SURFACE WATER CONTROL SYSTEMS AND THE COAL INDUSTRY

BEST MANAGEMENT PRACTICES
AGENCY OVERSIGHT

- IDNR Office of Mines and Minerals-SMCRA Permit
- IEPA-NPDES Permit, 401 Certification, Air Operating Permits
- USACOE-404/Nationwide Permits
- MSHA-Dam Construction Permits
- IDNR Office of Water Resources-Dam Construction Permits
WHAT DO THEY ALL HAVE IN COMMON?

• Permits are required from every agency listed before coal mining operations can begin.

• All permits focus in some manner on water quality and the Clean Water Act.
AGENCY ISSUES FACED BY THE COAL INDUSTRY

• Each agency independently administers its own program.
• Each agency interprets the Act according to its own set of rules.
• Interaction between the agencies is minimal.
• Securing operating permits from each agency in a timely manner.
REGULATORY GUIDANCE

- 62 ILAC 1816.45 Hydrologic Balance: Sediment Control Measures
- a) Appropriate sediment control measures shall be designed, constructed, and maintained using the best technology currently available to:
  1) Prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area;
  2) Meet the more stringent of applicable State or Federal effluent limitations; and
  3) Minimize erosion to the extent possible.
REGULATORY COMPLIANCE

• Convert non-point source discharges to point source discharges using:
  1) Siltation structures
  2) perimeter diversion ditches to direct overland flow within the mining area boundary to siltation structures.
SILTATION STRUCTURE
CONSTRUCTION BMP’S

• Install silt fences/straw bales just downstream from the construction area
• Install a properly designed plunge pool at the impoundment discharge point
• Seed and fertilize impoundment slopes as soon as possible after construction completion
• Mulch slopes with straw at a rate of 1 to 2 tons per acre
DIVERSION DITCH
CONSTRUCTION BMP’S

• Install silt fences/straw bales just downstream from the construction area

• Seed and fertilize slopes as soon as possible after construction completion

• Mulch slopes with straw at a rate of 1 to 2 tons per acre
DIVERSION
DIVERSION DITCH BACKSLOPE
OTHER AREAS OF CONCERN

• Access roads
• Reclamation practices
ACCESS ROAD CONSTRUCTION
BMP’S

• Install silt fences along perimeter
• Place rock check dams in ditches descending a grade
• Install rock lined drop chutes to direct runoff from the road
• Establish vegetative cover on the area as soon as practical
• Place rock on the running surface as soon as possible
HAULROAD CROSSING AT GRINDSTONE CREEK
GUIDING PRINCIPLES FOR LAND RECLAMATION BMP’S

• Treat the land as if there is not a point source discharge downstream from the mining area.

• Keep the soil in place on the reclaimed land.
TREAT THE LAND AS IF THERE WAS NO POINT SOURCE DISCHARGE

• Use NRCS guidelines for terrace design and placement
• Maintain slight grades on all lands to facilitate drainage and minimize flow velocities.
• Place terraces along boundaries where significant changes in grade occur.
• Use hickenbottom decant systems to slowly lower water from higher to lower elevations.
TREAT THE LAND AS IF THERE WAS NO POINT SOURCE DISCHARGE

- Install rock lined drop structures where large volumes of water are expected
- Employ a serpentine water course configuration to minimize flow velocities.
- Employ holding pools where off-site water enters the permit area
KEEP SOIL IN PLACE ON RECLAIMED LANDS

• Establish final grades and spread top soil as soon as practical after overburden placement is completed.
• Re-vegetate farmland with wheat or oats as soon as practical after top soil placement.
• Follow up with alfalfa for a 3 year period.
• Go into a normal corn/soybean rotation
KEEP SOIL IN PLACE ON RECLAIMED LANDS

- Re-vegetate top soiled non-farmland and slopes areas.
- Establish a cover crop of wheat, oats, or rye along with a final cover of grass and clover.
- Mulch slopes with straw at a rate of 1 to 2 tons per acre.
- Establish final land use after cover crop has established itself
HICKENBOTTOM INSTALLATION
TERRACE AND HICKENBOTTOM
ROCK LINED DROP STRUCTURE
PLUNGE POOL
HICKENBOTTOM AT WATERWAY