

Alabama private well populations

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Individual home wells and/or cisterns for Alabama residents have become obsolete in recent years. The majority of Alabama residents now receive their drinking water from community water systems (CWS) which are tested monthly for contaminants. If contaminants are found that exceed allowable levels, the public is notified immediately and corrective action is taken. While this activity is vital to ensure the continuous, safe water supply we have come to expect, there are still a significant number of Alabamians who depend on private wells for their water.

The goal of this publication is to identify potential populations that do not have access to a safe drinking water supply from Alabama's many CWSs. Citizens expect access to safe drinking water and this study may determine areas that are in need. By taking the county populations from the United States Census Bureau, a very accurate population needing to be served can be determined. By taking the Alabama Department of Environmental Management – Drinking Water Branch (ADEM) sanitary survey population served data, an accurate population can be determined that has access to safe drinking water. Making the existing population and served population comparison at the county level allows for a more precise measure of Alabama residents who use a private well for their drinking water.

Data collection and methods

County populations were determined using the United States Census Bureau's 2010 data, which contains county population data for all Alabama counties. ADEM, with authorization from the United States Environmental Protection Agency, serves as the regulatory body for the Safe Drinking Water Act in Alabama. ADEM performs a Sanitary Survey every three (3) years for every CWS in Alabama. The two (2) years between Sanitary Surveys, ADEM performs an Operations and Maintenance inspection at which point the inspectors are able to update CWS information.

ADEM uses the number of connections for a particular CWS multiplied by a factor of three (3) people per connection to determine the number of people being served by that CWS. Each CWS is designated as being in a particular county, which allows a list of water systems to be generated for each county. Once this list is generated and the population of each water system calculated, a total population served by CWSs in each county can be determined.

Non-Transient Non-Community (NTNC) and Non-Community (NC) water systems still have an identification number, but are being served by another water system and are being calculated in that water system's population. To determine accurate population numbers served by CWSs, the ADEM data was further analyzed, and all water systems classified as NTNC and NC were removed from their county's total population served. A margin of error exists for water systems that are identified with one county but serve populations that overlap into adjoining counties. Even though a CWS's population served is correct, it may not accurately reflect the population recorded as living in that county.

The Alabama county populations obtained from the census data are compared to the water system populations from the ADEM Sanitary Survey and/or operations and maintenance inspection (County Population minus ADEM Population equals Population potentially served by a private well). This comparison determines the difference in people in the county served by a water system and people in the county likely to be on private wells.

Results and discussion

All sixty-seven (67) Alabama counties were analyzed and results show that ten (10) counties have a portion of their population not being served by a CWS. The ten (10) counties are divided into three groups based on the percentage of that county's population not being served by a CWS. Four (4) counties have a population between .01% and 10% not being served by a CWS. Three (3) counties have a population between 10% and 25% not being served by a CWS and three (3) counties have a population between 25% and 50% not being served by a CWS.

Table 1 compares the county and water system populations and shows the resulting percentage of the population likely using private wells.

Table 1. County and Water System Population Comparison

County Name	County Population*	ADEM Pop**	Difference	% on Private Well
Lawrence	34,339	23,685	-10,654	31.0%
Greene	9,045	6,648	-2,397	26.5%
Clay	13,932	10,503	-3,429	24.6%
Geneva	26,790	20,880	-5,910	22.1%
Cherokee	25,989	20,589	-5,400	20.8%
Randolph	22,913	18,813	-4,100	17.9%
Shelby	195,085	180,981	-14,104	7.2%
DeKalb	71,109	70,083	-1,026	1.4%
Baldwin	182,265	181,392	-873	0.5%
Talladega	82,291	82,091	-200	0.2%

* United States Census Data 2010

**Alabama Department of Environmental Management- Drinking Water Branch (Fiscal Year 2012)

Figure 1 shows each county that has a population of residents potentially served by private wells and each county is colored according to that percentage range. It is noticeable that North Alabama has a population being served by private wells. Lawrence County has between 25% and 50% of their population being served by private wells. Cherokee county has between 10% and 25% of their population being served by private wells. DeKalb County has between .01% and 10% of their population being served by private wells.

Central Alabama has five counties with populations being served by private wells. Greene and Clay counties have between 25% and 50% of their population being served by private wells. Randolph County has between 10% and 25% of

