hudson River in an urbanized setting. Sediments adjacent to the site include a variety of constituents, including VOCs, SVOCs, metals, and non-site related PCBs. Early in the RI/FS process, BASF established the following objectives: (1) eliminating any unacceptable risk to human health, safety, organisms and natural habitats; (2) providing for ongoing improvement of conditions in the river environment(s); (3) returning value to the river, community, and ecology.

Approach/Activities. Extensive sediment, risk, and engineering studies were conducted to support development of a remedial design. The RI/FS studies defined the bioavailability of the contaminants and the geomorphology and hydrodynamic setting of the river, as input to the identification of cleanup goals. A series of largescale pilot studies were also conducted to evaluate the feasibility and practicality of ex situ treatment technologies to reduce concentrations of volatile organic compounds in dredged sediment.

As a result of these studies, two sediment management areas (SMA) were identified. The SMA 1 remedy includes a combination of dredging, backfill, cover system installation, ecological enhancement, and monitoring, and will remove 38,000 CY of impacted sediment, and over 90% of the mass of VOCs from the river. Additionally, this remedy will provide an approximately 4.8 acre clean cover over the dredged areas where lower concentrations of COCs remain at depth. This remedy also includes extensive submerged aquatic vegetation mitigation activities. MNR is the selected remedy for SMA 2. The SMA 2 remedial design includes implementation of a monitoring plan to evaluate trends in sediment deposition, chemistry, and toxicity over time.

Construction activities commenced in the summer of 2018 and are expected to take up to 3 years to complete.

Results/Lessons Learned. Comprehensive ecological risk assessment resulted in a focused sediment removal action limited to 39,000 CY of sediment. Thiessen Polygon analysis resulted in well-defined dredge limits without the need for post-dredge confirmation sampling. The project is being conducted with time of year restrictions in place due to the presence of endangered sturgeon, resulting in technical, cost, and schedule challenges associated with conducting marine construction in winter weather conditions. Extensive community and stakeholder engagement, as well as exhaustive monitoring of noise, vibrations, water quality,

odors, dust, and traffic flow have resulted in minimal disruption to neighborhoods and protection of the river during marine construction and remediation.