**Section 1784.22 Geologic Information**

a) Each application shall include geologic information in sufficient detail to assist in:

1) Determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit, shadow and adjacent areas, including the extent to which surface and ground water monitoring is necessary;

2) Determining all potentially acid- or toxic-forming strata down to and including the stratum immediately below the lowest coal seam to be mined;

3) Determining whether required reclamation can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area; and

4) Preparing the subsidence control plan under 62 Ill. Adm. Code 1784.20.

b) Geologic information shall include, at a minimum:

1) A description of the geology of the proposed permit, shadow 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. The description shall include the areal and structural geology of the permit, shadow and adjacent areas, and other parameters which influence the required reclamation and the occurrence, availability, movement, quality and quantity of potentially impacted surface and ground waters. It shall be based on:

A) The cross-sections, maps and plans required by 62 Ill. Adm. Code 1783.25;

B) The information obtained under subsections (b)(2), (b)(3) and (c); and

C) 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 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:

A) Logs showing the lithologic characteristics including physical properties and thickness of each stratum and location of ground water where occurring;

B) Chemical analyses identifying those strata that may contain acid- or toxic-forming or alkalinity-producing materials and to determine their content except that the Department may find that the analysis for alkalinity-producing materials is not necessary to assure protection to the hydrologic balance; and

C) Chemical analyses of the coal seam for acid- or toxic-forming materials, including total sulfur and pyritic sulfur, except that the Department may find that the analysis of pyritic sulfur is unnecessary to assure protection to the hydrologic balance.

3) For lands within the permit, shadow and adjacent areas where the strata above the coal seam to be mined will not be removed, samples shall be collected and analyzed from test borings or drill cores to provide the following data:

A) Logs of drill holes showing the lithologic characteristics, including the physical properties and thickness of each stratum that may be impacted, and location of ground water where occurring;

B) Chemical analyses for acid- or toxic-forming or alkalinity-producing materials and their content in the strata immediately above and below the coal seam to be mined;

C) Chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur, except that the Department may find that the analysis of pyritic sulfur content is unnecessary to determine whether adverse impacts will occur to the hydrologic balance; and

D) For room-and-pillar mining operations, the thickness and engineering properties of clays or soft rocks 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 62 Ill. Adm. Code 1817, the Department shall require the collection, analysis and description of geologic information in addition to that required by subsection (b).

d) An applicant may request the Department to waive in whole or in part the requirements of subsections (b)(2) and (b)(3). The waiver shall be granted only if the Department 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 Department in a satisfactory form.

(Source: Amended at 11 Ill. Reg. 8652, effective July 1, 1987)