

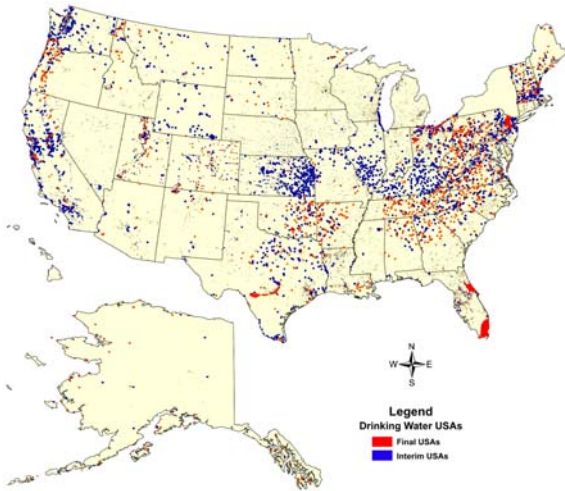
PIPELINE RISK ASSESSMENT

In support of the Pipeline Integrity Management System Rule, for the Office of Pipeline Safety, Washington, D.C., the Research and Special Programs Administration (RSPA) is required to identify Unusually Sensitive Areas (USAs) to environmental damage in the event of a hazardous liquid pipeline accident, in accordance with pipeline safety laws.

RPI is the sole contractor responsible for creating Unusually Sensitive Areas for RSPA. We developed high-end GIS models to create the USAs. We are responsible for all aspects of data collection, analysis, QA, and final delivery of all digital data and metadata. We've received 100 percent performance ratings on our project reviews.

Drinking water USAs are defined as:

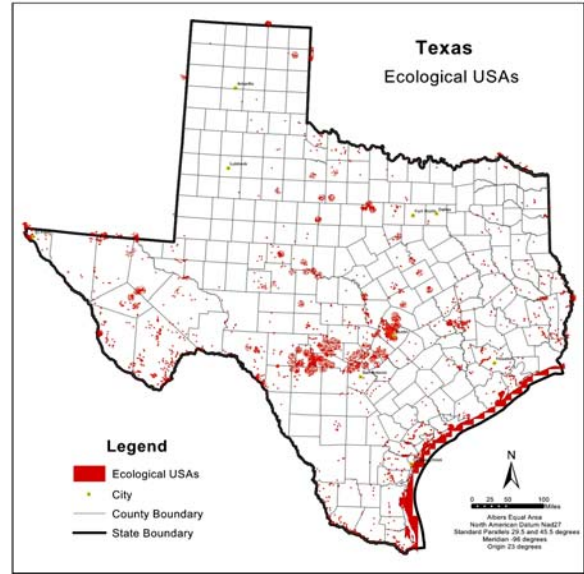
1. Surface water intakes for community water supplies and non-transient, non-community water supplies that do not have an adequate alternative source of water;



2. The source water protection areas for groundwater wells community water supplies and non-transient, non-community water supplies in aquifers that are at high risk of contamination, as determined by a specific hydro-geological classification, and do not have an adequate alternative source of water; and
3. Sole-source aquifers that are karst in nature.

Ecological USAs are defined as:

1. Areas containing critically imperiled species or ecological communities;



2. Multi-species assemblage where three or more different critically imperiled or imperiled species or ecological
3. Multi-species assemblage where three or more different critically imperiled or imperiled species or ecological communities, threatened and endangered species, depleted marine mammals, or migratory waterbird concentrations co-occur;
4. Migratory waterbird concentration areas, other than regional Western Hemisphere Shorebird Reserve Network sites;
5. Areas containing candidate species (critically imperiled and imperiled species, threatened and endangered species, and depleted marine mammals) or ecological communities (critically imperiled and imperiled ecological communities) of excellent quality and good quality; and
6. Areas containing candidate species and ecological communities that are aquatic or aquatic-dependent, or are terrestrial with a limited range.

PIPELINE RISK ASSESSMENT (cont.)

HCA and Pipeline Segment Identification for the Florida Power and Light (FPL) Integrity Management Program

Client: Florida Power and Light Company, Juno Beach, Florida

In accordance with regulations required by the U.S. Department of Transportation, Office of Pipeline Safety, pipeline operators whose pipelines transport hazardous liquids were required to identify pipeline segments that could affect High Consequence Areas (HCAs). Under this task, RPI worked with FPL to:

1. Digitize three of FPL's pipelines (Martin 30-inch, Martin 18-inch, and the Manatee 16-inch) within a GIS using GPS coordinates, FPL pipeline survey drawings, and digital aerial photography,
2. Identify HCAs and develop an integrated HCA layer with detailed attributes,
3. Perform a GIS analysis whereby intersecting pipeline segments within HCAs were identified and flagged,
4. Develop an estimated trajectory and flow rate for oil traveling over wetlands, land, static waterbodies, and flowing waterbodies using a worst-case discharge for each pipeline and oil behavior,
5. Conduct a visual on-screen assessment to identify pipeline segments that could affect HCAs outside of the pipelines using digital ortho-quarter quads, land-use land cover data, hydrography, detailed topography, digital elevation models, and FPL spill response plans,
6. Compile Resource At Risk reports which identify locations, impacts, and available protection strategies for each HCA that intersected a pipeline or may be potentially affected by a release from a pipeline

Vulnerability Analysis and Distance Planning for the Florida Power and Light Company (FPL) Facility Response Plan

Client: Florida Power and Light Company, Juno Beach, Florida

RPI conducted a Vulnerability Analysis for the Sanford, Putnam, and Ft. Myers power plants in support of the Environmental Protection Agency (EPA) regulations for Facility Response Plans. The analyses documented the possible impacts to the surrounding environments in the event of an oil spill using distances calculated according to EPA regulations. Tasks under this project included:

1. Calculating a planning distance using an EPA approved formula for oil transport on moving waterways and still water. RPI calculated how far downstream or upstream oil could travel from all three power plants using flow rates, response time, and slope of the river.
2. A Vulnerability Analysis that addressed the sensitive resources that were within areas that oil could impact once released from each facility. The resources included the five high consequence areas (HCAs): ecological USAs, drinking water USAs, high population area HCAs, other populated area HCAs, and commercially navigable waterways. Also included were drinking water intakes, schools, residential areas, wildlife areas, sensitive habitats, and threatened and endangered species.
3. A report compiled for each facility explaining the methodology used to calculate planning distance as well as the resources at risk from an oil release.

