



## *Louisiana Department of Environmental Quality Source Water Assessment Program*

### *Potential Susceptibility Assessment of a Surface Water Source of Public Drinking Water*

#### **I. Basis for Assessment**

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the assessment of this source means.** A map showing the delineated source water protection area and the inventory of significant potential sources of contamination identified within that area are attached. If you have any questions regarding this assessment, please contact LDEQ, Environmental Evaluation Division at 225-765-0578. For in depth information about the Source Water Assessment Program please visit the following LDEQ website:  
<http://www.deq.state.la.us/evaluation/aeps/swap/index.htm>

#### **A. Background**

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Act. This Phase I assessment is based on a land use inventory of the delineated protection area. A Phase II assessment will also include sensitivity factors associated with the intake and source water. The Phase II assessment will be conducted upon completion of all source water assessments for systems using surface water as a drinking water source.

The EPA is reviewing duplicative requirements and possible gaps under the Clean Water Act and the Safe Drinking Water Act, some of which may require legislative changes by Congress. The effort is also aimed at using clean water pollution controls to reduce the treatment burdens on drinking water systems.

#### **B. Level of Accuracy and Purpose of the Assessment**

Since there are over 1900 public water supply systems in Louisiana, there is limited time and resources to accomplish these assessments. All assessments must be completed by May 6, 2003. An in-depth, site-specific investigation of each significant potential source of contamination was not possible. Therefore, **this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in their water system.**

## **II Methodology**

### **A. Identification and Location of Significant Potential Sources of Contamination**

A significant potential source of contamination (SPSOC) is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The SPSOC locations were obtained by field surveys and from available databases. The list of significant potential sources and their rankings used to develop the assessment are shown on the next two pages.

The Source Water Protection Area has to be looked at in the context of the watershed that drains to the water body containing the water system intake. A watershed is defined as the land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Thus, a topographic boundary area is defined that is the catchment area for drainage. In Louisiana the watershed is partitioned into a critical area and a non-critical area. The critical area of the Source Water Protection Area is the upstream portion of the watershed within 5 miles of the intake. A ground search for significant potential sources of contamination is done in this area. The non-critical area is the remainder of the watershed and this area is inventoried for significant potential sources of contamination by database search. The Mississippi River is an exception to this delineation method and is being handled distinctly.

**SIGNIFICANT POTENTIAL SOURCES OF CONTAMINATION AFFECTING SURFACE WATER  
TO BE GROUND TRUTHED**

**Higher Risk**

Above Ground Storage Tank	Dry Cleaner/Laundromat
Agriculture Chemical- Formulation/Distribution (pesticide/insecticide)	Remediation Site (Superfund or IAS)
Animal Feed Lots/Dairies (Concentrated Animal Feeding Operations - CAFOs)	Military Facility
Battery Recyclers	Oil/Gas Tank Battery
Body Shop/Paint Shop	Petroleum (includes bulk plants)
Bridges and Bridge Abutments	TRI Site (Toxic Release Inventory)
Chemical/Industrial Plant	Truck Terminal
	Underground Storage Tank
	Wood Preserving Plant

**Medium Risk**

Airport/Airstrip	Railroad Yard- Loading and Offloading
Auto/Boat/Tractor/Small Engine Shop	Railroad Yard- Maintenance
Furniture Stripping	RCRA Facility (Resource Conservation & Recovery Act)
Mine	Sewer Treatment Plant
Plant Nursery	
Promiscuous Dump	
Railroad Yard - Switching	

**Lower Risk**

Asphalt Plant	Salvage Yard
Car Wash	Sand and Gravel Pit
Cemetery	Sanitary landfill/Solid Waste Disposal (active or inactive)
Funeral Home	Sewer Lift Station
Golf Course	Ship Building Operations
Hospital	Tailings Pond
Injection Well (all classes)	
Lumber Mill	
Marina	<b>** Septic systems will be counted within the critical area and will be reported as a density.</b>
Metal Plating/Metal Working	
Nuclear Plant	
Oxidation Pond	
Paper Mill	
Pipeline Compressor Station	
Port Facility	
Power Plant	
Printing Shop	

**SIGNIFICANT POTENTIAL SOURCES OF CONTAMINATION AFFECTING  
SURFACE WATER  
TO BE IDENTIFIED BY DATABASES**

**Higher Risk**

Chemical/Industrial Plants  
Concentrated Animal Feeding Operations (CAFOs)  
Military Facilities  
Remediation Sites (Superfund or Inactive/Abandoned Site)  
TRI Sites (Toxic Release Inventory)

**Medium Risk**

Airports  
Airstrips  
Mines  
RCRA Sites (Resource Conservation & Recovery Act)

**Lower Risk**

Cemeteries  
Hospitals  
Injection Wells (all classes)  
Sand & Gravel Pits  
Sewage Disposal Ponds (Oxidation Ponds)  
Solid Waste Disposal Facilities (Landfills)  
Tailings Ponds

**Line Potential Sources of Contamination**

**Railroads, Pipelines, Roads, and Hazardous Waste Transportation Routes are Line Potential Sources of Contamination subject to spills and leaks. They will be rated based on a pertinent number per square mile in the delineated area.**

**Oil & Gas Wells**

**Oil & Gas Wells will be reported as the number of wells per square mile in BOTH the critical and non-critical areas.**

\* Other important but not quantifiable considerations at this time include natural occurrences, saltwater intrusion, silviculture, and recreational use.

It should be noted that some of these facilities could be classified under more than one category. For example, a Chemical/Industrial Plant is also a RCRA facility and is also likely included in the Toxic Release Inventory (TRI). However, each facility will only be classified **once** and counted once. If risk rankings are different for each applicable classification the highest ranking will be used.

## **B. Potential for Contamination by Significant Potential Sources of Contamination Identified on the Map**

Potential contamination sources are facilities that use, produce, or store contaminants of concern (those regulated under the Safe Drinking Water Act) which, if improperly managed, could find their way into a source of public drinking water. **It is important to understand that a release may never occur from a SPSOC provided they are using best management practices. Many SPSOC are regulated at the federal level, state level, or both to reduce the risk of a release. Facility-specific management practices are not taken into account in estimating risks.** There are a number of methods that water systems can use to work cooperatively with owners of SPSOCs. These often involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake. It is also important to note the contaminants of concern listed for each SPSOC are not intended to be comprehensive, but rather those most commonly associated with the SPSOC. In addition, any specific SPSOC may actually have none, some, or more types of contaminants associated with it than what is listed.

## **C. Ranking of Significant Potential Sources of Contamination**

Significant potential sources of contamination were ranked as high, medium, or low risk according to the following considerations: 1) Sources of surface water contamination in the past, 2) Sources of surface water contamination in the past which have caused contamination of public water supply intakes, 3) Review of ranking schemes in the literature from other states and the U.S. EPA, and 4) Experience of LDEQ staff. An important consideration is the proximity of significant potential sources to the water body. Potential contamination sources located in closest proximity to the water body will pose the greatest threat. The greater the distance the less chance of contamination, because dilution and degradation increase with distance. Most public surface water supply contamination incidents in the State of Louisiana have resulted from spills, accidents, or pesticide application. The further away a significant potential source of contamination is located from the water body the lower the risk to the intake, even if the SPSOC is considered to be a high-risk activity or facility.

## **D. Determination of Intake and Source Sensitivity**

Since surface water sources are open to the atmosphere, they are considered inherently sensitive. However, data collected from each system during the source water assessments will be used to develop a comparative sensitivity ranking among surface water systems. The overall sensitivity ranking will be derived considering the following factors:

1. Structural integrity of the intake – inferred from the age of the intake. The older the intake, the higher the sensitivity.

2. Length of streams in the source water protection area - the assumption is that there is a greater potential for negative impact on surface water when the length of rivers and streams in the area is high. The stream data were obtained from the U.S. Geological Survey and 1:100,000 Digital Line Graph (DLG) Data.
3. Runoff – there is greater potential for negative impact on the surface water when the runoff is high. Factors that influence runoff are precipitation, slope, vegetative cover, and soil permeability. High precipitation, steep slope, low vegetative cover, and low soil permeability contribute to high runoff. The precipitation data were obtained from the Louisiana Office of State Climatology, Southern Region Climate Center at Louisiana State University. The slope data were obtained from the U.S. Geological Survey National Elevation dataset, 1999. The vegetative cover data were obtained from the U.S. Geological Survey GAP data. Soil permeability data were obtained from the State of Louisiana Aquifer Recharge Potential Map prepared for DEQ by the Louisiana Geological Survey, and from the U.S. Department of Agriculture Soil Conservation Service soil surveys.

## **II. Prioritization for Protection Activities**

This susceptibility assessment should be used as a basis for determining appropriate new protection measures or reevaluating current protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial landuses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. Local water supplies or communities may take steps to address SPSOCs of particular concern by contacting the appropriate state regulatory agency shown in the List of Regulatory Contacts. A comparative potential susceptibility analyses will be conducted upon completion of **all** assessments to determine a relative risk ranking among all public water supply systems. The results of this analysis will be used with regard to protection activities. The comparison is based on the intake and source sensitivity analysis and the density of potential sources of contamination for each intake. Also being considered is the density per square mile of roads, railroads and pipelines as well as the density of septic tanks within the delineated critical area. The comparative potential susceptibility analysis matrix and ranking will be made available upon request and will be posted on the LDEQ web site.

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## POTENTIAL CONTAMINATION SOURCE CONTROL CONTACTS

<u>Source</u>	<u>Contact</u>
Active And Inactive Hazardous Waste Sites-Operating Facility	Department of Environmental Quality Remediation Services Division Post Office Box 82178 Baton Rouge, LA 70884-2178 (225) 765-0355 Environmental Manager
Waste Impoundments of Oil & Gas Industry	Department of Natural Resources Oilfield Waste & Underground Injection Wells & Mining Division Post Office Box 94275 Baton Rouge, LA 70804-9275 (225) 342-5524 Division Manager
Pipelines for Natural Gas, Crude Oil, & other Fluids	Department of Natural Resources Pipelines Division Post Office Box 94275 Baton Rouge, LA 70804-9275 (225) 342-5505 Chief of Pipeline Safety or call <b>collect</b> the company listed on pipeline marker
Inactive & Abandoned Sites	Department of Environmental Quality Remediation Services Division Post Office Box 82178 Baton Rouge, LA 70884-2178 (225) 765-0355 Environmental Manager
Underground Storage Tanks	Department of Environmental Quality Remediation Services Division Post Office Box 82178 Baton Rouge, LA 70884-2178 (225) 765-0355 Environmental Manager
Underground Injection	Department of Natural Resources Oilfield Waste and Underground Injection Wells & Mining Division Post Office Box 94275

	Baton Rouge, LA 70804-9275 (225) 342-5515 Director of Injection and Mining
Abandoned Wells other than Water Wells	Department of Natural Resources Post Office Box 94275 Baton Rouge, LA 70804-9275 (225) 342-5540 Manager of Oilfield Site Restoration
Abandoned Water Wells	Department of Transportation and Development Water Resources Section Post Office Box 94245 Baton Rouge, LA 70804-9245 (225) 379-1434 Chief of Water Resources
Agriculture	Department of Agriculture and Forestry Post Office Box 3596 Baton Rouge, LA 70821-3596 (225) 925-3768 Director of the Pesticides and Environmental Programs
Drinking Water	Department of Health and Hospitals 6867 Bluebonnet Blvd. Baton Rouge, LA 70810 (225) 765-5038 Chief Engineer
Solid Waste	Department of Environmental Quality Remediation Services Division Post Office Box 82178 Baton Rouge, LA 70884-2178 (225) 765-0355 Environmental Manager

Surface Discharge

Department of Environmental Quality  
Office of Environmental Compliance  
Surveillance Division  
Post Office Box 82215  
(225) 765-0634  
Baton Rouge, La 70884-2215  
Administrator

Citizen 24-hour Hotline  
(Complaints) (Spills)

Department of Environmental Quality  
(225) 342-1234

Customer Information Number

(888) 763-5424

Source Water Assessment

Department of Environmental Quality  
Environmental Evaluation Division  
Post Office Box 82178  
Baton Rouge, LA 70884-2178  
(225) 765-0578  
Environmental Supervisor

## Source Water Assessment Results

**Water System Name:**

**PWS ID Number:**

**Water Source:**

**Date of Assessment:**

**Vulnerability Analysis – based on the types and numbers of significant potential sources of contamination (SPSOC) and their distances from the surface water source.**

<b>Intake</b>	<b># High Risk SPSOC W/in Critical Area*</b>	<b># Medium Risk SPSOC W/in Critical Area*</b>	<b># Low Risk SPSOC W/in Critical Area*</b>	<b># High Risk SPSOC Outside Critical Area*</b>	<b># Medium Risk SPSOC Outside Critical Area*</b>	<b># Low Risk SPSOC Outside Critical Area*</b>

**\* Critical Area is defined as the upstream portion of the watershed within 5 miles of the intake. SPSOCs located within the critical area were identified by a field survey. SPSOCs located outside of the critical area were identified by a database search.**

**SIGNIFICANT NON-POINT POTENTIAL SOURCES OF CONTAMINATION**

**Line Feature Densities Per Square Mile within the Delineated Area\***

**Critical Area**

<b>Intake</b>	<b>Roads mi/mi<sup>2</sup></b>	<b>Railroads mi/mi<sup>2</sup></b>	<b>Pipelines mi/mi<sup>2</sup></b>

\* Source of data: U.S. Census Tiger Files

**Non-Critical Area**

<b>Intake</b>	<b>Roads mi/mi<sup>2</sup></b>	<b>Railroads mi/mi<sup>2</sup></b>	<b>Pipelines mi/mi<sup>2</sup></b>

\* Source of data: U.S. Census Tiger Files

**Contaminants of Concern**

**Roads:** Surface Runoff, Miscellaneous Chemicals (Spills), Herbicides

**Railroads:** Herbicides, Phenols, Miscellaneous Chemicals (Spills)

**Pipelines:** Oil, Miscellaneous Chemicals

\*\* Pipelines: Accurate pipeline data is to be furnished by the U.S. Dept. of Transportation at a later date and forwarded to the water system.

**Density of Septic Systems within the Critical Area\***

Intake	Number of Septic Tanks w/in Critical Area

\* Number of Septic Tanks determined by physical count.

**Contaminants of Concern for Septic Systems** : Pathogens, Nitrates, Metals,  
Solvents, Detergents, Oils & Grease.

**Density of Oil and Gas Wells per Square Mile within the Delineated Area\***

Intake	Number of Oil & Gas Wells per mi <sup>2</sup> in Critical Area	Number of Oil & Gas Wells per mi <sup>2</sup> in Non-Critical Area

\* Source of Data: Louisiana Dept. of Natural Resources SONRIS database.

**Contaminants of Concern for Oil & Gas Wells**: hydrocarbons, sulfides, chlorides