Water Quality in Louisiana

Jesse Means
Water Quality Planning & Assessment Division
Office of Environmental Assessment
Louisiana Department of Environmental Quality

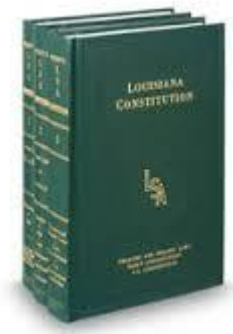
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIROSCHOOL

Today's Presentation

- DEQ Authority
- Water Quality Management Plan
- Water Quality Program
  - Standards
  - Meeting Standards
  - Compliance
  - Water Quality Assessment

DEQ's Legal Authority

i. Louisiana Environmental Quality Act (La. R.S. 30:2001 *et seq*)



Purposes: "A. The maintenance of a healthful and safe environment in Louisiana requires governmental regulation and control over the areas of water quality, air quality, solid and hazardous waste, scenic rivers and streams, and radiation. B. In order to accomplish these goals most efficiently, it is necessary to provide for comprehensive policies on a statewide basis to unify, coordinate, and implement programs to provide for the most advantageous use of the resources of the state and to preserve, protect, and enhance the quality of the environment in Louisiana."

DEQ'S GENERAL AREAS OF RESPONSIBILITY

- **Air Quality**
  - Permitting
  - Surveillance / Enforcement
  - Ambient Monitoring
  - Emission Inventory
  - State Implementation of Federal Standards
- **Water Quality**
  - Permitting
  - Surveillance / Enforcement
  - Ambient Stream Monitoring
- **Underground Storage Tanks**
  - Surveillance / Enforcement
  - Contractor Certification
- **Motor Fuel Trust Fund**
- **Waste Tire Program**
- **Emergency Response**
- **Radiation Protection**
- **Hazardous Waste Management**
  - Permitting
  - Surveillance / Enforcement
- **Solid Waste Management**
  - Permitting
  - Surveillance / Enforcement
- **Remediation Services**
  - Cleanup of Abandoned Sites
  - Brownfield Redevelopment
  - Environmental Impact Assessments
- **Community/Small Business Assistance**
  - State Revolving Loan Program
  - Economic Development Assistance
  - Environmental Education
  - Compliance Assistance
  - Nonpoint Source/Source Water Protection
- **Criminal Enforcement**
- **Beneficial Environmental Projects**
- **Accident Prevention**
- **Laboratory Accreditation**

Federal Statutes

- Clean Air Act
- Clean Water Act
- Safe Drinking Water Act
- Resource Conservation and Recovery Act (RCRA), Subtitle C (hazardous wastes)
- Resource Conservation and Recovery Act, Subtitle D (nonhazardous solid wastes)
- Atomic Energy Act
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, a/k/a the Superfund Law)

U.S. EPA implements these statutes with regulations, except for the Atomic Energy Act, which is implemented by the Nuclear Regulatory Commission.

Public Access to DEQ's Regulations

- Environmental Regulatory Code (ERC).
  - Hard copy
    - (Legal Affairs Division at (225) 219-3985)
  - DEQ's website
    - Pathway: http://www.deq.louisiana.gov, About LDEQ, Rules and Regulations
- Louisiana Administrative Code
  - (Office of State Register (225) 342-5015)

Water Quality Management Plan

- Primary document associated with water quality management, pollution control and planning activities.
- The goal is that the waters of the State meet established water quality standards, and thereby maintain all designated uses for each waterbody.

https://deq.louisiana.gov/resources/category/water-quality-management

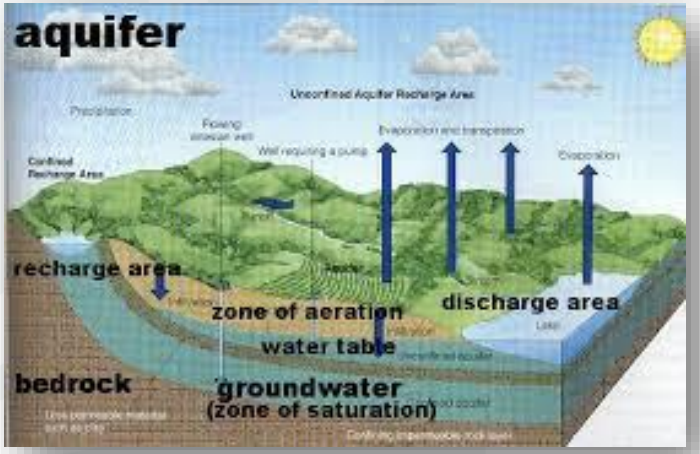
Water Quality Management Plan

- Vol. 1 – Continuing Planning Process
- Vol. 2 – Water Quality Regulations
- Vol. 3 – Permitting Guidance Document for Implementing the Louisiana Surface Water Quality Standards
- Vol. 4 – Basin/Subsegment Boundaries and Inventories
- Vol. 5 – Water Quality Assessment
- Vol. 6 – Nonpoint Source Management Plan
- Vol. 7 – Municipal Waste Treatment
- Vol. 8 – Total Maximum Daily Loads and Wasteload Allocations
- Vol. 9 – Surface Water Quality Standards Documentation and Implementation Procedures

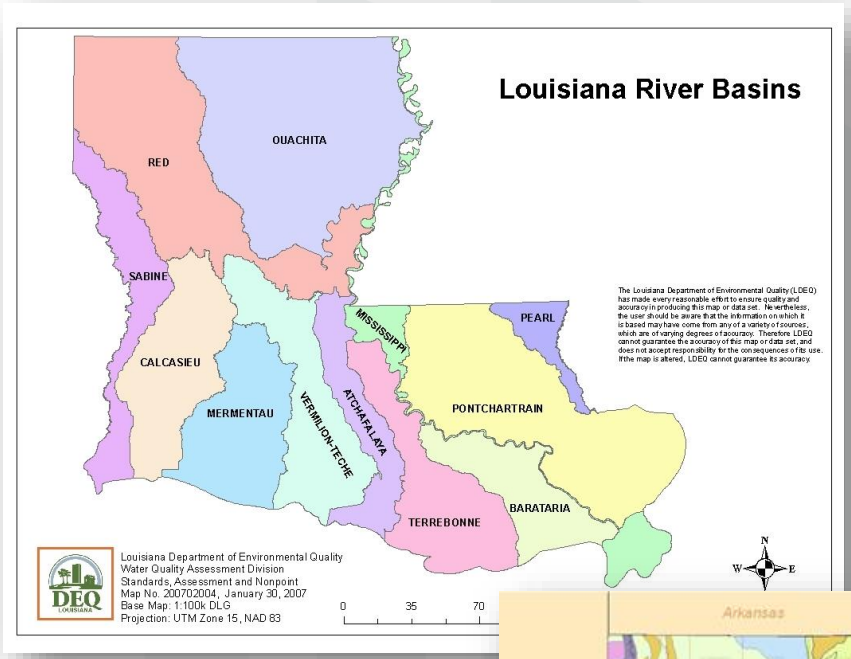
https://deq.louisiana.gov/resources/category/water-quality-management

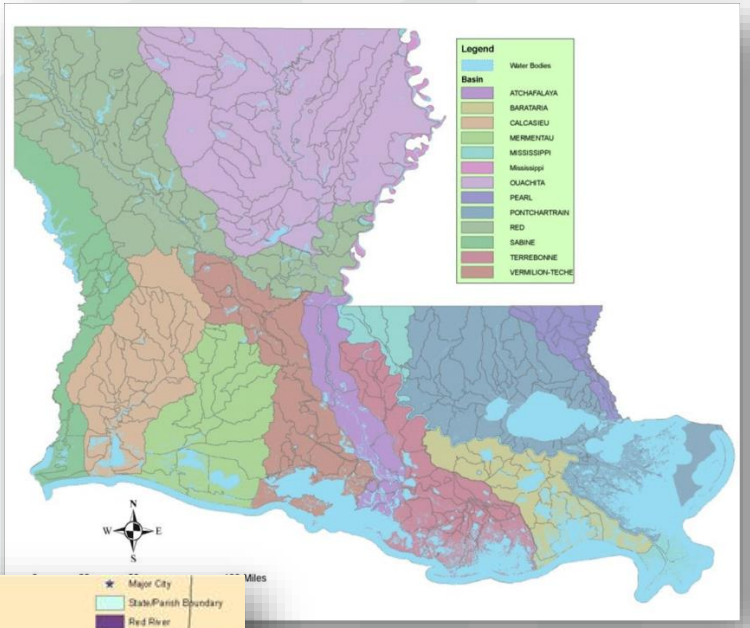
Water Quality Program

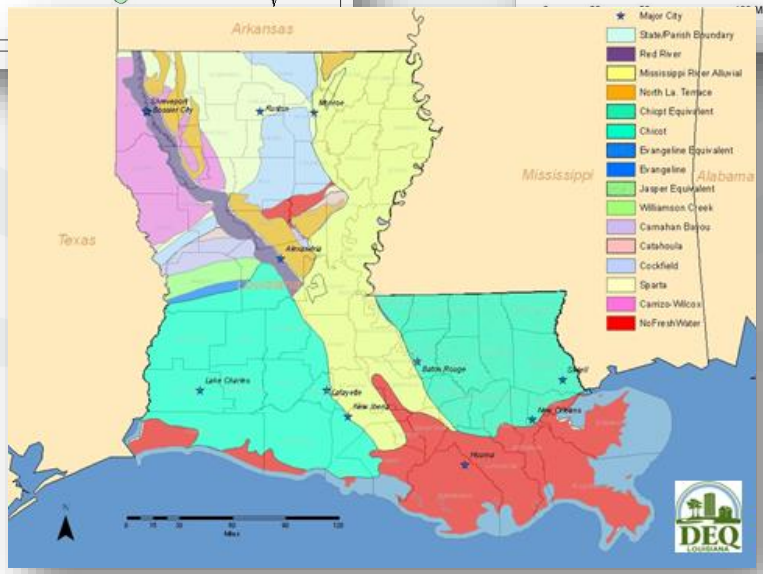
- The control of the introduction of pollutants into waters of the state
- Waters of the state includes all surface and underground waters within Louisiana
- Includes the following
  - Rivers, bayous, lakes, creeks, etc.
  - Aquifers, the water table
  - Intermittent streams
  - Man-made ditches and ponds (except those that are part of a waste treatment system)
- Public water systems regulated by the Louisiana Dept. of Health



Basins, Subsegments, Aquifers







LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Water Use Designations*

- Primary Contact Recreation (PCR) – all water bodies
- Secondary Contact Recreation (SCR) – all water bodies
- Fish and Wildlife Propagation – most water bodies
- Drinking Water Supply
- Oyster Propagation
- Agriculture
- Outstanding Natural Resource Waters (ONRW)

*For surface water

Water Quality Standards

- Provide protection and preservation of natural resources and aquatic ecosystems
- Protect the public health and welfare
- Enhance the quality of water
- Meet requirements of the Clean Water Act

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Water Quality Standards

- General Criteria
  - Aesthetics
  - Color
  - Floating, Suspended, and Settable Solids
  - Taste and Odor
  - Toxic Substances
  - Oil and Grease
  - Foaming or Frothing Materials
  - Nutrients
  - Flow
  - Radioactive Material
  - Biological and Aquatic Community Integrity
  - Other Substances and Characteristic
- Numerical Criteria
  - pH
  - Dissolved Oxygen (DO)
  - Temperature
  - Bacteria
  - Toxic substances
- Cleanup Standards for Groundwater

Water Quality Standards

General Criteria – Examples:

- No floating, suspended or settleable solids
- No taste or odor that would interfere w/potable water, or fish/shellfish
- No oil or grease in quantities large enough to interfere w/designated uses
- Color: shall not be increased significantly
- No persistent foaming or frothing materials

Water Quality Standards

Numeric Criteria – Examples:

- pH shall fall w/in range of 6.0 – 9.0, unless natural conditions exceed this range
- Chlorides: maximum concentration set on case-by-case basis. Example: Caney Lake criteria is 250 mg/l
- Dissolved Oxygen shall not fall below 5.0 mg/l in fresh water and coastal marine water bodies; or 4.0 mg/l in estuarine waters. With seasonal criteria exceptions.

Meeting the Standards
Point Sources

- A point source is a discernible conveyance, such as a pipe, ditch, channel, or container, from which pollutants are or may be discharged.

Meeting the Standards
Point Sources

- Water quality criteria (apply to a water body) are mainly implemented through conditions in discharge permits (apply to a specific facility), e.g. effluent limitations

- Unpermitted discharges of reportable quantities of pollutants to waters of the state are prohibited, regardless of their effect on water quality.

Meeting the Standards

Nonpoint Source

- A nonpoint source is a diffuse source of water pollution that does not discharge through a point source but instead flows over exposed natural or man-made surfaces such as agricultural or urban runoff and runoff from construction, mining, or silvicultural activities.

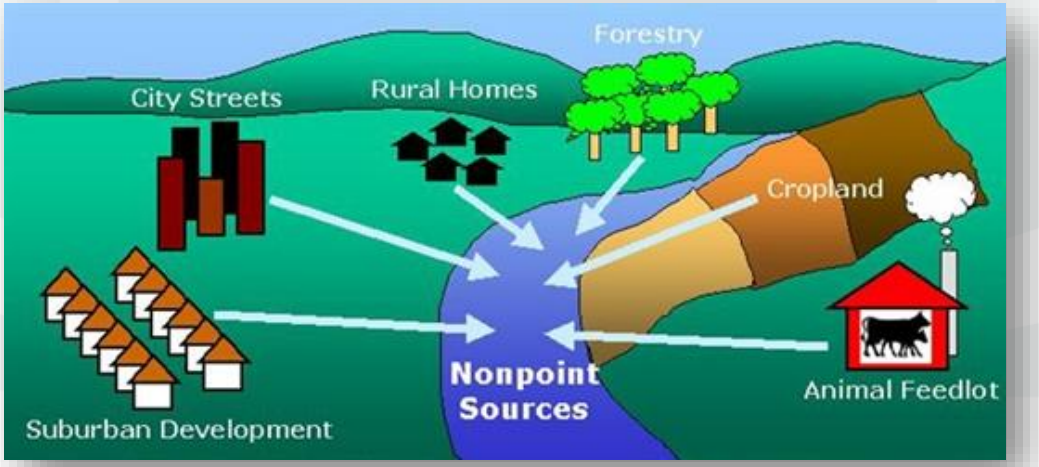
- Large percentage of water quality problems in Louisiana

Nonpoint Source

- General Categories of NPS Pollution
  - agriculture
  - silviculture (forestry related activities)
  - construction
  - urban run-off
  - resource extraction
  - land disposal
  - hydromodification
  - saltwater intrusion

Meeting the Standards
Nonpoint Source

- **Nonpoint-source discharges** are **<u>primarily</u>** controlled through voluntary Best Management Practices and public education.
- Multisector and construction permits



Nonpoint Source
CWA Section 319

https://www.deq.louisiana.gov/page/nonpoint-source

- NPS Management Program
  - Technical and financial assistance
  - Education
  - Training
  - Technology transfer
  - Demonstration projects
  - Monitoring
- Grants

Total Maximum Daily Load (TMDL)

- Section 303(d) CWA
- TMDL; a pollution budget

TMDL =
Waste allocation (point sources)
+
load allocation (Nonpoint and natural background sources)
+
Margin of safety

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Compliance

- Discharge Monitoring Reports
- Inspections
- Enforcement
- Water Quality Monitoring – surface and ground water
- Analytical Standards
- Standards Revisions
- Short-term activities-variances

Wastewater Issues/Violations

- Unpermitted Discharges
- Effluent Violations
- Records Management
- Reporting
- Spill Prevention and Control (SPC) Plans

MASTER GENERAL PERMIT
NUMBER: LAG530000

ACTIVITY NO: PER20060001

DEQ
LOUISIANA

OFFICE OF ENVIRONMENTAL SERVICES

Water Discharge Permit

MASTER GENERAL PERMIT NUMBER LAG530000

Class I Sanitary Discharge General Permit

In accordance with the Clean Water Act of 1987 and the Louisiana Environmental Quality Act (La. R.S. 30:2001, et seq.: "The Act") and the Rules effective or promulgated under the authority of the Act, this Louisiana Pollutant Discharge Elimination System General Permit is issued. This permit authorizes persons who meet the requirements of Part I.A and have been approved by the Office to discharge to waters of the State treated sanitary wastewater and/or other accepted wastewater types totaling less than 5,000 gallons per day maximum expected flow in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, and III of this permit.

This permit shall become effective on 12/1/07

This permit shall expire five (5) years from the effective date of the permit.

Issued on 11/8/07

Chuck Carr Brown, Ph. D.
Assistant Secretary

GALVEZ BUILDING • 602 N. FIFTH STREET • P.O. BOX 4313 • BATON ROUGE, LA 70821-4313 • PHONE (225) 219-3181

Unpermitted Discharges

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
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than 5,000 gallons per day maximum expected flow from the specified facility in accordance with the following limitations:

SCHEDULE A[1] – FINAL EFFLUENT LIMITATIONS

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	WEEKLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
FLOW – GPD	N/A	REPORT	1/12 months	Estimate
BOD_5, mg/L	N/A	45	1/12 months	Grab
TSS[2], mg/L	N/A	45	1/12 months	Grab
FECAL COLIFORM[3&4], Colonies / 100 ml	N/A	400	1/12 months	Grab
pH[5], standard units	---	---	1/12 months	Grab

1 Upon written notification of coverage under this permit, the permittee shall comply with the effluent limitations schedule(s) stated in Appendix A of this permit. Schedule A will apply to facilities that discharge less than 2,500 GPD and have no food service waste or Laundromat wastewater.

2 If the treatment unit is an oxidation pond, the weekly average limitation shall be 135 mg/L.

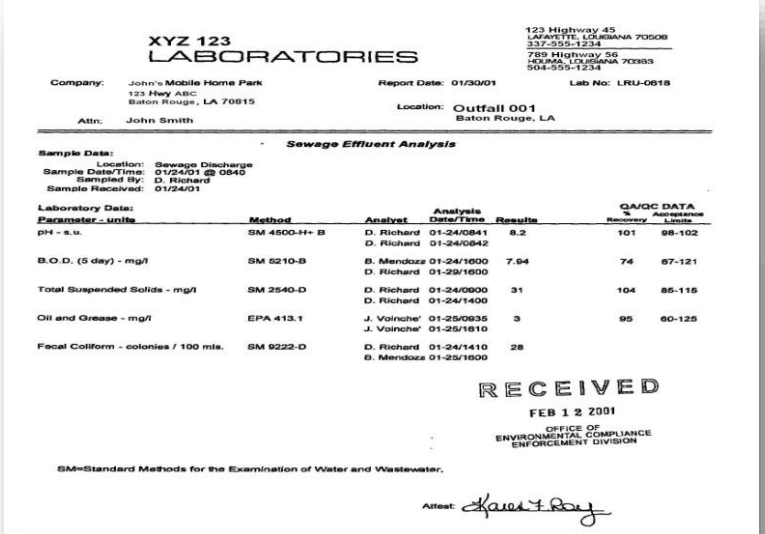
3 If chlorination is chosen as the disinfection method, see Part II, Section H.

4 If the discharge is located in an oyster propagation area, fecal coliform limitations will be 14 colonies/100 mL monthly average and 43 colonies/100 mL weekly average. Appendix A states if the more stringent limitations apply.

5 The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units. The permittee shall report on the Discharge Monitoring Reports both the minimum and maximum instantaneous pH values measured.

There shall be no discharge of floating solids or visible foam in other than trace amounts, nor of free oil or other oily material, nor of toxic materials in quantities such as to cause acute toxicity to aquatic organisms. Furthermore, there shall be no visible sheen or stains attributable to this discharge.

Effluent Violations



XYZ 123
LABORATORIES

123 Highway 45
LAFAYETTE, LOUISIANA 70508
337-555-1234

789 Highway 56
HOUMA, LOUISIANA 70363
504-555-1234

Company: John's Mobile Home Park
123 Hwy ABC
Baton Rouge, LA 70815

Report Date: 01/30/01
Lab No: LRU-0618

Attn: John Smith

Location: Outfall 001
Baton Rouge, LA

Sewage Effluent Analysis

Sample Data:
Location: Sewage Discharge
Sample Date/Time: 01/24/01 @ 0840
Sampled By: D. Richard
Sample Received: 01/24/01

Laboratory Data:

Parameter - units	Method	Analyst	Analysis Date/Time	Results	QA/QC DATA % Recovery	QA/QC DATA Acceptance Limits
pH - s.u.	SM 4500-H+ B	D. Richard	01-24/0841	8.2	101	98-102
		D. Richard	01-24/0842			
B.O.D. (5 day) - mg/l	SM 5210-B	B. Mendoza	01-24/1600	7.94	74	67-121
		D. Richard	01-29/1600			
Total Suspended Solids - mg/l	SM 2540-D	D. Richard	01-24/0900	31	104	85-115
		D. Richard	01-24/1400			
Oil and Grease - mg/l	EPA 413.1	J. Voinche'	01-25/0935	3	95	80-125
		J. Voinche'	01-25/1610			
Fecal Coliform - colonies / 100 mls.	SM 9222-D	D. Richard	01-24/1410	28		
		B. Mendoza	01-25/1600			

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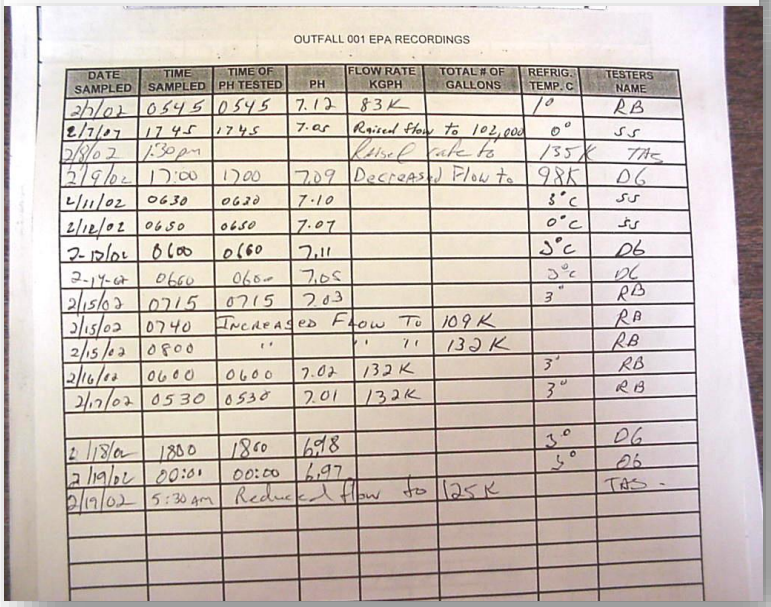
ENVIRONMENTAL COMPLIANCE
ENFORCEMENT DIVISION

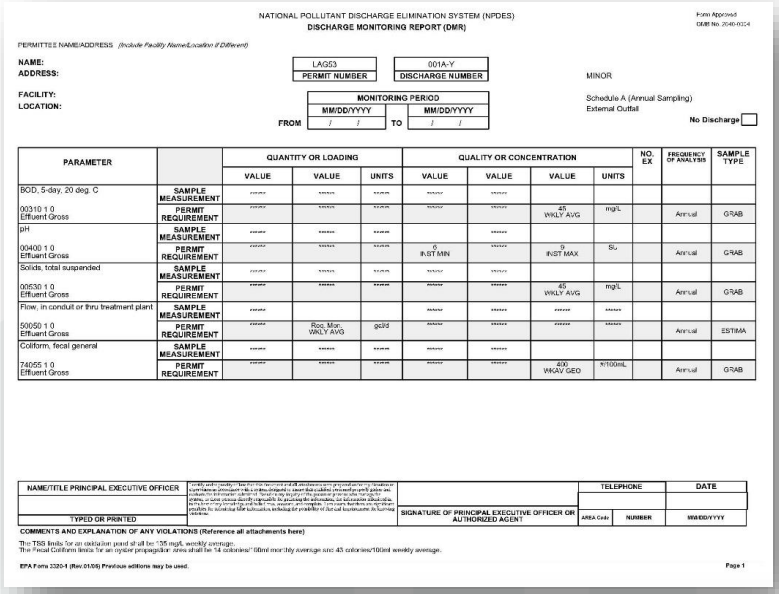
SM=Standard Methods for the Examination of Water and Wastewater.

Attest: David T Roy



OUTFALL 001 EPA RECORDINGS

DATE SAMPLED	TIME SAMPLED	TIME OF PH TESTED	PH	FLOW RATE KGPH	TOTAL # OF GALLONS	REFRIG. TEMP. C	TESTERS NAME
2/1/02	0545	0545	7.12	83K		1°	RB
2/1/02	1745	1745	7.05	Raised flow to 102,000		0°	SS
2/8/02	1:30pm			Reduced rate to		135K	TAS
2/9/02	17:00	1700	7.09	Decreased Flow to		98K	DG
2/11/02	0630	0630	7.10			8°c	SS
2/12/02	0650	0650	7.07			0°c	SS
2-13-02	0600	0600	7.11			5°c	DG
2-14-02	0660	0600	7.05			5°c	DG
2/15/02	0715	0715	7.03			3°	RB
2/15/02	0740	INCREASED	FLOW	TO	109K		RB
2/15/02	0800	"		" "	132K		RB
2/16/02	0600	0600	7.07	132K		3°	RB
2/17/02	0530	0530	7.01	132K		3°	RB
2/18/02	1800	1800	6.98			3°	DG
2/19/02	00:01	00:00	6.97			5°	DG
2/19/02	5:30 AM	Reduced	flow	to	125K		TAS



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME:
ADDRESS:

LAG53 PERMIT NUMBER | 001A-Y DISCHARGE NUMBER | MINOR

FACILITY:
LOCATION:

MONITORING PERIOD
FROM MM/DD/YYYY / / TO MM/DD/YYYY / /

Schedule A (Annual Sampling)
External Outfall
No Discharge ☐

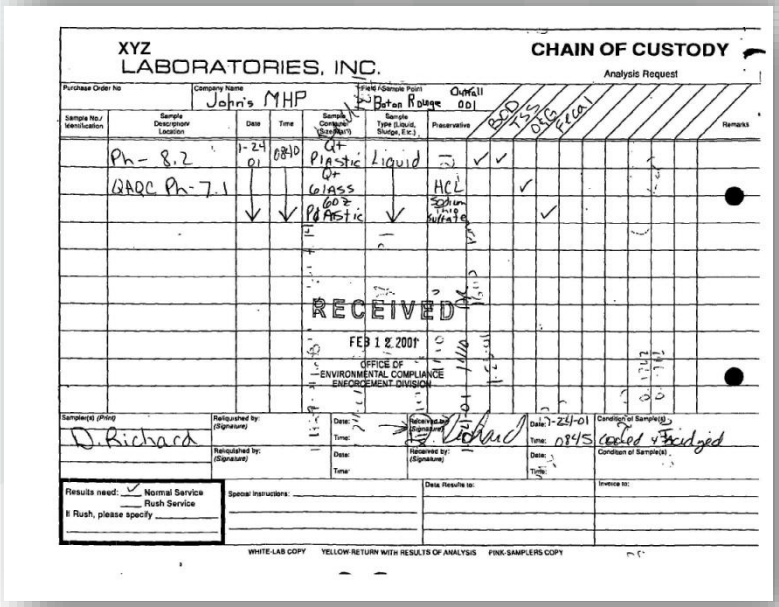
PARAMETER		QUANTITY OR LOADING VALUE	QUANTITY OR LOADING VALUE	QUANTITY OR LOADING UNITS	QUALITY OR CONCENTRATION VALUE	QUALITY OR CONCENTRATION VALUE	QUALITY OR CONCENTRATION VALUE	QUALITY OR CONCENTRATION UNITS	NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****			
00310 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	45 WKLY AVG	mg/L		Annual	GRAB
pH	SAMPLE MEASUREMENT	*****	*****	*****		*****					
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6 INST MIN	*****	9 INST MAX	SU		Annual	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****				
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	45 WKLY AVG	mg/L		Annual	GRAB
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****			*****	*****	*****	*****			
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	Rec. Mon. WKLY AVG	gpd	*****	*****	*****	*****		Annual	ESTIMA
Coliform, fecal general	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****					
74055 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	400 WKAV GEO	N/100mL		Annual	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

The TSS limits for an oxidation pond shall be: 135 mg/L weekly average.
The Fecal Coliform limits for an oxyen propagation area shall be "14 colonies/" 100ml monthly average and 43 colonies/100ml weekly average.

EPA Form 3320-1 (Rev.01/06) Previous editions may be used. Page 1



XYZ
LABORATORIES, INC.

CHAIN OF CUSTODY

Analysis Request

Purchase Order No | Company Name: John's MHP | Field/Sample Point: Outfall 001 Baton Rouge

Sample No./ Identification	Sample Description/ Location	Date	Time	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	BOD	TSS	DEG	Fecal	Remarks
	Ph- 8.2	1-24-01	0840	Qt Plastic	Liquid		✓	✓			
	QAQC Ph-7.1	↓	↓	Qt Glass 607 Plastic	↓	HCl Conc Sulfuric		✓			

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ENVIRONMENTAL COMPLIANCE
ENFORCEMENT DIVISION

Sample(s) (Print): D. Richard

Relinquished by: (Signature) | Date: | Time:
Received by: (Signature) | Date: 1-24-01 | Time: 0845 | Condition of Sample(s): Cooled & Iced
Relinquished by: (Signature) | Date: | Time:
Received by: (Signature) | Date: | Time:

Results need: ✓ Normal Service ___ Rush Service
If Rush, please specify

Special Instructions:

Data Results to:

Invoice to:

WHITE-LAB COPY YELLOW-RETURN WITH RESULTS OF ANALYSIS PINK-SAMPLERS COPY

Records Management

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIROSCHOOL

Non-Compliance Report Form

Facility Name: _____ **Date:**_____

Facility Address: _____

Person Reporting: _____ **Title:** _____

Phone Number: _____ **Parish:** _____

LPDES Number: LA_____ **AI#:** _____

Receiving Waters:_____

(Refer to Subject Line on Permit Cover Letter)

Date of Non-Compliance	Parameter/ Description (e.g. TSS, Overflow)	Outfall No./ Location (e.g. 001, 123 Main St.)	Permit Limit	Reported Value

Cause of Violation(s): _____

_____

_____

_____

_____

Corrective Action/Preventative Measures/Remediation: _____

_____

_____

_____

_____

_____

Please mail non-compliance reports to the following address:

Office of Environmental Compliance
Attn: Permit Compliance Unit
P.O. Box 4312
Baton Rouge, LA 70821-4312

Reporting

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIROSCHOOL

Spill Prevention and Control (SPC) Plans

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIROSCHOOL

“Traditional” Enforcement Tools

- Compliance Order (CO)
- Consolidated Compliance Order and Notice of Potential Penalty (CONOPP)
- Notice of Corrected Violation (NOCV)
- Penalty Assessment (PA)
- Administrative Order (AO)
- Cease and Desist Order (CDO)

Alternative Enforcement Tools

- Settlement Agreements
- Beneficial Environmental Projects (BEPs)
- Expedited Penalty Agreements
- Compliance Assistance

Water Quality Assessment

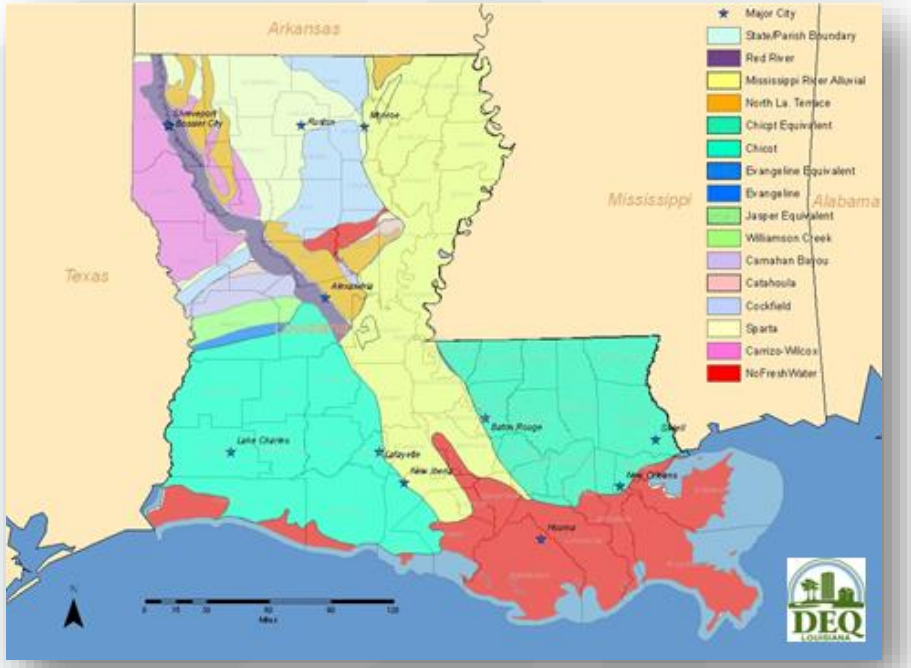
Water Sampling

- Over 66,294 miles of rivers and streams
- 1,078,031 acres (1,684 square miles) lakes and reservoirs
- 5,550,951 acres (8,673 square miles) fresh and tidal wetlands
- 4,899,840 acres (7,656 square miles) estuaries
- 14 major aquifer/aquifer systems

Water Quality Assessment

Integrated Report

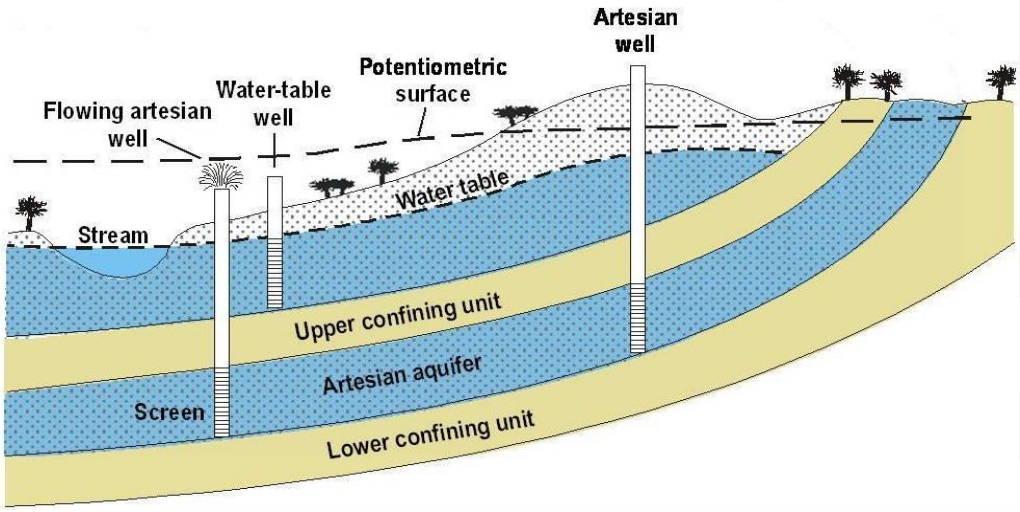
- Ambient water quality monitoring – surface and ground water
- 499 subsegments
- Common hydrogeologic settings



Overall Ground Water Quality

Statewide Summary for Major Aquifers/Aquifer Systems

- Good quality considering health-based parameters
- Aesthetic parameters
  - Youngest aquifers poorest quality (Mostly Shallow Aquifers - Pleistocene)
  - Mid age tend to be best quality (Deeper Aquifers - Pliocene & Miocene)
  - Oldest aquifers somewhere in between (Mixed Depth – Eocene/Paleocene)



LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIROSCHOOL

Summary/Questions

- DEQ Authority/Rule Making
- Water Quality Management Plan
- Water Quality Program
  - Standards
  - Permitting
  - Nonpoint Source
  - Environmental Violations
  - Enforcement
  - Groundwater Assessment
- Questions