

ODNR, DIVISION OF MINERAL RESOURCES MANAGEMENT

GUIDELINES

(This guidance directive replaces appendices 1.1.11 in the 2002 AML Manual and the Water Replacement Guidelines dated September 23, 2015)

SUBJECT: Water Replacement Guidelines

EFFECTIVE: March 10, 2016

PURPOSE: To establish procedures to address drinking water contamination investigation and replacement

Background

The Division of Mineral Resources Management's Abandoned Mined Land Program is a discretionary program that has federal funding available for abating high priority public health and safety problems associated with abandoned mines. One problem is the impact that abandoned mines have had on the quantity and quality of surface and ground water, especially those sources used for domestic consumption. Mining-related contaminants including sulfates, iron, aluminum, manganese, dissolved solids and pH, have rendered water supplies unsuitable. For the purposes of this program, suitable water is defined as water used for human consumption that has concentrations of iron, manganese, total dissolved solids and sulfates, as well as pH, within the acceptable limits as described, such as secondary drinking water standards established by the US EPA and the Ohio EPA. However water quality EXCEEDING EPA secondary drinking water standards may be considered AMBIENT or naturally occurring for the area. This may include elevated levels of iron, aluminum, manganese, dissolved solids, including total hardness, and would not necessarily be reflective of impacts from past mining activities. Water quality, however, is not the only concern. Deep mine subsidence may also reduce the quantity of available water by fracturing aquifers, damaging equipment associated with a private well or collapsing deep mines used as water reservoirs.

Funding

Funding for water replacement may be available through the Division's Abandoned Mined Land Program to replace water supplies impacted by mining that occurred prior to September 1, 1982, if water quality is impacted by deep mining; or August 3, 1977, if impacted by surface mining.

AML water well replacement projects have historically not had a high degree of success and as a result will likely not be funded regardless of eligibility. Drilling new wells has resulted in a significant waste of valuable funding that could have been used to address other public health and safety issues. The installation of treatment systems often fail as

they cannot adequately treat the high concentration of acid mine drainage constituents. The best option for successful water replacement is the extension of waterlines. Funding for waterline extension can also be derived from sources other than the AML such as EPA grants and community development block grants.

Eligibility

The Office of Surface Mining requires states to include in their grant application the amount of funding they request to use to address water replacement problems. Since 2009, the Ohio AML program has not specified any grant funds for this purpose due to the lack of previous successful replacement and/or treatment projects as well as the reductions in overall AML funds including the elimination of Emergency Program funding. Eligibility and selection of sites for potential inclusion in an AML annual grant are evaluated on a site-by-site basis and are subject to funding availability. In addition to the mining dates noted above, the primary criteria that must be considered when establishing eligibility for funding includes the following:

1. As part of its investigation of quality problems, the Division will determine the ambient water quality characteristics of the local ground water resources by analyzing the natural background concentrations of dissolved constituents in the water. A comparison of these analyses, which may include, although will not be limited to, known mine discharges, other groundwater supplies, and surface water, with the analysis of the potentially impacted water supply. To be eligible for water replacement, a positive correlation between the mining and the dissolved constituents in the water supply sample must be established. The majority of the impact must be associated with past mining. The Division must establish that the existing water supply was in place prior to August 3, 1977 (surface mine) or September 1, 1982 (underground mine) used as a principle water supply for human use at an occupied dwelling prior to its impact. The Division may only assist a water authority that pursues other public funding to extend a public waterline provided that supplies were potable and used as a principle supply prior to impact. The Division must also establish that the water quality has not been impacted as a result of improper well construction or poorly maintained equipment.
2. If it is determined that the majority of the water quality impact is associated with abandoned mining, it must be established that the concentration levels creates a public health and safety problem. This is established if the standards are exceeded for mine-related constituents in water including, but not limited to, iron, aluminum, manganese and sulfates, as well as pH and exceed the natural background levels (ambient) of the surface waters or ground water supplies.
3. Water quantity can be impacted by mine subsidence. To be considered for eligibility, a private supply must exhibit a storage loss or loss of yield in sufficient quantity to create a public health or safety problem. The complaint may be referred to Mine Subsidence Insurance for investigation, analysis, eligibility, and possible abatement.

Complaint/Investigation Process: Roles and Responsibilities

A complaint received in the district office will be forwarded to the appropriate Project Officer. The Project Officer will contact the complainant and the AML hydrologist within 24 hours to schedule an investigation date. The investigating AML hydrologist is responsible for sampling and/or conducting well tests. The investigation will be conducted within ten days from receipt of the complaint. All complaints and field observations are required to be recorded in the AML Complaint Data Base, including the AML Complaint Investigation Report (**AML MANUAL FIGURE 1.1.1**) or the AML Emergency Complaint Investigation Report (**AML MANUAL FIGURE 1.1.2**). The Ground Water Investigation Form (**AML MANUAL FIGURE 1.1.7**) should also be completed. The project officer will issue the findings in a letter to the complainant, within 10 days following the completion of the hydrologic investigation.

Water Well Complaints:

The AML hydrologist will investigate all water well complaints. Analytical results of samples collected from drinking water sources shall be provided to the citizen within five business days of receipt of the results from the lab unless reasonable and justified circumstances intervene. In such cases, results shall be provided within 20 business days of receipt of the results from the lab. The cover letter shall include reference to the link <http://ohiowatersheds.osu.edu/know-your-well-water>, the water sampling interpretation tool available through Ohio State University Extension's Ohio Watershed Network.

Initial water samples will be collected and submitted to the DMRM laboratory for Group II analysis. Upon receipt of the test results from the laboratory, the hydrologist will review the water chemistry and determine if the well water is impacted by pre-law coal mining and if further investigation is required. In the event that continued investigation is necessary, the hydrologist will perform further water sampling and coordinate any requisite hydrologic and geotechnical testing. The hydrologist will analyze the test results and all available information to assess the problem and make recommendations.

Prior to the AML hydrologist's initial investigation, the investigating Project Officer shall provide the hydrologist with the following information if requested:

- AML Complaint Investigation Report or complaint log number
- Location Map of Problem Area
- Abandoned Deep Mine Map Limits (if applicable)
- Surface Mine Limits (past & present)
- Information on previous complaints and projects in the vicinity of the current complaint

Upon completion of the hydrologic investigation, the hydrologist will provide written determination of the findings to the Project Officer.

The Project Officer may identify selected water replacement projects that qualify (public water line extensions) for inclusions in the annual AML grant process. The Project Officer, for the purposes of determining project feasibility and securing sufficient grant funding, shall determine the percentage of resident water wells impacted by acid mine drainage to the total number of residents being served by the proposed waterline extension. The percentage of homes impacted by AMD, multiplied by the water authority engineer's total construction cost estimate, will provide the dollar figure or \$100,000; whichever is less (DMRM has a financial limit of \$100,000 per project). Notification response letters to the complainant and/or water authority must include the grant process information, any funding, and the time frames involved in obtaining the funding in order for the water authority to plan and/or proceed w/ design, bidding, and construction.

If a waterline extension is determined to be plausible by the water authority, the water authority shall submit an AML Waterline Project Application to the AML program Project Officer (**AML MANUAL FIGURE 1.1.12.A**), inclusive of a Preliminary Engineering Report, for evaluation. If approved for AML funding, the water authority will undertake the design, the bidding, and the construction, with limited financial assistance from the Division. Regardless of the total cost, as determined by the water authority, the percentage of the houses impacted by mine drainage as compared to the total number of houses served will not be a factor in exceeding the AML funding ceiling limit of \$100,000.00. The AML Contract Officer develops the Cooperative Agreement Contracts.



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