# NATION-WIDE ASSESSMENT AND MAPPING OF DRINKING WATER "UNUSUALLY SENSITIVE AREAS" (USAS)

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The U.S. Department of Transportation's Research and Special Programs Administration (RSPA) is required to identify unusually sensitive areas (USA's) susceptible to environmental damage in the event of a hazardous liquid pipeline accident. Pipeline segments where a release could impact USAs are subject to prevention, mitigation, and response measures. Drinking water USAs have been identified and mapped in all fifty states. These USAs surround active community and non-transient non-community water sources that derive water from surface water intakes or hydrologically susceptible aquifers and have no Adequate Alternative Drinking Water Source (AADWS). The dimensions of USAs are defined using State-designated Source Water Protection Areas (SWPAs), karst sole source aquifer recharge areas for groundwater sources and a quarter-mile shoreline buffer which encapsulates all hydrography in a five-mile radius surrounding surface water intakes. If SWPA information is not available, then State-designated Well Head Protection Areas (WHPAs) are used. The Geographic Information System (GIS)-based model constructed for use in this project integrates digital well/intake databases, geology maps, aquifer information, hydrography, and sole source aquifer data along with aquifer classification guidelines devised by geologists to identify USA candidates. Final and interim USAs are designated based on an AADWS database built by collecting data via phone interviews of water system operators. A summary map of all drinking water USAs is presented at a nation-wide scale. Specific examples of model work flow, input data, aquifer classifications, and State specific issues affecting USAs are given for three regions with concentrations of pipelines: the Gulf Coast, Midwest, and Western U.S. This project and its results are unique in that they represent one of the first national compilations of publicly available digital geologic, hydrologic, and human-use data sets (in a variety of scales, formats, and detail) for the purposes of a standardized risk assessment.