Northampton Borough Municipal Authority

Northampton County, PA

Source Water Protection Plan

Executive Summary

Clean, safe drinking water is often taken for granted. Many people have no idea where their water comes from, how it is purified, or how it arrives at their faucet. Protecting drinking water supplies has been increasingly recognized as a critical element in the overall mission of delivering a safe and reliable supply of drinking water to consumers. Comprehensive source water protection not only benefits the water supply, but ultimately the economic, social, and environmental well-being of a community.

Project Background

In 2010, the Northampton Borough Municipal Authority (NBMA) applied for assistance from the Pennsylvania Department of Environmental Protection (DEP) Source Water Protection Technical Assistance Program (SWPTAP). In July, 2010 DEP approved the work plan and initiated the NBMA SWPTAP project.

NBMA wishes to improve and protect the safety of its drinking water supply for its customers today and into the future. Although the Authority has had no previous problems, it is concerned about the possibility of contamination from watershed sources, including highway spills and residential development, turbidity spikes during heavy rain events due to upstream development, nutrient loading from upstream farming; and the impact of water releases from the Francis E. Walter Dam on their source water supply.

Description of Study Area

The study area for this project includes portions of Allen Township and Northampton Borough in Northampton County and Whitehall and North Whitehall townships in Lehigh County. Land use in the study area contains a mix of mostly residential development and open space. The Lehigh River bisects the study area. A transportation network, which includes State Route 145 also traverses the area. The majority of the residential development is on the Northampton County side of the Lehigh River and the majority of the open space is on the Lehigh County side of the river.

Overview of Water System

The NBMA water system consists of two surface water intakes. The intake on the Lehigh River is the primary source of water for NBMA. A secondary source is located on Spring Mill Creek. The Lehigh River intake supplies this system with approximately three million gallons daily, whereas the Spring Mill Creek intake supplies approximately 300,000 gallons per day. Finished water is distributed through approximately 15,000 connections. Nearly 13,700 connections are residential, the remaining are commercial, industrial, public, and bulk sales connections.

Source Water Protection Zone Delineations

The watershed upstream of both intakes was delineated into Zone A, Zone B, and Zone C protection zones. Zone A is a 1/4-mile-wide area on either side of the stream from a point 1/4 mile downstream of the intake to a 5-hour time-of-travel upstream. Zone B is a two-mile-wide area on either side of the stream extending upstream to a 25-hour time-of-travel. Zone C is the remainder of the watershed. The protection zones for the intakes are quite large, as they extend the length of the Lehigh River into the headwaters in Wayne County.

Potential Sources of Contamination (PSOCs)

After the protection zones were delineated, numerous sources were used to identify potential sources of contamination (PSOCs) in the zones. Both point sources and non-point sources were identified. All of the PSOCs were ranked from A to F, with A posing the greatest potential threat and F the least potential threat.

Non-point PSOCs were identified through land use data, aerial photographs, and input from the DEP and water system. The most significant non-point sources of pollution include runoff from roads in Zone A and Zone B and mines in Zone B. There are approximately 60 miles of roads in Zone A. There are approximately 2,200 acres of mined land in Zone B.

Publicly-available environmental databases, field surveys, and input from the steering committee and DEP were all used to identify point source PSOCs. A total of 1,046 point source PSOCs were identified for the water system. There are 22 Zone A PSOCs. Of the Zone A PSOCs, zero received a susceptibility ranking of A, and six of the PSOCs received a B-ranking. The B ranked PSOCs in Zone A include leaking underground storage tanks, underground storage tanks, RCRA facilities, a rail line, and NPDES discharges.

Management Options

NBMA will use a variety of management options to develop a comprehensive approach to source water protection and protect its water supplies from the PSOCs. Because the majority of the protection zones are located outside of Northampton Borough, NBMA will primarily rely on public education and cooperation with the surrounding municipalities.

Management strategies include educating NBMA customers and watershed residents about source water protection, working with local schools to incorporate source water protection into student's curriculum, working with farmers to minimize impacts to the watershed, continually monitoring for PSOCs, and working with partners such as the Wildlands Conservancy to implement source water protection projects in the protection zones.

Contingency Plan

In the event of an accident or spill that has the potential to impact NBMA's water supplies, the water system will initiate emergency response plans to minimize any potential impacts. NBMA maintains an emergency response plan (ERP) that is regularly updated. The plan includes emergency contacts and provisions for alternate sources of water. NBMA will work closely with local and county first responders in the event of a spill or accident that may threaten the water supply.

New Sources

It is unlikely that Lehigh River would be contaminated to a degree that it becomes unusable. If a contamination event occurred on the Lehigh River that resulted in NBMA not being able to use the source for a prolonged period of time, the system would have to rely on its intake on Spring Mill Creek and on its interconnections with neighboring systems. During this time NBMA would have to explore steps needed to rehabilitate the contaminated supply, or begin exploring the development of new sources to replace the Lehigh River intake.