

Public Comments Submitted to Public Utility Commission by American Water Company (R-2017-2595853) – August 3, 2017

John L. Hall, Zmartar, LLC

575 Fellowship Road
Chester Springs, PA 19425

Infrastructure management has gained broad acceptance as major investment opportunity for water companies due to the challenges of climate change, urbanization, and population growth across the Commonwealth of Pennsylvania. In many cities, aging or inadequate water and wastewater infrastructure impact water system management and quality of life.

The today's internet of things telecommunications technology can provide water quality management to underserved small cities and communities in developing countries. Comcast, a major cable communication company, has agreed to deploy low power low cost radio technology to dramatically improve consumers' quality of life and improve delivery of services. Recognizing this as a business expansion opportunity Comcast installs Internet of Things for smart environmental monitoring using LoRa FPGA water quality monitoring gateways; delivering products and services that connect the physical and digital worlds to improve productivity, quality, safety, and sustainability. Other smaller companies deploy quality reporting sensors that collect customer data for water and other types of utilities. The Coatesville community is awaiting the use of the internet of things technologies to reduce cost to the consumer while maintaining the same high standard of water quality that the American Water Company (AWC) has provided for many years.

The AWC already uses Remote Meter Reading Devices to transmit electrical impulse readings from a meter to locations on the outside of a residence. Currently, the AWC automatically transmits meter reading from a central location using telephone lines. The AWC imposes a meter reading fee equal to the cost of manually reading the meter or terminate service. If the automatic meter reading equipment cannot be installed. With many households switching to exclusive mobile service the customer cannot provide a telephone number many customers are charged a flat rate, which may not accurately reflect usage. Water use reduction becomes non-contingent and water conservation next to impossible. When a water meter has ceased to register or register accurately. Then the AWC compute the water used by taking the average of the water used for the nearest meter reading period. Low-cost, wide area, low-power network operating on unlicensed spectrum is able to provide the most reliable, the most affordable and energy-efficient connectivity for water management systems. By applying analytics to sensors and location data in real time, monitoring becomes fully automated and scalable. There will no longer be disputes on the correct consumption for the period.

Monitoring water flow inside the home provides feedback for quick replacement of defective pipes, the moderation of water usage to reduce water bills, and the conservation of water during water shortages. The maintenance, repair or replacement of a private water service pipe

is the responsibility of the customer, but many times customers will not realize that they have leaks undetected inside their home (i.e. slow leaking toilets or basement piping leaks). The AWC rightly requires the customer to repair or replace the pipe if the pipe is leaking and can no longer be used for whatever reason. With the strategic placement of digital sensors the customer can easily identify in house leaks and repair or replacement before there is substantial monetary loss and physical damage.

Contamination from gas, liquid or solid waste can cause damage to wastewater treatment process, are hazardous to human and animal life or may affect pollution of effluent from a wastewater treatment plant. Industrial and commercial waste proposed can be economically monitored and data collected automatically using digital sensors to determine the extent pretreatment necessary so waste water contaminants will not adversely affect the sewage treatment facilities. The AWC has asked the PUC for the authority to regulate and set limitations on any waste discharge into its sanitary sewer by regulating the rate of any waste discharge or by requiring necessary pretreatment. This can be accomplished more easily and with less expense using low cost sensors attached the proposed low power wide area networking. Likewise, all measurements, tests and analyses required for pre-treatment of waters and wastes can be determined using digital monitoring of waste waters. Such measurements will allow for the identification of waters that may need pre-treatment prior to discharge to the waste treatment facility and thus provide accurate cost estimates of waste water treatment for the City of Coatesville, which now has undetermined costs assigned for waste water pre-treatment. Such, undefined costs are a barrier to new manufacturing plants conducting a cost benefit analysis of doing business in Coatesville.