City of Lancaster's
Wellhead Protection Program

Introduction

Groundwater is one of Lancaster's most valuable resources. Although unseen, it supplies the daily water needs of our community. Approximately 75 percent of all communities in Ohio rely on public water systems that originate fully or partially from groundwater.

Groundwater is the cleanest, most reliable, and often the least expensive source of water. It usually requires less treatment than surface water, and the supply is less sensitive to drought conditions. A clean, dependable source of groundwater is a necessity to sustain agriculture, industry, community growth, and human life itself.

It is Lancaster's good fortune to be located in the heart of the nation's water belt. Lancaster, as in other sections of Ohio, has the geographic advantage of being located near an extensive buried valley aquifer. The Hocking River Valley Aquifer is composed of vast quantities of subsurface sand and gravel deposits laid down during the retreat of glaciers, which covered much of Fairfield County thousands of years ago.

With proper management, groundwater is a renewable resource from which we can derive unending benefits. Rainfall naturally recharges and maintains our groundwater supply. However, through the same mechanism of gravity that allows rainwater to recharge our groundwater supply, contaminants disposed of on the ground's surface can also reach and pollute our groundwater. Groundwater moves very slowly; once it is contaminated, it may remain so for a long time, and is difficult and expensive to locate and remove. It may require years of treatment before the groundwater is restored to drinking water quality. In some cases, the contamination may never be completely removed.

Recognizing that such potential problems exist nationwide, and that prevention is easier than cleanup, Congress amended the Safe Drinking Water Act in 1986. As required by this amendment, Ohio's Wellhead Protection Program was created and approved by the U.S. EPA in May 1992, which required the owners/operators of public water supplies that are derived from groundwater to develop and implement local wellhead protection plans. The wellhead protection plan would contain at a minimum: determine the boundaries of the wellhead protection area based on an analysis of what area contributes groundwater to a production well within a five-year period; identify potential pollution sources located on or near the wellhead protection area; develop effective management strategies to maintain the integrity of the public's water supply; develop a contingency plan for an alternate source of water in case of contamination; and to provide a method of educating the public on wellhead protection.

Lancaster's Wellhead Protection Program

The main reason for implementing a Wellhead Protection Plan is to protect the health of people using water from public water wells by preventing contamination of the water supply. Realizing the importance of a reliable groundwater supply, City officials in 1994 quickly began to develop the City's Wellhead Protection Plan for the Miller Park Wellfield.

Subsequently, on April 18, 1997 the City of Lancaster was one of the first in the State of Ohio to receive full endorsement of their Wellhead Protection Program from the Ohio Environmental Protection Agency (OEPA). Prior to the completion of the South Wellfield, the City once again began to develop

a wellhead protection program for the South Wellfield. On June 24, 2002, Lancaster received approval from the OEPA for the South Wellfield Wellhead Protection Program. A key component for both wellhead programs included developing a computer model that simulated aquifer conditions similar to both wellfields. These models allow the City to continually update groundwater pumping rates with community growth and needs. Most importantly it allows for the delineation of protection zones or areas around both wellfields. This computer model is then capable of calculating time of travel (TOT) boundaries surrounding each wellfield, which represents the time it takes groundwater to travel and reach the wellfield. For instance, groundwater within the 1 year TOT boundary will take one year or less to reach the wells in the wellfield. Boundaries were calculated for one through five years surrounding each wellfield. These boundaries provide the City areas to focus the most attention to in preventing our groundwater from becoming contaminated.

Another key component for each wellhead protection plan was to identify all potential sources of groundwater contamination located within the TOT boundaries The majority of potential contamination concerns for the Miller Park Wellfield revolve around multiple underground storage tanks containing gasoline or fuel oil that could potentially leak, and automotive repair establishments, which store large quantities of motor oil, transmission fluid, and anti-freeze. These contaminants could possibly be washed down drains and storm sewers that run through and around the Miller Park Wellfield. Contaminant concerns for the South Wellfield are less than the Miller Wellfield due to the rural setting. Potential contaminants are limited to a few underground storage tanks, auto repair shops, and automotive traffic that utilize State Route 33.

It is everyone's responsibility to make sure that any potential contaminants are stored in approved containers and are properly handled and disposed of.

Wellhead Protection Area's and Land Use Planning

In 1994, Lancaster formed the wellhead protection committee for the Miller Park Wellfield. The committee drafted and passed City Ordinance 40-94 on November 11, 1994, establishing land use guidelines within specified wellhead protection zones or boundaries. The ordinance was later revised and updated in October 1997. Highlights of the ordinance and land use restrictions are mentioned below:

Wellhead Protection Zone 1

WHPZ 1 corresponds with the 1 year TOT boundary. Since pollutants entering into the groundwater within this boundary would take one year or less to reach the wellfield, this zone is the most critical. Regulations established for this zone are therefore the most restrictive.

Businesses that would engage in any of the 18 specific high risk land use practices will no longer be invited to locate within WHPZ 1. Existing high risk facilities may remain within WHPZ 1 as a non-conforming use provided they were in operation prior to November 11, 1994, when the ordinance was passed. When a non-conforming facility closes for a period of time greater than six months, it will lose its non-conforming exception status. No new or similar non-conforming facility may open at the site.

The following uses are prohibited in the Wellhead Protection Zone 1:

1. Disposal of solid or hazardous waste.
2. Storage of road salt or other deicing chemicals and the dumping of snow containing deicing chemicals.
3. Animal feed lots.
4. The outside storage of herbicides, pesticides, fertilizers, or fungicides.
5. Dry cleaning and commercial laundry establishments.
6. Industrial uses which discharge processed waters onsite.
7. Chemical or bacteriological laboratories.

8. Metal polishing, finishing, and plating establishments.
9. Commercial wood finishing, preserving, painting, and furniture stripping establishments.
10. Commercial printing, photocopying and photographic processing establishments.
11. Motor vehicle service and repair shops, junkyards, motor vehicle junkyards, motor vehicle salvage operations, car washes,
    as well as any similar use which might potentially effect groundwater quality.
12. Trucking and bus terminals.
13. Leather tanning and finishing.
14. Electrical components manufacturing or assembly.
15. New installation of underground storage tanks of liquid petroleum and/or products of any kind.
16. Storage of liquid petroleum products of any kind in excess of 15 gallons except for storage in a freestanding container within a building, or fuel for heating of that building.
17. Storage of petroleum, and/or any other regulated substances in underground storage tanks.
18. Any other use, which involves, as principle activity, the manufacture, storage, use, treatment, transportation, or disposal or toxic or hazardous material.

Wellhead Protection Zone 2

WHPZ 2 corresponds with the area between the 1-year TOT and the 5-year TOT boundaries. Potential contaminants released into groundwater within this zone would take between 1 and 5 years to reach the wellfields. Because of the greater time available for cleanup, regulations established within WHPZ 2 are less stringent. Land use restrictions for WHPZ 2 are as followed:

1. Disposal of solid or hazardous waste.
2. The outside storage of herbicides, pesticides, fertilizers, or fungicides.
3. Any other use, which involves, as principle activity, the manufacture, storage, use, treatment, transportation, or disposal or toxic or hazardous material.

Through the effort of the City, local residents can be assured of a clean, dependable source of water well into the future.

As residents of the City of Lancaster and surrounding areas, it is everyone's duty in helping our community maintain a clean and safe drinking water supply. Your effort in water conservation and pollution prevention will help in that goal.

If you have any questions concerning the wellhead protection program, please contact the Engineering Department, Environmental Section at (740) 681-5063.