

INDIANA STEEL & WIRE COMPANY
Indiana VRP
Muncie, Indiana

The client retained a Project Team managed by current Swenson – Marzec & Associates, Inc. (SMA) employees to provide hydrogeologic oversight of soil and groundwater investigation and remediation activities for the former Indiana Steel & Wire (IS&W) facility site in Muncie, Indiana. The steel manufacturing of wire began at the IS&W facility in 1902 and continued in constant operation through 2004. In addition to steel wire fabrication the facility performed a variety of different types of metal plating operations. The plating operations included: electroforming, galvanizing and copper-cyanide plating. The facility also performed sodium cyanide heat treating. The constituents of concern from these operations that impacted soil and groundwater include: zinc, ammonia, chlorides, sulfates, cyanide, copper, fluoride, lead and nickel.

Widespread soil and groundwater contamination had resulted from process unit and sewer leaks, disposal into a pit, disposal into a former rock quarry, and disposal at three landfills on site. In support of the evaluated remedial options, Mr. St. John directed hydrologic modeling to evaluate the potential for scouring and adverse affects of closing the units in a floodplain. An ecological risk assessment was also performed to develop a list of closure options for a landfill and a quarry containing wastewater treatment sludges. To abate any future releases, a process unit containment testing and repair program was implemented, and approximately 50,000 feet of process sewer were lined. All three landfills that were open dumps at one time were capped and closed.

Extensive groundwater contamination of zinc, ammonia, chlorides, sulfates, cyanide, copper, fluoride, lead and nickel resulted from the releases at the units identified above. Mr. St. John and SMA personnel performed most of the groundwater characterization for the site, and developed the conceptual design for the groundwater remediation system using a whole-site groundwater flow and solute transport modeling. The groundwater containment system consisted of 26 recovery wells. When the groundwater containment system initial went on line in 1998 approximately 2,200 pounds of zinc were recovered per month in the treatment plant. Zinc recovery has gone down over time but is still substantial (approximately 600 pounds per month). The whole-site groundwater flow and solute transport model was also used to predict dewatering from beneath the plant building, and to develop surface water-derived groundwater protection standards under the risk assessment. Recently, SMA submitted a 10-year Hydrogeologic Review Report to IDEM that analyzed and recommended that approximately one-half of the groundwater remediation system at the site should be shut down. IDEM approved the SMA recommendation within eight weeks with three minor comments.