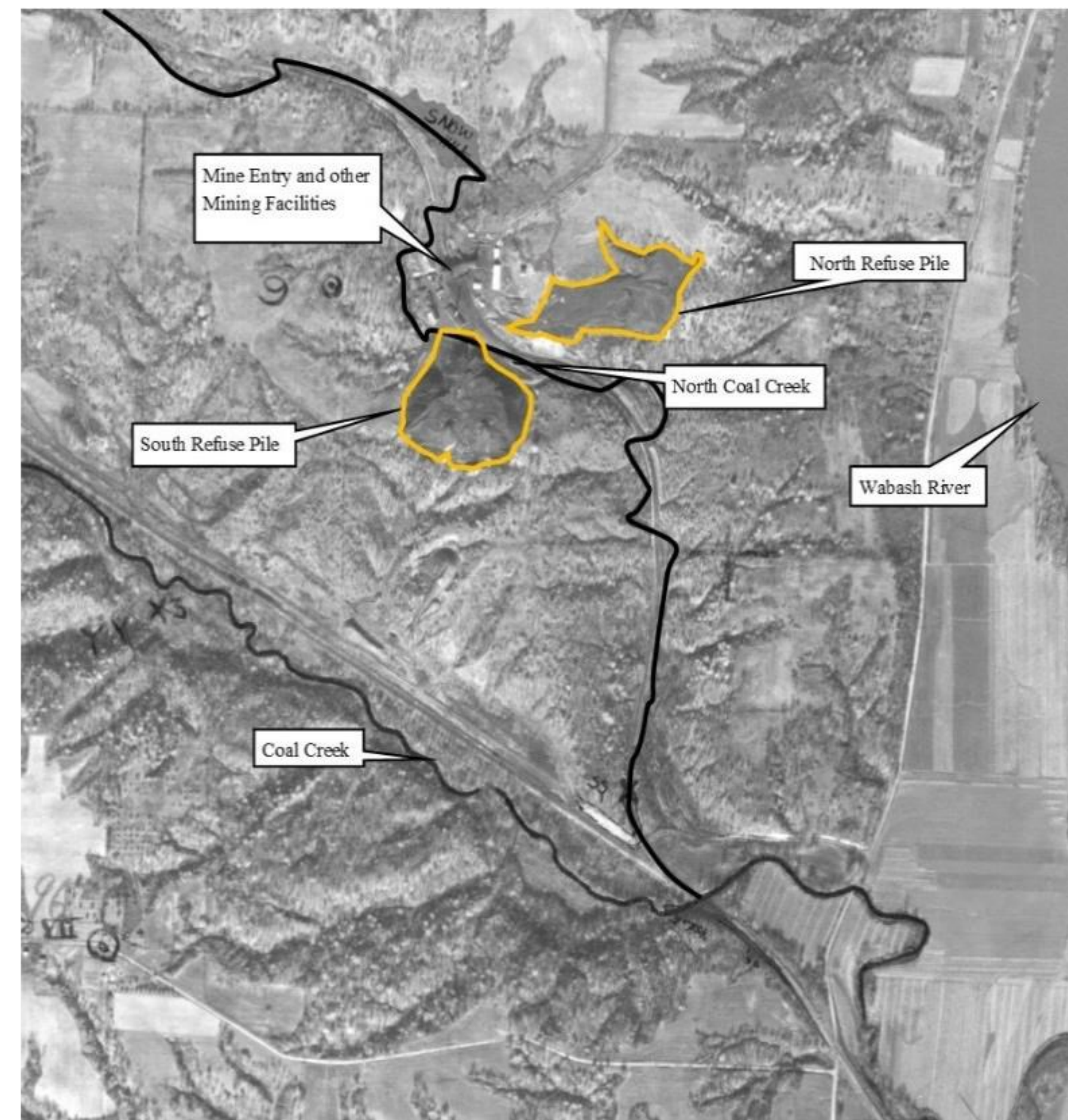


AML Site 882, Snow Hill

A Significant Safety Hazard



Snow Hill Mine, 1946, Indiana Historical Aerial Photo Index, Indiana Geological Survey



Coal Creek at confluence with the Wabash River, approximately a half mile downstream from the confluence with North Coal Creek, 2007.

Two large refuse piles were formed between 1914 and 1959 as a part of several coal mining operations at Site 882, Snow Hill. The final mining company covered and revegetated the two refuse piles in the 1970s prior to implementation of (1977) SMCRA law. Steep sections of the piles adjacent to North Coal Creek continued to experience erosion and stability problems. AMD, acid mine drainage, from the two refuse piles discharged directly into North Coal Creek, causing severe sediment pollution downstream of the piles in the form of iron and aluminum oxides.

Construction Challenges

The site offered the worst possible hydrological scenario: a high-quality stream passing between two large pyritic coal refuse piles. This physical nature of this landscape forced Indiana AML to pursue a source elimination strategy on both piles.



Completed project, south refuse pile, with terracing and installed Flexamat® ditch armoring.

An Innovative Approach

Indiana AML and the contractors, Kerns Excavating, LLC, and ATC Group Services, LLC, designed and installed an impermeable geomembrane overlain by a geo-composite drainage layer which limits rainfall infiltration which is commonly used in landfill designs.



Welding of installed geomembrane sections, south refuse pile.



Above: Installed geo-composite drainage layer sections being sewn together, north refuse pile.

Below: Installation of Flexamat® ditch armoring, north refuse



A three-stage, 2.5 acre settling pond and aerobic wetland complex was built into the channel of North Coal Creek downstream of the two piles. The wetland complex can also be modified into a passive treatment system.

Flexamat® ditch armoring was used instead of riprap because of the many advantages in using this material: it can handle extremely high water velocity, can be easily traversed by vehicles allowing for site maintenance, and is less expensive to install in comparison to riprap.

Long-Term Improvement

A preliminary assessment of the water quality of North Coal Creek indicates a substantial improvement in the average calculated net acidity. Total iron, total aluminum, total manganese and sulfate all show decreases from pre to post-construction. Continued efforts to monitor changes in water quality at the site are ongoing.



Post Construction of the project showing both of the buried gob piles and the wetland and settling pond.