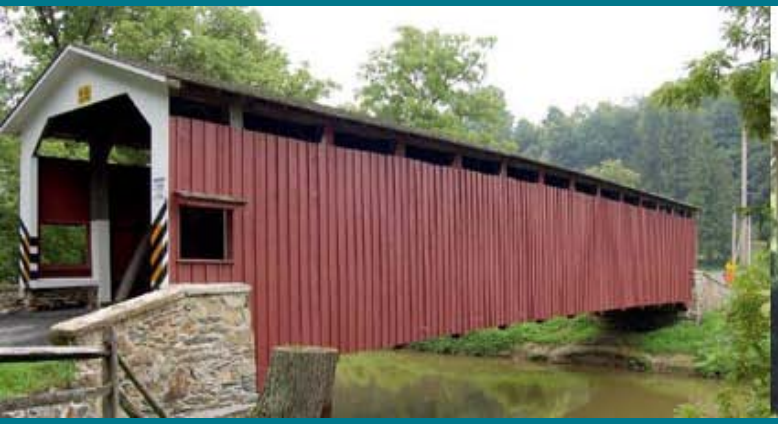


LEESPORT WATER AUTHORITY

SOURCE WATER PROTECTION PLANNING

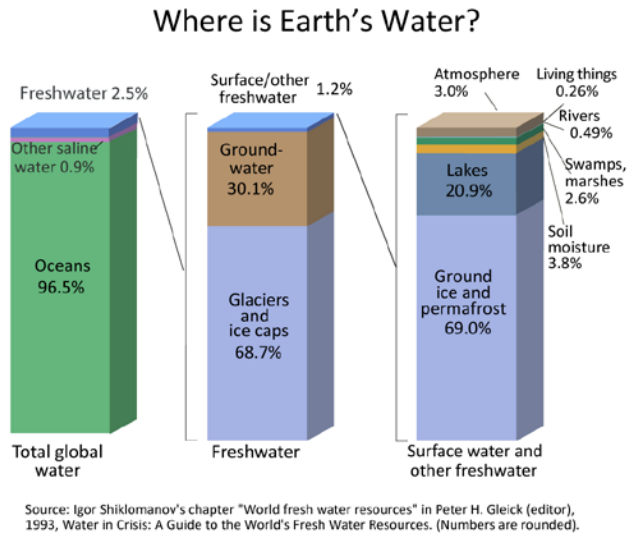
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

What is Source Water Protection?

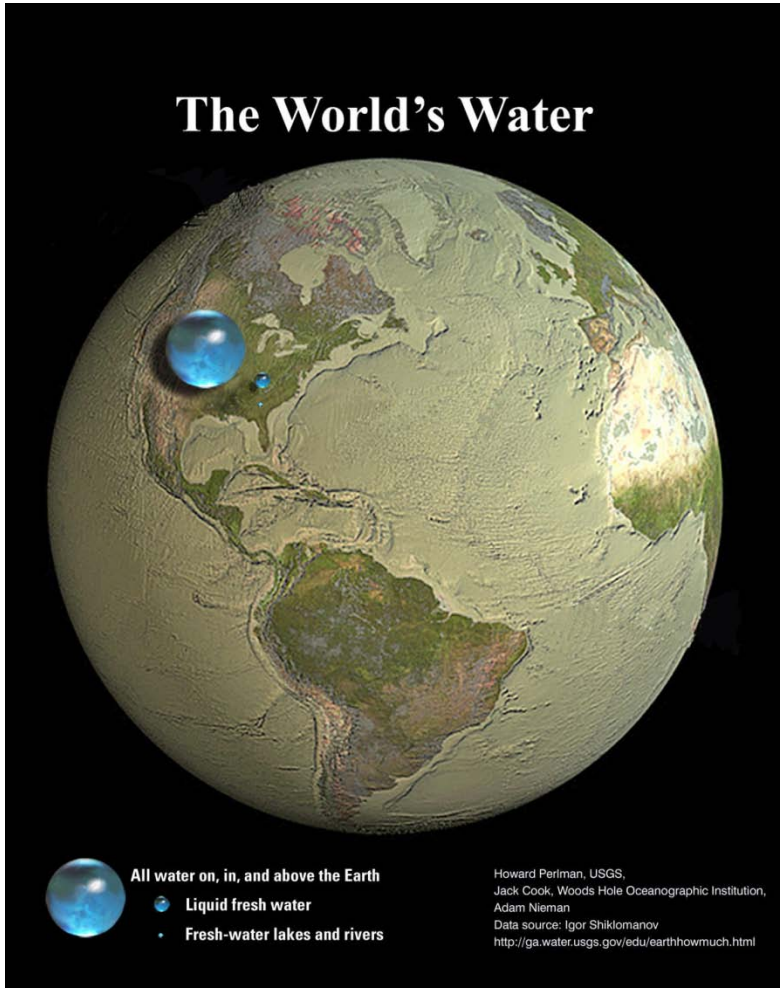
Taking proactive measures to prevent the contamination of groundwater, rivers, streams and reservoirs that serve as sources of drinking water.

"Water from the ground may be free, but getting it to people's homes and making sure it is safe costs money!"

Windber Area Authority



Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources. (Numbers are rounded).



Support for Source Water

SWPTAP = **S**ource **W**ater **P**rotection **T**echnical **A**ssistance **P**rogram

- Funded by the PA Department of Environmental Protection from funding provided by the U.S. Environmental Protection Agency

A Source Water Protection Plan:

- Points out possible contamination issues.
- Can help with keeping costs down by reducing the amount of treatment needed.
- Provides a scientific basis for designating protection areas.
- Disaster Planning is a new focus for many systems.
- Provides help with education and information for customers and residents.
- The plan is funded by the DEP, and **free-of-charge** to the water system.

Pennsylvania Case Study

In 2015, an Adams County chemical plant making water-soluble fertilizer caught fire during the night.

15 fire companies assisted with controlling the fire, generating ***4,000,000 gallons*** of contaminated runoff.

Stream modeling was done to predict plume reaching surface intakes downstream. However, the flow did not take the predicted path, and found its way through field ditches.

Multiple insurance companies involved – contradicting goals of property protection and spill cleanup costs.

Water use restrictions in place for 2.5 months, water provided by another supplier.


Photo courtesy of Ivey DeJesus/Pennlive

Estimated cost of incident >$20M

Comparing Costs & Benefits

Gettysburg MA. Well #6

1987-1995: ~**$350,000** by GMA & ~$**1.4M** by DEP to respond to contamination of well

Responding to contamination can be up to **200 times as costly** as prevention. *Reference: US EPA, 1996, Benefits and Costs of Prevention: Case Studies of Community Wellhead Protection*

For every 10% increase in **forest cover**, drinking water treatment costs **decrease by 20%.** *Reference: TPL/AWWA, 2002*

Developing a Source Water Protection Plan

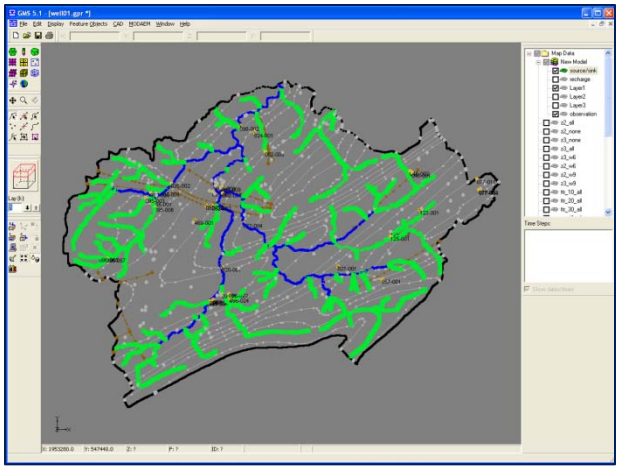
Five Step Process

1. Form a steering committee with local partners.
2. Protection Areas are developed for the groundwater and surface water sources and provided to the system.
3. Potential pollution sources are identified & prioritized.
4. Steering Committee evaluates management and protection strategies.
5. Considers contingency and new source planning.



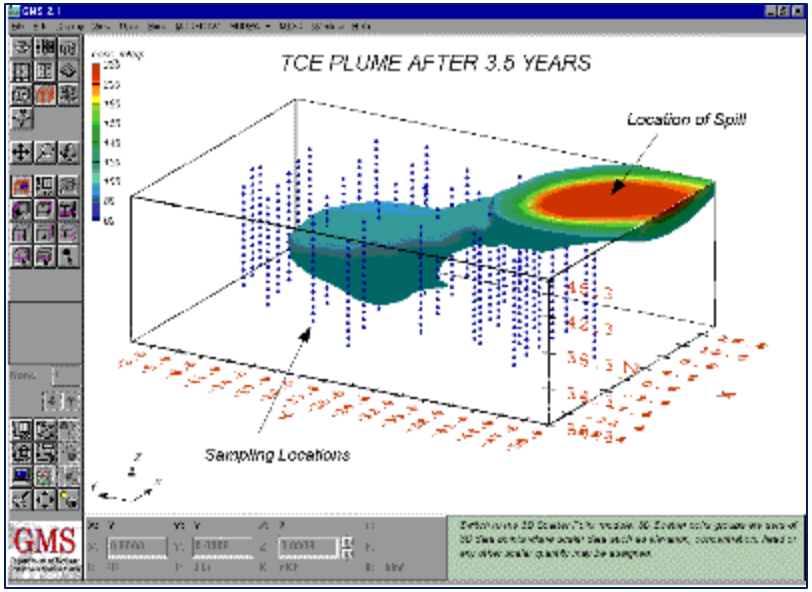
DELINEATION OF WATER SOURCES

Evaluating the Water Sources



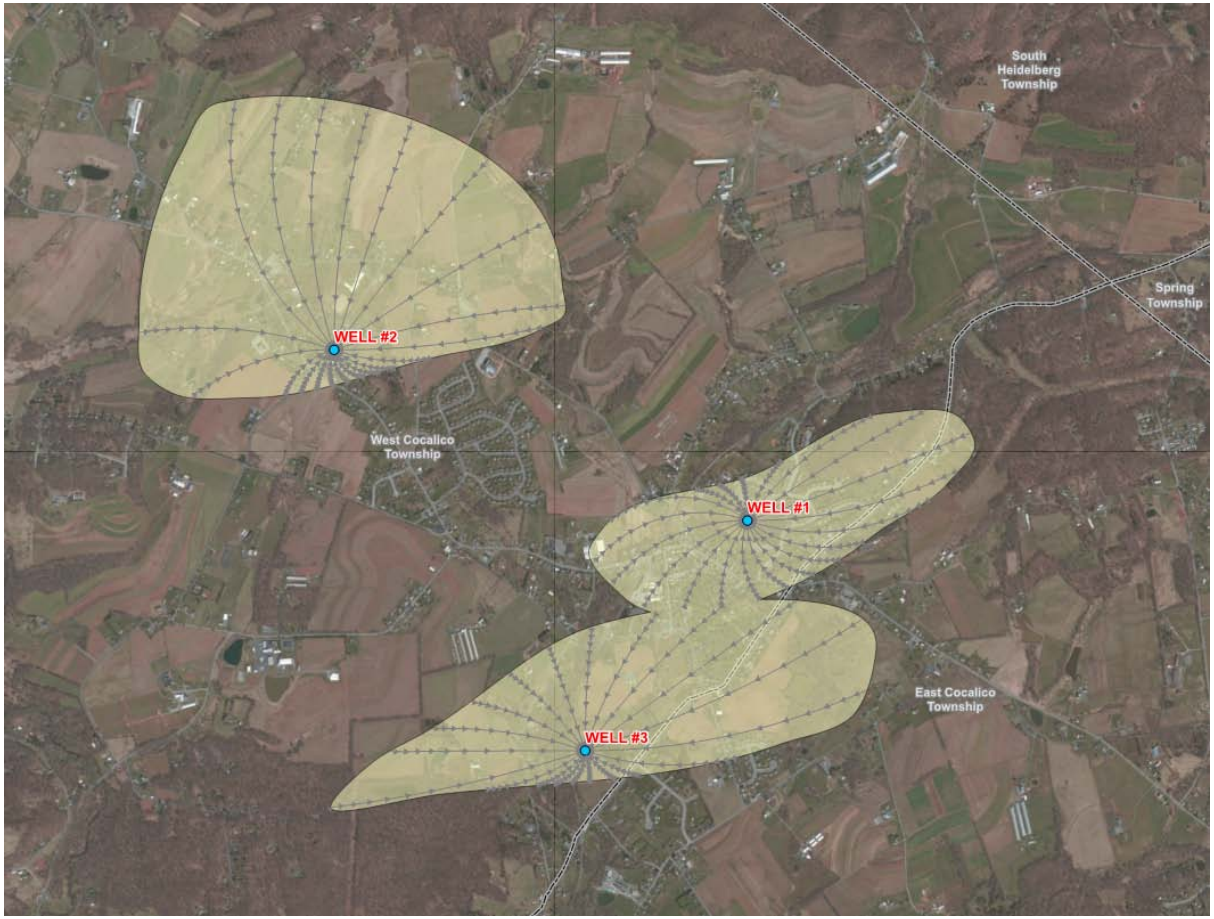
Previous studies, field data, water system reports and interviews, and Geographical Information Systems (GIS) mapping is used to delineate water sources.

Computer and hydrogeologic modeling can be used for this process.



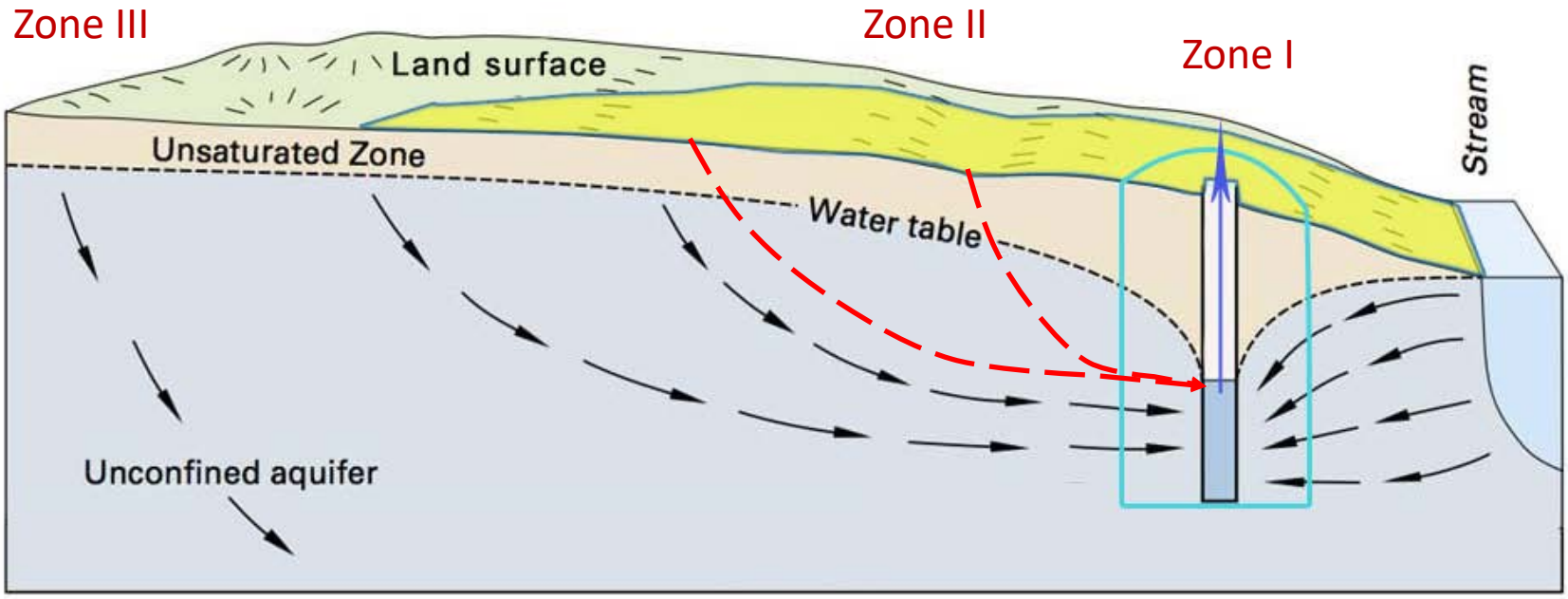
Groundwater Flow - Wells

Flowlines represent average flow over surface area.

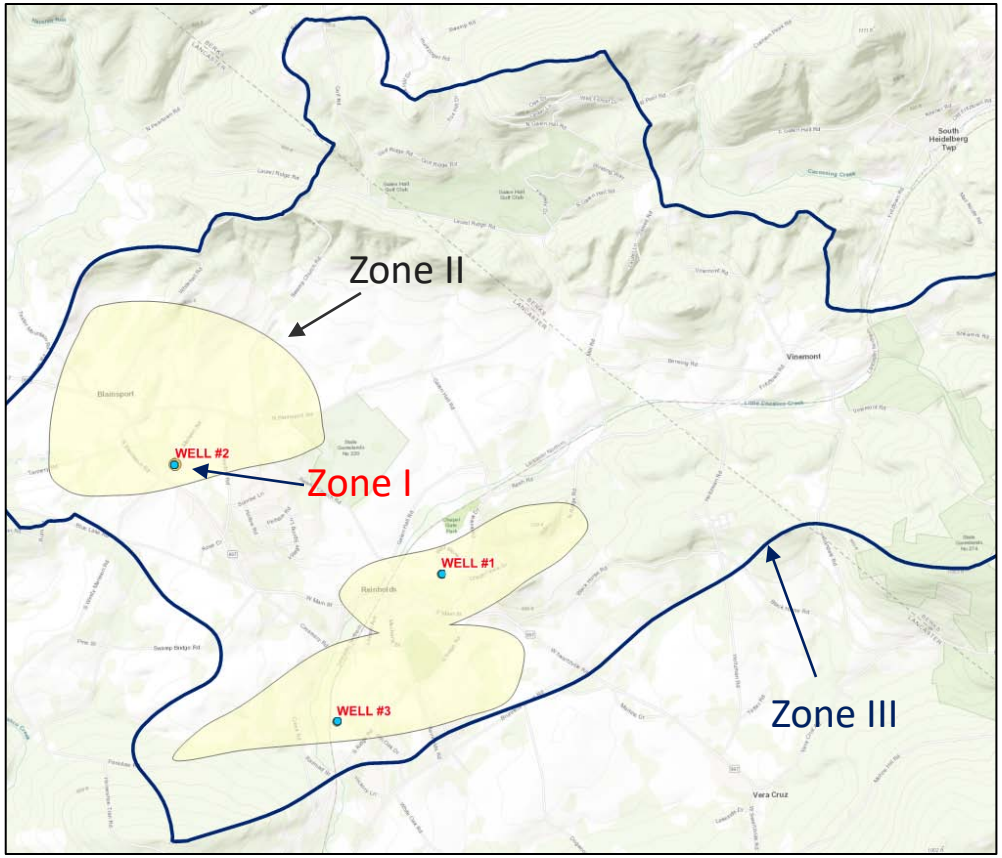


Groundwater Protection Areas

- Zone I – fixed radius around wellhead (100-400 Feet)
- Zone II – Capture Zone
- Zone III – Contribution Area (extent of watershed)



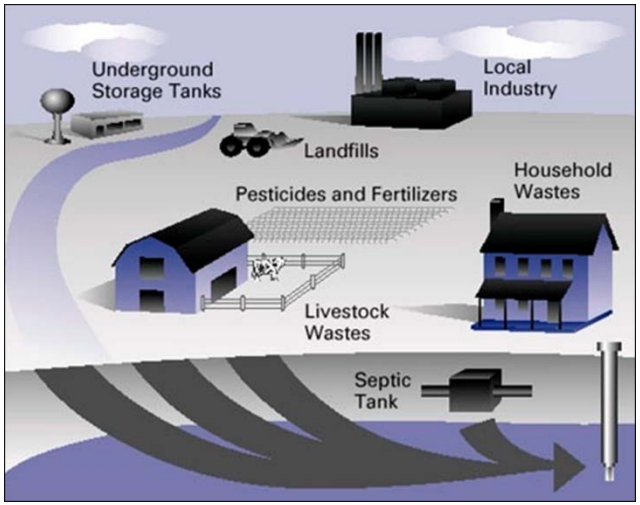
Groundwater Protection Areas

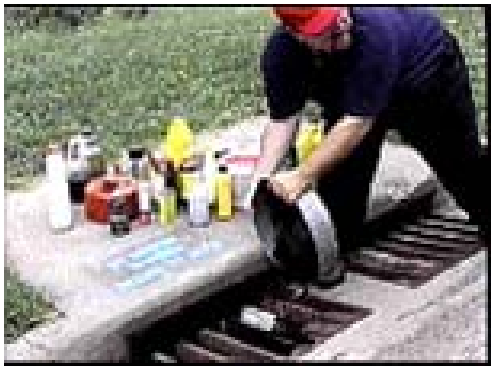


Zone I - Radius of 100’ to 400’, depending on site geology and hydrogeology

Zone II Area – groundwater recharge zone or zone of capture

Zone III – typically the watershed or sub-watershed. This is the area that contributes to Zones I & II





POTENTIAL SOURCES OF CONTAMINATION

Potential Sources of Contamination

Point Source PSOCs – contamination occurs at a specific location and possibly a specific time, i.e. leak from a chemical storage tank

Non-Point Source PSOCs – contamination might occur over a longer period of time and might not have a specific location, i.e. salting of roads

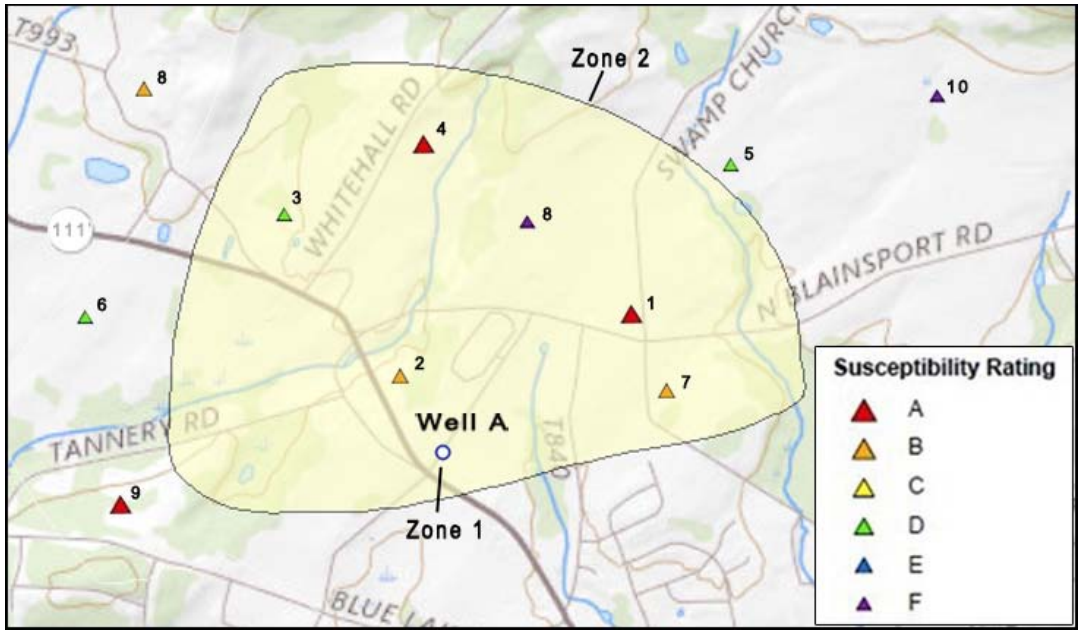
Point-Source Inventory

Potential contamination problems are researched through environmental databases.

Preliminary Point Source Potential Sources of Contamination
Hanover Municipal Water Works
Source Water Protection Technical Assistance Program

Map ID	Site Name	Address	PSOC Type	Zone	TOT	Pers	Quan	Sens	PFR	MA	PFC	PI	Susc	Site ID	Comment	Lat	Long	Secondary PSOC Type(s)	Dist (ft)	Source
7	Mt. Misery Road		PA Cleanways Illegal Dump Survey	A	S	M	H	H	H	H	H	H	A	0		39.8337	-77.0428		2,117	SLAGEL'S RUN
9	Red Hill Road Site 1		PA Cleanways Illegal Dump Survey	A	S	M	H	H	H	H	H	H	A	0		39.8345	-77.0415		2,491	SLAGEL'S RUN
12	TURKEY HILL 108	S BALTIMORE PIKE HANOVER PA 17331	Storage Tank Cleanup	A	S	M	H	H	H	H	H	H	A	615646	Cleanup Completed, ULGAS	39.7388	-76.9497		3,085	SHEPPARD MYERS
14	CONEWAGO ENTERPRISES	660 EDGEGROVE RD HANOVER PA 17331	Storage Tank Cleanup	A	S	M	H	H	H	H	H	H	A	575145	Cleanup Completed, DIESL; AIR, AIRS/AFS, NPDES, RCRAINFO; ACTIVE AST-DIESL; UST-DIESL, GAS; SEVERAL INACTIVE CLOSED UST	39.8200	-77.0364	AST, UST, NPDES Permit, Hazardous Waste - RCRA	3,567	SLAGEL'S RUN
15	CARMEUSE LIME INC. HANOVER OPERATIONS	877 OXFORD ROAD HANOVER PA 17331-7743	Toxics Release Inventory	A	S	M	H	H	H	H	H	H	A	25199	AIR, AIRS/AFS, PA-EFACTS, TRIS; AST-GAS, DIESL	39.8265	-77.0304	AST	3,825	SLAGEL'S RUN
19	TRIMEN IND	RED HILL RD NEW OXFORD PA 17350	Storage Tank Cleanup	A	S	M	H	H	H	H	H	H	A	575130	Cleanup Completed, DIESL	39.8449	-77.0323		6,987	SLAGEL'S RUN
25	Red Hill Road Site 2		PA Cleanways Illegal Dump Survey	A	S	M	H	H	H	H	H	H	A	0		39.8499	-77.0278		9,182	SLAGEL'S RUN
30	LOIS E WHISLER PROP - MILLER CHEMICAL CO FIRE		Land Recycling Cleanup	A	S	M	H	H	H	H	H	H	A	815509	RECLAMATION COMPLETED, SOIL MEDIA	39.8229	-77.0063		10,693	SLAGEL'S RUN
31	ORICA USA HANOVER SITE	1783 HANOVER ST HANOVER PA 17331	Toxics Release Inventory	B	M	M	H	M	H	M	H	H	A	25344	TRIS	39.8374	-77.0071		10,879	SLAGEL'S RUN
32	HANOVER LANTERN INC/HANOVER SHOE CO	350 KINDIG LANE HANOVER PA 17331-1733	Toxics Release Inventory	A	S	M	H	H	H	H	H	H	A	25277	AIR, AIRS/AFS, EIS, NCDB, PA-EFACTS, RCRAINFO, TRIS	39.8131	-77.0093		11,101	SLAGEL'S RUN
33	BARE DEV LP & RADIO HANOVER - MILLER CHEM CO FIRE		Land Recycling Cleanup	A	S	M	H	H	H	H	H	H	A	815505	RECLAMATION COMPLETED, SOIL MEDIA	39.8207	-77.0046		11,335	SLAGEL'S RUN
38	FAMILY FIRST HEALTH CORP & 2 TRONE RENTAL PROPS		Land Recycling Cleanup	A	S	M	H	H	H	H	H	H	A	815194	RECLAMATION COMPLETED, SOIL MEDIA	39.8235	-77.0028		11,640	SLAGEL'S RUN
46	DK HERSHEY	1477 CARLISLE PIKE HANOVER PA 17331-9029	Storage Tank Cleanup	A	S	M	H	H	H	H	H	H	A	575136	Cleanup Completed; 1 INACTIVE CLOSED DIESL UST; SEVERAL INACTIVE CLOSED, EXEMPT FROM STATE LAW AST	39.8309	-77.0013	UST, AST	12,000	SLAGEL'S RUN

Point Source Potential Sources of Contamination



Point source PSOCs often include storage tank, environmental cleanup, and water discharge sites, and other areas which have DEP permits.

They are ranked according to the Water Supply's susceptibility to impact from these PSOCs.

Non-Point Sources of Pollution

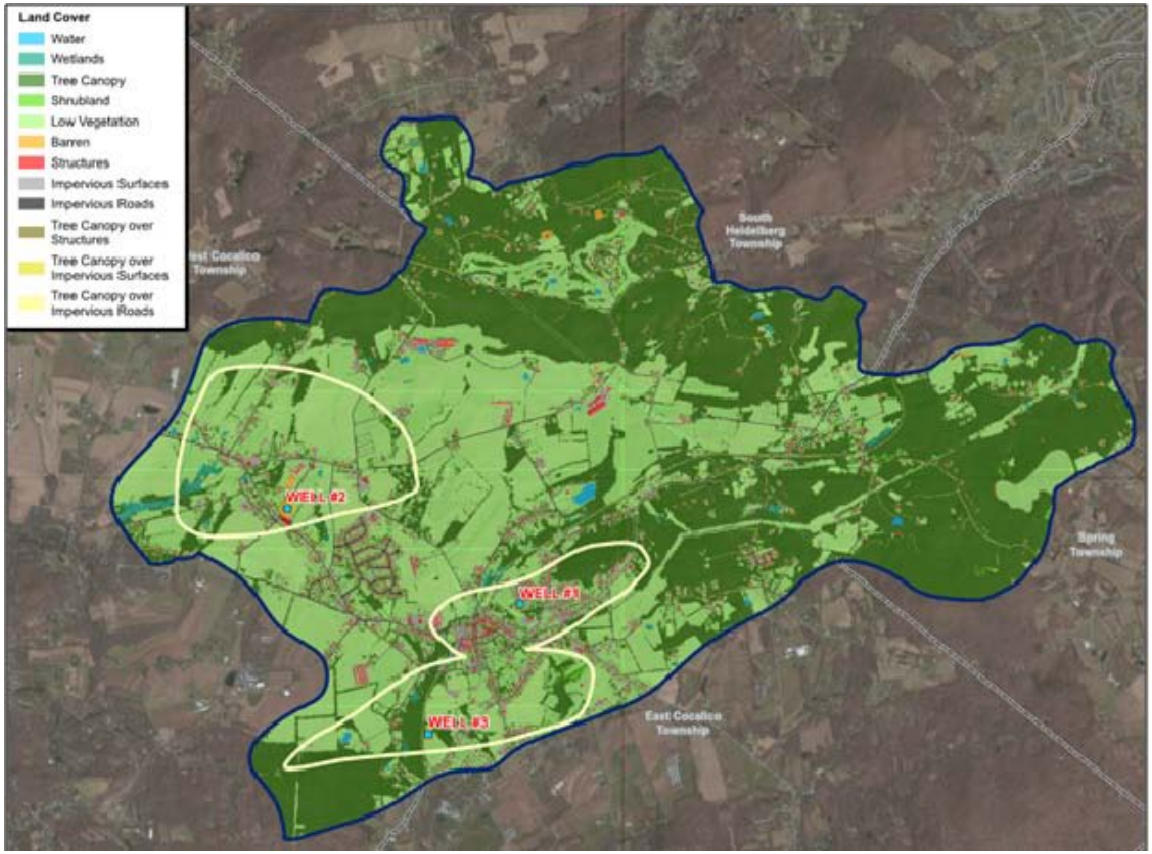
Agricultural activities can contribute animal waste or sediment from barnyards, crops, and pastures into local waterways.

Residential/Stormwater – Developed areas can contribute sediment, chemicals, litter, and septic system failures.

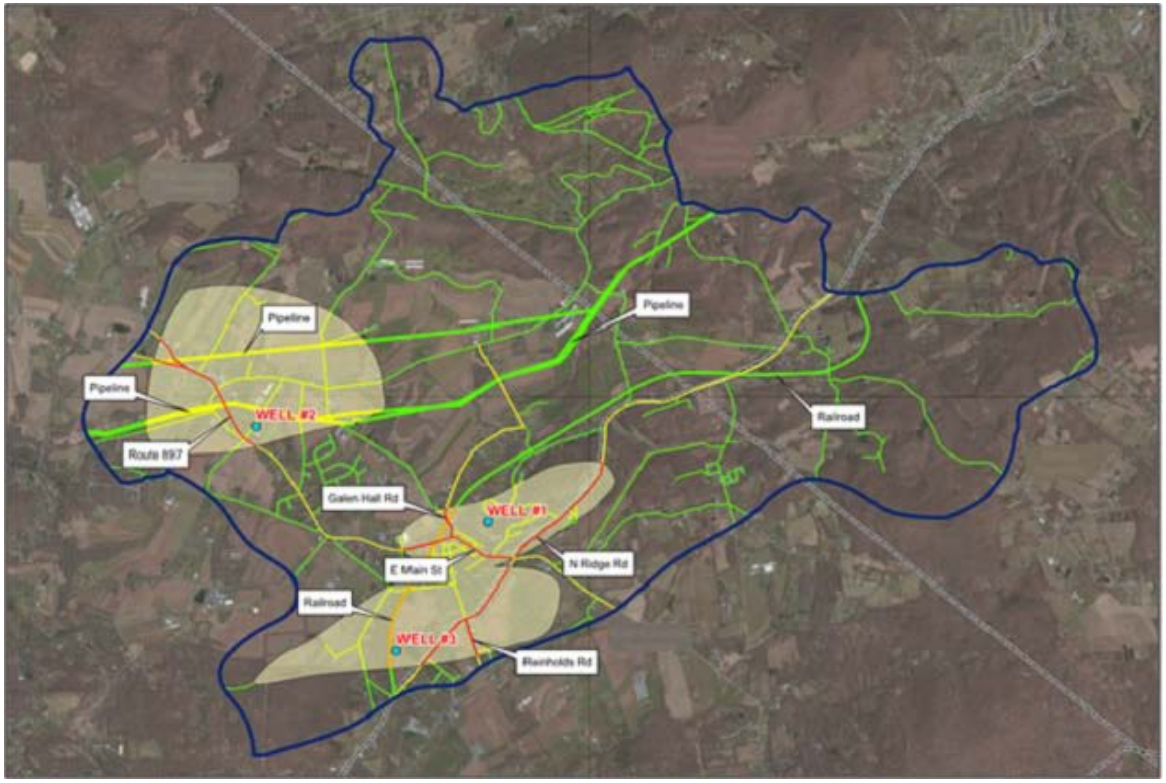
Roads can add salt, dirt, and vehicle fluids from accidents to the rain or snow melt. Transportation corridors include local & state roads, railroads, and pipelines.

Land Cover

Land cover analysis is performed in order to determine non-point source PSOCs in the protection areas.



Transportation Corridors



Major roadways, railroads, and **pipelines** within the protection areas.

WHAT WE ASK OF YOU

Developing a Steering Committee

The Steering Committee is an advisory group, which represents different aspects of the community. It may include:

- The County Conservation District,
- Planning Commission,
- Emergency Personnel,
- Environmental organizations,
- Schools,
- Local businesses, and
- Municipal staff

Members provide local knowledge, make recommendations to the water system, and convey source water protection information back to the customers and the community.

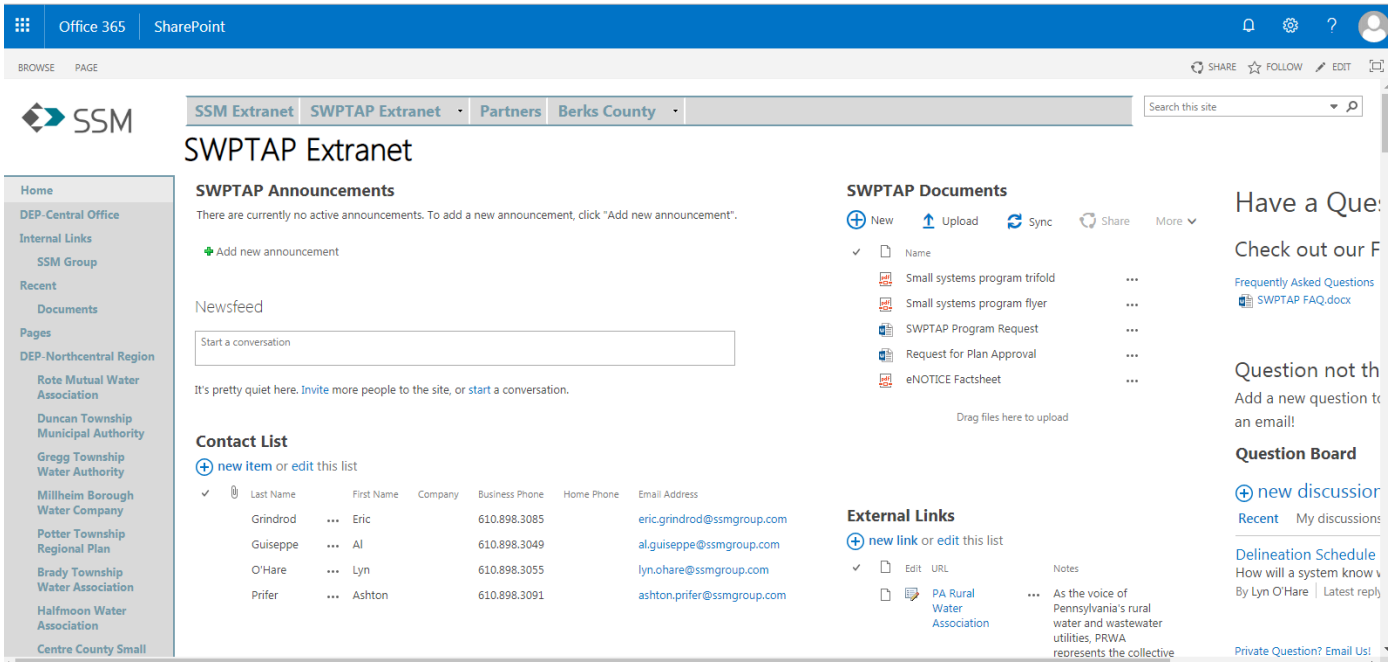
Review PSOCs

The Steering Committee is asked to provide local knowledge about the potential sources.

Steering Committee asked to open lines of communication with the potential sources located in Zone II.

SSM Extranet

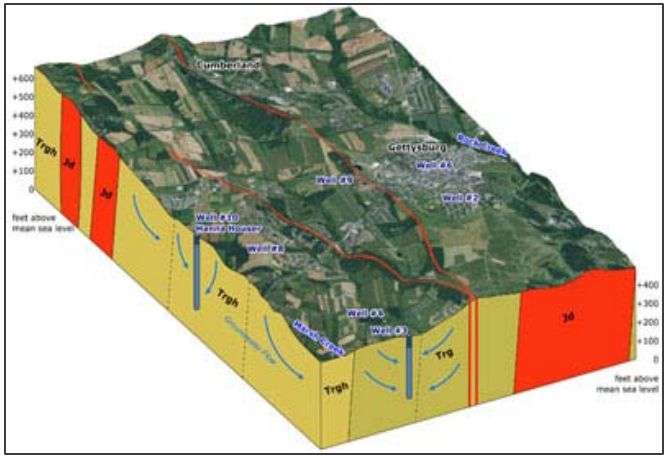
SSM will provide a website for storage of your plan documents and maps. The files are too large for e-mail. SSM staff will assist the steering committee with registration for access.



Public Outreach

- Post information on the Source Water Protection Plan on your website or social media. Use the template brochures in your plan.

- Provide information via Consumer Confidence Reports, newsletters, and plant tours.



VERSION 2

[DATE]

[OWNER NAME]
[FACILITY NAME]
[ADDRESS]

RE: YOU'RE INCREDIBLY IMPORTANT TO THE HEALTH OF OUR COMMUNITY

Dear [OWNER NAME]:

You wouldn't believe how important you are to our water supply. Your property was identified in a recently-completed study as having chemicals or processes that – if handled carelessly – could contaminate the local water supply. As I explained, and before you worry too much, let me assure you that you are not being accused of doing anything wrong. The Gettysburg Municipal Authority (GMA) is just asking you to be aware, and continue operating your property in an environmentally-conscience manner.

GMA has completed a source water protection program for its water supply. Your property was identified during the study as being what we call a "potential source of contamination (PSOC)." That is a fancy way of saying that you use certain chemicals that, if they were handled inappropriately or spilled, could cause big problems in the water we provide to the community. Here's what you can do to make sure your neighborhood drinking water is safe:

- Ensure your employees know the importance of handling chemicals appropriately. Reinforce the need to do things properly and not take short cuts that can lead to accidents. If everyone does the little things right, the big problems never occur.
- Look for ways to reduce the possibility of spills and accidental releases with the chemicals you handle. Remember an ounce of prevention is worth a pound of cure, and could save you money in the long run. GMA would be happy to assist you in identifying solutions if you request it.
- Keep spill response materials handy. The quickest response to a spill or release is often the most effective.
- Finally, in the event of a spill or release, immediately contact GMA and DEP. DEP's 24-hour hotline number is 1-866-825-0208. We can offer help and we can take measures to prevent damage to our drinking water, but the sooner we know the better.

If you would like to see a complete copy of the source water protection plan, please stop by the GMA office. The plan is available for your review. If you have any questions about this letter, I would be pleased to answer them. GMA's phone number is (717) 334-6738.

Thank you for taking the time to read this letter and doing your part to help keep our drinking water safe.

Sincerely,

Gettysburg Municipal Authority

ADDITIONAL PLAN INFORMATION

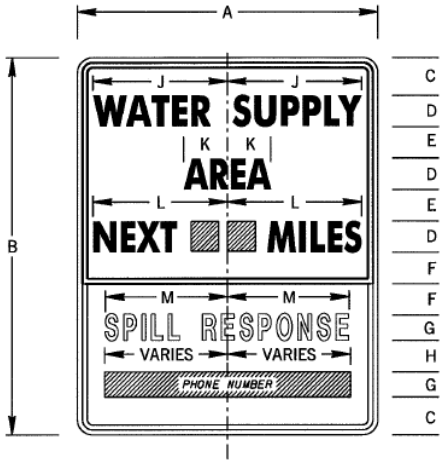
Resources

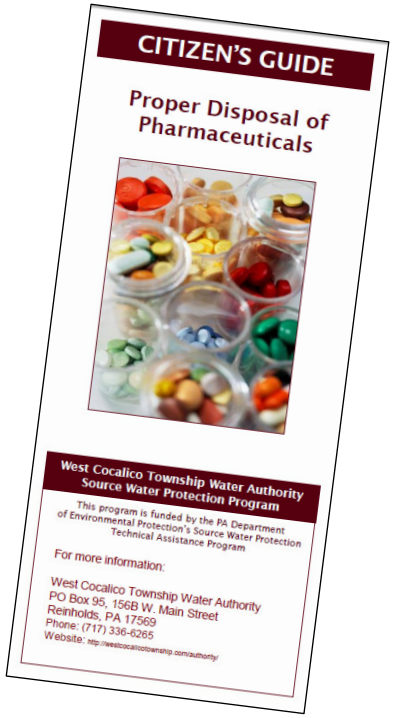
Templates for Brochures & Fact Sheets

Example Letters

List of Funding Sources

Signage Details





And Much More

Emergency Management Planning

- Cooperate with the County Emergency Management Agency
  - Attend meetings for the Local Emergency Planning Committee
  - Provide mapping files for emergency responders

- Participation in Early Warning/Mutual Aid Systems:
  - Knowledge Center & PaWARN

Contingency and Emergency Response

The water system's Contingency Plan should be reviewed annually to update procedures and personnel.

If there are interconnections with other water systems, are they exercised regularly to ensure operation?

What is the contingency in an emergency if the system cannot provide demand? How is bulk water distributed?

Are agreements with other systems, vendors, and responders current?

Rhonda Hakundy-Jones, P.G.
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PA DEP
717-705-4951
RHakundyJo@pa.gov

Al Guiseppe, P.G.
Project Manager
Spotts Steven & McCoy
610-621-2000
al.guiseppe@ssmgroup.com

Student, Poster Contest Winner 2018