

CHAPTER VIII

GEOLOGIC WAIVERS AND THE USE OF EQUIVALENT INFORMATION

As previously discussed in Chapter II, if the background data search reveals the existence of adequate geologic and/or hydrologic data to characterize the proposed permit area and develop an environmentally sound mining plan, no additional site-specific geologic sampling or analyses may be required. Thus, this “Equivalent Information” can be used to satisfy the regulatory requirements for site-specific geochemical, physical, and certain engineering properties of geologic strata.

When equivalent information is used, a request for a geologic waiver must be submitted. The waiver request will be approved or disapproved by WVDEP in accordance with the Act. All waiver requests, when approved, will be granted in writing and documented as part of the Fact of Findings.

A. INFORMATION CONSIDERED FOR WAIVER REQUESTS

The types of geologic information that may be waived are as follows: (1) geologic logs; (2) geochemical analyses of strata and coal; and (3) the thickness and engineering properties of clays or soft rock in the roof and floor strata. Types (1) and (2) apply to both surface and underground operations; type (3) applies only to room-and-pillar type underground operations. However, a waiver cannot be granted for requirements pertaining to site-specific geologic descriptions, geologic maps, and geologic cross-sections. Nor can a waiver be applied to the geologic requirements relating to site-specific rock durability or subsidence control planning.

To qualify for the waiver, an applicant must prove that adequate "equivalent information" exists from other sources and is in a satisfactory form. Existing information should be supplied to the WVDEP along with a discussion of the origin and why the applicant believes that it is reliable and of equivalent value as site-specific data.

B. WAIVER APPROVAL OR DENIAL

A request for a waiver of geologic information should be specifically referenced to one or more of the above three categories. WVDEP will review each request for a waiver on a site-by-site basis. Consideration will be given to the type of mining proposed; sensitivity of the area; results of previous mining in the area; present and potential land use; and the reliability, proximity, and types of data presented. If there is adequate information for the determination of impacts and success in reclamation, WVDEP will usually grant a waiver to the applicant.

If a geologic waiver is granted, all appropriate sections of the permit application (PHC, acid/toxic materials handling plan, subsidence control plan, and reclamation plan) should reflect the existing and/or substitute geologic information. If the waiver is not approved, then these sections of the application should be rewritten based on the additional data necessary to meet permit requirements. Likewise, WVDEP staff must develop written approval of the waiver or variance request, prior to permit issuance. Section F of this chapter briefly describes this procedure.

C. TYPES OF EQUIVALENT INFORMATION

The types of acceptable equivalent information are directly affected by the type of waiver being requested and the specific needs of the proposed permit area. The following section briefly describes the purpose for each type of geologic information and potential types of data that might be considered "equivalent information." The types of equivalent information are relatively generalized and should not be considered exhaustive. Sources of this information were described in Chapter II of this handbook.

1. Geologic Logs

Geologic logs from the proposed site are used to establish the stratigraphy, lithology, and structure, and to identify zones that may require testing for geochemical or engineering properties. When supplemented with hydrologic and other physical data, information from the geologic logs can be used to estimate potential storage, movement, and transmission of ground water and to evaluate the stability and durability of the rock involved. The data in turn can be used to determine the probable hydrologic consequences (PHC), to design spoil handling and disposal plans, and to predict the potential for subsidence.

Any request for a waiver of the requirements for site-specific geologic logs must include equivalent information sufficient to determine the geologic character or the proposed mining operation, or a justification as to why this information is not needed or applicable to the proposed operation. Also, a waiver for geologic logs does not exempt the applicant from the requirements to provide site-specific geologic maps and cross-sections. Therefore, knowledge of site conditions is still required. The following is a partial list of the types of information that might be considered equivalent:

Geologic logs from adjacent areas sufficient to determine the area stratigraphy and lithology.

- Geologic logs from oil and gas wells collected in and immediately adjacent to the proposed permit area.
- Highwall and outcrop mapping sufficient to determine the area stratigraphy and lithology.

- Geologic reports and maps sufficient to determine the area stratigraphy and lithology.
- A demonstration that site-specific information on the thickness and physical properties of geologic strata is not needed to determine the stability of backfill spoils, area hydrology, or subsidence effects.

2. Geochemical Analyses

Geochemical analyses of geologic strata and coal are used to predict impacts to surface and ground water, to design treatment systems, to predict and aid in maximizing revegetation success, and to design an appropriate spoil/waste handling plan. In determining whether adequate equivalent information is available, the geochemical characteristics of coal and associated strata, as related to previous mining activities, must be considered. The types of information that might be used include:

- Water quality information that demonstrates the lack of acid- or toxic-forming materials in the overburden or coals. These can include NPDES discharge monitoring reports, surface-water monitoring reports, in-pond compliance reports, water quality of backfill seeps and springs, and water quality information collected from discharging mine adits on the same seam(s).
- Information demonstrating that the proposed mining operations can be designed to protect the hydrologic balance, without the required geochemical analyses of geologic strata and coal(s).
- Geochemical analyses from adjacent or surrounding areas, sufficient to demonstrate a regional trend or condition in the overburden.
- Historical information on the revegetative success of adjacent and surrounding areas, sufficient to demonstrate that the reclamation plan, as it relates to a sustained vegetative cover, can be accomplished. This may include bond-release information, inspection reports, color photographs, etc.

3. Thickness and Engineering Properties of Clays or Soft Rock

The thickness and engineering properties of clays or soft rock in roof and floor materials are required for all room-and-pillar type underground mining operations. However, a waiver may be granted if it is determined that a subsidence control plan is not required. Such a determination is based on the occurrence of renewable resources or structures above the proposed underground workings.

D. EXAMPLES OF GEOLOGIC WAIVER REQUESTS

The types and amounts of equivalent information, required for approval of a geologic waiver request, may vary drastically between sites. However, it is the applicant's responsibility to provide this information, along with a narrative, justifying the use of such data. Some examples of information needed for a waiver request are presented below:

EXAMPLE 1

An operator proposes to permit a contour strip-mine on an orphan bench at the 1500-foot elevation. The seam to be mined is the Alma. Near the proposed operation are two underground mine operations, one active and the other reclaimed. Both operations are within one-half mile of the proposed strip-mine and have geologic information included in their approved permit packages. The reclaimed site has received final bond release. The applicant wishes to waive the requirements for the geologic sampling at his proposed operation. His reasoning is based on the following:

- *Geochemical analyses are available from each of the nearby coal mines on the same seam. Neither indicates any geochemical or physical problem with strata proposed to be disturbed.*
- *Historic documentation indicates acceptable water quality, associated with the seam to be mined, in the adjacent area. The documentation includes discharge monitoring reports, for ponds and compliance monitoring data, for the receiving streams.*
- *The ground-water resource is of minor importance in the area because the proposed operation is near the top of a ridge, has a limited recharge area, and the area is remote from inhabitants utilizing water-supply wells. Also, the first potential aquifer underlying the coal seam to be mined is separated from the proposed site by about 225 feet of relatively impermeable strata.*
- *Other operations in the area have experienced success with backfill stability and revegetation. Since the proposed plan is a second-cut operation and there is ample room for storage on the bench, in an area not considered as steep slope mining, stability should not be a problem.*
- *Cross sections and geologic information can be obtained from the adjacent mine operations, the orphan strip pits, rock outcrops, and geologic maps, to adequately determine the geologic structure, stratigraphy, and lithology at the proposed site.*

The applicant has collected all the necessary information and documentation to support his waiver request. He has also prepared a site-specific description of the geology, based on information from the adjacent areas and from additional geologic information available at the exposed orphan highwall in his proposed permit area. If WVDEP agrees with the applicant's claims and data, a waiver of geochemical analyses of strata and coal, and a waiver of geologic logs will be granted. If WVDEP requires additional geologic information, the applicant must provide it and revise appropriate sections of the application.

EXAMPLE 2

An operator proposes to permit a new underground mine on the Bakerstown Coal seam. The proposed type of mining is room and pillar, with no retreat mining. The seam has been mined in the area without water quality problems and with good success in reclamation. The applicant has drilled a core hole at the proposed face to collect samples for geochemical analyses and to determine the geology. The applicant has requested a waiver for the required engineering properties and geochemical analyses of roof and floor strata, and for the collection of geologic information away from the highwall as specified in Section 3.23 (t). His reasoning is as follows:

- *The mine is located in a remote area, three miles from the nearest ground-water user or resident. The mine is 200 feet above the regional aquifer which is a water source for residents along the valley floor. The overburden in the area contains two massive sandstone beds that are potential water-bearing units; however, they are separated from the seam being mined by about 200 feet of relatively impermeable strata. Also, there are no inhabitants above or in the immediate vicinity of the mine workings.*
- *Water quality at other Bakerstown Coal mines in the vicinity shows no problems meeting NPDES requirements, as attested by discharge monitoring reports, receiving stream compliance monitoring, and samples taken from other sources (e.g. water discharges from abandoned underground openings).*
- *Geochemical analyses from the core drilled at the proposed face were consistent with the area water quality information and did not indicate any potentially acid- or toxic-forming strata that could result in potential water quality problems.*
- *Information from the area geologic maps, the test hole drilled at the proposed face, and the orphaned Bakerstown strip benches establish the local and regional structure sufficiently to assist in determining the probable hydrologic consequences.*

- The land above the proposed mine is managed forest. The overburden thickness ranges from 400 feet to 600 feet and includes two massive sandstone strata. The operator predicts no subsidence at the surface because it is a room and pillar operation with no pillar extraction, and the expected beam effect of the massive sandstones will provide support for overlying strata. In addition, the mine design will not create extensive barrier pillars within the mine.*

The applicant has collected all the necessary information and documentation to support his waiver request. He has also prepared a discussion of his claims showing supporting evidence and reasoning for each point. If WVDEP agrees with the applicant's claims and data, a waiver of tests for engineering properties and geochemical analyses of roof and floor strata will be granted. If WVDEP requires additional geologic information, then the applicant must revise all related sections of the application.

E. WAIVER OR VARIANCE APPROVAL

If the WVDEP determines that adequate equivalent information is available to substantiate an applicant's request for a geologic waiver, the appropriate reviewer must complete a waiver or variance approval form to document the rationale for the waiver approval

Waivers cannot be granted for areas where the mining history has shown acid mine drainage production to be probable or in acid-producing coal seams in areas with no prior mining history. In such areas, site-specific overburden sampling and analysis shall be required.