

Long Island Source Water Assessment Executive Summary

The 1996 Safe Drinking Water Act amendments encouraged states to develop a Source Water Assessment Program to assess all sources of water used by public drinking water systems.

The New York State Health Department has undertaken the task of assessing public water supply sources in New York State. The State Health Department gathered input from public and private interests to develop its statewide Source Water Assessment Program Plan. This plan was approved by the United States Environmental Protection Agency in November 1999 with the goal of being completed by May 2003.

Because of Long Island's distinct setting, the New York State Department of Health worked with the Nassau and Suffolk County Health Departments and other interested parties to develop a methodology for source water assessment specific for this area.

Long Island relies on ground water as a source of drinking water and the ground water system is classified as a sole-source aquifer. In Nassau and Suffolk Counties, there are over 500 public water systems that rely on more than 1,500 different ground water source wells.

The regional aquifer systems on Long Island have been extensively investigated and assessed. Extensive ground water resource management and protection efforts have evolved related to Long Island's unique regional setting and hydrogeological characteristics.

The State Health Department hired a contractor (Camp Dresser & McKee) to complete the source water assessments for public water systems in Nassau and Suffolk counties using the methodology developed for the region. The contractor prepared a draft Source Water Assessment Summary Report and draft source water assessments for each public water supply well on Long Island. Drafts of these individual reports are being reviewed by water suppliers. The final Summary Report will be available by the end of May 2003. A summary of the assessment of each individual well will be included in the water supplier's Annual Water Quality Report beginning in 2004.

The purpose of the assessments

The purpose of the source water assessments is to estimate the *potential* for contamination of public water supplies. The assessments are designed to help identify priorities for public water supply protection.

Individual assessments should not be used to draw any conclusions about the quality of water delivered to area residents. Drinking water delivered by public water supply systems are closely monitored by local health departments to meet all drinking water quality standards. In many cases, the potential for contamination does not result in any actual source water contamination. In cases where contamination has occurred, the water may be treated to meet applicable water quality standards.

Detailed information about a specific community (residential) water supply is available from the water supplier's Annual Water Quality Report. Information about noncommunity (nonresidential) public water supplies is available from the local health department.

Scope of work

The source water assessments for Long Island consist of three main components:

1. **Delineating well recharge areas** using computer-based, three-dimensional models. Additional information was incorporated into existing computer models developed for many parts of the Long Island regional aquifer system. These models help predict ground water flow to each public water supply and throughout the entire aquifer system. This information provides pathway information about the origins of the source water in each well and the likelihood for contaminants to affect a particular public water supply well.
2. **Identifying sources of potential contamination.** Specific facilities within each well's recharge area that could potentially contaminate the ground water were identified, such as landfills and Superfund sites. Land use patterns were also reviewed to determine the likelihood of contamination.
3. **Evaluating susceptibility to contamination.** The source water assessments combine the information about how ground water travels throughout the aquifer system with the information about sources of potential contamination to determine the overall susceptibility of public water supply wells to contamination. Public water supply sources are rated on a scale of low, medium, medium-high, high and very high in terms of their susceptibility to contamination.

Summary of results

The susceptibility of a public water supply well to contamination depends on:

- 1) the presence of the potential sources of contamination within the well's recharge area; and
- 2) the likelihood that the contaminant can travel through the environment to reach the well.

These factors are combined to estimate the susceptibility of each well.

Susceptibility was rated in four specific contaminant categories for Long Island:

- **Microbials** including protozoa, enteric bacteria and enteric viruses.
- **Nitrates**
- **Pesticides**
- **Volatile organic compounds (VOCs)** including halogenated solvents, petroleum products and other industrial organic chemicals.

A summary of the combined results for Nassau and Suffolk Counties for each of the four categories of contaminants are presented below. Other potential contaminants of concern such as chlorides, metals and radionuclides also were addressed in individual, site-specific public water supply well reports where these were identified as local water quality issues.

Microbials. More than 90 percent of the public drinking water supply wells in Nassau County have a low susceptibility to microbial contamination. Only one percent of public water supply wells were rated as medium-high or greater for microbials.

About 60 percent of the public drinking water supply wells in Suffolk County also have a low susceptibility to contamination by microbials. Less than 20 percent of the public water supply wells were rated as medium-high or greater for microbials. Suffolk County's more shallow wells are more vulnerable to the presence of microbial sources in unsewered areas that have relatively short travel times from the water table to the well, particularly in central and eastern parts of the county.

Nitrates. More than 80 percent of the public water supply wells in Nassau County were rated as medium-high or greater for nitrate susceptibility. More than 70 percent of the public water supply wells in Suffolk County were rated with a medium-high rating or greater for nitrates. Part of the reason for the higher susceptibility is because nitrates generally do not degrade rapidly in ground water.

Pesticides. No public water supply wells were rated with a high susceptibility to pesticides in Nassau County due to the relatively limited agricultural land

that remains there. In Suffolk County, where significant tracts of agricultural lands exist, about 10 percent of the public water supply wells were rated as medium-high or greater for susceptibility to pesticides. Most of these wells are located in agricultural areas in central Suffolk County, or on the north fork of Long Island.

VOCs. Due to the extensive distribution of potential sources of VOCs in the highly developed areas of Nassau County, more than 75 percent of public water supply wells in Nassau County have susceptibility ratings of medium-high or greater. Less than 25 percent of the public water supply wells have susceptibility ratings of low or medium. In Suffolk County, almost 70 percent of the public drinking water supply wells have susceptibility ratings of medium-high or greater. More than 30 percent of the wells were rated medium or low for VOCs.

Use of the results

The source water assessments for Long Island build on an extensive history of state, regional and local resource management and protection programs. The individual, site-specific well assessments provide resource managers with additional information for establishing priorities to assure that the region's source waters are protected today and for future generations. Local water suppliers and county and state health departments will use this information to direct future source water protection activities. These activities may include water quality monitoring, resource management, planning and education programs.

For more information

Visit us on the web:

www.health.state.ny.us/nysdoh/water/swap.htm

Or Contact:

Paul Kaczmarczyk or Ron Entringer
New York State Department of Health
(800) 458-1158 extension 2-7713; or

Your county health department representative:
Patricia Ramirez, Nassau County Department of Health (516) 571-3323;

Walter Dawydiak, Suffolk County Department of Health Services at (631) 853-3084.



New York State Department of Health
Bureau of Public Water Supply Protection
Flanigan Square, 547 River Street
Troy, NY 12180