

ODNR, DIVISION OF MINES & RECLAMATION

GUIDELINES

TO: DMR Inspection & Enforcement Staff
IM/Coal Operators & Consultants

DATE: April 22, 1996

FROM: Lisa J. Morris, Chief

SUBJECT: Guidelines for surface mining near underground mines.

Potential impacts that may occur when surface or auger mining operations intercept an underground mine complex, whether planned or unplanned, relate to **dewatering**. Dewatering may have a hydrological impact by altering the local hydrologic balance. In addition, the dewatering of underground mines may be a catalyst associated with at least two underground mine subsidence mechanisms:

1. **Mine Roof Failures** can be caused by the dewatering of the mined interval (void) and the reduction of the static water levels in the overburden. In addition, dewatering may cause the removal of the buoyant forces on the overlying soils, and bedrock, and the lateral restraining hydrostatic pressures from the coal pillars. This effect, combined with weakening of the remaining coal due to exposure to air, can lead directly to the failure of coal pillars, the mine roof, and the overburden, manifesting itself as subsidence on the surface;
2. **Piping of Soil** into the mine void can occur as a result of dewatering of an underground mine complex. As a mine pool is drawn down and failures of the roof rock occur, a downward flow of water within the overburden may carry soil into the mined interval through roof collapses. Thus, subsidence features can become larger and provide a mechanism for continued settlement/subsidence.

Considering the potential hydrologic and subsidence impact/damage that dewatering may cause to adjoining lands, the field inspection staff will take the following steps when dewatering occurs or is suspected (Interception of small "dog hole" mines, where water flows do not interfere with the operator's normal operation need only be noted in an inspection report.):

1. The field staff shall immediately notify the appropriate hydrologist, upon notification by the permittee or by field observation, that an unplanned interception of an underground mine has occurred. An additional hydrology review and an update of the cumulative hydrologic impact assessment will be performed. In addition, a subsidence review may also be undertaken by the district engineer. The hydrologic and subsidence reviews will be conducted to determine if off-site damage has (or may) occurred. The unplanned interception and dewatering will result in a Notice of Violation (COAL)/Chief's Order (IM) issued to the permittee if the permittee fails to immediately cease all attempts to facilitate the dewatering of the mine and does not submit an Application to Revise a Permit (ARP) (COAL)/Modification (IM) to modify certain aspects of the permit. The reviewing hydrologist and/or engineer will need specific field information such as the interception location, how it occurred, and the approximate amount of water being pumped and

approximate volume of water encountered or intercepted, i.e. volume of water in pit. All pumping of the mine water shall cease until a hydrologic/subsidence review of the site has been completed. Authority for the permittee to comply with these provisions is contained in section 1513.08 (A)(4)(a)(i) and (B)(2)(k), and 1514.02 (A)(9)(h)(i) of the Ohio Revised Code.

2. If dewatering or interception of an underground mine complex has occurred, either planned or unplanned, and the point of interception is below the grade elevation of a public road, the inspector shall immediately notify the public roadway authority. Notification shall be given to authorities of all public roads located within the mapped underground workings that were intercepted. The staff shall accurately document all conditions surrounding the interception, dewatering, and any notifications made to road authorities. If you believe this to be an emergency situation, follow the emergency Policy PPD guidelines.
3. When auger mining (coal) is involved, the inspector shall periodically review the logs of the augering activity maintained by the operator and/or permittee. The review shall ensure the operator is in compliance with the law/rules that provide protection of underground mining. The inspector shall indicate in the inspection report either compliance or non-compliance with this provision. Authority for the permittee to comply with these provisions is contained within section 1513.09 of the Ohio Revised Code entitled "Enforcement; Inspection; Records; Rules", and section 1501:13-9-08 of the Ohio Administrative Code entitled "Protection of Underground Mines", and section 1501:13-13-03 entitled "Auger Mining Additional Performance Standards".
4. The field staff should take the following steps when dewatering of an underground mine is suspected or a possible concern:
 - a. The field staff shall review the Ohio Geological Survey's (OGS) Underground Mine Map Series in relationship to the active surface mine operation on an annual basis to determine if the affected area or proposed affected area is within 500 feet of an underground mine.
 - b. For quarry operations where significant pumping occurs, the field staff should review the cone of depression as depicted on the USGS ground water potentiometric surface maps in conjunction with the OGS underground mine maps where available.
 - c. If underground mines are located within the cone of depression or within 500 feet of the affected area, the field staff shall request the appropriate hydrologist to perform an additional hydrology review unless one has been previously performed approving mining closer than 500 feet. Also, a subsidence review may be needed.

If you have any questions, please contact Bob Baker.

cc: Russ Scholl, Deputy Chief
Evaluation Team Leaders
Development Team Leaders