

## Alternative Restoration Options

Each of the five priority sites (MKR3, NFMU9, MP2, NFMU5, MP6) were evaluated based on available information to determine the preferred restoration method. Options considered on a general-basis for each site included re-mining and installation of either active or passive treatment systems. Feasibility included identifying factors limiting construction area based on a preliminary site inspection relating to cultural features (developed areas, public roads, historical areas, etc.), to natural resources (probable protected areas relating to wetlands, threatened and endangered species, etc.), and to setting (topography, geology, etc.) The evaluation also considered, in general, design, permitting, construction, Operation and Maintenance costs and potential impact to the environment (projected water quality improvement) and to the community (safety, aesthetics, etc.). The permitting process requires detailed, site-specific, investigations which may significantly revise the feasibility of the recommended restoration project.

### Re-mining potential in the probable recharge area of the discharges

**MP6:** The coal reserves southeast of Boggs Road have been essentially exhausted by surface mining, while northwest of this public road an area with stumps and ribs appear to remain. There are no known permits pending or in process for this site. In addition, the landowners have declined previous offers to have their property surface mined.

**NFMU9:** The coal reserves have been extensively mined by both surface and underground methods. Stumps and ribs, however, may remain in a portion of the area hydrologically-related to the discharge. Based on the final design and “as-built” construction of the Findlay Connector, this discharge may be impacted potentially requiring a revised conceptual site plan.

**MKR3, MP2, NFMU5:** The probable recharge area has been previously mined by surface and underground methods. There is a high probability that the reserves are exhausted.

### Conventional Treatment Systems

In all cases, active treatment was eliminated as a preferred alternative due to long-term chemical, electrical, and labor costs and to safety issues.

### Passive Treatment Systems

Based on the discharge characteristics and area potentially available for construction (executed landowner approval required), passive systems are the preferred alternative in all cases. Final effluent is expected to meet or exceed standard mining effluent limits and to substantially improve the receiving stream. The components selected use known passive treatment technology.

A conceptual design has been provided for each discharge. As an alternative, however, the wetland component of the NFMU9 passive system may be eliminated by increasing the size of the wetlands for MP2 commensurately.