the Clean Water Act (33 U.S.C. 1251 et seq.), and other applicable air and water quality laws and regulations and health and safety standards.

§ 780.21 Hydrologic information.

(a) Sampling and analysis methodology. All water-quality analyses performed to meet the requirements of this section shall be conducted according to the methodology in the 15th edition of “Standard Methods for the Examination of Water and Wastewater,” which is incorporated by reference, or the methodology in 40 CFR parts 136 and 434. Water quality sampling performed to meet the requirements of this section shall be conducted according to either methodology listed above when feasible. “Standard Methods for the Examination of Water and Wastewater,” is a joint publication of the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation and is available from the American Public Health Association, 1015 15th Street, NW., Washington, DC 20036. This document is also available for inspection at the Office of the OSM Administrative Record, U.S. Department of the Interior, Room 5315, 1100 L Street, NW., Washington, DC; at the OSM Eastern Technical Service Center, U.S. Department of the Interior, Building 10, Parkway Center, Pittsburgh, Pa.; at the OSM Western Technical Service Center, U.S. Department of the Interior, Brooks Tower, 1020 15th Street, Denver, Colo or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. This incorporation by reference was approved by the Director of the Federal Register on October 26, 1983. This document is incorporated as it exists on the date of the approval, and a notice of any change in it will be published in the Federal Register.

(b) Baseline information. The application shall include the following base-line hydrologic information, and any additional information required by the regulatory authority.

(1) Ground-water information. The location and ownership for the permit and adjacent areas of existing wells, springs, and other ground-water resources, seasonal quality and quantity of ground water, and usage. Water quality descriptions shall include, at a minimum, total dissolved solids or specific conductance corrected to 25 °C, pH, total iron, and total manganese. Ground-water quantity descriptions shall include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam.

(2) Surface-water information. The name, location, ownership, and description of all surface-water bodies such as streams, lakes, and impoundments, the location of any discharge into any surface-water body in the proposed permit and adjacent areas, and information on surface-water quality and quantity sufficient to demonstrate seasonal variation and water usage. Water quality descriptions shall include, at a minimum, baseline information on total suspended solids, total dissolved solids or specific conductance corrected to 25 °C, pH, total iron, and total manganese. Baseline acidity and alkalinity information shall be provided if there is a potential for acid drainage from the proposed mining operation. Water quality descriptions shall include, at a minimum, baseline information on seasonal flow rates.

(3) Supplemental information. If the determination of the probable hydrologic consequences (PHC) required by paragraph (f) of this section indicates that adverse impacts on or off the proposed permit area may occur to the hydrologic balance, or that acid-forming or toxic-forming material is present that may result in the contamination of ground-water or surface-water supplies, then information supplemental to that required under paragraphs (b) (1) and (2) of this section shall be provided to evaluate such probable hydrologic consequences and to plan remedial and reclamation activities. Such supplemental information may be based upon
drilling, aquifer tests, hydrogeologic analysis of the water-bearing strata, flood flows, or analysis of other water quality or quantity characteristics.

(c) Baseline cumulative impact area information. (1) Hydrologic and geologic information for the cumulative impact area necessary to assess the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining on surface- and ground-water systems as required by paragraph (g) of this section shall be provided to the regulatory authority if available from appropriate Federal or State agencies.

(2) If the information is not available from such agencies, then the applicant may gather and submit this information to the regulatory authority as part of the permit application.

(3) The permit shall not be approved until the necessary hydrologic and geologic information is available to the regulatory authority.

(d) Modeling. The use of modeling techniques, interpolation or statistical techniques may be included as part of the permit application, but actual surface- and ground-water information may be required by the regulatory authority for each site even when such techniques are used.

(e) Alternative water source information. If the PHC determination required by paragraph (f) of this section indicates that the proposed mining operation may proximately result in contamination, diminution, or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose, then the application shall contain information on water availability and alternative water sources, including the suitability of alternative water sources for existing mining uses and approved postmining land uses.

(f) Probable hydrologic consequences determination. (1) The application shall contain a determination of the probable hydrologic consequences (PHC) of the proposed operation upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.

(2) The PHC determination shall be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site.

(3) The PHC determination shall include findings:

(i) Whether adverse impacts may occur to the hydrologic balance;

(ii) Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface or ground water supplies;

(iii) Whether the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial or other legitimate purpose; and

(iv) What impact the proposed operation will have on:

(A) Sediment yields from the disturbed area; (B) acidity, total suspended and dissolved solids, and other important water quality parameters of local impact; (C) flooding or streamflow alteration; (D) ground water and surface water availability; and (E) other characteristics as required by the regulatory authority.

(4) An application for a permit revision shall be reviewed by the regulatory authority to determine whether a new or updated PHC determination shall be required.

(g) Cumulative hydrologic impact assessment. (1) The regulatory authority shall provide an assessment of the probable cumulative hydrologic impacts (CHIA) of the proposed operation and all anticipated mining upon surface- and ground-water systems in the cumulative impact area. The CHIA shall be sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The regulatory authority may allow the applicant to submit data and analyses relevant to the CHIA with the permit application.

(2) An application for a permit revision shall be reviewed by the regulatory authority to determine whether
a new or updated CHIA shall be re-
quired.

(h) Hydrologic reclamation plan. The
application shall include a plan, with
maps and descriptions, indicating how
the relevant requirements of part 816,
including §§ 816.41 to 816.43, will be met.
The plan shall be specific to the local
hydrologic conditions. It shall contain
the steps to be taken during mining
and reclamation through bond release
to minimize disturbances to the hydro-
logic balance within the permit and ad-
jacent areas; to prevent material dam-
age outside the permit area; to meet
applicable Federal and State water
quality laws and regulations; and to
protect the rights of present water
users. The plan shall include the meas-
ures to be taken to: Avoid acid or toxic
drainage; prevent, to the extent pos-
sible using the best technology cur-
rently available, additional contribu-
tions of suspended solids to
streamflow; provide water-treatment
facilities when needed; control drain-
age; restore approximate premining re-
charge capacity and protect or replace
rights of present water users. The plan
shall specifically address and potential
adverse hydrologic consequences iden-
tified in the PHC determination pre-
pared under paragraph (f) of this sec-
tion and shall include preventive and
remedial measures.

(i) Ground-water monitoring plan. (1)
The application shall include a ground-
water monitoring plan based upon the
PHC determination required under
paragraph (f) of this section and the
analysis of all baseline hydrologic, geo-
logic and other information in the per-
mit application. The plan shall provide
for the monitoring of parameters that
relate to the suitability of the ground
water for current and approved
postmining land uses and to the objec-
tives for protection of the hydrologic
balance set forth in paragraph (h) of
this section. It shall identify the quan-
tity and quality parameters to be mon-
tored, sampling frequency, and site lo-
cations. It shall describe how the data
may be used to determine the impacts
of the operation upon the hydrologic
balance. At a minimum, total dissolved
solids or specific conductance cor-
rected to 25 °C, pH, total iron, total
manganese, and water levels shall be
monitored and data submitted to the
regulatory authority at least every 3
months for each monitoring location.
The regulatory authority may require
additional monitoring.

(2) If an applicant can demonstrate
by the use of the PHC determination
and other available information that a
particular water-bearing stratum in
the proposed permit and adjacent areas
is not one which serves as an aquifer
which significantly ensures the hydro-
logic balance within the cumulative
impact area, then monitoring of that
stratum may be waived by the regu-
lar authority.

(j) Surface-water monitoring plan. (1)
The application shall include a surface-
water monitoring plan based upon the
PHC determination required under
paragraph (f) of this section and the
analysis of all baseline hydrologic, geo-
logic, and other information in the per-
mit application. The plan shall provide
for the monitoring of parameters that
relate to the suitability of the surface
water for current and approved
postmined land uses and to the objec-
tives for protection of the hydrologic
balance as set forth in paragraph (h) of
this section as well as the effluent lim-
itations found at 40 CFR part 434.

(2) The plan shall identify the sur-
face-water quantity and quality param-
eters to be monitored, sampling fre-
quency and site locations. It shall de-
scribe how the data may be used to de-
termin the impacts of the operation
upon the hydrologic balance.

(i) At all monitoring locations in the
surface-water bodies such as streams,
lakes, and impoundments, that are po-
tentially impacted or into which water
will be discharged and at upstream
monitoring locations the total dis-
solved solids or specific conductance
corrected to 25 °C, total suspended sol-
dis, pH, total iron, total manganese,
and flow shall be monitored.

(ii) For point-source discharges, mon-
toring shall be conducted in accord-
ance with 40 CFR parts 122, 123 and 434
and as required by the National Pollut-
ant Discharge Elimination System per-
mitting authority.

(3) The monitoring reports shall be
submitted to the regulatory authority
§ 780.22 Geologic information.

(a) General. Each application shall include geologic information in sufficient detail to assist in determining—

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

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

(3) Whether reclamation as required by this chapter can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

(b) Geologic information shall include, at a minimum the following:

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

(i) The cross sections, maps and plans required by § 779.25 of this chapter;

(ii) The information obtained under paragraphs (b)(2) and (c) of this section; and

(iii) Geologic literature and practices.

(2) Analyses of samples collected from test borings; drill cores; or fresh, unweathered, uncontaminated samples from rock outcrops from the permit area, 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 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 to determine their content except that the regulatory authority may find that the analysis of pyritic sulfur content is unnecessary; and

(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.

(c) If determined to be necessary to protect the hydrologic balance 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 paragraph (b)(2) 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 equivalent information is available to the regulatory authority in a satisfactory form.

[48 FR 43987, Sept. 26, 1983]

§ 780.23 Reclamation plan: Land use information.

(a) The plan shall contain a statement of the condition, capability, and productivity of the land within the proposed permit area, including:

(1) A map and supporting narrative of the uses of the land existing at the time of the filing of the application. If the premining use of the land was changed within 5 years before the anticipated date of beginning the proposed operations, the historic use of the land shall also be described. In the case of previously mined land, the use of the land prior to any mining shall