

**Source Water Assessment Summary for  
The Municipal Authority of the Borough of Lewistown, Mifflin  
County  
PWSID#4440010  
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The Pennsylvania Department of Environmental Protection (DEP), Bureau of Water Supply Management, conducted an assessment of potential contamination sources to the seven groundwater wells and one surface water reservoir comprising the public drinking water supply of the Municipal Authority of the Borough of Lewistown (MABL), Mifflin County. The seven wells are located in three distinct localities: Glenwood, Milroy and Belleville. The objectives of this assessment were 1) to identify all **potential** pollutants within the area that contributes water to each drinking water source and 2) to prioritize the **potential** pollutants' influence upon each drinking water source. This assessment evaluated contaminants that **may** enter the groundwater supplying MABL's drinking water sources. With this information, MABL can develop an effective source water protection program.

To begin the assessment of the potential pollutants of each drinking water source, a study area was defined. DEP uses a three-tiered wellhead protection area approach for wells, springs, and infiltration galleries. *Zone I* is the innermost protective zone around the wellhead and ranges from a 100- to a 400-foot radius. *Zone II*, the capture zone, is the surface area overlying the portion of the aquifer through which groundwater is diverted to the drinking water well during pumping. Approximate *Zone II* areas for each well are delineated using groundwater modeling. *Zone III* is the land area beyond *Zone II* that contributes recharge to the aquifer within the first two areas via surface water or groundwater. DEP uses the Topographic Boundary Delineation method for surface water sources located in watershed basins of less than 100 square miles; the Laurel Creek Reservoir watershed basin is approximately 12 ½ square miles. The source water protection area for the Laurel Creek Reservoir includes the entire drainage basin upstream of the intake.

The land uses that typically contribute to groundwater contamination were mapped within MABL's assessment areas. The *Zone I* land usage around all the wells is largely agricultural, with the exception of Rolling Hills Well No. 1 which is residential. The *Zone II* area around the Belleville Wells, Milroy Well No.1 and McCoy Well Nos. 1 & 2 is dominated by agricultural practices that include manure spreading, herbicide and pesticide storage and use. The remainder of these wells *Zone II* area is comprised of residential land uses and a transportation corridor. The *Zone II* land usage around the Rolling Hills Well No. 1 consist primarily of agricultural practices and residential land uses. Part of the *Zone II* area is forested. The Watershed area of the Laurel Creek Reservoir is mostly forested. There is minor residential development and a transportation corridor running through the watershed area.

The potential pollutants associated with each land usage were then identified. For example, “automobile repair shops and gasoline stations” typically use, store, or handle petroleum hydrocarbons (gasoline), volatile organic chemicals (solvents), heavy metals, and other metals. Industrial facilities can generate hazardous waste products. Farming, through application of manure and herbicides/pesticides, may add nitrates, bacteria, and organic chemicals to the soil. Household hazardous waste, lawn care chemicals, and discharges from on-lot sewage disposal systems are only a few of the potential contaminants connected with residential areas. Transportation corridors create potential for spills of petroleum and hazardous wastes in addition to road salt applications. Staff from the MABL, its consultants, and the DEP visited the Zone I and II areas to identify potential contamination sources and their associated pollutants.

Each potential pollutant was then evaluated employing a Susceptibility Analysis Matrix, which compares *Time of Travel* versus *Fate and Transport (Persistence)* versus *Quantity* to find the *Potential for Contamination*. The *Potential Impact* is then determined by weighing the *Potential for Contamination* value against the *Sensitivity* of the source. Finally, *Potential Impact* is then compared with the *Potential for Release* to generate a Susceptibility Rating for each potential contaminant ranging from A (High) through F (Low). Wellhead protection priorities are then developed; contaminants with “A” ratings result in a higher protection priority than contaminants with “F” ratings (see Table 4 in Appendix D).

For MABL, the source sensitivity value for each well is high, because all have some kind of treatment past simple disinfection, ex-high nitrates. Therefore, the *Potential Impact* value for each source is either medium or high depending on the *Potential for Contamination*. After factoring in the *Potential for Release*, the Susceptibility of Analysis Matrix did yield several “A” protection priority ratings for MABL including residential activities, agricultural activities and transportation corridors. A significant number of medium protection priorities (“C” and “D” ratings), including commercial activities like auto repair shops and gasoline stations were identified. Accounting for these potential contaminant sources and considering their respective protection priority ratings will assist MABL in developing a specific and useful source water protection program. The reservoir yielded one “A” protection priority, the transportation corridor. The remainder of the potential contaminates around the reservoir produced medium protection priorities.