

Application of Stream Dataloggers near Shale Gas Developments

Faculty and student researchers at Indiana University of Pennsylvania are using dataloggers (Solinst Leveloggers) to monitor conductivity in small tributaries of Beaver Run Reservoir, a major public water resource east of Pittsburgh and adjacent to Marcellus shale gas extraction sites. Conductivity levels may be elevated by dissolved metals and other pollutants mobilized through historic and current energy development activities. Four dataloggers were installed near the mouths of small reservoir drainages situated below gas well pads. The loggers (cylindrical probes) were suspended within PVC tubes anchored to the stream beds and set to record hourly measurements. Seasonality, flow variability, and channel scouring have presented challenges, leading to gaps in the set of observations gathered from 2012 to the present. Data collected thus far do not appear to indicate significant impacts to municipal water from well pads and associated roads and infrastructure; generally, conductivity levels were below 300 $\mu\text{S}/\text{cm}$. Precipitation events appeared to reduce conductivity in several cases, as rainfall diluted stream water. Information provided by the dataloggers serves as one component of a broader monitoring effort under contract with the Municipal Authority of Westmoreland County.