(1) A description of the geology of the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. This description shall include the areal and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and it shall also show how the areal and structural geology may affect the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water. It shall be based on—

   (i) The cross sections, maps, and plans required by §783.25 of this chapter;
   (ii) The information obtained under paragraphs (b)(2), (b)(3), and (c) of this section; and
   (iii) Geologic literature and practices.

(2) For any portion of a permit area in which the strata down to the coal seam to be mined will be removed or are already exposed, samples shall be collected and analyzed from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. The analyses shall result in the following:

   (i) Logs showing the lithologic characteristics including physical properties and thickness of each stratum and location of ground water where occurring;
   (ii) Chemical analyses identifying those strata that may contain acid- or toxic-forming or alkalinity-producing materials and their content in the strata immediately above and below the coal seam to be mined;
   (iii) Chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the regulatory authority may find that the analysis of pyritic sulfur content is unnecessary; and
   (iv) For standard room and pillar mining operations, the thickness and engineering properties of clays or soft rock such as clay shale, if any, in the stratum immediately above and below each coal seam to be mined.

(c) If determined to be necessary to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards of this chapter, the regulatory authority may require the collection, analysis and description of geologic information in addition to that required by paragraph (b) of this section.

(d) An applicant may request the regulatory authority to waive in whole or in part the requirements of paragraphs (b)(2) and (3) of this section. The waiver may be granted only if the regulatory authority finds in writing that the collection and analysis of such data is unnecessary because other information having equal value or effect is available to the regulatory authority in a satisfactory form.

[48 FR 43989, Sept. 26, 1983]

§ 784.23 Operation plan: Maps and plans.

Each application shall contain maps and plans as follows:

(a) The maps, plans and cross-sections shall show the underground mining activities to be conducted, the
§ 784.24 Road systems.

(a) Plans and drawings. Each applicant for an underground coal mining and reclamation permit shall submit plans and drawings for each road, as defined in § 701.5 of this chapter, to be constructed, used, or maintained within the proposed permit area, as necessary for approval of the road by the regulatory authority in accordance with § 817.150(d)(1) of this chapter; and

(b) Except as provided in §§784.19(a), 784.19, 817.74(c), and 817.81(c) of this chapter, cross sections, maps and plans required under paragraphs (b)(4), (6), (10) and (11) of this section shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps and plans, a qualified, registered, professional, land surveyor, with assistance from experts in related fields such as landscape architecture.