

Using Geographic Information Systems (GIS), the vulnerability of ground water supplies to contamination from underground storage tanks (USTs) was assessed. The analysis was conducted for the 48 contiguous states, and then again for groups of states corresponding to the EPA Regions. The long form of the 1990 U.S. census asked the respondents the source of water for their home. The choices were: (1) a public system such as a city water department or private company; (2) an individual drilled well; (3) an individual dug well; or (4) some other source such as a spring, creek, river, cistern, etc. The reported estimates for the numbers of drilled wells, dug wells, and other supplies of water were summed to obtain an estimate of the number of households in each census block group that obtained water from a private source. The 1990 census also reported the surface area [square miles] of each census block group. A data file was purchased from ESRI Business Solutions that contained the latitude and longitude of active retail gasoline service stations in the United States. Using Geographical Information System tools (GIS tools) and georeferenced GIS coverage files on each census block group, the latitude and longitude of each active service station used to assign the service station to a census block group. Then the number of service stations in each census block group was summed. A simple probability analysis was performed based on the distribution of service stations the distribution of the households that obtained water a private supply. Three separate indices were calculated. Each index was calculated for those census block groups that had at least one service station and at least one household that obtained water from a private source.