

Ground Water Resources Commission Meeting

Monday, March 14, 2011



Mr. John Adams DNR Office of Conservation

Adoption of Meeting Summary October 6, 2010



Mr. Ryan Seidemann

Office of the Louisiana Attorney General

Surface Water AG Opinions Update



The Sale of the State's Running Waters: Recent Attorney General's Opinions



Ryan M. Seidemann, MA, JD, RPA
Section Chief, Lands & Natural Resources
Louisiana Department of Justice





- Alligator Bayou in Red River Parish
- Not State-claimed water bottom
- Must authority be sought from both riparian owners to withdraw running surface water?
- Must both riparian owners be compensated for withdrawals?
- What authority does the State have to regulate withdrawals?

- A landowner on one side of the bayou witnessed the withdrawal of nearly all of the running water from the bayou via a pump.
- Under the Civil Code, running water is not allowed to be taken out of a channel in a volume that would impair the rights of any riparian owners.
- A riparian owner may access and "use" the running water for his estate, but the water remains a public thing owned by the State under Louisiana law.
- Riparian owners only have the right to physically access the water for the purposes contemplated by La. R.S.
 9:1101 and to use the water for reasonable agricultural, aquacultural, and other riparian uses.

- Because the State owns the running water, the question of whether both landowners should be compensated for the water drained from Alligator Bayou is an important one.
- However, because the water, itself, is owned by the State, this question does not involve compensation for the withdrawal of the water, but rather for any damages caused to the riparian landowners as a result of the withdrawal of the water by one landowner and the inability of the other riparian landowners to use and/or enjoy the water.
- The riparian owner can, however, charge for the necessary access to his property to facilitate such State sales and uses.
- The calculation of any damages of this sort and a proper determination of what or who caused such injuries constitutes a private dispute.

- Who has the authority to issue permits for the draining of a body of water?
 - Act 955 of 2010 expressly provides the Secretary of DNR with the ability to enter into cooperative endeavor agreements with any person or entity seeking to withdraw running surface water.
- If the company removing the water acted of its own accord without the State's permission, what recourse does the State have?
 - The State may seek either recompense for an unauthorized use of water or injunctive relief to stop an ongoing unauthorized use of water.
 - Any such action would necessarily begin with a determination by DNR that an unauthorized use has occurred. The reason for this is that DNR is the agency charged with managing the State's natural resources, including its running waters by virtue of La. R.S. 36:351 and because it is the permitting agency identified by Act 955. Upon a determination that such an unauthorized use has occurred, either the local district attorney or the AG has the authority to pursue criminal and/or civil actions against the violator.





- Cane River Lake and Cane River Water System in Natchitoches Parish
- May the Commission regulate the removal of water from the lake when the lake reaches a certain level below its pool stage?
- May the Commission regulate and/or enjoin the pumping of water from the lake by a non-riparian landowner?

- La. R.S. 34:3269(6) provides the Cane River Waterway District with the authority:
 - "To effectuate and maintain proper depths of water to accommodate the business of the commission, and to regulate the use of water from the waterway."
- This authority establishes regulatory control over the waters within the District, but does not grant the District any rights with regard to actually charging for the withdrawal of and/or selling the waters at issue.
 - Therefore, while the District holds regulatory authority over the waters within its District, it should consult or notify DNR of any issues involving the withdrawal and/or sale of surface water from Cane River Lake by non-riparian landowners

- Riparian landowners clearly have the ability to withdraw and/or use the running waters for the benefit of their estate.
 - Not in a volume that will impair the rights of any riparian owners.
 - Not in such a manner that will abrogate other laws (e.g., the District's authority to regulate the Cane River Lake).
 - Such uses must also not unduly or unreasonably impair the resource itself under La. Const. Art. IX, § 1, or amount to such a volume that would constitute a divestiture of State things in violation of La. Const. Art. VII, § 14 (A).
- Riparian owners have the right to physically access the public waters, like Cane River Lake, for the purposes contemplated by La. C.C. Art. 657 and La. R.S. 9:1101, and to use these waters for reasonable agricultural, aquacultural, and other riparian uses pursuant to La. R.S. 9:1104.
 - The District's authority to control the use of the waters of Cane River Lake is a regulatory function that, in essence, may encumber certain property rights established in the Civil Code. This encumbrance is for the benefit of all landowners around the lake.

Ground Water Resources Program Update



Mr. Gary Snellgrove DNR Office of Conservation

- Evolution of the Water Well Driller Program
- Sparta Aquifer La. USGS Observation Well Water Level Update
- Katrina & Rita Water Well damage OCD DRU Funding Update
 - Haynesville Shale Frac Water Supply Implementation Update
 - •ACT 955 CEA Process Update Mr. Lou Buatt
- Statewide Water Well Notification Audit & Enforcement Update
 - Public Outreach and Education



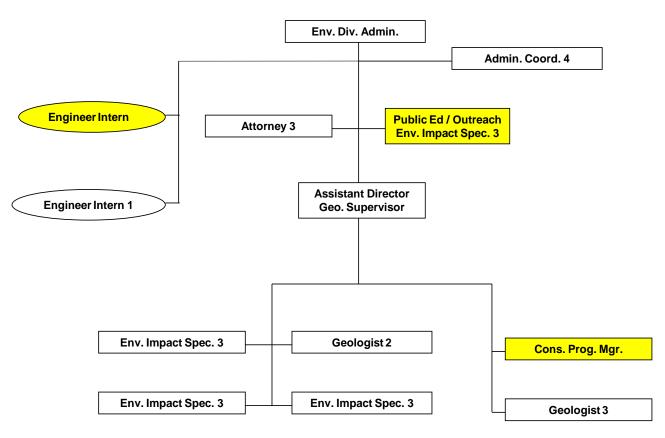
Evolution of the Water WellDriller Program

Recent Major Accomplishments:

- Division Staff Reorganization
- Regulatory Amendment Activity

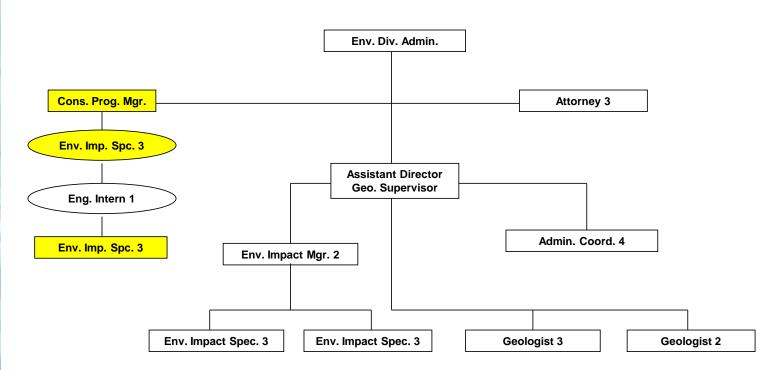


Environmental Division (Before Jan 2011)





Environmental Division (After Jan 2011)





Evolution of the Water WellDriller Program

Regulatory Amendment Activity

Title 56 – Driller Registration

Administrative Revisions GPS Lat. / Long.

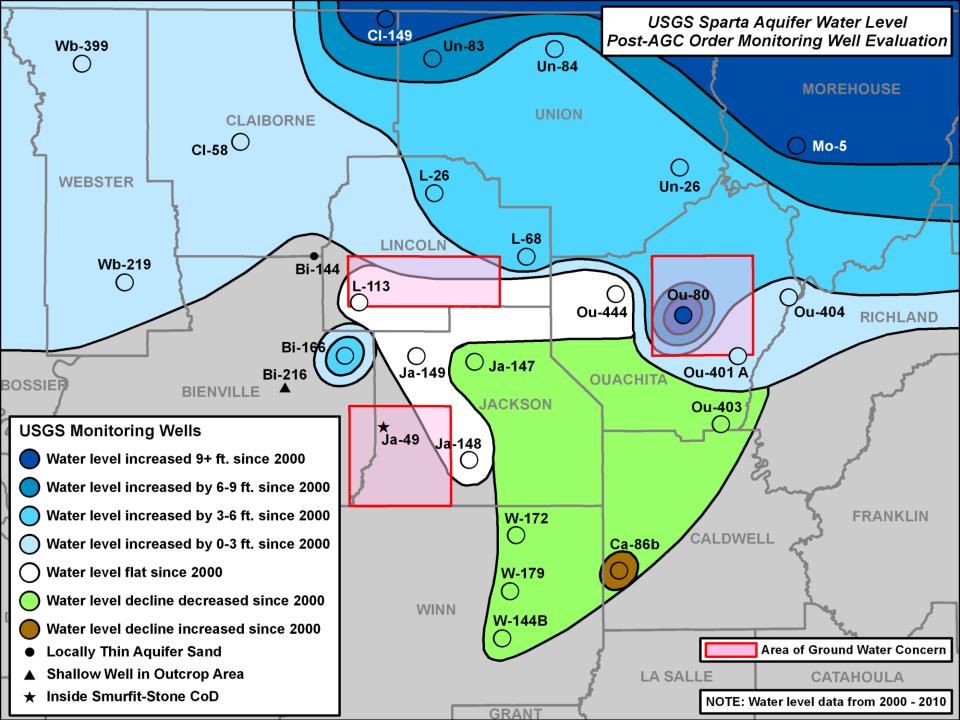
Title 43 – GW Mgmt. Regulations

Other Proposed Title 56 Amendments



Sparta Aquifer USGS Water Level Update





Sparta Aquifer USGS Water Level Update Louisiana Contributions to Water Level Improvement

- 1. 1980's legislation requiring water well registration, well construction and driller licensing.
- 2. Ground water management legislation from 2001 to present.
- 3. Implementation and enforcement of the Office of Conservation Ground Water Resources Program.
- 4. 2005 Office of Conservation Order establishing the three Sparta aquifer areas of ground water concern.
- 5. Industry Conservation Practices, e.g., Graphic Packaging.
- 6. Legislation creating the Sparta Ground Water Commission.
- 7. Sparta Ground Water Commission public education and outreach activities.
- 8. Louisiana Tech public education and outreach activities.
- 9. Collectively, all other federal, state, local, and media public education and outreach activities, e.g., Conservation, DEQ, USGS, LGS, NRCS, LSU AGCenter, LRWA, Office of Public Health, Ruston Leader, City of West Monroe, etc.



USGS Observation Well Bi-144 Update

History:

- Alabama Water Systems voluntarily transferred ownership to USGS in 1970
- •Water level periodically taken and reported by USGS since 1970

Issue:

Increased rate of water level decline (greater than ~1.5' per year)

~15' water level decline from Sep 2009 to Nov 2010

Agency Findings to Date:

- Well condition is good, recently verified by USGS
- No active unregistered wells were found nearby
- No regional well production or water quality problems have been reported
- Water level has stabilized from Nov 2010 to present
- •Geologic cross-sections show the presence of thinner aquifer sands / thicker clay layers



USGS Observation Well Bi–144 Update

Possible Cause:

Due to a combination of three conditions:

- Local aquifer limitations
- •Regional drought causing increased water pumping from existing well owners
- Additional regional water withdrawal from AGS and the Town of Arcadia

Conclusion:

- Water level has stabilized
- •Bi-144 will continue to be closely monitored



Hurricanes Katrina & Rita Water Well Damage Assessment

OCD Disaster Recovery Unit

- 1. Pre-Application Approved
- 2. Application Approved
- 3. ERR Exempt. Cert. Issued 2/12/11
- 4. Application Amendment Underway
- 5. Contract Procurement April 2011



BOBBY JINDAL GOVERNOR

State of Louisiana

SCOTT A. ANGELLE SECRETARY

DEPARTMENT OF NATURAL RESOURCES OFFICE OF CONSERVATION

JAMES H. WELSH COMMISSIONER OF CONSERVATION

March 25, 2010

Mr. Patrick Forbes
Disaster Recovery Infrastructure Manager
Louisiana Recovery Authority
P.O. Box 94095
Baton Rouge, LA 70804

Re: Water Well Damage Assessment Report Request for Corrective Action Funding

Dear Mr. Forbes:

Enclosed for your review is a copy of the final summary report provided to our office by GEC, Inc. concluding their contract obligations to assess water well damage caused by Hurricanes Katrina and Rita. The report identified damaged water wells and prioritized wells by their potential to cause environmental harm from downward migration of surface water contaminants into the groundwater aquifer. Briefly, the report identified 20 wells as high risk and 154 wells as moderate risk that our agency is currently focus on mitigating.

The estimated cost range for a licensed water well driller to plug and abandon a 2" to 4" PVC domestic water well approximately 200 feet deep in a location that is reasonably accessible is approximately \$7 to \$10 per foot plus 10% for mobilization and demobilization. A 4" PVC domestic well at 200 feet deep in a land accessible location is estimated to cost approximately \$2,200. The total estimated cost to plug and abandon all 174 wells identified as high and moderate risk at \$2,200 each is \$382,800.

Conservation respectfully requests Louisiana Recovery Authority's assistance with providing our agency funding up to the \$383,000 which is the estimated amount needed to mitigate the potential environmental risk to groundwater resources posed

Environmental Division

Post Office Box 94275 • Baton Rouge, Louisiana 70804-9275 • 617 North 3rd Street • 9th Floor • Baton Rouge, Louisiana 70802

Phone (225) 342-8244 • Fax (225) 242-3505 • www.dnr.state.la.us/conservation



Haynesville Shale Frac Water

Mandatory Drilling & Frac Water Supply Source and Volume Reporting

Actions of the Commissioner:

- 1. Requires operators to report water sources and volumes
- 2. Issued on September 15, 2009
- 3. Enforceable effective October 1, 2009
- 4. Revised form on March 1, 2010
- 5. Revised form on February 25, 2011
- 6. Provides valuable groundwater resource management tool
- 7. Statistics



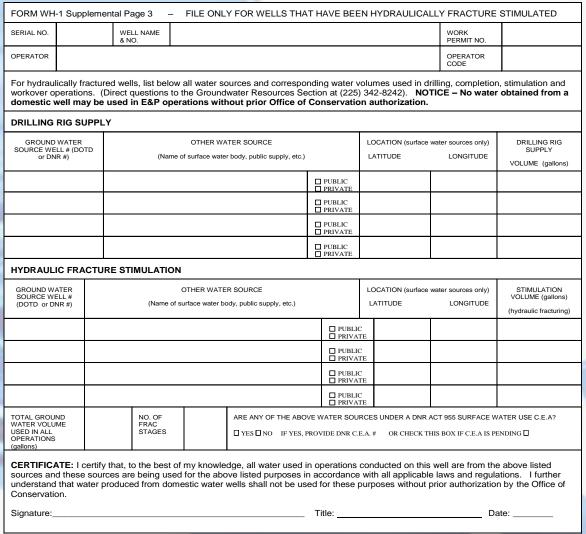
Haynesville Shale Frac Water

Mandatory Drilling & Frac Water Supply Source and Volume Reporting

Form Rev. 2/25/2011

Surface Water Supply Tracking:

- Public v. Private Sources
- CEA Sources

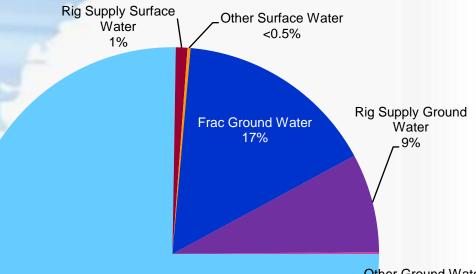




Haynesville Shale Natural Gas Well Development Drilling and Stimulation Operations

Reported Water Usage from 10/1/2009 to 2/1/2011 WH-1 Information

Source	Volume		
	(Gallons)		
Frac Groundwater	810,384,455		
Frac Surface Water	3,340,652,866		
Drilling Rig Groundwater	395,802,431		
Drilling Rig Surface Water	59,403,197		
Other Groundwater	24,403,351		
Other Surface Water	13,917,380		



Other Ground Water 1.0%

As of 2/1/2011 819 Reporting wells 1634 Total work permits Frac Supply Surface Water 72%



Mr. Louis E. Buatt

DNR Assistant Secretary

ACT 955 CEA Process Update





Louisiana Department of Natural Resources

DNR'S SURFACE WATER MANAGEMENT INITIATIVE

UPDATE TO THE LOUISIANA GROUND WATER RESOURCES COMMISSION

Louis E. Buatt Assistant Secretary



- Memorandum of Understanding
- Usage Tracking
- Cooperative Endeavor Agreements
- Monitoring Network and Data Needs



MEMORANDUM OF UNDERSTANDING

- Agreement between DNR, DEQ and DWF
- Coordination with OCPR, DHH, DOTD and others, as needed

Review and Comment on:

- U.S. Army Corps of Engineers' Section 10 Permits
- Caddo Lake Environmental Flow Regime (TCEQ)
- Others, as needed



Surface Water Usage

Most requests for water usage, since Act 955 was signed, have occurred in NW Louisiana, and are associated with the Haynesville Shale Play

Source of Information:

- USACE Section 10 permits
- DNR-Office of Conservation WH-1 forms
- Cooperative Endeavor Agreements



Cumulative Known Surface Water Used (July, 2010 to Jan, 2011)

- Based upon USACE Section 10 Permit:
 - Est. 575,000,000 gallons (23 permits)
- Based upon WH-1 reports:
 - > App. 215,000,000 gallons (State's running water)
 - > App. 1,150,000,000 gallons (total surface water)
- Based upon voluntary Cooperative Endeavor Agreements:
 - > App. 62,000,000 gallons (4 agreements)



Waterbody-Specific Usage

Water Body	WH-1	#	Sec. 10	#	CEA	#
Bayou Chicot	6,557,544	1				
Bayou Pierre	27,855,766	5	>30,400,000	6		
Clear/Smithport Lakes	8,878,327	1	>6,3000,000		38,640,000	2
Coushatta Bayou	4,362,624	1				
Flat River Ditch	4,489,968	1				
Grand Bayou	2,950,038	1				
Grand Bayou Reservoir	26,191,452	5				
Lake Bistineau	4,250,232	1	unknown	3		
Loggy Bayou	5,556,012	1	>8,400,000	1		
Moran Creek	9,671,918	2				
Red River	70,456,453	10	>16,800,000	8		
Wallace Lake/Bayou	8,678,943	2	>12,600,000	2	23,520,000	1
Unnamed Bayou/Creek	48,315,624	10		2		
Total	228,214,901	41	>74,500,000	23	62,160,000	3



Entity-Specific Water Use (Source: WH-1)

Firm	Number of Events	Volume (gal)	Cooperative Endeavor Agreements
Entity #1	1	4,250,232	
Entity #2	11	53,418,330	1
Entity #3	8	42,867,174	
Entity #4	8	37,232,686	2
Entity #5	2	8,323,140	
Entity #6	1	7,810,950	
Entity #7	9	60,916,224	
Entity #8	1	1,017,547	
Entity #9	1	5,523,000	
Entity #10	2	6,855,618	
	44	228,214,901	3



Louisiana Legislature ACT 955 of 2010

Voluntary
Cooperative Endeavor
Agreements
To Withdraw
Running Surface Water



The Attorney General has identified the management of "running waters of the state" as a public trust stewardship responsibility under the state Constitution. The running water of the state is to be managed by the state, and cannot be "donated."

AG Opinion 08-0176 (March 17, 2010)

HCR 1 instructs the Ground Water Resources Commission to study and to provide recommendations for the optimal management of the states ground and surface water resources.

Act 955 created a voluntary and temporary mechanism, whereby persons or entities seeking to be water users could enter into an agreement for the withdrawal of surface water that was preapproved by the Attorney General and was protective of the State's resource and the environment.



The Attorney General has further opined:

"It is our opinion that the State may seek either recompense for an unauthorized use of water or injunctive relief to stop an ongoing unauthorized use of water. Any such action would necessarily begin with a determination by DNR that an unauthorized use has occurred. The reason for this is that DNR is the agency charged with managing the State's natural resources, including its running waters by virtue of La. R.S. 36:351 and because it is the permitting agency identified by Act 955."

AG Opinion 10-0173 (November 23, 2010)



Implementation of Act 955

Development of a process including:

- Preparation of forms and agreement
- Approval of the forms and agreement by the Mineral Board
- Organization of a review process
 - Hydrologic, ecologic, aquatic and environmental review:
 - ✓ Coordinate with cooperating agencies
 - ✓ Hiring a hydrologist to facilitate the implementation
 - Economic review process
 - Contracting with the LSU-Center for Energy Studies
- Development of an electronic submittal process through SONRIS
- Development of a tracking system



Application Content

- Plan of Water Use:
 - Specific description of the withdrawal event(s)
 - Detailed description of how and when the water is used, by whom and for what purpose(s)
 - Specific description of waterbody condition, current use, impairment, and other relevant scientific information
 - Description of potential impact, and proposed monitoring and mitigating activities
 - Supporting documentation
- Economic Impact Report
 - Detailed description of how the state will be compensated
 - Detailed description of social and economic benefits
 - Detailed project-specific cost breakdown



Application Process

- Applicant accesses SONRIS
- Applicant uploads the application material:
 - Plan of Water Use
 - Economic Impact Report
 - Supporting documents
- Application is checked for completeness
- Application is automatically delivered to reviewers with a 7day turn-around deadline
- LSU Economist submits a recommendation
- DNR Hydrologist submits a recommendation (yes/yes with conditions/no)
- Cooperative Endeavor Agreement is issued, if approved



Review Process

- Plan of Water Use:
 - DNR-OCM (completeness)
 - DNR-OSEC (hydrologic issues)
 - DNR-OC (groundwater issues)
 - > DEQ (water quality issues)
 - DWF (ecological, environmental and aquatic issues)
 - > DHH (drinking water issues)
 - OCPR (consistency with the Master Plan)
 - Others, as needed
- Economic Impact Report
 - DNR-OCM (completeness)
 - LSU-Center for Energy Studies (economic assessment)



Outreach Effort

Presentations:

- Louisiana Oil and Gas Association
- Louisiana Chemical Association
- Louisiana Solid Waste Association
- Others

Supporting Material:

- Preparation of an informational pamphlet
- Creation of a fill-in-the-blank form



Louisiana's Surface Water Management Initiative

> Act 955 of 2010 a voluntary process

"Act 955 of 2010 expressly provides the Secretary of DNR with the ability to enter into cooperative endeavor agreements with any person or entity seeking to withdraw running surface water."

Cooperative Endeavor Agreements Received and Issued

- Received 13 applications
- 9 applications remain incomplete
- 4 Cooperative Endeavor Agreements were reviewed and issued
- Cooperative Endeavor Agreements tracking with USACE Section 10 permits and WH-1 reports, and documentation is on-going



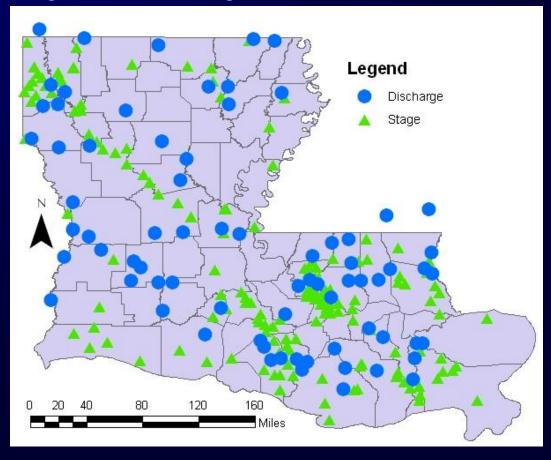
SURFACE WATER MANAGEMENT Importance of Hydrologic Data

- Plan of Water Use requires the applicant to submit hydrologic data (e.g. water flow/discharge) specific to the waterbody being used and the timing of the event.
- USGS and USACE have collected data at 1,615
 locations throughout Louisiana. Of these only 246
 are still active. Of the 246 active gaging stations, only
 73 measures flow (e.g. discharge).
- OCPR maintains another 6,592 data-collecting stations within the coastal zone. Of these stations 1,920 collect hydrographic data, 1,208 are active, 512 measure stage, and 2 measure discharge.



Existing Gaging Network

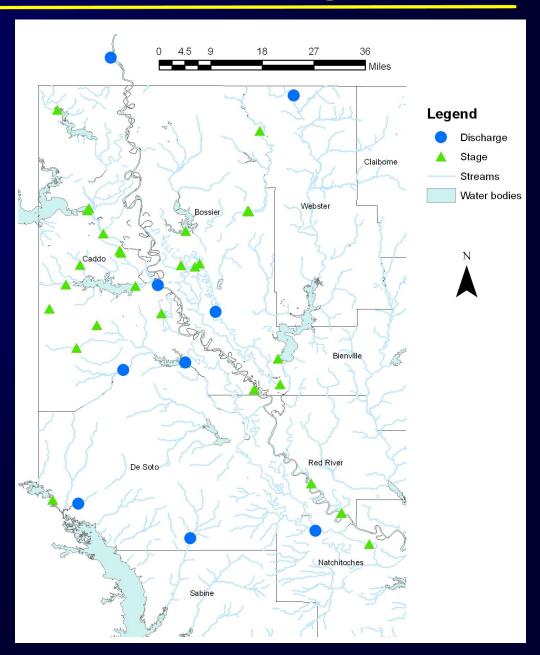
- 173 stage-measuring stations
- 73 discharge-measuring stations





NW LA Gaging Network

- 24 stage-gaging stations
- 9 discharge-gaging stations
- 37 basin subsegments
- More than 426
 named streams





Cost of Upgrading the Network

- Newly installed USGS discharge-gaging station cost between ~\$10,000 to ~\$18,000
- Establishing a rating curve for an existing stagegaging station by the USGS is ~\$10,000
- Yearly O&M for a new gaging station maintained by the USGS is ~\$15,000
- Yearly maintenance of a rating curve by the USGS is ~\$5,000



Sources of Funding

Of the nine states contacted directly (TX, GA, MS, AR, AL, FL, TN, OK and WA):

- All nine have surface water programs funded by general funds and USEPA contracts
- Three have additional funds coming from regional district contracts or fees (AR, TX and WA)
- Three describe their existing gaging network as inadequate (AL, AR and MS)
- Three have state gaging capabilities in addition to that of the USGS and USACE gages (TX, AR and MS)



Other State Permitting Activities

- 40 states have surface water withdrawal permitting requirements, 4 states have registration requirements and 1 state has certification requirements
- 26 states have reporting requirements
- 31 states have minimum volume rules
- 31 states use the Riparian Doctrine, 16 the Prior-Appropriation Doctrine and 3 use both.
- 4 states have a reporting fee, 27 have a permitting fee and 6 have a usage fee
- 6 states have specified penalties
- 6 states have minimum flow rules for streams (ID, MS, PA, TX, WA and WY)



Thank you!

Questions?

Statewide Well Notification Audit and Enforcement

Initiated a comprehensive statewide audit schedule

- Two year plan to audit all ground water wells drilled in Louisiana after July 1, 2001
- To date, <u>ALL</u> parishes audited
- Current status of implementation

2009 Schedule

January	February	March	April	May	June	July	August	September	October	November	December
Caddo, Red River, Bossier, DeSoto					Calcasieu, Cameron	Jeff Davis, Vermillion	Acadia, Lafayette	Allen, Evangeline, St. Landry	Bienville, Webster	Claiborne, Jackson, Lincoln	Ouachita, Morehouse, Union
CARIZZO – WILCOX (Haynesville)				СНІСОТ				SPARTA			



Statewide Well Notification Audit and Enforcement

Comprehensive statewide audit schedule continued...

2010 Schedule

January	February	March	April	May	June	July	August	September	October	November	December
EBR, E. Feliciana, WBR, W. Feliciana	Livingston, St. Helena, Tangipahoa, Washington	St. Tammany	E. Carroll, Madison, Richland, W. Carroll	Catahoula, Concordia, Franklin, Tensas	Caldwell, Grant, LaSalle, Natchitoches, Sabine, Winn	Beauregard, Vernon	Avoyelles, Pointe Coupee, Rapides	Assumption, Iberia, Iberville, St. Martin, St. Mary	Ascension, St. Charles, St. James, St. John	Jefferson, Lafourche, Terrebonne	Orleans, Plaquemines St. Bernard
SOUTHEAST LOUISIANA MS RIVER ALLUVIAL			OTHER								

Annual Statewide Schedule - Beginning 2011 and proceeding annually

January	February	March	April	May	June	July	August	September	October	November	December
Bienville, Bossier, Caddo, Desoto, Red River, Webster	Claiborne, Jackson, Lincoln, Morehouse, Ouachita, Union	Acadia, Calcasieu, Cameron, Jeff Davis, Vermillion	Allen, Beauregard, Evangeline, Lafayette, St. Landry	EBR, E. Feliciana, Livingston, St. Helena, WBR, W. Feliciana	E. Carroll, Franklin, Madison, Richland, Tensas, W. Carroll	Caldwell, Grant, LaSalle, Natchitoches, Sabine, Winn	Avoyelles, Catahoula, Concordia, Rapides, Vernon	Assumption, Iberia, Iberville, Pointe Coupee, St. Martin	Ascension, St. Charles, St. James, St. John, Tangipahoa, Washington	Orleans, St.Tammany	Jefferson, Lafourche, Plaquemines, St. Bernard, St. Mary, Terrebonne



Statewide Well Notification Audit and Enforcement Results

Parish	Actions	Parish	Actions
Caddo	71	Webster	43
Red River	28	Claiborne	33
Bossier	65	Jackson	23
DeSoto	53	Lincoln	47
Calcasieu	83	Ouachita	39
Cameron	24	Morehouse	97
Jefferson Davis	88	Union	27
Vermilion	161	East Baton Rouge	33
Acadia	114	East Feliciana	24
Lafayette	91	West Baton Rouge	5
Allen	31	West Feliciana	8
Evangeline	40	Livingston	36
St. Landry	95	St. Helena	24
Bienville	60	Tangipahoa	126
DICHVIIIC	00	Washington	65
The second secon		St. Tammany	471

Statewide Well Notification Audit and Enforcement Results

Parish	Actions	Parish	Actions
East Carroll	65	Beauregard	33
Madison	48	Vernon	22
Richland	69	Avoyelles	60
West Carroll	64	Pointe Coupee	16
Catahoula	12	Rapides	98
Concordia	11	Assumption	4
Franklin	57	Iberia	72
Tensas	17	Iberville	14
Caldwell	20	St. Martin	84
Grant	7	St. Mary	12
LaSalle	0	Ascension	32
Natchitoches	22	St. Charles	5
Sabine	29	St. James	3
Winn	17	St. John	3
RETHENT OF WINDS			

Statewide Well Notification Audit and Enforcement Results

Parish	Actions
Jefferson	5
Lafourche	43
Terrebonne	15
Orleans	2
Plaquemines	3
St. Bernard	0

Total Actions Issued Statewide

2984



Public Outreach and Education

- 1) GW Conservation Curriculum Guide
 - **Website Access**
 - **State Superintendents Outreach**
- 2) LRWA Operator Training Partnership
 - **Public Supply Well Owner Compliance Education**
- 3) LSU AgCenter / NRCS Partnership
 - **Irrigation Well Owner Fact Sheet**



Mr. Gary Snellgrove DNR Office of Conservation

Statewide Water Management Plan Update



Statewide Water Management Plan

REP Advertise A 2 Receipt & 2 Rement, and a 10 mar & 10 m

Months 3- 16 (May '10 - Jun '11)

Award Contract

Contract execution (ongoing)

Research, Evaluate, Study,
Compile statistics, Identify best
management practices, Prioritize,
Outreach

Issue Draft Comprehensive Public

Publish 18

Timeline



REVISED

Statewide Water Management Plan

E&E 3/10/2011 Update - On Schedule (as revised):

Contract Amended & Effective 2/10/2011

Task 1 (100%) - Review of Resources

Task 2 (100%) - Water Use Analysis

Task 3 (100%) - Well Registration / Notification Review

Task 4 (45%) – Aquifer Sustainability Recommendations

Task 5 (50%) - Rec. Cost/Benefit & Prioritization

Task 6 (98%) - Funding Opportunities

Task 7 (98%) - BMPs & Cost Analysis

Task 8 (85%) - Draft Report Public Hearing



Task 9 (40%) – Exec. Summary & Final Report (August 31, 2011)

Statewide Water Management Plan **Workshop Recommendations**