Source Water Assessment

TOWN OF WALKER LA1063017



Date: 1/4/2022



Prepared by the Louisiana Department of Environmental Quality, Aquifer Evaluation & Protection Unit

Louisiana Department of Environmental Quality

Source Water Assessment Program

Potential Susceptibility Assessment of a Ground Water Source Public Drinking Water System

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 assessment is based on a land use inventory of the delineated protection area and sensitivity factors associated with the well and aquifer characteristics.

The following sections discuss how and why this assessment was conducted. It is important to review this information to discern what the ranking of this source means. A map showing the delineated source water protection area and the inventory of SPSOCs identified within that area are attached. If you have any questions regarding this assessment, please contact LDEQ, Water Quality Assessment Division, Aquifer Evaluation and Protection Unit at 225-219-3510.

Purpose

The objective of the assessment is to establish a potential susceptibility ranking for each of the public water supply wells in Louisiana and translate it into the potential susceptibility to contamination of each water system. A comparative potential susceptibility analysis was conducted upon completion of all source water protection area inventories to determine a relative risk ranking among all systems. The comparison is based on the sensitivity and the vulnerability ratings for each well.

All ground water systems were compared relative to one another. The sole purpose of the potential susceptibility analysis is to compare all water systems in the state in order to prioritize protection activities so that areas that have higher risk rankings will be targeted for protection activities first. The rankings **should not** be used in any other context.

This assessment, along with local knowledge and concerns, should be used as a planning tool, to develop and implement appropriate protection measures for this source. The results <u>should not</u> be used as an absolute measure of risk and they <u>should not</u> be used to undermine public confidence in their water system.

Methodology

Identification 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 is shown below.

SIGNIFICANT POTENTIAL SOURCES OF CONTAMINATION AFFECTING GROUNDWATER

Higher Risk

Agriculture/Chemical Formulation Animal Feed Lot (CAFO) Battery Shop/Recycler **Body/Paint Shop Dry Cleaners** Inactive/Abandoned Site - Confirmed Injection Well (Class V) Major Industrial Site Plume Military Facility **Petrochemical Plant** Petroleum Bulk Plant Remediation Site - Groundwater

Remediation Site - Hazardous Waste Remediation Site - Solid Waste . Remediation Site - UST Storage Tank - Above Ground (w/o Secondary Containment) Storage Tank – Underground (Active) Storage Tank - Underground (Inactive) **Truck Terminal** Water Well - Abandoned Water Well - Inactive Wood Preserving/Treatment Plant

Railroad Yard (Loading/Switching/Maintenance)

Landfill (Solid Waste/Municipal/C&D)

(w/ Secondary Containment)

Medium Risk

Airport/Airstrip Auto/Boat/Tractor/Small Engine Shop **Furniture Stripping** Inactive & Abandoned Site - Potential Injection Well (Class I, II, or III) Oil/Gas Tank Battery **Promiscuous Dump**

Lower Risk

Asphalt Plant Car Wash Cemetery **Funeral Home** Golf Course Hospital Lumber Mill Metal Plating/Metal Working Paper Mill

Pipeline Compressor Station

Storage Tank - Above Ground

Sewage - Oxidation Pond

Sewer - Treatment Plant

Plant Nursery Port Facility

Sand/Gravel Pit

Power Plant - Not Nuclear Power Plant - Nuclear

Print Shop Salvage Yard Sewer - Lift Station Water Well - Irrigation

Line Potential Sources of Contamination:

Line feature Potential Sources of Contamination (LPSOCs), such as Roads, Railroads, and Pipelines, are subject to spills and leaks. LPSOCs will be rated based on a pertinent number per square mile in the delineated area (protection area).

Oil & Gas Wells and Septic Tanks:

Active oil & gas wells (as determined from LDNR's SONRIS database) will be rated based on a pertinent number per square mile in the delineated area. Septic tanks will be rated based on the number of septic tanks within the septic tank search radius. This radius is determined by applying the distance ground water would travel in two years based on the aquifer's average ground water velocity per year (two year time of travel).

1. Potential for Contamination by SPSOCs 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. SPSOCs were ranked as high, medium, or low risk according to the following considerations:

- Sources of ground water contamination in the past,
- Sources of ground water contamination in the past which have caused contamination of public water supply wells,
- Review of ranking schemes from other states and U.S. EPA, and
- Experience of LDEQ staff.

It is important to note that a release may never occur from a SPSOC provided they are using best management practices. Many SPSOCs 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.

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.

II. Determination of Water Well Sensitivity

The overall sensitivity ranking for water wells was derived considering the following factors:

Depth of well - Shallower wells are more sensitive than deeper wells. Deeper wells are afforded more natural protection due to clay or "confining" layers in the subsurface. These layers substantially restrict or impede the flow of water (and possible contaminants) from the surface and shallow subsurface to deeper aquifers tapped by deep wells. Historically, contamination of public water supply wells in Louisiana has occurred in wells screened at relatively shallow depths, or less than 350 feet below land surface.

Age of the well - Older wells are more sensitive than newer or younger wells due to grout and casing deterioration that can occur over time. If a well was drilled prior to the construction standards of November 1985, it is also considered more sensitive.

Deteriorated or improperly constructed wells can provide conduits for contaminants to enter the aquifer from the surface or shallow subsurface.

Aquifer - Higher, or faster average ground water flow velocities increase the sensitivity of a well. The faster the ground water flows, the faster it will carry contaminants to a well. This was based on the average ground water velocity of the aquifer in which the well is completed. The range of average ground water velocities is 33 feet per year to 1,162 feet per year.

Soil Recharge Potential - Higher soil recharge potentials also increase a well's sensitivity. Sandy soils are more permeable than silt or clay soils thus, allowing more water to infiltrate from the surface to the subsurface. Soil recharge potential values were derived from the State of Louisiana Aquifer Recharge Potential Map developed for LDEQ by the Louisiana Geological Survey in 1989.

Based on these sensitivity factors and the type of water system (community or non-community), a search radius or, "Protection Area", is delineated for each well. Accordingly, a protection area with a radius of 5,280 feet, 2,640 feet, or 1,000 feet is assigned as appropriate for each well. Wells with higher sensitivity determinations require a larger protection area, while wells with lower sensitivity determinations require a smaller protection area.

III. Determination of Water Well Vulnerability

The types and quantity of SPSOCs found, along with their proximity to the well(s), will influence the degree of vulnerability for the water system. Potential contamination sources in closest proximity to the wells will pose the greatest threat. The greater the distance a SPSOC is from a well, the potential for contamination decreases due to dilution, sorption, and degradation.

Most public water supply contamination incidents in the State of Louisiana have resulted from either leaking underground storage tanks or surface spills of gasoline in the vicinity of the wells. These plumes generally do not extend beyond 1,000 feet as a result of natural degradation processes. A 1,000 foot radius around the well is considered the "Critical Area". The further away a significant potential source of contamination is located from the well the lower the risk to the well, even if the SPSOC is considered to be a high-risk activity or facility.

Density values for roads, railroads, pipelines and oil & gas wells are determined based on the well's protection area. Only a physical count of septic tanks is made within the well's septic search radius, or the two year time-of-travel. The two year time-of-travel is calculated using the average ground water velocity for the aquifer in which the well is completed. Research data indicate pathogens may remain viable for up to two years in the subsurface and are a primary constituent of septic system effluent. A two year time-of-travel survey radius of 1,000 feet is used when the aquifer is not known.

IV. Potential Susceptibility Analysis

A **Potential Susceptibility Analysis** is a determination of the susceptibility of a public water supply to contamination by significant potential sources identified within the source water protection area. The potential susceptibility analysis consists of the **sensitivity analysis**, which includes factors inherent to the system and source water, and the **vulnerability analysis**, which is the number and types of SPSOCs identified.

The potential susceptibility analysis combines hydrogeologic sensitivity analysis with vulnerability analysis within the delineated areas. Based on sensitivity ranking and vulnerability ranking, a potential susceptibility ranking is assigned to a well and ultimately to a water system based on the number of wells it has. Rankings are assigned as high, medium, or low. The results of the analysis can be used as a basis for determining appropriate new protection measures or reevaluating current protection efforts.

Prioritization for Protection Activities

This susceptibility assessment should be used as a basis for determining appropriate new protection measures or reevaluating current protection efforts. Regardless of 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, it is important to prioritize and implement protection activities 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 on the List of Regulatory Contacts.

Additional Information

For additional information on the Source Water Assessment Program and a detailed explanation of the susceptibility analysis methodology please visit our website at https://www.deq.louisiana.gov/page/source-water-assessment-program.

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List of Regulatory Contacts for SPSOCs

SPSOCs of Concern

Contact

Abandoned Water Wells

Department of Natural Resources

Office of Conservation Post Office Box 94275

Baton Rouge, LA 70804-9275

(225) 342-5515

Environmental Division Director

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

Accidents, Security Issues, Criminal Activity, Spills, Waterway Closures For

Navigable Waterways

U.S. Coast Guard

8th Coast Guard District Command Center

501 Magazine St., Suite 1330 New Orleans, LA 70130

(504) 589-6225

Commander of Operations

Active And Inactive Hazardous Waste

Sites-Operating Facility

Department of Environmental Quality

UST and Remediation Division

Post Office Box 4312

Baton Rouge, LA 70821-4312

(225) 219-3181 Administrator

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

DEQ Citizen 24-hour Hotline

Environmental Complaints & Spills and

Customer Information Number

Department of Environmental Quality (225) 342-1234 or (888) 763-5424

Drinking Water

Department of Health

P.O. Box 4489

Baton Rouge, LA 70821-4489

(225) 342-7499 Chief Engineer

SPSOCs of Concern

Contact

Inactive & Abandoned Sites

Department of Environmental Quality

UST and Remediation Division

Post Office Box 4312

Baton Rouge, LA 70821-4312

(225) 219-3181 Administrator

Oil Spills

Louisiana Oil Spill Coordinator's Office

625 North Fourth St., Suite 800

Baton Rouge, LA 70802

(225) 219-5800 Oil Spill Coordinator

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 collect the company listed on pipeline

marker

Solid Waste

Department of Environmental Quality

Waste Permits Division Post Office Box 4313

Baton Rouge, LA 70821-4313

(225) 219-3070 Administrator

Source Water Assessment and Drinking **Water Protection Programs**

Department of Environmental Quality Water Quality Assessment Division

Post Office Box 4314

Baton Rouge, LA 70821-4314

(225) 219-3510 **Geologist Supervisor**

Spills (National Initial Contact Emergency

National Response Center

Number)

(800) 424-8802 or (202) 267-2675

SPSOCs of Concern

Contact

Surface Discharge

Department of Environmental Quality

Inspection Division
Post Office Box 4312
Baton Rouge, La 70821-431

(225) 219-3615 Administrator

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

Underground Storage Tanks

Department of Environmental Quality

UST and Remediation Division

Post Office Box 4312

Baton Rouge, LA 70821-4312

(225) 219-3181 Administrator

Waste Impoundments - Oil & Gas Industry

Department of Natural Resources

Oilfield Waste & Underground Injection Wells &

Mining Division

Post Office Box 94275

Baton Rouge, LA 70804-9275

(225) 342-5570 Division Manager

Water Quantity Issues

Department of Natural Resources

Office of Conservation Post Office Box 94275

Baton Rouge, LA 70804-9275 Environmental Division Director

(225) 342-5515

EPA'S Sole Source Aquifer Protection Program

A Supplement to Source Water Protection Programs in Louisiana

Sole Source Aquifers in Louisiana

More than 17,000 square miles of Louisiana falls within areas designated by the U.S. Environmental Protection Agency as "Sole Source Aquifers" (SSAs). Under Section 1424(e) of the Safe Drinking Water Act these lands, covering most of the southern half of the State, receive an increased level of protection for ground water which serves as a drinking water source. If you are located in a designated SSA area you may want to take a more active role in the SSA program as one component of a local source water protection program. If you are outside of this area you might consider the advantages of submitting a petition to EPA for a SSA designation.

What is a Sole Source Aguifer?

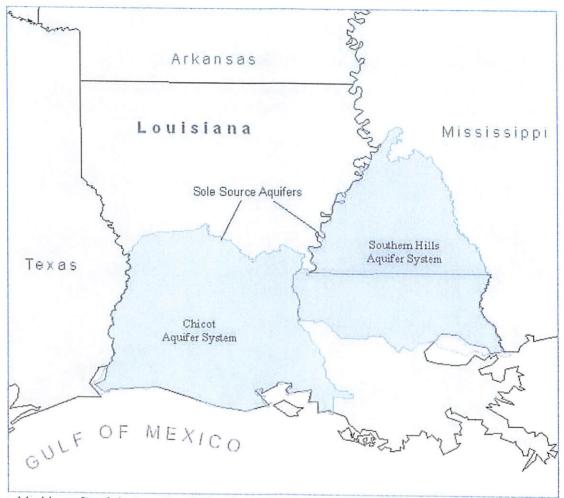
The Sole Source Aquifer Program originated with the Safe Drinking Water Act in 1974. Under the program, EPA may designate an aquifer as the "sole or principal source" of drinking water for an area if it supplies more than 50% of the drinking water for that area and there are no other reasonably available alternative sources if the aquifer becomes contaminated. Designation of an aquifer typically begins with a petition to EPA by a local group which is interested in protecting the water quality in the aquifer. Currently, there are 70 designated SSAs in the United States. The Chicot SSA and the Southern Hills SSA together cover 25 parishes in Southern Louisiana and form one of the largest designated areas in the country.

How can the Sole Source Aquifer Protection Program Assist in Implementing Local Source Water Protection Programs?

Designation as an SSA protects an area's ground water resource through EPA review of projects which are proposed for federal financial assistance (such as loans, grants, loan guarantees, etc) in the designated area. Where EPA finds that a project may pose a threat to water quality in the aquifer the agency may require modifications to the project or may block federal financial assistance if the project is not modified in an acceptable fashion. The EPA has developed agreements with other Federal agencies to identify the types of projects which will be referred to EPA for review. A number of projects, including those with financial assistance from the Federal Highway Administration, Department of Housing and Urban Development, and U.S. Department of Agriculture have been modified as a result of review under the SSA program.

Even though many projects with federal financial assistance in SSA areas are referred to EPA through interagency agreements, there may be other eligible projects which are not covered by such agreements or which are not reviewed by EPA for of a variety of reasons. Some of these projects may have potential for contamination of the aquifer. In designated SSA areas local organizations can augment their source water protection program and assist in implementation of the SSA program by contacting EPA when they identify projects proposed for Federal financial assistance which might have a potential for contamination of the aquifer.

SOLE SOURCE AQUIFERS IN LOUISIANA



An added benefit of designation is that it can increase community awareness on the use, value, and vulnerability of the local aquifer which helps build support for developing and implementing various ground water protection efforts. As such, the SSA program can provide a valuable supplement to the Source Water Protection program.

Visit the EPA Internet site for the Sole Source Aquifer program at: http://www.epa.gov/dwssa for:

- Detailed maps of SSAs in Louisiana and other States
- Information on the effects of SSA designation
- Facts on the SSA program and the process of designating an aquifer
- Information on the program nationally
- Maps of designated areas

Table 1: Susceptibility Analysis Results

System Susceptibility

System Vulnerability

System Sensitivity

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FOM

Table 2: Well Ranking Results

| Well Number | Well_Vulnerability | Well_Sensitivity | Well_Susceptibility |
|-------------|--------------------|------------------|---------------------|
| 1063017-002 | LOW | LOW | LOW |
| 1063017-003 | LOW | LOW | LOW |
| 1063017-004 | LOW | LOW | LOW |
| 1063017-005 | LOW | LOW | LOW |

Table 3: Well Sensitivity Factors

Based on well depth, age, average ground water velocity, and soil recharge potential

| Well Number | Date Drilled | Depth (ft.) | Survey Radius (ft) | Soil Recharge Potential | Aquifer Name |
|-------------|-----------------|-------------|-----------------------|----------------------------|----------------|
| 1063017-002 | 1/9/1974 | 2182 | 2640 | LOW | Southern Hills |
| 1063017-003 | 7/2/1986 | 2266 | 1000 | LOW | Southern Hills |
| 1063017-004 | 10/1/2001 | 2600 | 1000 | LOW | Southern Hills |
| 1063017-005 | 1/16/2016 | 2655 | 1000 | LOW | Southern Hills |

Table 4: Well Vulnerability

Density Determinations: Based on total lengths of line features or pertinent number of point features within the well's protection area (septic tank count within septic tank search radius only).

| Well Number | RailRoads (mi/sq. mi.) | Roads (mi/sq. mi.) | Pipelines (mi/sq. mi.) | Oil & Gas Wells (per sq. mi.) |
|-------------|---------------------------|-----------------------|---------------------------|-------------------------------------|
| 1063017-002 | 0.48 | 11.19 | 0 | 0 |
| 1063017-003 | 3.39 | 79.6 | 0 | 0 |
| 1063017-004 | 3.39 | 79.6 | 0 | 0 |
| 1063017-005 | 3.39 | 79.6 | 0 | 0 |

Table 5: SPSOC Rankings Greater Than 1,000 ft. From Well

Well Number: 1063017-002

| Number of SPSOCS | Risk Rank | |
|------------------|-----------|--|
| 4 | HIGH | |
| 1 | MEDIUM | |
| 5 | LOW | |

Table 6: SPSOC Rankings Within 1,000 ft. Of Well

Well Number: 1063017-002

Number of SPSOCS

Risk Rank

1

LOW

Well Number: 1063017-003

Number of SPSOCS

Risk Rank

1

HIGH

2

MEDIUM

Well Number: 1063017-004

Number of SPSOCS

Risk Rank

3

HIGH

1

LOW

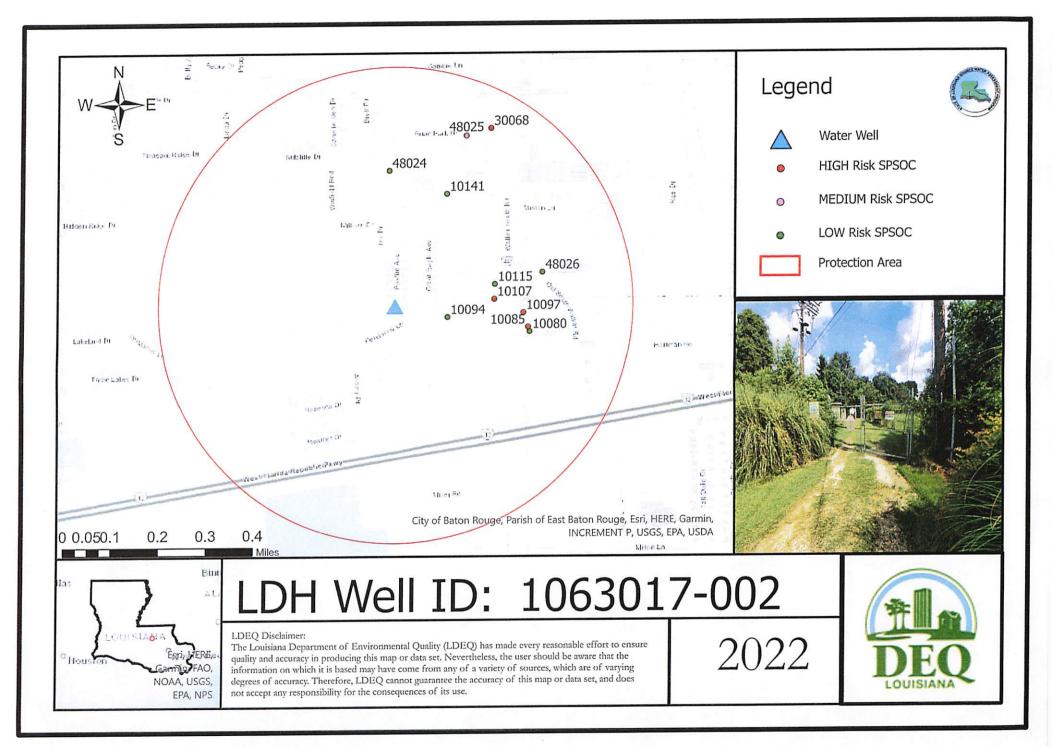
Well Number: 1063017-005

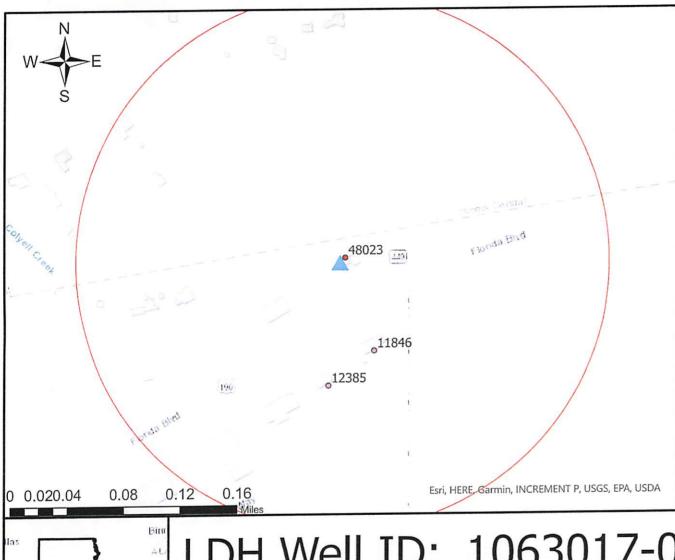
Number of SPSOCS

Risk Rank

1

HIGH





Legend





Water Well

- HIGH Risk SPSOC
- MEDIUM Risk SPSOC
- LOW Risk SPSOC



Protection Area



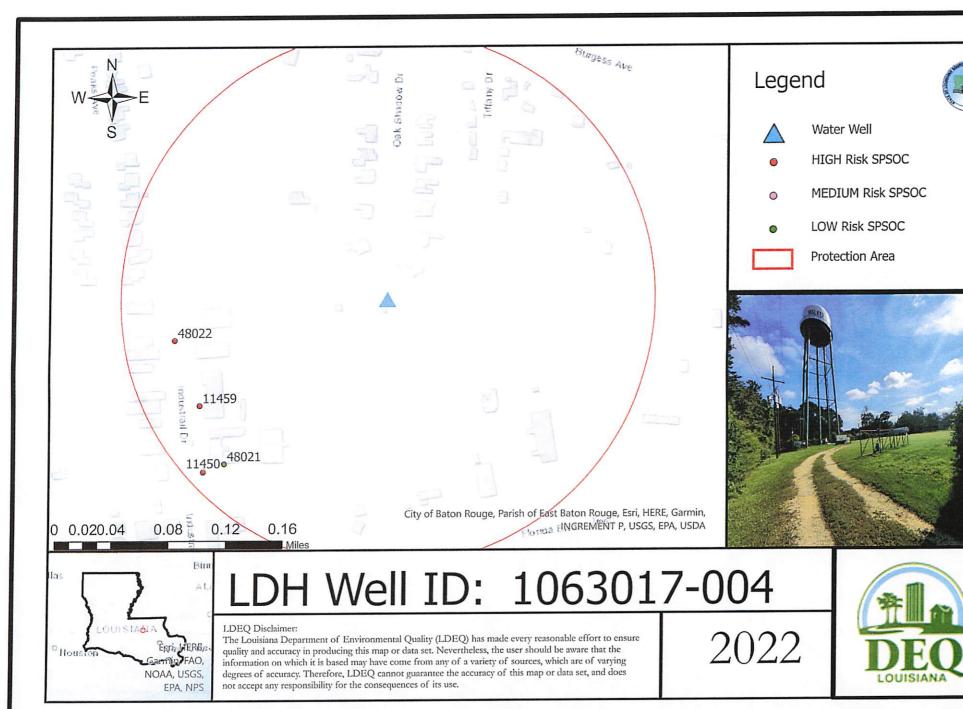


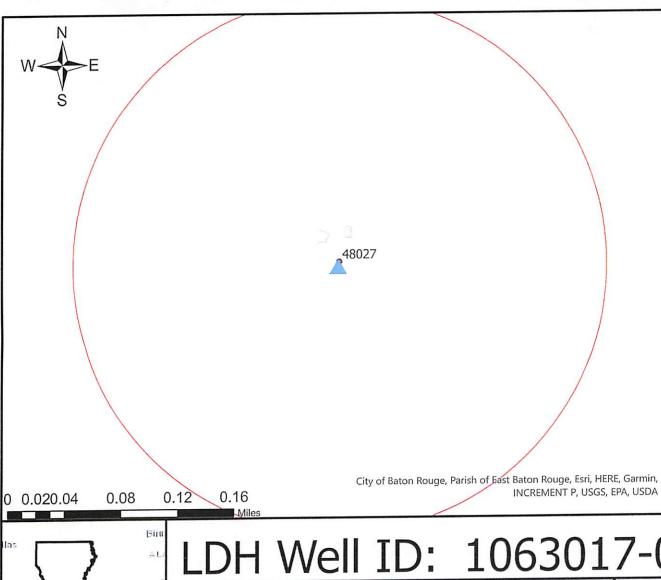
DH Well ID: 1063017-003

LDEQ Disclaimer:

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Legend



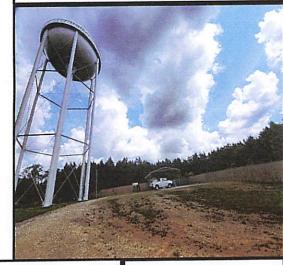


Water Well

- HIGH Risk SPSOC
- MEDIUM Risk SPSOC
- LOW Risk SPSOC



Protection Area



DH Well ID: 1063017-005

Houston NOAA, USGS, EPA, NPS

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2022



| NAME | LABEL | RISKRANK | TYPE | CONTAMINANTS_OF_CONCERN |
|----------------------|-------|----------|--------------------|---|
| LATICO | 11459 | HIGH | Generic - High | SITE SPECIFIC |
| CAJUN AUTOMOTIVE & | 11846 | MEDIUM | Auto/Boat Repair | OILS & GREASE, SOLVENTS, ACIDS, BASES, PAINTS, METALS, PHENOLS |
| PERFORMANCE | 12385 | MEDIUM | Auto/Boat Repair | OILS & GREASE, SOLVENTS, ACIDS, BASES, PAINTS, METALS, PHENOLS |
| MURPHY EXPRESS | 30068 | HIGH | UST Active | FUEL |
| Sewer Lift Station | 48021 | LOW | Sewer Lift Station | PATHOGENS, METALS, OILS & GREASE, SOLVENTS, DETERGENTS, SLUDGES, NITRATES |
| Stormwater Solutions | 48022 | HIGH | AST | FUEL, OILS, OTHER PETROLEUM PRODUCTS, VARIOUS COMMERCIALLY USED CHEMICALS, VARIOUS HAZARDOUS AND NONHAZARDOUS |
| Generator fuel tank | 48023 | HIGH | AST | FUEL, OILS, OTHER PETROLEUM PRODUCTS, VARIOUS COMMERCIALLY USED CHEMICALS, VARIOUS HAZARDOUS AND NONHAZARDOUS |
| Cemetery | 48024 | LOW | Cemetery | FORMALDEHYDE, FERTILIZERS, PESTICIDES, NITRATES |
| Futral Motor Sports | 48025 | MEDIUM | Auto/Boat Repair | OILS & GREASE, SOLVENTS, ACIDS, BASES, PAINTS, METALS, PHENOLS |

| NAME | LABEL | RISKRANK | TYPE | CONTAMINANTS_OF_CONCERN |
|----------------------|-------|----------|----------|---|
| Big Bad Ben Car Wash | 48026 | LOW | Car Wash | DETERGENTS, WAXES, SOLVENTS, METALS |
| Generator fuel tank | 48027 | HIGH | AST | FUEL, OILS, OTHER PETROLEUM PRODUCTS, VARIOUS COMMERCIALLY USED CHEMICALS, VARIOUS HAZARDOUS AND NONHAZARDOUS |

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Table 7: SPSOC Inventory

| NAME | LABEL | RISKRANK | TYPE | CONTAMINANTS_OF_CONCERN |
|----------------------|-------|----------|--------------------|---|
| EXPRESS I STOP | 10080 | LOW | Car Wash | DETERGENTS, WAXES, SOLVENTS, METALS |
| EXPRESS I STOP | 10085 | HIGH | UST Active | FUEL |
| TOWN OF WALKER | 10094 | LOW | Sewer Lift Station | PATHOGENS, METALS, OILS & GREASE, SOLVENTS, DETERGENTS, SLUDGES, NITRATES |
| HIT & RUN FOOD STORE | 10097 | HIGH | UST Active | FUEL |
| CIRCLE K | 10107 | HIGH | UST Active | FUEL |
| TEXACO SERVICE | 10115 | LOW | Car Wash | DETERGENTS, WAXES, SOLVENTS, METALS |
| TOWN OF WALKER | 10141 | LOW | Sewer Lift Station | PATHOGENS, METALS, OILS & GREASE, SOLVENTS, DETERGENTS, SLUDGES, NITRATES |
| ACADIANA MECHANICAL | 11450 | HIGH | AST | FUEL, OILS, OTHER PETROLEUM PRODUCTS, VARIOUS COMMERCIALLY USED CHEMICALS, VARIOUS HAZARDOUS AND NONHAZARDOUS |