

QUARRIES AND WATER SUPPLIES

Frequently Asked Questions

Surface noncoal mine operators have a legal obligation to protect water supplies near their mines. According to state law, if a water supply is affected by mining, the operator must restore or replace the supply to meet the needs of the user. This fact sheet answers commonly asked questions about mining and water supplies and explains the rights and responsibilities of the noncoal mine operator and the water supply owner.

How are quarries regulated in Pennsylvania?

The Pennsylvania Department of Environmental Protection (DEP) regulates all mining in the state. Pennsylvania's noncoal mining regulations are found under Title 25, Chapter 77 in the Pa. Code (accessible at www.pacode.com or, inquire at the local DEP District Mining Office). Those regulations are based on the Noncoal Surface Mining Conservation and Reclamation Act (Pennsylvania Environmental Statutes, Title 52, Sections 3301-3326). The regulations and statutes authorize DEP to protect public health and safety, and the environment.

What happens before a new quarry permit is approved?

Quarry operators are required to collect information about groundwater conditions for an application to mine. They must identify water supplies that may be susceptible to the effects of the proposed mining and identify the pre-mining use.

To document the quantity and quality of water delivered by a private supply, water levels and/or volumes are recorded and samples are collected. Pump tests may be conducted on existing or monitoring wells to characterize the aquifer(s) and determine the potential effects from proposed mining.

Based on the data collected, a plan is developed to regularly monitor groundwater levels in order to track the effect of mining on groundwater behavior. This plan is included in the application to mine.

This information is available at the District Mining Office where the permit application is under review. A copy is also maintained at a public location in the municipality specified in the public notice.

If a resident has information regarding the local groundwater or other concerns about the proposed mine, they may provide that information to DEP during the public comment period, a public meeting or conference that may be requested prior to permit issuance/denial.

How can a quarry affect water supplies?

Quarry operations are long-term land uses that progress in width and depth over time. When the mining proceeds below the water table, the operator must begin pumping the inflow of groundwater out of the quarry to continue mining. This pumping can lower the groundwater levels in areas around the permit and is called drawdown.

The drawdown is greatest nearest the quarry and generally reduces with distance, forming a cone-like shape with the quarry at the center. This is called the cone of depression. The cone of depression is not fixed and is affected by pumping at the mine, geological factors, and the amount of precipitation and other recharge, or water input, to the aquifer. A mathematical model may have been constructed as part of the application information to predict the extent of drawdown at different stages of mining. This model is only an approximation and other variables can affect the drawdown at a specific point (including a neighbor's pumping well).

Personal property may be within the quarry's pumping zone of influence, meaning that private water supplies may be affected to the degree that the property owner will notice a change. Under Pennsylvania laws regarding groundwater, it is not illegal for the quarry activity to affect residents' water but it is illegal if the quarry fails to restore it for personal use.

If a resident feels the effects of blasting at their home, does it affect their well?

The operator must adhere to strict regulatory limits for blasting. Because the limits are set to prevent damage, damage to homes from blasting is unusual. Physical damage to wells or pipes is extremely rare. Before blasting damage can occur, the blast must produce enough energy to strain materials to the point of failure.

Quarry blasting is designed to fracture only the rock within the quarry area. The fracturing does not reach far beyond the blast area although residents may feel remnant vibrational waves from the blast. There have been incidents where wells were temporarily affected by blasting by becoming cloudy or slightly dropping in water level but this does not indicate physical damage to a private well. If these conditions persist, contact DEP.

What happens if a resident suspects their water supply has been impacted by mining?

If the groundwater levels become low, a water user may notice that less water is available. The supply may turn muddy or run out completely because there is no longer enough water recharging the well for regular usage.

If a resident suspects that mining activity has contributed to a problem with the water supply, they may contact the mining company who may respond independently or they may file a complaint with DEP. For a complaint, an inspector and/or geologist from the local District Mining Office will conduct an investigation and determine whether mining caused the problem. The water supply owner or user will be expected to supply details of the problem and agree to inspection or testing of the water supply by DEP or the mining company in order to make a determination of cause.

If there is bacteriological contamination, it is unlikely that mining was the cause. Mining activities do not introduce bacteria into the aquifer and it is highly unusual for blasting to fracture the ground, pipes or well seal to allow bacteria into the well. Bacteria is more likely caused by: a poor water supply site (such as near a septic system), shallow well depth that does not allow for natural filtering, faulty construction of a seal or casing, or deterioration of the well.

Experienced DEP personnel will try to complete an investigation as soon as possible. If a resident is without water and there is potential that the mining company is responsible, DEP may require the operator to provide a temporary source of water. An investigation may take several weeks or more because DEP must base its decisions on scientific facts and solid evidence.

Who pays for water supply restoration or replacement?

If mining activity is determined to have caused contamination, diminution or interruption of a water supply, the mine operator must bear the cost of restoring the water supply. They must provide a permanent replacement water supply that is adequate in quantity and quality for the purposes served and any reasonably foreseeable uses. DEP will take appropriate action to assure that the mine operator complies with its legal obligations to restore or replace the supply.

If a restored or replacement water supply has operation and maintenance costs that exceed the costs associated with the original supply, the mining company is responsible to provide permanent payment of the increased costs. For example, if the new supply is a connection to a public source, the mining company pays the hookup fee and water bill for the amount over which it cost the resident to use the previous well as the supply.

If the mining company is not found to be responsible, the individual owner of the water supply bears responsibility for restoration or replacement.

What if a resident has replaced their well and later find out that the mining company may have been responsible?

Reimbursement for these costs may not be easy to obtain from the mining company. It may be possible for DEP to establish responsibility for the loss if adequate information can be documented from the homeowner and a hydrological connection can be made to the mining activity. There is always the possibility that the operator will dispute the costs paid by the homeowner if they are higher than an average well replacement for the area. If a resident suspects a connection between mining and their well supply, report it to DEP as soon as possible, keep accurate records, and retain all documentation, such as receipts. Obtain multiple estimates for well replacement if possible.

To report any complaint related to a mining operation, contact the appropriate DEP District Mining Office.

For more information, visit www.dep.state.pa.us, keyword: Mining.