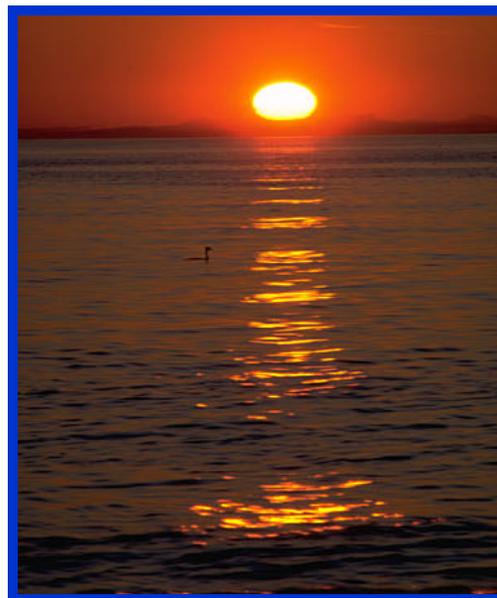




A Message from the Louisiana Department of Environmental Quality's  
Drinking Water Protection Team

# Your Drinking Water and You

A Citizen's Guide to the Drinking Water Protection Program



*"Protect Your Water One Drop At A Time"*



# It's Your Program

- **Do you love volunteering?**
- **Have you volunteered in the past or have a desire to volunteer?**
- **Are you looking to enhance your community?**
- **Are you resourceful and organized?**
- **Do you have a positive attitude?**

If you answered yes to the questions above, you are just what the Drinking Water Protection Program needs.

## *Volunteers are the key to a successful program*

The Drinking Water Protection Program is yours. As the Drinking Water Protection Committee, it is up to you to select what types of drinking water protection activities to implement in your community. This manual has been compiled by the Drinking Water Protection Team to aid you in our endeavors of protecting the integrity of drinking water in your area. We hope this manual is a useful tool in getting started as a volunteer.

Your support, strengthens and builds your community. You'll get to work side by side with fellow volunteers from your community making a lasting difference. You can reconnect with old friends and meet some new friends too, while volunteering. Your time will help protect and conserve drinking water for future generations. In exchange for a great volunteer experience you are protecting drinking water, the lifeblood of the world - it helps us exist. We are here to guide you and answer any questions that you may have. Thanks for helping us continue to inform and educate citizens in your community.

## Thanks For Volunteering!



*"Protect Your Water One Drop At A Time"*

# What's Ahead



# My Role As A Volunteer!

## Role of the committee:

To be a locally based planning and action team that will develop and implement drinking water protection activities. The team will be knowledgeable on the subject of drinking water and will act in the community's best interest in protection of this resource.

## What can the committee do to reach this goal?

Drinking water protection can be as simple as making friends, relatives, neighbors and students aware of their drinking water source and the importance of protecting it. It can also involve the community in passing ordinances and developing ways to make it easier for residents to dispose of harmful products, such as at a household waste collection day.

DEQ has outlined activities that will be large steps toward the goal of drinking water protection.

**We ask the committee to consider completing three (3) main activities to improve your community's risk to contamination.**

1. Visit potential sources of contamination within the drinking water protection area.
2. Suggest management options such as drinking water protection ordinances and planning and zoning laws to community residents and local government officials.
3. Distribute information on drinking water protection that is provided by DEQ for use in your community.



# Visit Potential Sources of Contamination

Visit significant potential sources of contamination (SPSOCs) defined as a medium or high risk by the source water assessment program in the drinking water protection area.

Many SPSOCs may not be aware that they are near a drinking water source or that their activities may potentially cause harm to the community's drinking water. The goal is to inform those SPSOCs that a water well or intake is in the area, explain why it is especially important for them to operate in a safe manner, and to distribute relevant information on drinking water protection. We want them to become a "drinking water protection partner."

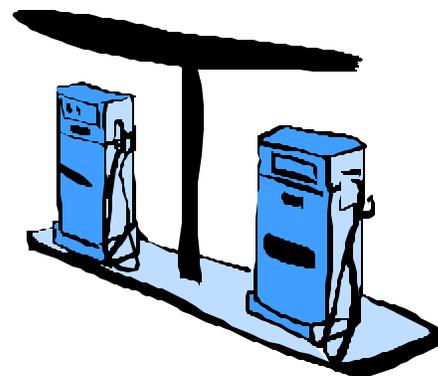
## Materials to distribute:

- How to Protect Your Drinking Water In Your Business
- Drinking Water Protection Partner decal
- Contact Information Sheet

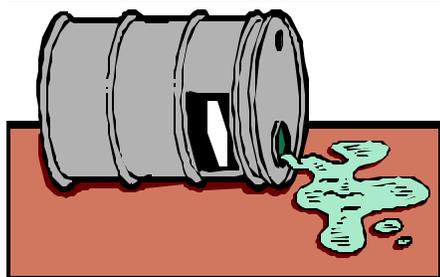
In the Fact Sheets/Handouts Section of the manual you will find the materials to distribute when visiting these businesses.



Underground storage tanks, gas stations



Leaking drum





# Ordinances, Planning and Zoning

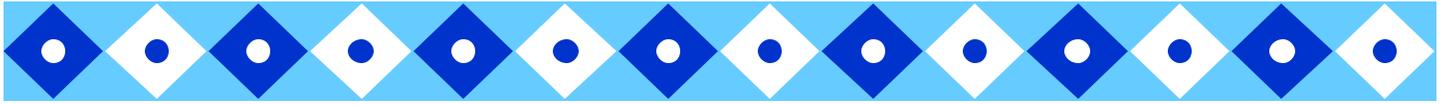
DEQ recommends that communities pass drinking water protection ordinances and consider the location of public water sources in planning and zoning activities. DEQ can provide maps in any format (digital or hard copy) to planning and zoning boards that show where wells or intakes are located and the extent of the drinking water protection area around each drinking water source.

We encourage committee members to attend police jury and town council meetings and suggest that these management options be considered at the parish and local levels. We have provided an example of an ordinance compiled using several other state's ordinances. These examples can be used by local officials and their legal counsel to draft ordinances that are applicable to your parish and community. It is important to remember that in most cases existing businesses are "grand-fathered" so that the ordinance does not cause an existing business to move, close, or make modifications. By visiting local businesses to make them aware of the location of nearby water wells or intakes, the businesses will know how important it is to manage chemical substances properly.

Committee members can also encourage local citizens to write letters supporting drinking water protection ordinances and consideration of the location of water wells and intakes in planning and zoning. Also included is an example letter that a citizen can send to his or her parish or local official requesting that drinking water protection ordinances be passed and that planning and zoning boards consider the location of water sources when completing community planning.

**In the References Section of the manual please see the sample ordinances.**

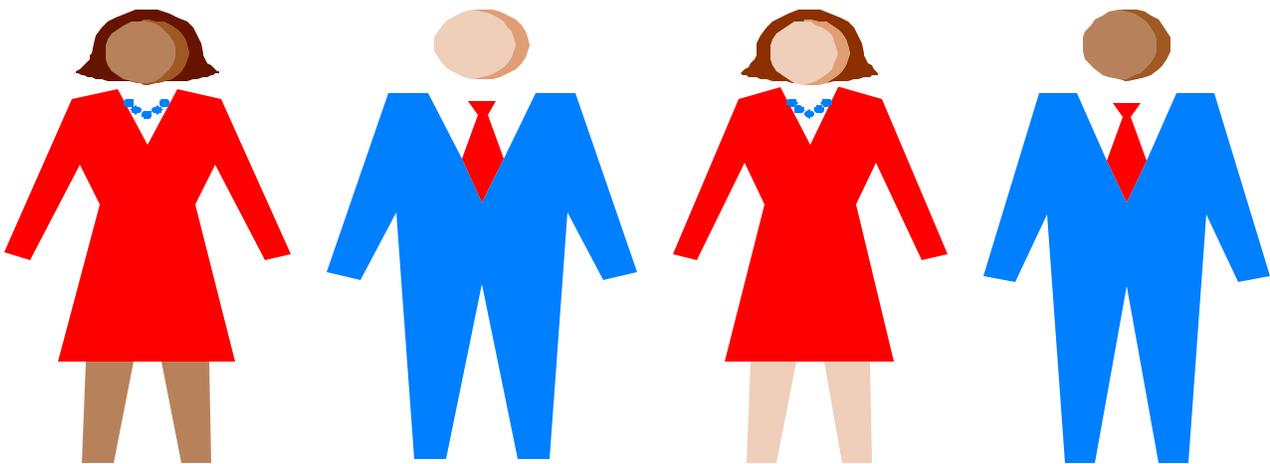




# Distribution of information on drinking water protection

DEQ produces drinking water protection materials such as fact sheets, handouts, brochures, signs, and videos. We ask the local committee to distribute these to the appropriate audiences such as schools, organizations, and water systems.

**Please refer to the Fact Sheets/ Handouts Section of the manual for samples.**



# What You Should Know



**Get The Facts!**

# Where does drinking water come from?

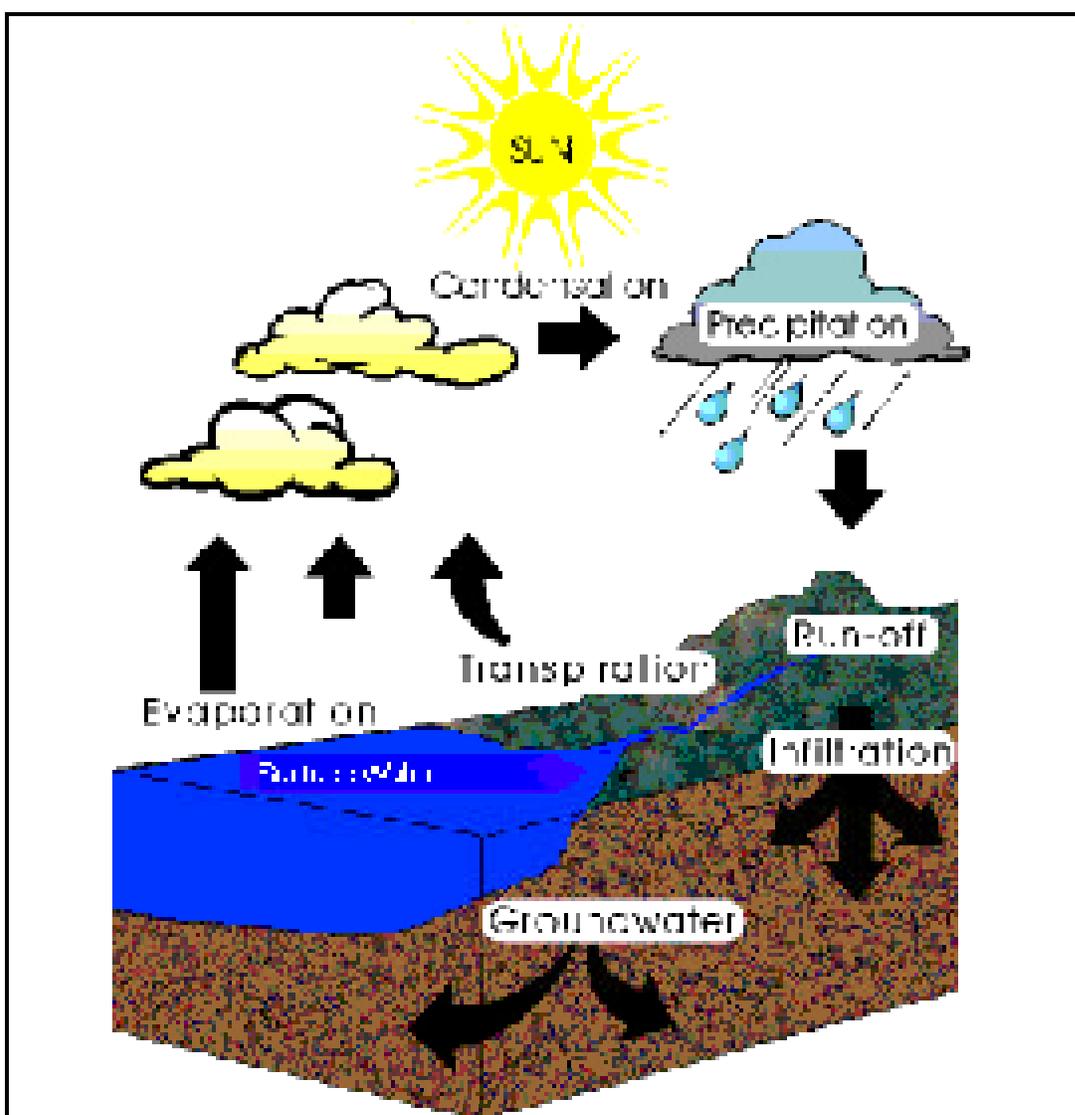
Our drinking water comes from one of two sources: ground water or surface water. Ground water is contained and stored in geologic formations called aquifers. Surface water includes rivers, lakes, reservoirs, bayous, etc. The majority of Louisiana gets its drinking water from ground water.

Water becomes ground water when precipitation seeps into the ground (called recharge zones). The ground water is then stored in layers of sand and gravel, or aquifers. The degree of purity of ground water depends on the naturally occurring minerals added to the water from rocks, sand, or soil native to the area. Though slow-moving, ground water is not stagnant. It is constantly flowing at a pace of between 30 feet per year to about 1/2 mile per year. Water travels underground as it does above ground from areas of high elevation to areas of lower elevation.

Ground water is drawn up to the surface by a water well that has been drilled into a nearby aquifer and pumped through pipes to homes and businesses.

When precipitation occurs faster than the water can seep into the ground, it becomes runoff. Runoff remains on the surface and flows into streams, rivers, and eventually large bodies such as lakes or the ocean. Just as surface water can recharge ground water, ground water can flow into surface waters.

Surface water used for drinking water is pumped from bayous, streams and rivers. It is treated and pumped through pipes to homes and businesses.





# Why is it important to protect drinking water?

Just as easily as water flows underground and on the surface, so can substances that can be harmful to our water. These substances, or contaminants, are detrimental to humans, animals, and plants.

Contaminants can be from natural sources or from human activities. Ground water can pick up substances naturally occurring in rocks as it flows underground. Examples of these substances are iron, chloride, fluoride, and manganese. Sometimes these substances in excess could be a health threat. Substances such as iron may cause an unwanted odor or discoloration of the water.

There are three categories of contaminants: organic material such as pesticides and fertilizers, inorganic material such as metals or arsenic, and bacteria. Ground water is essentially free of bacteria. Water systems may treat water with a small amount of chlorine to keep bacteria from entering the water during distribution. Surface water is treated more extensively to rid it of bacteria and other harmful substances.

We use products everyday that can potentially contaminate our drinking water. These substances can percolate through the ground or runoff into surface water.

## What are some potential contaminants?

- Gasoline
- Antifreeze
- Brake fluid
- Oil
- Household cleaners, oven cleaners, toilet bowl cleaners
- Furniture polishes and waxes
- Paints, dyes
- Paint thinner
- Pesticides
- Fertilizers
- Dry cleaning fluid

These substances are found in locations all around our community.

## Where might one find a potential contaminant?

- Gas station
- Auto/body repair shop
- Your home
- Agriculture fields
- Golf courses
- Septic systems
- Airports
- Dry cleaners
- Car washes
- Abandoned wells

## Three reasons to protect drinking water:

- 1) Health- We need water to live. Over 70% of our body is made of water. If the drinking water is contaminated, many health risks can result. Bacteria in drinking water can result in illnesses such as hepatitis or cholera. A component of gasoline, benzene, is known to be a carcinogen. Lead causes kidney, liver, and nerve damage as well as pregnancy risks.
- 2) Economic- Water is easy to contaminate but difficult to clean up. Once water becomes contaminated, it must be treated or an alternate source of water must be found. This is expensive and causes the water system to pass on this expense to the consumer. Contaminated water deters new businesses and industry from forming in the community.
- 3) Environmental- Everything we put into the environment accumulates. If someone used diesel fuel to kill an ant bed, they may not think of it as enough to cause a problem. However, what if everyone was doing the same? One drop of solvent is enough to contaminate the amount of water that fills an Olympic size swimming pool. In Michigan, backyard mechanics dumped more oil in one year than was spilled by the Exxon Valdez. Contamination can take years and years to clean up. And not all drinking water contamination can be treated successfully with current technology. The problem can not be fixed. This is why pollution prevention is crucial.

# How can we protect drinking water?

We can protect our drinking water by preventing contamination before it occurs. How?

## 1. Be informed.

Know where your drinking water comes from. Know what surrounds your drinking water well or is upstream from your surface water intake. Know what substances can contaminate your drinking water source. Know what actions you can take everyday to prevent drinking water contamination.

- Recycle used oil.



- Use and dispose of chemicals properly.

- Use pesticides and fertilizers in moderation.



- Maintain proper care of your septic tank.

## 2. Be observant.

Be aware of activities going on in your community. Report chemical spills, unusual odors from your water, and suspicious activity around water wells and intakes.



## 3. Be involved.

Take action on preventing contamination in your own home and in your community. Participate on your local drinking water protection committee.



# Drinking Water Protection Program History



**Get Informed!**



# How The Program Came About

## *Drinking Water Protection Program*

The Drinking Water Protection Program is designed by the Louisiana Department of Environmental Quality (DEQ) to assist Louisiana communities in protecting their drinking water and preventing contamination of drinking water sources. The goals of the program are:

- to increase public awareness of the importance of protecting drinking water sources
- to educate communities on actions they can take to protect it.



Be a part of the solution!

As well as focusing on public education and community activism, the program also focuses on planning and zoning regulations and contingency planning by the water systems.

## *Drinking water*

Drinking water can come from either surface water (bayous, rivers, etc.) or ground water (aquifers). Approximately two-thirds of Louisiana residents get their drinking water from ground water sources, however it is vitally important that all drinking water sources are protected for all of our citizens. Formerly, DEQ's drinking water protection efforts focused on ground water through implementation of the Wellhead Protection Program. With implementation of the Source Water Assessment program, DEQ's focus broadened to include surface waters.

"It is vitally important that all drinking water sources are protected for all of our citizens."

## *Wellhead Protection Program*

"Wellhead" refers to the part of the water well that is present at the surface of the ground. The Wellhead Protection Program was designed over a decade ago to protect the quality of public drinking water supplies obtained from community water wells. In order to protect community water wells, we must prevent contamination of ground water supplies (aquifers) from poorly managed pollution. The program involved five steps:

- 1) Delineation of the area around the wellhead. This area is usually a 1000 foot to a 1 mile radius surrounding the well, depending on well depth.
- 2) Inventory of all potential sources of contamination in the wellhead protection area.
- 3) Management options such as planning and zoning.
- 4) Submission of contingency plans by the water systems.
- 5) Public education on drinking water protection.



## *Source Water Assessment Program*

In 1996, the Safe Drinking Water Act Amendments called for all states to complete delineation and inventory of source water protection areas (any area surrounding a drinking water source, whether from ground or surface water) by May 6, 2003. It also called for each water system to be ranked according to its potential risk of contamination in a susceptibility analysis. The result is an evaluation of the source water that provides drinking water to each system in Louisiana. This evaluation, or assessment, is used to assist local communities in implementing protection measures. Louisiana has successfully completed this task.

Wellhead  
Protection  
Program

+

Source  
Water  
Assessment  
Program

=

Drinking  
Water  
Protection  
Program

### *Merging of the Programs*

The Drinking Water Protection Program (DWPP) is designed to follow the Source Water Assessment Program and to include elements of the Wellhead Protection Program. The DWPP also uses the susceptibility analysis method to direct protection activities to those systems that have a higher risk of contamination. The DWPP improves on the previous programs by focusing more on public education and involvement. Every attempt will be made to reach all communities and systems to ensure complete success of the DWPP.

DEQ will aid each community in developing its own Drinking Water Protection Program. The needs of each community differ, and the drinking water protection plan will be reflective of those individual needs. It is the goal of DEQ to enlist the help of local volunteers to form citizen committees dedicated to protecting drinking water sources in their own community, whether



**Protecting drinking water is everyone's responsibility.**

surface or ground water. The local citizen committees will decide what actions to take based on the needs of the community's drinking water.

DEQ will maintain an ongoing relationship with the local citizen committees to provide information and guidance. In addition, DEQ provides Source Water Assessments to planning and zoning boards, spends time in the community giving presentations on drinking water protection, and works with local water systems to submit contingency plans in the case of an emergency.



This information manual is a guide for volunteers to begin protection activities in their own community. It contains information about drinking water and some possible protection activities. Remember, this is only a guide meant to provide citizens with the tools needed to determine the best implementation measures for the area. DEQ has kept this as a guidance program for a very good reason: every community is different. One implementation plan and/or protection measure will not work for every community's drinking water source. So get involved! Maintaining quality drinking water is everyone's responsibility.



# Glossary of Terms

<b>Aquifer</b>	A water-bearing rock, sand, or gravel layer that will yield water in a usable quantity to a well or spring.
<b>Arbitrary Fixed Radius</b>	A set distance chosen for the radius of a Source Water Protection Area based on the best available data on aquifer velocity, soil recharge, and depth of the water well for groundwater systems.
<b>Assessment</b>	Delineation of a sensitive area around a drinking water well or intake, the inventory of that area for PSOC, analysis of susceptibility to contamination of wells and/or intakes in a water system, and informing the public and water system of the results.
<b>Best Management Practices</b>	Methods used by communities with issues pertaining to Source Water or Wellhead Protection. Examples of Best Management Practices are local ordinances and prohibitions of certain activities in Source Water or Wellhead Protection Areas.
<b>Community Water System</b>	A public water system that provides water through constructed conveyances to at least 15 service connections or an average of 25 individuals daily at least 60 days per year.
<b>Contamination Source Inventory</b>	Locating and identifying the names and addresses of potential sources of contamination.
<b>Contingency Plan</b>	A plan of action adopted by a community or water system to deal with a long or short term partial or total loss of their normal water supply. The plan outlines alternative water sources and priority users in emergencies.
<b>Delineation</b>	Determining the outline or shape of a Source Water Protection Area.
<b>Ground Water</b>	The water contained in the interconnected pores located below the water table in an aquifer.
<b>Ground Truth</b>	On the ground search and verification.
<b>Hydrogeologic</b>	The interrelationships of geologic materials and processes with water.
<b>Inventory</b>	The list of potential sources of contamination in a Source Water Protection Area found by database search, aerial photography interpretation, or by a physical visit.

<b>Maximum Contaminant Level</b>	The maximum permissible level of a contaminant in water, which is delivered to any user of a public water system.
<b>Permeability</b>	The measure of the relative ease with which porous media such as sand or gravel can transmit a liquid under a specified gradient.
<b>Porosity</b>	The measure of the percentage of open space between the grains in a rock or other media such as sand, gravel, or clay.
<b>Potential Source of Contamination</b>	Any facility, location, or activity that stores, uses, or produces as a product or by-product, the contaminants of concern and has sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources.
<b>Potential Susceptibility Analysis</b>	A process that measures and takes into consideration the sensitivity of a water well and the number, types and proximity of potential sources of contamination to that well or intake. In the Source Water Assessment Program, an "Index and Overlay" system is used to assign numerical values to all criteria. The values for each criterion is totaled and divided by the number of square miles in the Source Water Protection Area. These values will then be compared to determine the water wells that are most susceptible to potential contamination.
<b>Purchased Water Systems</b>	A water system that purchases and transports its water supply from another Public Water Supply System.
<b>Recharge Area</b>	A land area in which water reaches the zone of saturation from surface infiltration (e.g., an area where rainwater soaks through the earth to reach an aquifer)
<b>Risk Ranking</b>	An "Index and Overlay" method of assigning a numerical value and weighting percentage to each factor considered in the total "Sensitivity" value applied to each water well. Higher values indicate a more sensitive well.
<b>Safe Drinking Water Act Amendments of 1996</b>	This legislation requires each state to establish and implement a Source Water Assessment Program.
<b>Sensitivity for Ground Water</b>	The combined characteristics of well depth and age, soil recharge, and aquifer velocity. A numerical value is assigned to each factor and summed to assess the relative sensitivity of each well to contamination.
<b>Soil Recharge Potential</b>	The relative ability of a soil to transmit water (e.g. rainfall) downward to an aquifer or saturated zone.

**Source Water Assessment Program**

Section 1453 of the Safe Drinking Water Act Amendments of 1996 required each state to develop a Source Water Assessment Program that will: delineate areas providing source waters for all Public Water Supplies (ground water and surface water), inventory potential sources) from contaminants, which may have adverse effects on human health. The goals of the program are achieved by delineating well-head protection areas, inventorying and controlling potential ground water contaminating sources in those areas, assessing the relative threats to public water supplies posed by these various potential sources, and educating the stakeholders on methods they can use to protect their drinking water resources.

**Well Screen**

The slotted or perforated pipe typically at the bottom of a water well through which the aquifer water enters the water well.

**Source Water Protection Area**

The surface and subsurface area surrounding a source of drinking water (a water well, wellfield, or a surface water intake), supplying a public water system, through which contaminants are reasonably likely to move toward and reach the source of drinking water.

**Underground Storage Tanks**

Metal or fiberglass tanks, typically 500-1500 gallons each, that are used to store underground gasoline and diesel fuel at gas stations

**Vulnerability**

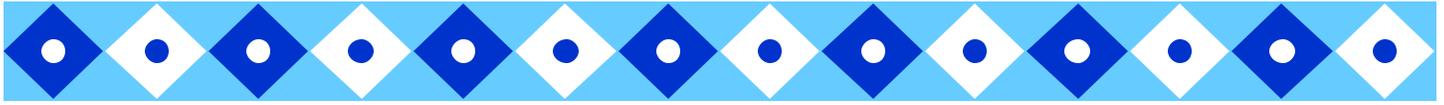
The numbers, types, and proximity of potential sources of contamination to public water supply wells or intakes.

**Wellfield**

Two or more wells located in close proximity to each other.

**Wellhead Protection Program**

Section 1428 of the Safe Drinking Water Amendments of 1986 required each state to submit and implement a voluntary program to protect public water supply wells (ground water) from contaminants which may have adverse effects on human health. The goals of the program are achieved by delineating wellhead protection areas, inventorying and controlling potential ground water contaminating sources in those areas, assessing the relative threats to public water supplies posed by these various potential sources, and educating the stakeholders on methods they can use to protect their drinking water sources.

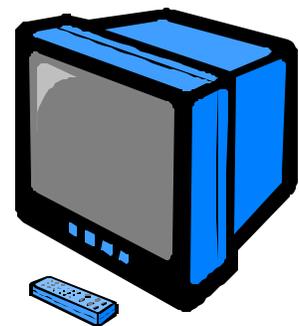
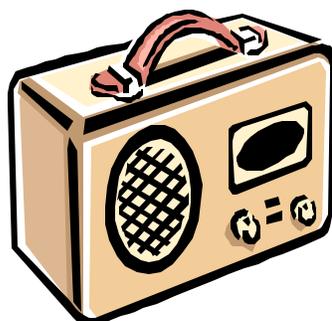


# Media

One of the main goals of the Drinking Water Protection Program is public education. There may be times when you, as the Drinking Water Protection Committee, wish to disseminate information to the public. This may be an announcement for a future event, a call for volunteers, or simply an informational message about drinking water protection.

To do this you may consider submitting a press release to the media in your community. Media can be television, radio, newspapers, or magazines. The press release provides information to the media that they may use in a story. Press releases tell your story quickly and grab the media's attention quickly. The press release should state who, what, when, where, why and how. You can include statistics, quotes, biographies, or additional information. Sometimes the media may only use the first paragraph, so be sure to place the most important information first. We have included in this section contact information for some media in your area and an example press release.

Press releases should be submitted on letterhead. Letterhead and logos help others to recognize your program. Symbols help people recognize and remember your program or product. The Drinking Water Protection Team wishes to use a logo to represent the program. This way, when anyone in Louisiana sees this symbol, they think of drinking water protection. We have included in this section the Drinking Water Protection Program logo and example letterhead. Please remember to use this logo, or a logo that your Drinking Water Protection Committee comes up with, on anything you provide to your community.





# Sample Volunteer Committee Letterhead





# References

The following model ordinance is a sample only. It is simply a tool to assist you in writing your own ordinance. You may alter or rewrite this sample to fit the needs of your community. It does not include all possibilities. Also, involve your legal staff in the writing of the ordinance. Do not attempt to pass this sample ordinance or any ordinance without review by appropriate legal counsel.