

Source Water Assessment Summary for State College Borough Water Authority October 2003

Introduction

The Pennsylvania Department of Environmental Protection (DEP), Water Supply Management Program, is completing assessments of the contaminant threats to the raw water quality of all public drinking water sources as required by the 1996 Safe Drinking Water Act. DEP has prepared this *Source Water Assessment Public Summary* to provide information to support local and state efforts to protect the raw water quality of the State College Borough Water Authority's drinking water source. The information in this assessment pertains to the watershed that provides water to the State College Borough Water Authority, which is then treated for drinking water use. The assessment is of "sources" (raw water) rather than "tap" water.

What is the Source of Your drinking Water?

The State College Borough Water Authority provides water to approximately 63,000 people living in the Borough of State College and the surrounding Townships of College, Ferguson, Half Moon, Harris, and Patton in Centre County. The system uses an average of 5.5 Million Gallons per day. Sources of raw water for the Authority are Roaring Run from the Shingletown Gap reservoir and several well fields. The watershed area above the Shingletown Gap Reservoir is classified as a cold-water fishery. The sources are located on the Julian, Pine Grove Mills and State College USGS Topographic Maps.

The total contributing area for the State College sources is 29,500 acres. Forests make up 13,000 acres of the contributing area, which is about 43%. Hay/Pasture and cropland make up 15,000 acres of the contributing area, which is about 53%. The other 0.04% of the watershed is made up of low development, water bodies, high development, roads, wetlands, and transitional land.

Water Quality and Water Treatment Information

The raw water from the Authority's surface source and several of the wells is treated at a Roberts contact clarification filter plant. The water is treated with chlorine for disinfection. Polyaluminium chloride is added for the coagulation/filtration process. Caustic soda is added for pH adjustment and the water is fluoridated before being delivered to the distribution system. There are four other well field treatment plants. Treatment at the well fields is typically limited to disinfection and fluoridation. The distribution system is divided into

several pressure zones. System storage is over 15 million gallons in 11 tanks throughout the system.

Information on “tap” water quality is available in State College Borough Water Authority’s *Consumer Confidence Report (CCR)* that can be obtained by calling 814-238-6766

Evaluation of Significant Potential Sources of Contamination

This assessment evaluates contaminants that **may** enter the water from the contributing area for the wells before treatment. The contaminants addressed in this assessment include those regulated under the federal Safe Drinking Water Act as well as those DEP has determined may present a concern to health. A description of the **significant potential** sources of contamination associated with the contributing area is provided below. Each significant potential source of contamination has been analyzed and given a qualitative susceptibility rating (A = high priority through F = low priority) according to its potential to impact the water supply. Potential sources of contamination are summarized below.

**State College Borough Water Authority
Alexander Wells Contributing Area
Potential Contaminant Sources – (PSOC)**

Potential Sources of Contamination	Contaminates of Concern	Description	Rank
Transportation Corridors	SOC, M, T	MTBE, Salt	A
Residential/Lt. Commercial Area	NN, VOC, SOC, M,	Various	B
PSU Waste Water Spray fields	VOC, M, HM, PH	Nitrate	C
Airports	VOC, M, HM, PH	MTBE	C
Pipelines Sewer	MP, NN, T	Nitrate	C
Agricultural Activities	MP, NN, SOC, M, TO, D	Nitrate	C
Landfills and Dumps	VOC, HM, SOC, NN, MP, M	Various	C
Drinking Water Plants	M, T, VOC	Chlorine	D
On-lot Waste Disposal	MP, NN	Nitrate	D
Gas/Service Stations	VOC, PH, M	MTBE	D

Vehicle Repair Shops	VOC, HM, PH, M	MTBE	D
RCRA facilities	VOC, SOC	Various	D

Chestnut Ridge Well Field Contributing Area

Potential Sources of Contamination	Contaminates of Concern	Description	Rank
Transportation corridors	SOC, M, T	MTBE, Salt	A
Residential/ Lt. Commercial Areas	VOC, SOC, HM, NN	Various	B
Agricultural Activities	MP, NN, SOC, VOC, M, TO, D	Nitrate	C
Pipelines - Sewer	MP, NN, T	Nitrate	C
On-lot waste disposal	MP, NN	Nitrate	D
Drinking Water Treatment Plants	M, T, VOC	Chlorine	D
Printer and Blueprint shops	VOC, SOC, HM,	Xylenes	E

Grays Woods Well Field Contributing Area

Potential Sources of Contamination	Contaminates of Concern	Description	Rank
Transportation Corridors	SOC, M, T	MTBE, Salt	A
Residential/ Lt. Commercial Areas	VOC, SOC, NN	Various	B
Agricultural Activities	MP, NN, SOC, M, TO, D	Nitrate	C
On-lot Waste Disposal	MP, NN	Nitrate	D
Drinking water treatment plants	M, T, VOC	Chlorine	E

Harter - Thomas Well Field Contributing Area

Activity	Ground Water Contaminant	Ground Water Persistence	Matrix D Result
Transportation Corridors	SOC, M, T	MTBE, Salt	A

Residential/Lt. Commercial Area	NN, VOC, SOC, M,	Various	**B
Auto Repair Shops	VOC, HM, PH, M	MTBE	C
On-lot Waste Disposal	MP, NN	Nitrate	C
Pipelines - Sewer	MP, NN, T	Nitrate	C
Agricultural Activities	MP, NN, SOC, M, TO, D	Nitrate	C
Gas/Service Stations	VOC, PH, M	MTBE	C
Drinking Water Treatment Plants	M, T, VOC	Chlorine	D

**** Adjusted value**

Kocher Well Field Contributing Area

Activity	Ground Water Contaminant	Ground Water Persistence	Matrix D Result
Transportation Corridors	SOC, M, T	MTBE, Salt	A
Residential/ Lt. Commercial	VOC, SOC, NN	Various	**B
Agricultural Activities	MP, NN, SOC, M, TO, D	Nitrate	C
On-lot Waste Disposal	MP, NN	Nitrate	C

**** Adjusted value**

Nixon Well Field Contributing Area

Potential Sources of Contamination	Contaminates of Concern	Description	Rank
Agricultural Activities	SOC, M, T	Nitrate	C
Residential/ Lt. Commercial Area	VOC, SOC	Various	**B
Drinking Water Treatment Plants	MP, NN, SOC, M, TO, D	Chlorine	D
Pipelines Sewer	MP, NN, T	Nitrate	C
On-lot Waste Disposal	MP, NN	Nitrate	C

Transportation Corridors	M, T, VOC	MTBE, Salt	A
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**** Adjusted value**

Shingletown Gap Watershed

Potential Sources of Contamination	Contaminates of Concern	Description	Rank
No PSOC's Identified			

The only point source PSOC's identified by this report are the Authority's drinking water plants that are located in the various contributing areas. This PSOC does not apply to the Kocher Well field or the Shingletown Gap Watershed. All the plants received a "D" rank or lower.

The highest ranked PSOC's identified by this report, ranked at a "A", are the transportation corridors. Some type of road is present in all the contributing areas for the Authority's well fields. The roads are identified as potential sources of spills, contaminated runoff and road salt.

The next highest non-point PSOC identified by this report is the land use of residential/ light commercial areas. Some level of development is present in all of the well field's contributing areas. A rank of "B" was assigned to this PSOC.

Agricultural land uses, the single largest land use in the contributing areas, received a rank of "C".

On-lot waste water systems are present in all the contributing areas. These systems are considered non-point sources with best management practices and received a "C" rank or lower.

The sewer lines located throughout the contributing areas were identified as a PSOC, primarily due to intermittent overflows. A rank of "C" was assigned.

A rank of a "C" is assigned to the old landfill located near North Atherton Street and Douglas lane. The landfill is located in the contributing area for the Alexander Well Field.

The University Park Airport is located partially within the contributing area for the Alexander Well Field. The airport received a "C" rank from the susceptibility analysis.

Penn State University's treated waste water effluent spray fields are located in the contributing area the Alexander Well Field. The spray fields received a rank of "C" due to the regulatory oversight, and as they are considered a BMP.

Several different non-point PSOC's located in the Alexander Well field's contributing area received a "D" rank. The PSOC's are; the vehicle repair shops, the gas stations and the RCRA Facilities (use, treat, store or generate hazardous wastes).

Vehicle repair shops are also identified in the contributing area for the Harter – Thomas Well Field and received a rank of "C".

A print shop is identified in the contributing area for the Chestnut Ridge Well Field as a small quantity generator of hazardous materials. This facility received a rank of "E".

Ongoing watershed Protection Activities

Modern agricultural practices are considered non-point sources utilizing best management practices (BMP's). On-lot waste water systems considered non-point sources with best management practices. The Department's Waste Management Personnel consider this facility to be closed and inactive. The cap in place on the landfill, the amount of time the site has been closed and historical data from samples collected at the site were all factors affecting the ranking. Regulatory BMP requirements affected the rank of the airport. The spray fields are under regulatory oversight, and are considered to have BMP's. I-99 has engineering controls, in the form of lined ditches and detention ponds, to direct and contain storm water, no such controls exist on Route 322 or any of the other roads. The lighter traffic roads located in the various contributing areas pose less of a threat to the corresponding well fields

Source Water Protection Needs

Installation and maintenance of best management practices (BMP's) to control and minimize any PSOC would lower the potential for impact to the water supply sources. The Authority should contact the County Emergency Management Agency so that if a spill or accident occurs in the contributing areas appropriate response steps are taken to minimize the impact. Local emergency response officials should also be educated to incorporate good spill control practices and to notify the water company and the Department when accidents and spills occur in these areas.

How to Obtain Additional Information

This *Source Water Assessment Public Summary* was completed in October 2003. Individuals interested in learning more about this water system and watershed can contact the State College Borough Water Authority at 814-238-6766