

## Module 6: Environmental Resource Maps

**Instructions:** Information submitted under this Module must be certified by a licensed professional engineer, licensed professional land surveyor, or a licensed professional geologist.

### 6.1 Location Map Refer to Exhibit 6.1

Provide a 7.5 Minute USGS map covering the area within one (1) mile of the site boundaries (underground permit area boundaries in the case of an underground mine). Show the following information, highlighting any features which are newly proposed under a permit revision. Identify the map as Exhibit 6.1.

- a. Boundaries of surface mining activity site(s).
- b. Boundaries of underground permit area.
- c. Roads covered under permit.
- d. Mine openings and boreholes.
- e. Springs, water wells, and surface water intakes which are sources to public water supply systems.
- f. Outlines of areas designated unsuitable for mining or under petition for such designation.
- g. State and public parks.
- h. Point source discharges associated with the proposed mining operation.
- i. Existing and proposed stream restoration boundary limits.

### 6.2 Environmental Resource Maps - Surface Mining Activity Sites Not applicable to this application

- a. Coverage - Provide a separate map for each surface mining activity site covering the permit area and all areas within 1000 feet of the permit boundaries unless otherwise directed by the Department. For purposes of this section, the permit area must include the surface activity site and the following roads used in association with it: access roads, haul roads, portions of common use or public roads which are or will be improved to accommodate site operations, and portions of common use or public roads which are or will be substantially impacted by site operations. (Contiguous sites may be shown on the same map.)
- b. Scale - Each map must be clear, accurate, easily read and on the following scale; 1 inch = 200 ft. for sites greater than 100 acres, 1 inch = 100 ft. for sites from 25 to 100 acres, and 1 inch = 50 ft. for sites less than 25 acres.
- c. Title - Identify each map as Exhibit 6.2: Environmental Resource Map and site name (if there is more than one site).
- d. Certification - Each map must be prepared and certified by a registered professional engineer; a registered professional land surveyor or a registered professional geologist.
- e. Details and information - Show all the following features and details as they occur within or pertain to the area shown on the map.
  - i. Topographic contours at a contour interval of five (5) feet or less.
  - ii. Indicate the source and accuracy of the topographic information.
  - iii. Surface permit area boundaries.
  - iv. Property lines - surface and subsurface (key ownership to Module 5).
  - v. Parcel number or tax identification number (use a period "." to separate the parcel number or tax identification number (ex. "12.345.5678").
  - vi. Surface water bodies - streams, lakes, ponds, impoundments, springs, seeps, wetlands (for additional information on stream and wetland identification, see TGD 563-2000-655), mine discharges, and constructed or natural drains, and:

- (1) The name or identity of each;
  - (2) The stream name or stream number and segment ID corresponding to Form 8.4A.
  - (3) Identification of those which are public water supplies; and
  - (4) Identification of those used to provide background and life-of-mine hydrologic information;
- vi. Water wells,
  - vii. Buildings (key to structure inventory in Module 22.7)
  - viii. Roads (public, private, haul, and access). (For public roads, identify with name and/or route number.)
  - ix. Cemeteries (public and private).
  - x. Surface and subsurface man-made features (including pipelines, power lines, telephone lines, rail lines, rights-of-way, etc).
  - xi. Oil wells and gas wells.
  - xii. Existing waste disposal sites (key to Module 7).
  - xiii. Existing surface-mined areas (key to Module 7).
  - xiv. Existing spoil storage and disposal areas, noting those owned or operated by applicant.
  - xv. Existing coal refuse disposal areas (key to Module 7).
  - xvi. Existing dams and embankments, noting those owned or operated by the applicant.
  - xvii. Existing coal and mineral preparation facilities and conveyance systems, noting those owned or operated by the applicant.
  - xviii. Existing underground mine workings, including:
    - (1) The boundaries of underground mine workings which lie beneath the proposed site (key to Module 7); and
    - (2) The location and identification of mine openings.
  - xix. Areas designated as unsuitable for all or certain types of mining or under petition for such designation.
  - xx. State parks and public parks, noting name and owner.
  - xix. Cultural or historical resources listed on or eligible for listing on the National Register of Historic Places.
  - xx. Known archeological sites.
  - xxi. Indian burial grounds.
  - xxii. Land which is within a corridor under the National System of Trails.
  - xxiii. Land which is within the corridor of a Wild and Scenic River, or river under study for such designation. (Include areas under state and federal scenic rivers programs.)
  - xxiv. State Forests.
  - xxv. State Game Lands.
  - xxvi. State Wilderness Areas.
  - xxvii. Surface and groundwater monitoring points.
- f. Geologic information - If the site will be used for coal refuse disposal, coal preparation, mine drainage treatment, or mine opening, show the following information: (A separate map may be used if the Exhibit 6.2 map becomes cluttered.)
    - i. Test hole and borehole locations, including identification, surface elevation, bottom of coal elevations(s), and elevation(s) of any water encountered

- ii. Axis and plunge of regional structure (if not shown on map in Exhibit 6.3);
- iii. Strike and dip of the local geologic structure and/or contours on an underlying coal seam, marker bed, or other stratigraphic unit;
- iv. Joint set orientations;
- v. Faults and fracture traces;
- vi. Coal croplines and bedrock outcroppings;
- vii. Geologic section lines (key to Module 7); and
- viii. Groundwater contours or arrow indicating directions of groundwater flow.

**6.3 Environmental Resource Maps - Underground Permit Area** Refer to Exhibit 6.3

- a. Coverage - Provide a map showing the area above and adjacent to the mining activity. At a minimum the map shall include all areas within 1,000 feet beyond the permit boundary unless otherwise directed by the Department.
- b. Scale - Each map must be clear, accurate, easily read and on a scale of no smaller than 1 inch = 500 feet.
- c. Title - Identify the map as Exhibit 6.3: Environmental Resource Map - Underground Permit Area.
- d. Certification - The map must be prepared and certified by a qualified registered professional engineer, a qualified registered professional land surveyor or a qualified registered professional geologist.
- e. Details and information - Show all the following features and details as they occur within or pertain to the area shown on the map.
  - i. Surface contours at a contour interval of 20 feet generally, and five (5) feet where cover is less than 100 feet.
  - ii. Boundaries of underground permit area.
  - iii. Boundaries of associated surface activity sites.
  - iv. Property lines - surface and subsurface (key ownership to Module 5).
  - v. Surface water bodies - streams, lakes, ponds, impoundments, springs, wetlands, mine discharges, and constructed or natural drains, and:
    - (1) The name or identity of each;
    - (2) Identification of those which are public water supplies;
    - (3) Identification of those used to provide background hydrologic information;
    - (4) Identification of biological sampling stations (distinguish between biologically variable and biologically diverse segments and point of first use);
    - (5) Identify all control streams within the general area;
    - (6) Identification of biologically variable and biologically diverse stream segments listed on Form 8.3B and keyed to Module 8.12 (This information may be submitted on separate addendum maps.);
    - (7) Stream survey stationing should be keyed to Module 15.6 (This information may be submitted on separate addendum maps.);
    - (8) Identify those surface water bodies that will be used for monitoring.
- f. Geologic features and information:
  - i. Test hole and borehole locations, including identification, surface elevation, bottom of coal elevations(s), and elevation(s) of any water encountered.
  - ii. Axis and plunge of regional structure;

- iii. Geologic faults and fracture traces;
  - iv. Croplines of the coal to be mined;
  - v. "Miner's faults", "wants", and areas where the coal seam thins to less than mineable thickness;
  - vi. Geologic section lines (key to Module 7) and;
  - vii. Coal contours (Indicate top or bottom of seam).
- g. Location(s) of all additional features:
- i. Water intakes
  - ii. Livestock watering areas
  - iii. Recreation areas
  - iv. Water wells
  - v. Locations and elevations of mine openings, noting their status as proposed, open, or sealed.
  - vi. Outlines of other active, inactive, and abandoned mine workings (surface, auger and underground), which lie above, below, or within 1000 feet laterally of the underground permit area. (For active operations, the proposed limit of coal extraction or permit boundaries must be shown.) (Key to Module 7.)
  - vii. Outlines of mine pools in workings above, below and within 1000 feet laterally of the underground permit area. Include previously identified "safety zones" required under Act 729 (P.L. 1984), Mining in Safety Zones.
  - viii. Discharges from abandoned underground mines and surface mines.
  - ix. Dwellings, public buildings, commercial buildings and industrial plants.
  - x. Public roads, haul roads and access roads to surface activity sites.
  - xi. Waste disposal sites. (key to Module 7)
  - xii. Coal refuse disposal areas. (key to Module 7)
  - xiii. Oil wells and gas wells.
  - xiv. State and public parks, noting name and owner.
  - xv. Areas designated as unsuitable for surface mining or under petition for such designation.
  - xvi. Land which is within a corridor under the National System of Trails.
  - xvii. Land which is within the corridor of a Wild and Scenic River, or river under study for such designation. (Include areas under state and federal scenic rivers programs)
  - xviii. Cultural or historical resources listed on or eligible for listing on the National Register of Historic Places.
  - xix. Known Archeological Sites.
  - xx. Indian Burial Grounds.
  - xxi. State Forests.
  - xxii. State Game Lands.
  - xxiii. State Wilderness Areas.
  - xxiv. Existing and proposed limits of stream restoration and projected subsidence induced stream pool areas. Depict mine projections and identify longwall panels. Identify underground utilities that may be impacted by restoration work (unless information is shown on another map).