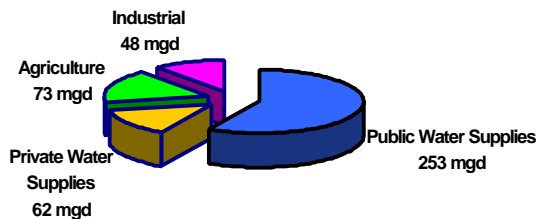


ALABAMA GROUND WATER CONDITIONS

Ground Water Resources: The State of Alabama has a diverse subsurface environment that contains large quantities of high quality ground water. Major sand and gravel aquifers exist in the Coastal Plain while significant karst limestone and fractured rock aquifers cover the Tennessee Valley and the Ridge and Valley. The Cumberland Plateau and the Piedmont Provinces have less productive aquifers, but



Ground Water Use in Alabama 436 Million Gallons/Day

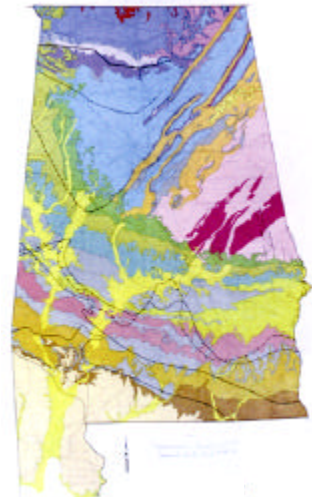
they are still important sources of supply to rural residential users. Recharge of aquifers occurs in areas where they contact the land surface. Recharge areas in Alabama cover 80% of the state and are vulnerable to contamination entering from the surface

Ground Water Dependence: The cities of Selma, Dothan, Greenville, Gulf Shores, and Dauphin Island depend upon ground water for most or all of their drinking water. Tuscumbia Big Spring in northwest Alabama and Cold Water Spring in Anniston are major sources of supply for these large populated areas. Montgomery and Huntsville depend upon ground water to meet peak demands during the summer. All of these communities have documented sources of contamination in the recharge areas of their public wells that are being addressed. Numerous incidents of ground water contamination have been documented in other areas of the state as well.

- ◆ Ground water contamination incidents from releases of petroleum products, chlorinated solvents and pesticides at industrial sites in

Montgomery are being assessed and remediated under the authority of the *Alabama Water Pollution Control Act* and other state and federal statutes.

- ◆ Ground water contamination incidents from releases of chlorinated solvents at industrial sites are being assessed and remediated in Huntsville, Selma and in the recharge areas of Tuscumbia and Cold Water Springs under the authority of the *Alabama Water Pollution Control Act*.



Major Aquifers Alabama

- ◆ Fourteen public water supply wells have been shut down due to contamination from chlorinated solvents, nitrates or other

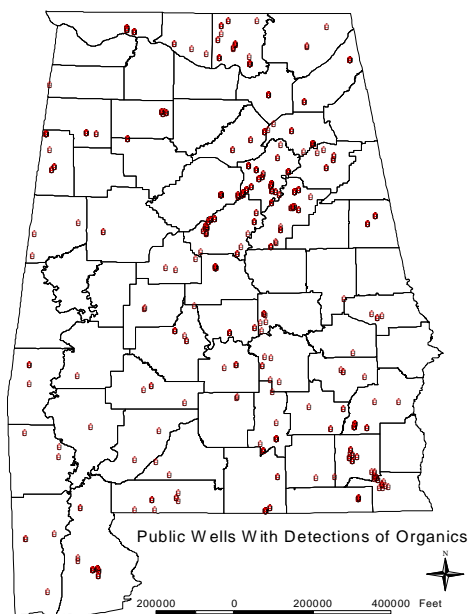
- 50% of Alabama's population depends on ground water for drinking water.
- 780 public water systems serve an estimated 1,900,000 people from ground water sources.
- 826,000 people depend upon private wells for drinking water.
- 80% of public water systems in Alabama have at least one ground water source.

chemical pollutants. Twelve other wells had to be shut down or treatment provided due to fecal coliform bacterial contamination. The cost of a replacement well may range from \$300,000 to \$580,000.

- ◆ Many private wells are used to provide potable water for residences throughout Alabama. These for the most part are shallow wells of less than 100 feet in depth. Because of their shallow depth, these wells are often quite susceptible to contamination from the surface.
- ◆ Incidents of bacterial contamination have been documented in 46% of residential wells tested in a study conducted by the Alabama Department of Public Health and the Center For Disease Control.
- ◆ Sampling by the Alabama Department of Environmental Management has detected pesticides in 45% of residential wells tested in Lauderdale County and 60% in Madison and Limestone Counties. In Houston County 20% of the wells tested detected pesticides. Only one percent of these detections were above the drinking water standard for the detected pesticides.

Ground Water Protection Program Focus

Ground water protection programs in Alabama are primarily focused on prevention of contamination from point sources such as underground storage tanks, facilities regulated under the Hazardous Waste Program, and on-site domestic waste disposal. These programs are largely funded by grants from EPA or state



funding to the Alabama Department of Public Health. There are many types of sites with ground water contamination that are not covered

under any established federal program. These include releases from point sources such as pipelines, bulk storage tanks, spills of commonly used organic solvents, and septic tanks. Many assessments and remediations are required under the authority of the *Alabama Water Pollution Control Act*, but little funding is available to fund staff to monitor the assessment and remediation process. The Superfund Program can fund oversight, site assessments and remediation if a site ranks high enough. However, only a few sites actually become eligible for funding.

The map below illustrates the widespread nature of potential threats to drinking water supplies from such common sources in our culture as gasoline underground storage tanks, dry cleaning and other solvents. Most of the detections shown are below health based criteria. Alabama recently submitted its Source Water Assessment Program for review by EPA as required by the 1996 Amendments to the federal *Safe Drinking Water Act*. The voluntary Wellhead Protection Program encourages communities to establish protective measures for the areas around public water supply wells identified under the Source Water Assessment Program.

Resource Requirements

Additional resources for Alabama's Ground Water Program are needed for the following:

- ◆ Additional staff would be hired to respond to ground water contamination incidents, and monitor corrective actions.
- ◆ To continue pesticide monitoring throughout the state.
- ◆ To further monitor and evaluate ground water quality in the entire state. This is especially needed to establish residential water well quality for bacteria and nutrients.
- ◆ To assist individuals and communities in evaluating sources of contaminants detected in private and public water supply wells and obtaining alternate water supplies.