ST. TAMMANY PARISH COUNCIL

RESOLUTION

OFF THE FLOOR ITEM # 2

RESOLUTION COUNCIL SERIES NO: C-OTF #2

COUNCIL SPONSOR: MR. GOULD PROVIDED BY: COUNCIL ATTORNEY

RESOLUTION TO AUTHORIZE SPECIAL COUNSEL TO REPRESENT ST. TAMMANY PARISH AND TO PROCEED WITH THE FILING OF A DECLARATORY JUDGMENT ACTION AND PETITION FOR INJUNCTIVE RELIEF AGAINST THE OFFICE OF CONSERVATION, OF THE LOUISIANA DEPARTMENT OF NATURAL RESOURCES, REGARDING THE ISSUANCE OF OIL AND GAS DRILLING PERMITS IN THE PARISH OF ST. TAMMANY.

WHEREAS, it is necessary to retain special counsel for the purpose of assisting St. Tammany Parish Government in its efforts to protect the public health, safety and welfare by seeking a judicial determination of its zoning authority and Home Rule Charter powers with regards to the issuance of future permits for oil and gas drilling operations in St. Tammany Parish by the Office of Conservation, of the Louisiana Department of Natural Resources; and

WHEREAS, Attorney Guice Giambronne III and Attorney Aldric C. Poirier, Jr., of the Blue Williams Law Firm, are seasoned trial attorneys with the requisite experience in matters of constitutional law, zoning, and oil and gas; and

WHEREAS, considering the health and safety concerns related to oil and gas drilling operations (See Exhibit 1, recently received Cornell University Study), time is of the essence for St. Tammany Parish to obtain a judicial determination of its zoning authority as it relates to the conducting of oil and gas drilling operations in St. Tammany Parish, and the authority of the Office of Conservation to issue future permits for oil and gas drilling operations in St. Tammany Parish where the enforcement of existing regulations have not been adhered to by the Department of Natural Resources as evidenced by the Louisiana Legislative Auditor's report of May 28, 2014 (which is attached hereto as Exhibit 2); and

WHEREAS, special counsel has agreed that the fee for representing St. Tammany Parish will be in accordance with the published Maximum Hourly Fee Schedule established by the Honorable James D. "Buddy" Caldwell, Attorney General of the State of Louisiana.

THE PARISH OF ST. TAMMANY HEREBY RESOLVES that a real necessity exists for the employment of special counsel in this matter and, therefore, the St. Tammany Parish Council authorizes, ratifies and approves the employment of Attorney Guice Giambronne III and Attorney Aldric C. Poirier, Jr., of the Blue Williams Law Firm, as special counsel for St. Tammany Parish in this matter. The compensation authorized to be paid is to be based upon the published Maximum Hourly Fee Schedule established by the Honorable James D. "Buddy" Caldwell, Attorney General of the State of Louisiana.

BE IT FURTHER RESOLVED that said attorneys are authorized to represent St. Tammany Parish and to proceed with the filing of a declaratory judgment action and petition for injunctive relief against the Office of Conservation, of the Louisiana Department of Natural Resources, regarding the issuance of oil and gas drilling permits in the Parish of St. Tammany.

THIS RESOLUTION HAVING BEEN SUBMITTED TO A VOTE, THE VOTE THEREON WAS AS FOLLOWS:

MOVED FOR ADOPTION BY: _____ SECONDED BY: _____

YEAS: _____

NAYS: _____

ABSTAIN: _____

ABSENT: _____

THIS RESOLUTION WAS DECLARED ADOPTED ON THE 6 DAY OF JUNE , 2014, AT A REGULAR MEETING OF THE PARISH COUNCIL, A QUORUM OF THE MEMBERS BEING PRESENT AND VOTING.

_____
R. REID FALCONER, AIA, COUNCIL CHAIRMAN

ATTEST:

_____
THERESA L. FORD, COUNCIL CLERK

OFF THE FLOOR ITEM # 2

ADMINISTRATIVE COMMENT - OFF-THE-FLOOR #2

It is necessary for this Ordinance to be considered on the Off-the-Floor Agenda, due to the time sensitive nature of the Parish Government's efforts to protect the public health, safety, and welfare of its residents, by seeking a judicial determination of its zoning authority and Home Rule Charter powers with regards to the issuance of future permits for oil and gas drilling operations in St. Tammany Parish. Additionally, time is of the essence in authorizing special legal counsel to proceed with the filing of a declaratory judgment action and petition for injunctive relief against the Office of Conservation of the Louisiana Department of Natural Resources, regarding the issuance of oil and gas drilling permits in the Parish of St. Tammany.

Wellbore Integrity: Failure Mechanisms, Historical Record, and Rate Analysis

Anthony Ingraffea, PhD, PE
Cornell University
Physicians, Scientists, and Engineers for Healthy Energy (PSE)

Renee Santoro
Physicians, Scientists, and Engineers for Healthy Energy (PSE)

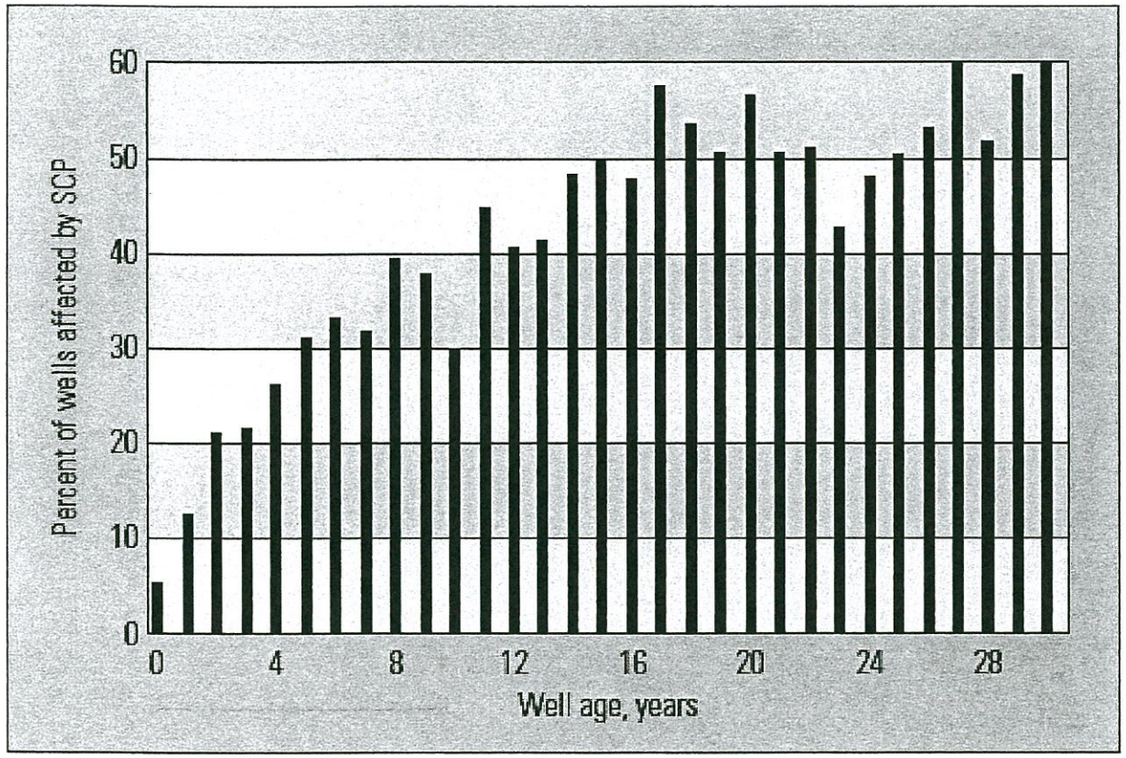
Seth B. Shonkoff, PhD, MPH
Physicians, Scientists, and Engineers for Healthy Energy (PSE)
University of California, Berkeley

EXHIBIT 1

Outline of Presentation

- Failure Mechanisms (Covered in Extended Abstract)
- **Record**
  - **Historical Offshore public data**
  - **Historical Onshore public data**
  - Recent: Pennsylvania Marcellus play public data
- Implications for impact on underground sources of drinking water

Industry-Reported Data On Loss of Wellbore Integrity: Offshore Wells



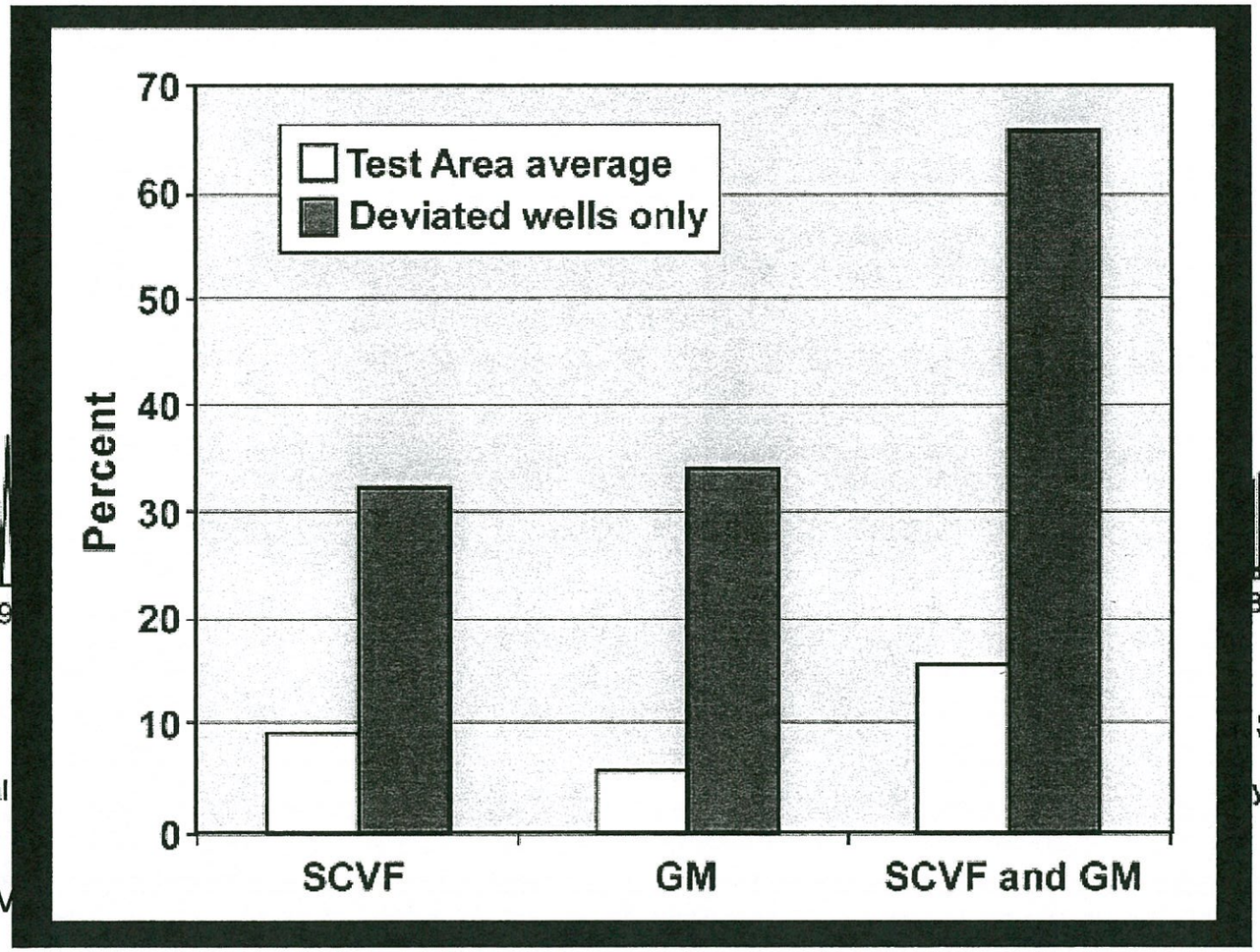
^ Wells with SCP by age. Statistics from the United States Mineral Management Service (MMS) show the percentage of wells with SCP for wells in the outer continental shelf (OCS) area of the Gulf of Mexico, grouped by age of the wells. These data do not include wells in state waters or land locations.

SCP=Sustained Casing Pressure. Also called sustained annular pressure, in one or more of the casing annuli.

- About 5% of wells fail soon
- More fail with age
- Most fail by maturity

Brufatto *et al.*, *Oilfield Review*, Schlumberger, Autumn, 2003

Industry-Reported Data On Loss of Wellbore Integrity: Onshore Wells



Watson and Bachu, SPE 106817, 2009.

Industry well integrity outlook

- Industry will drill more wells in next decade then have been drilled in last 100 years
- Global well population is +/- 1.8 million, of which +/- 35 % has sustained casing pressure
- Public awareness and concern of zonal isolation requirements is increasing (USA / Australia / Europe)
- Geothermal wells and CO2 sequestration wells are on the increase
- Subsidence is a risk in some depleting reservoirs
  Life cycle extension of aging assets is becoming a pre-requisite of legislators
- Zonal isolation challenges and assurance does need push in technology
- Abandonment of legacy wells is becoming more of a focus
- Industry collaboration is an inevitable pre-requisite on all topics

Outline of Presentation

- Failure Mechanisms (Covered in Extended Abstract)
- **Record**
  - Historical Offshore public data
  - Historical Onshore public data
  - **Recent: Pennsylvania Marcellus play public data**
- Implications for Impact on underground sources of drinking water

Recent Operator Performance in the Pennsylvania Marcellus Play: Protocol

- Access Pennsylvania Department of Environmental Protection Violations Database online.

- First Pass: Count wells with violations for "leak" codes; eliminate duplicate wells in database.

- Second Pass: Count wells with leakage noted via inspection *but which had not been issued violations.*

- Divide total number of wells found leaking per year by number of wells drilled that year.

Codes Used to Identify Wells with Violations

78.73A - Operator shall prevent gas and other fluids from lower formations from entering fresh groundwater.
78.81D2 - Failure to case and cement properly through storage reservoir or storage horizon
78.83A - Diameter of bore hole not 1 inch greater than casing/casing collar diameter
78.73B - Excessive casing seat pressure
78.83 GRNDWTR - Improper casing to protect fresh groundwater
78.83 COALCSG - Improper coal protective casing and cementing procedures
78.85 - Inadequate, insufficient, and/or improperly installed cement
78.86 - Failure to report defective, insufficient, or improperly cemented casing
207B - Failure to case and cement to prevent migrations into fresh groundwater

Recent Operator Performance in the Pennsylvania Marcellus Play: Examples of Inspection Comments without Violation

"Stray gas observed. Inspected wellhead only. Purpose of inspection was not to address any open violations on pad."

"Check on flow back pressure on failed casing, no pressure on 5-1/2x9-5/8 annulus flowing at 3-4 barrels an hour"

"Follow up on plugging of well. Since last inspection have run a CBL and Temp Log in 7" casing. Based on anomalies shown on logs - have perf'd and attempted to squeeze cement to eliminate bubbling at surface. At time of inspection tripping out of hole and will be perforating later today and will see if can establish injection rate and squeeze cement. Bubbling still present in cellar on 9 x 7" annulus. No violations observed at this time..."

Additional Counts of Wells with Loss of Integrity

2010	64 wells with violations, 47 additional wells with loss of integrity noted in Inspection Comments
2011	97 wells with violations, 45 additional wells with loss of integrity noted in Inspection Comments
2012	44 wells with violations, 76 additional wells with loss of integrity noted in Inspection Comments

Recent Operator Performance in the Pennsylvania Marcellus Play: Results of Survey

1,609 wells drilled in 2010.
97 well failures.
6% rate of failure.

1,972 wells drilled in 2011.
140 well failures.
7.1% rate of failure.

1,346 wells drilled in 2012
120 well failures.
8.9% rate of failure.

Consistent with previous industry data, and not improving.

Outline of Presentation

- Failure Mechanisms (Covered in Extended Abstract)
- Record
  - Historical Offshore public data
  - Historical Onshore public data
  - Recent: Pennsylvania Marcellus play public data
- **Implications for impact on underground sources of drinking water**

The Dimock, Pa, " Affected" Area, About 9 Square Miles

2008-2009:
29 pads
63 wells

Typical lateral spacing between pads: <½ mile

Impacted Water Supplies Identified in Pennsylvania Department of Environmental Protection Consent Order, Dimock, PA, 2008-2009: Water Supplies of 13 Families Impacted

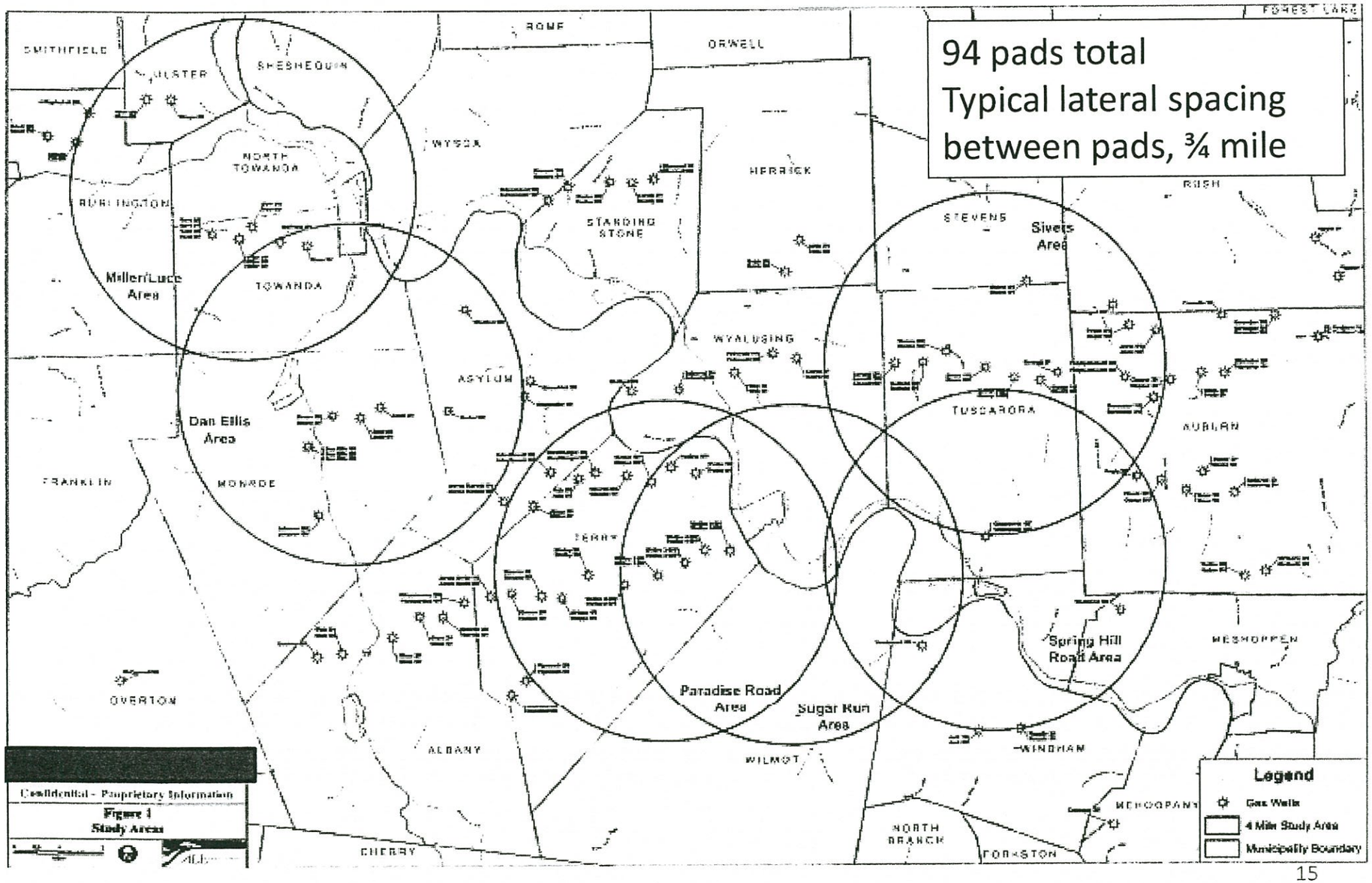
Discharge of Natural Gas into the Groundwater

L. Based upon its investigation since January 2009, the Department has determined the following:

1. [redacted] had caused or allowed the unpermitted discharge of natural gas, a polluting substance, into the groundwater, which constitutes a "water of the Commonwealth," as that term is defined in 35 P.S. §691.1.

2. As of the date of this Consent Order and Agreement, [redacted] has taken certain actions approved by the Department to prevent the ongoing, unpermitted discharge of natural gas into the waters of the Commonwealth.

The Bradford County, PA, Affected Areas, 2011



Impacted Water Supplies Identified in Pennsylvania Department of Environmental Protection Consent Order, Bradford County, PA, 2011: Water Supplies of 15 Families Impacted

EXHIBIT C

List of Water Supplies

Determination letters pursuant to Section 208(b) of the Oil and Gas Act

Sugar Run

6 families	Sugar Run, PA	18846
	Sugar Run, PA	18846
	Sugar Run, PA	18846
	Sugar Run, PA	18846
	Sugar Run, PA	18846
	Sugar Run, PA	18846
	Gettysburg, PA	17325

Paradise Rd

3 families	Wyalusing, PA	18853
	Wyalusing, PA	18853
	Wyalusing, PA	18853

Brocktown/Dan Ellis

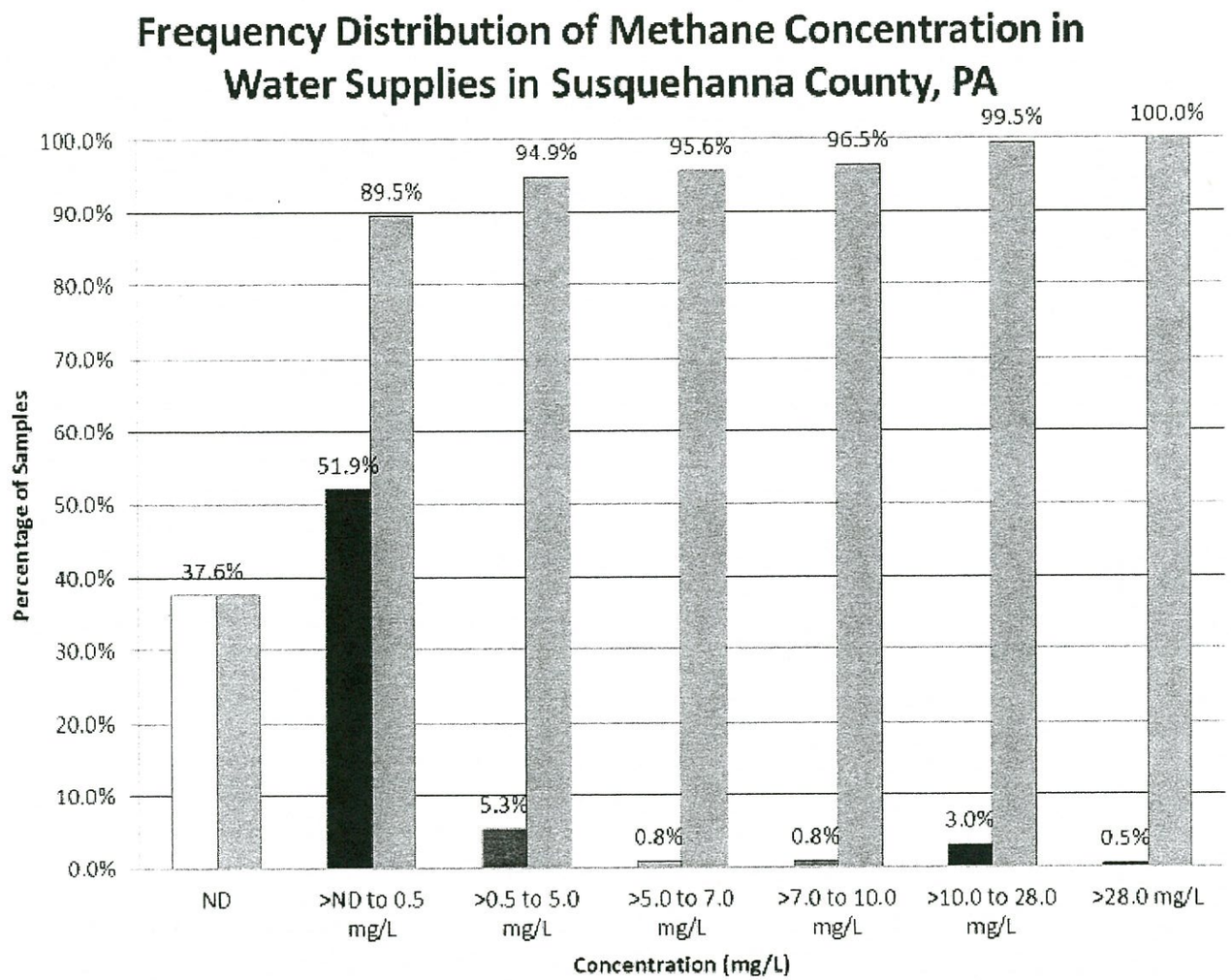
3 families	Monrocton, PA	18832
	Monroeton, PA	18832
	Monroeton, PA	18832

Springhill Rd

2 families	Laceyville, PA	18623
	Laceyville, PA	18623

Vargson

1 family	Granville Summitt, PA	16926



Data collected by PA DEP on methane concentration in private water wells in Susquehanna County, PA. 2433 water supplies were tested:

89.5% had concentrations of methane < 0.5 mg/L,
95.6% had concentrations of methane < 7.0 mg/L.

Courtesy of Seth Pelepko, PA DEP.

Summary

- Loss of wellbore integrity a well-understood and chronic problem
- Recent experience in PA Marcellus play no exception
- Methane is prevalent in water wells in PA, but at very low levels
- Pressing need for scientific investigation of possible links between leaking gas wells and water well contamination

EXHIBIT 2

REGULATION OF OIL AND GAS WELLS AND MANAGEMENT OF ORPHANED WELLS

OFFICE OF CONSERVATION - DEPARTMENT OF NATURAL RESOURCES

PERFORMANCE AUDIT
ISSUED MAY 28, 2014

LOUISIANA LEGISLATIVE AUDITOR
1600 NORTH THIRD STREET
POST OFFICE BOX 94397
BATON ROUGE, LOUISIANA 70804-9397

FOR QUESTIONS RELATED TO THIS PERFORMANCE AUDIT, CONTACT KAREN LEBLANC, PERFORMANCE AUDIT MANAGER, AT 225-339-3800.

Under the provisions of state law, this report is a public document. A copy of this report has been submitted to the Governor, to the Attorney General, and to other public officials as required by state law. A copy of this report is available for public inspection at the Baton Rouge office of the Louisiana Legislative Auditor.

This document is produced by the Louisiana Legislative Auditor, State of Louisiana, Post Office Box 94397, Baton Rouge, Louisiana 70804-9397 in accordance with Louisiana Revised Statute 24:513. Six copies of this public document were produced at an approximate cost of $8.10. This material was produced in accordance with the standards for state agencies established pursuant to R.S. 43:31. This report is available on the Legislative Auditor's website at www.lla.la.gov. When contacting the office, you may refer to Agency ID No. 9726 or Report ID No. 40120061 for additional information.

LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

May 28, 2014

The Honorable John A. Alario, Jr.,
President of the Senate
The Honorable Charles E. "Chuck" Kleckley,
Speaker of the House of Representatives

Dear Senator Alario and Representative Kleckley:

This report provides the results of our performance audit on the Office of Conservation (OC) within the Department Natural Resources (DNR). The purpose of this audit was to determine whether OC has effectively regulated oil and gas wells and effectively managed the current population of orphaned wells.

The report contains our findings, conclusions, and recommendations. Appendix A contains OC's response to this report. I hope this report will benefit you in your legislative decision-making process.

We would like to express our appreciation to the management and staff of DNR for their assistance during this audit.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP/ch

DNR-WELLS 2014

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Louisiana Legislative Auditor

Daryl G. Purpera, CPA, CFE

Oil and Gas Regulation and Orphaned Wells
Office of Conservation - Department of Natural Resources

May 2014

Audit Control # 40120061

Introduction

The primary purpose of this audit was to evaluate whether the Office of Conservation (OC) effectively regulated oil and gas wells.[1] OC's Oil and Gas Regulatory Program regulates oil and gas operators and wells through its permitting, monitoring and enforcement processes. Effective regulation is important for ensuring that wells are operating in compliance with regulations and that environmental and public safety risks, such as contamination of ground and surface water, are identified and addressed.

Effective regulation is also important in preventing operators from abandoning their wells. If operators abandon their wells or cannot maintain their wells in compliance with regulations, OC will orphan all of the operators' wells. Exhibit 1 shows current oil and gas wells (in grey) and orphaned wells (in red) in Louisiana.

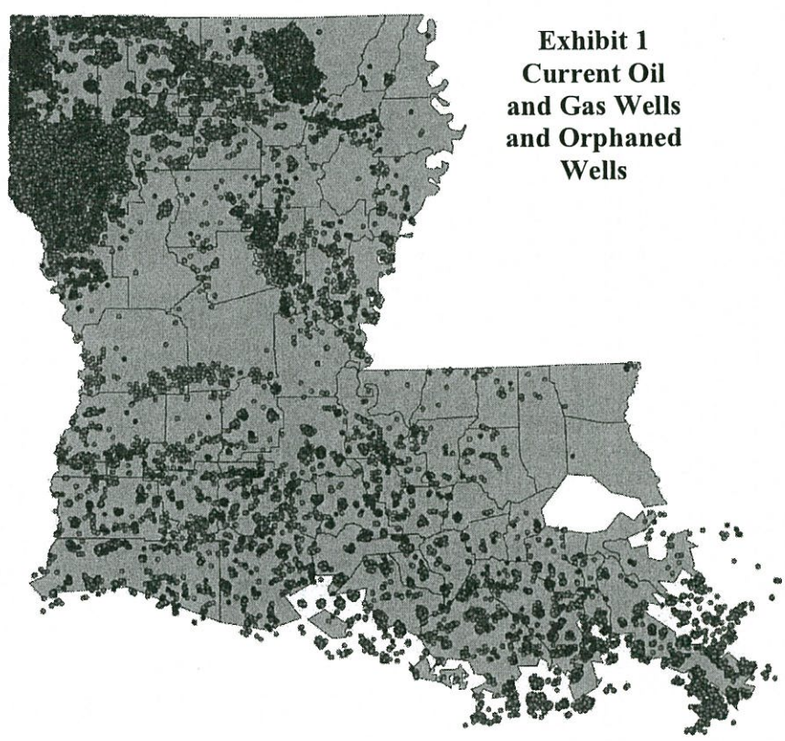


Exhibit 1
Current Oil and Gas Wells and Orphaned Wells

Orphaned wells are abandoned oil and gas wells for which no responsible operator can be located or such operator has failed to maintain the well site in accordance with state regulations.

Source: Office of Conservation

[1] We only evaluated oil and gas wells used for production; we did not evaluate regulation over disposal wells or injection wells used to dispose of waste from oil and gas production.

As of July 2013, there are 2,846 orphaned wells that have not been plugged. From fiscal years 2008 through 2013, OC plugged an average of 95[2] orphaned wells each year even though an average of 170 additional wells were orphaned each year. Because of Louisiana's growing population of orphaned wells, we also evaluated whether OC has effectively managed the population of wells already orphaned.

To evaluate OC's regulation of oil and gas wells and management of currently orphaned wells we analyzed data from DNR's Strategic Online Natural Resources Information System (SONRIS) from fiscal years 2008 through 2013.[3] The objectives of this audit were as follows:

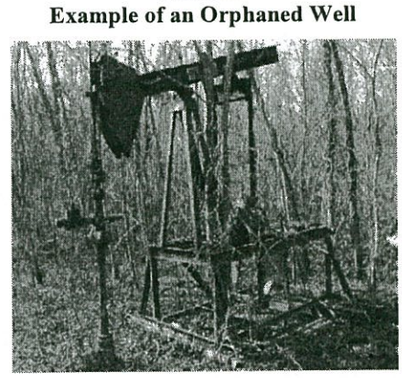
Objective 1: Has OC effectively regulated oil and gas wells to ensure that operators comply with regulations?

Overall, we found that OC has not always effectively regulated oil and gas wells to ensure operators comply with regulations. Specifically, OC's current regulations, unlike other states, do not require that all operators provide financial security. In addition, OC's financial security amounts, when required, are not sufficient to cover the cost to plug all wells. OC also does not sufficiently monitor wells to determine if they are in compliance with regulations and does not always take enforcement action when it identifies noncompliance. As a result, operators are not always maintaining their wells in compliance with regulations and these wells may ultimately be orphaned. In addition, we determined that the state currently has a significant population of inactive wells potentially at risk of becoming orphaned.

Objective 2: Has OC effectively managed the current population of orphaned wells?

Overall, we found that OC has not always effectively managed the current orphaned well population. In addition, because it changed its focus to plug urgent and high priority wells, OC is unable to reduce the total population of orphaned wells. Therefore, the legislature should consider increasing funding or identifying additional sources of funding to address and reduce the state's current population of orphan wells.

Exhibit 2
Example of an Orphaned Well



Appendix A contains OC's response to this report and Appendix B contains our scope and methodology. Appendix C provides more detailed background information on oil and gas regulatory activities and orphaned wells.

[2] Beginning in fiscal year 2011, OC shifted its plugging strategy to focus on urgent and higher priority orphan wells that pose the most environmental and public safety risks; however, as a result of this shift in focus, the number of wells plugged each fiscal year has decreased to an average of 33 wells from fiscal years 2011 through 2013.
[3] This was the scope for most of the analysis; however, some analysis included longer timeframes to establish historical trends.

Objective 1: Has the Office of Conservation effectively regulated oil and gas wells to ensure that operators comply with regulations?

OC did not always effectively regulate oil and gas wells to ensure that operators comply with regulations. We found the following:

- Unlike other states we reviewed, OC's current regulations do not require that all operators provide financial security on their oil and gas wells. Financial security is important as it provides funds that the state can use to plug a well in the event that the operator abandons the well. Currently, 25% of all current oil and gas wells are required to be covered by financial security and 55% of orphaned wells that were subject to financial security requirements were exempt from financial security.

- OC's financial security amounts outlined in regulations are not sufficient to cover the cost of plugging most wells. Not requiring sufficient financial security amounts may provide an incentive for operators to abandon their wells since forfeiting the financial security may be more economical than paying plugging costs.

- OC did not conduct routine inspections in accordance with timeframes established by the Commissioner of at least 26,828 (53%) of 50,960 oil and gas wells at least once every three years from fiscal years 2008 through 2013. In addition, 12,702 (25%) were not inspected at all during this timeframe. Conducting these inspections is important for identifying non-compliant wells and wells that are no longer producing. OC also cannot identify the number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified.

- OC has not developed an effective enforcement process that sufficiently and consistently addresses noncompliance and deters operators from committing subsequent violations. Specifically,

    - OC did not consistently or timely address violations cited on inspections. Of the 7,665 routine inspections that failed from fiscal years 2008 to 2013, 1,179 (15%) did not receive a compliance order to correct the violation. According to OC, some of the violations cited on these inspections were not major and did not warrant a compliance order. In other cases, OC said that compliance orders were issued but none of these orders were in SONRIS.

    - From fiscal years 2008 to 2013, OC did not conduct re-inspections on 1,116 (16%) of 6,827 wells with compliance orders to ensure that operators corrected violations.

- OC did not consistently issue penalties after re-inspections found that operators with compliance orders still had not corrected violations. Out of 918 compliance orders with uncorrected violations, 507 (55%) were not issued a penalty. In many of these cases, operators were given extensions to comply instead of being penalized.

- Although OC has the authority to impose civil penalties, it does so infrequently. Since fiscal year 2008, OC has only issued an average of $150,468 in penalties each year for inspection violations and violations for not submitting required reports, such as well tests. In addition, OC did not always issue penalties when it could have as we identified approximately $471,200 in penalties that could have been assessed to 589 operators who did not submit required well tests during fiscal years 2011 through 2012.

- OC's enforcement actions may not be deterring noncompliance. For example, of the 1,027 operators with at least one failed inspection from fiscal years 2008 through 2013, 649 (63%) failed multiple inspections. The 10 operators with the most failed inspections had between 97 and 255 each over the six years we reviewed.

- OC's current process does not effectively identify inactive wells. Because OC's current regulations do not require operators to report actual production by well, an individual well's production amounts cannot be verified to ensure the well is still active.

  - Although OC uses two methods to identify inactive wells, neither of these methods is effective. For example, OC can identify inactive wells through well test reports. However, we found that although regulations require that all producers submit well tests, OC allows operators of certain wells to be exempt. According to OC, it does not require that stripper lease wells or incapable gas wells in the Monroe Field submit well tests. In fiscal year 2012, approximately 25,000 of these wells were exempt from well tests. However, these exemptions are not included in the regulations and OC could not provide any official policy or other documentation that these exemptions are allowed.

  - We also found that operators did not submit well test reports on 3,492 (13.5%) of 25,802 wells during fiscal years 2011 and 2012. In addition, OC allowed operators to submit fewer well tests than what is required in regulations.

- OC did not consistently ensure that inactive wells designated as having no future utility were plugged within 90 days as required by state regulations. During fiscal years 2008 through 2013, OC did not issue compliance orders for 416 (86%) of 482 wells designated as having no future utility that were not plugged by their responsible operator. In addition, while OC issued compliance orders to operators to plug 2,323 wells during this period, it did not always ensure that

wells were actually plugged as ordered. As of June 30, 2013, only 591 (25%) of these wells were plugged and 634 (27%) gained compliance through other means. The remainder were either not yet plugged, orphaned, or were in the process of being orphaned.

- OC does not have sufficient regulations regarding inactive wells with future utility. For example, current regulations do not specify how long a well can remain in future utility status. As a result, wells can be placed in this status for extended periods of time to avoid being plugged and are at a higher risk of becoming orphaned. We identified 5,239 (46.5%) of 11,269 wells in future utility status that have been in that status for over 10 years. We also found that 1,982 (22.8%) of 8,682 wells that were ultimately orphaned were in future utility status prior to becoming orphaned.

- Because OC did not always identify and effectively regulate inactive wells, the current orphaned well population may grow in the future.

These issues are summarized in more detail below.

Unlike other states, OC's current regulations do not require that all operators provide financial security. Currently, 25% of oil and gas wells are required to be covered by financial security.

Since July 1, 2000, OC regulations require that certain operators provide financial security when receiving a permit to drill an oil or gas well or if operators transfer already permitted wells. Wells drilled prior to 2000 were grandfathered in and therefore not subject to these financial security requirements. Since November 2001, OC regulations also require that certain operators with amended permits provide financial security. Financial security is similar to insurance in that it provides the state with funds that it can use to plug the well if the operator abandons the well. If an operator abandons a well without financial security, OC is authorized to use funds from the Oilfield Site Restoration (OSR) fund to plug the well and remediate the site. Types of financial security allowed include a certificate of deposit, a performance bond, or a letter of credit from a financial institution. Louisiana was one of the last states to require financial security as most states developed these requirements in the 1940s and 1950s.

However, Louisiana, unlike other states we reviewed,[4] does not require that all operators provide financial security on their wells. Other states we reviewed require that all operators provide financial security or some form of financial assurance[5] on all of their wells. OC only requires that operators who meet the following criteria provide financial security:

[4] We reviewed the nine states that were listed as top oil and gas producers in October 2013 by the U.S. Energy Information Administration. These states include Texas, North Dakota, California, Alaska, Oklahoma, New Mexico, Pennsylvania, Wyoming, and Colorado.

[5] Oklahoma requires that operators provide financial security for the first three years. After that, operators must provide financial assurance by showing that they have net assets of at least $50,000.

- Operators who have been an operator less than 48 months (4 years)
- Operators who are associated or have officers associated with an orphaned well for 48 months immediately preceding the permit date of the well
- Operators who have not exhibited a record of compliance for 48 months immediately preceding the permit date of the well[6]

Currently, 14,432 (25%) of Louisiana's 57,819 oil and gas wells[7] are covered by financial security totaling $49,498,657. Of these 57,819 wells, 24,462 (42%) were exempt because they met the criteria above, and 18,925 (33%) were exempt because they received a permit prior to financial security requirements and have not been transferred since November 2001. However, if these wells are transferred to another operator they would be subject to the financial security requirements. Requiring that operators provide financial security on all wells would help ensure that the state has funds to plug the well in the event that the operator abandons the well. Of the 716 wells[8] that have ultimately been orphaned since financial security became a requirement, 397 (55%) were exempt from financial security.

According to OC, regulations do not require that all wells have financial security because it would not be profitable for certain operators of low producing (marginal) wells to operate the wells if they were required to provide financial security for them. However, when an operator receives a permit to drill a well or an amended permit to operate an existing well, the operator must comply with all regulations and these regulations require that the operator properly plug the well when it is at the end of its useful life. Therefore, if operators cannot afford to pay financial security, then they likely will not be able to pay to plug the well and perhaps should not receive a permit to operate a well as they are demonstrating that they cannot afford to comply with the established regulations.

Recommendation 1: OC should consider revising its current regulations and require that all operators provide financial security or some type of financial assurance on newly permitted wells or wells with amended permits.

Summary of Management's Response: The Office of Conservation (OC) agrees with this recommendation. See Appendix A for OC's full response.

[6] However, regulations also state that a compliance order and/or civil penalty which has been timely satisfied shall not cause an operator to be considered a non-compliant operator.
[7] Since financial security was not required prior to 2000, only wells permitted on or after July 1, 2000, or transferred on or after November 1, 2001, are subject to financial security requirements.
[8] These only include wells permitted on or after July 1, 2000, or wells transferred on or after November 1, 2001, and therefore subject to financial security requirements.

OC's financial security amounts outlined in regulations are not sufficient to cover the cost of plugging all wells.

For operators that are not exempt from financial security, OC regulations require either individual or blanket financial securities. Individual security amounts are based on the well depth and well location, and blanket securities, which cover multiple wells, are based on the number of wells and well location. Well locations include land, inland waters (lakes, bays, etc., located within the coastal zone), and offshore waters (within three miles of shoreline).

Individual Financial Security. OC regulations require from $1.00 per foot to $12.00 per foot depending on the location and depth of the well. Individual financial security amounts[9] are summarized in Exhibit 3.

Exhibit 3
Individual Financial Security Amounts

Location	Amount
Land	≤ 3000': $1.00 per foot 3001' - 10000': $2.00 per foot ≥ 10001': $3.00 per foot
Water (Inland)	$8.00 per foot of well depth
Water (Offshore)	$12.00 per foot of well depth

Source: Prepared by legislative auditor's staff using data from OC regulations.

However, we found that these individual financial security amounts are not sufficient to cover the cost to plug all wells. We calculated the median[10] cost to plug certain wells[11] based on actual project plugging costs from fiscal years 2009 to 2013 and we found that the median cost to plug land wells less than 3,000 feet was $7.00 per foot and the median cost to plug wells in inland waters was $18.00 per foot. However, OC regulations only require $1.00 per foot and $8.00 per foot, respectively. For example, an operator with a land well with a depth of 1,700 feet would only be required to provide $1,700 in financial security. However, actual plugging costs would be approximately $11,900, a difference of $10,200.

In addition, these costs are only associated with plugging the well, not the costs associated with the complete remediation of the well site which OC regulations also require. These remediation costs vary depending on the condition of the well site. For example, OC plugged a well at a cost of $14,000; however, the total cost to plug and remediate the entire site was $18,000.

[9] The amounts listed in Exhibit 3 are those required by OC for oil and gas wells only. Financial security is also required for injection wells; however, the audit focus for this section was strictly on oil and gas wells.
[10] We used the median instead of the average cost to account for outliers.
[11] We were only able to calculate median costs for land wells less than 3,000 feet and inland water wells because there were not a sufficient number of other types of projects.

In comparison to other states we reviewed, Louisiana has one of the lowest financial security amounts for land wells that are less than 3,000 feet deep. Since the financial security amount for these wells is $1.00 per foot, the maximum amount in Louisiana for these wells is $3,000 per well. However, other states require minimum financial security amounts per well that range from $4,000 in Pennsylvania to $15,000 in California to $100,000 in Alaska. Appendix D summarizes other states' financial security requirements.

Blanket Financial Security. Louisiana operators also have the option to establish a blanket financial security to cover several wells under one financial security instrument. Exhibit 4 summarizes Louisiana's blanket financial security requirements.

Exhibit 4
Blanket Financial Security Amounts

Location	Total Number of Wells per Operator: Amount
Land	≤ 10: $25,000 11-99: $125,000 ≥ 100: $250,000
Water (Inland)	≤ 10: $125,000 11-99: $625,000 ≥ 100: $1,250,000
Water (Offshore)	≤ 10: $250,000 11-99: $1,250,000 ≥ 100: $2,500,000

Source: Prepared by legislative auditor's staff using data from OC regulations.

The blanket financial securities are also insufficient to plug all orphaned wells and create an even larger discrepancy between the financial security per well and the cost to plug the well. Operators, in most cases, establish blanket financial securities to save costs. For example, if an operator has 10 land wells at 5,000 feet each, it is more economical for that operator to establish a blanket security for $25,000 ($2,500 per well), instead of establishing an individual security on each well at $2.00 per foot, which would bring the total security amount to $100,000, a difference of $75,000.

Not having sufficient financial security to cover the cost to plug wells may provide an incentive for operators to orphan wells instead of plugging the well. For example, if the financial security amount is too low, operators may abandon the well and forfeit the financial security because it is cheaper to abandon the well than to pay the actual cost to plug the well. As discussed earlier, higher financial security amounts may affect an operator's profitability. However, since financial security is released once operators comply with state regulations and properly plug their wells, higher amounts should not prevent responsible operators from doing business here. In addition, as mentioned before, all other top producing states we reviewed require financial security and in many cases are for amounts higher than in Louisiana.

Recommendation 2: OC should consider revising its current regulations to increase the amount for financial security to be more reflective of the costs to properly plug and remediate orphaned well sites. In addition, financial security amounts should be periodically reviewed and adjusted to ensure they are reflective of the costs to plug and remediate orphan well sites.

Summary of Management's Response: OC agrees with this recommendation. See Appendix A for OC's full response.

OC did not inspect at least 26,828 (53%) of 50,960 oil and gas wells in accordance with timeframes established by the commissioner and 12,702 (25%) were not inspected at all during this timeframe.

OC Conservation Enforcement Specialists (CESs) in the three district offices conduct routine inspections of oil and gas wells to ensure they are operating in compliance with regulations outlined in Title 43 Section 29B of the Louisiana Administrative Code. Routine inspections also help OC identify inactive (non-producing) and abandoned wells.

OC's inspection goal, as outlined in a memorandum from the Commissioner to district offices on May 15, 2007, is to inspect all wells at least once every three years. According to this memo, this goal was established after legislative debates regarding allegations that OC had been lax in its enforcement of regulations by "allowing illegal discharges to continue for extended periods of time causing serious environmental damages to surrounding property." In response to these allegations, the legislature approved additional funding and positions for OC based on its commitment to develop an inspection strategy of inspecting every existing well on a three-year rotation.

In fiscal year 2008, OC obtained additional funding to add 11 CES positions, increasing its total from 31 to 42 positions, or a 35% increase. However, according to DNR, only eight of those 11 postions were filled prior to a hiring freeze during fiscal year 2008 and two of the remaining three positions were eliminated in fiscal year 2009 because of mid-year budget adjustments. Therefore, according to OC, it never received the additional three positions needed to meet the three-year inspection cycle.

We found that OC did not inspect at least 26,828[12] (53%) wells every three years in accordance with timeframes established by the commissioner and 12,702 (25%) of these wells were not inspected at all during that timeframe. The Monroe and Shreveport districts had the highest percentages of wells that were not inspected every three years as shown in Exhibit 5.

[12] This is a conservative estimate because if a well had two or more inspections at any time during the six-year period, we considered it to have met the three-year target for both periods, even though it could have received multiple inspections in one of the three-year periods and none in the other.

Exhibit 5
Wells Not Inspected According to 3-Year Goal
Fiscal Years 2008 to 2013

District	Total Number of Wells	Wells not Inspected According to 3-year Goal	% of Total Wells	Wells not Inspected at All	% of Total Wells
Lafayette	14,448	2,794	19%	398	3%
Monroe	11,712	6,156	53%	2,456	21%
Shreveport	24,800	17,878	72%	9,848	40%
Total	**50,960**	**26,828**	**53%**	**12,702**	**25%**

Source: Prepared by legislative auditor's staff using data from OC and SONRIS.

According to OC, budget cuts, loss of staff and hiring freezes, hurricanes, the Haynesville Shale boom, and the BP oil spill all affected its ability to meet its inspection goal. Another potential reason OC did not meet its inspection goal is that OC has not effectively managed the inspection process or monitored districts to ensure they are meeting these goals. Although OC has given districts the responsibility to inspect wells, it has not developed formal inspection procedures for districts that would help ensure inspections are conducted consistently and scheduled appropriately. In addition, we found that 11,995 (24%) of the 50,960 wells received three or more routine inspections in six years, with some wells receiving 20 or more. While wells with compliance issues may be inspected more frequently, we found that 10,889 (91%) of these 11,995 wells did not fail any of the routine inspections meaning that the well was in compliance with regulations.

OC cannot readily identify the actual number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified. During a routine inspection, district CESs complete Lease Facility Inspection Reports and upload these reports into SONRIS. When a CES identifies a violation or violations, he/she enters narrative comments on the nature of the violation on the form. If violations are cited, SONRIS will show the inspection "failed" when the form is uploaded. However, there is no way to categorize or quantify the types of violations cited on these failed inspections other than by reading through these narrative comments. Without easily quantifiable information, OC cannot easily determine how many and what types of violations are cited across the state and cannot identify repeat violations. Capturing violation information could also help OC develop a risk-based inspection process. As mentioned earlier, OC was not able to meet its inspection goal of inspecting wells every three years. Therefore, implementing a risk-based inspection process that considers compliance history as one factor in how often a well should be inspected would help OC devote its resources to those wells most at risk of noncompliance.

Recommendation 3: OC should develop standard inspection procedures, including specific frequencies for inspections and how inspections should be scheduled.

Recommendation 4: OC should monitor districts and hold them accountable for compliance with inspection frequencies.

Recommendation 5: OC should develop the capability in SONRIS to capture types of violations cited on inspections.

Recommendation 6: OC should consider developing a risk-based inspection process that considers noncompliance as a factor in how often a well should be inspected.

Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

OC has not developed an effective enforcement process that sufficiently and consistently addresses noncompliance and deters operators from having subsequent violations.

R.S. 30:4 gives the Commissioner the authority to enforce oil and gas rules and regulations. State law[13] also allows the Commissioner to issue compliance orders and civil penalties up to $5,000 per day for violations. If penalties are not paid, OC can also suspend an operator's ability to sell oil. If noncompliance still exists, the final and strictest means of enforcement is orphaning all of a noncompliant operator's wells. However, OC has not developed formal procedures in policy or in rule that outline the enforcement process. Formalizing its process would help ensure that noncompliance is sufficiently, consistently, and appropriately addressed. OC's general enforcement process is summarized in Exhibit 6.

Exhibit 6: General Enforcement Process

In addition, we found that OC did not issue compliance orders for all violations identified on inspections, does not always conduct re-inspections to ensure violations have been corrected, and rarely issues penalties. In addition, OC's informal enforcement process does not appear to deter subsequent noncompliance and may be insufficient, as many operators had multiple instances of noncompliance. These issues are summarized in more detail below.

OC did not consistently or timely address all violations cited on inspections. We reviewed 7,665 routine inspections that were listed as failed (i.e, had one or more violations) from fiscal years 2008 to 2013 and found that SONRIS did not contain evidence that compliance orders[14] were issued in 1,179 (15%) instances. OC reviewed these instances and found that some had compliance orders, but these orders were not in SONRIS and some

[13] R.S. 30:6(G) and 30:18(A)(1)

[14] Because of data limitations, we could not directly link a failed inspection to a specific compliance order issued on the inspection, therefore, we used date logic to determine if the compliance order was issued within 60 days of the failed inspection. We used 60 days based on conversations with OC regarding its enforcement process since no criteria exists for when violations should be addressed.

failed inspections were miscoded and were reinspections of existing compliance orders. OC also found that some of these wells did not require compliance orders because they were ultimately orphaned or operators reported an oil spill but were in the process of correcting the violation. In addition, although no criteria exists for when compliance orders should be issued after violations are identified, 382 (32%) of the 1,179 were issued over 60 days from the date the inspection was submitted to SONRIS. Addressing violations in a timely manner is important to ensure that compliance is corrected as quickly as possible.

Another reason these violations were not always addressed with compliance orders is that, according to OC, some violations, such as not posting required well signs, are not considered major violations and do not warrant a compliance order. Other violations, such as casing pressure, were determined to be a field condition and not considered a violation. In addition, district CESs stated that they have different methods of gaining compliance from operators. For example, some CESs cite violations on a failed inspection report, while others work with the well operator to gain compliance and pass the inspection report without citing the violation.

Exhibit 7
Well Cited for Leaking Oil with No Compliance Order Issued

However, although OC is not required to issue compliance orders in all cases, many of the comments in these failed inspections indicate similar violations to those that were addressed by compliance orders in other cases. For example, inspectors cited wells that had not been plugged as required or were improperly plugged, and wells that were leaking oil or gas in failed inspection reports but did not have compliance orders issued on the well. Exhibit 7 depicts a well that was cited on an inspection report for an oil leak; however, the operator was not issued a compliance order for this violation. Since these violations are considered more serious and were addressed by orders in other instances, they should have been addressed with a compliance order. Providing specific criteria on what violations should result in compliance orders would help districts cite violations consistently for all operators.

OC did not always conduct re-inspections on 1,116 (16%) of 6,827[15] wells with compliance orders to ensure violations were corrected. Although no formal policy exists, OC said that CESs are required to conduct re-inspections on wells with compliance orders to ensure that violations have been corrected. Compliance orders give a specific date by which wells must comply with regulations. This date is generally 30 days after the compliance order issue date for regulatory violations and 90 days after the issue date for orders to plug the well. However, we found that of the 6,827 wells that required re-inspection due to a compliance order issued between July 1, 2007 and March 22, 2013,[16] 1,116 (16%) were not re-inspected as of June 30, 2013. In addition, we found that some re-inspections that were conducted were not done timely.

[15] This total is not reflective of the 165 wells that were issued a compliance order and then were ultimately orphaned by their operators and according to OC personnel did not need a re-inspection.
[16] A 100-day cushion was allowed prior to the end of the analysis scope (June 30, 2013) in order to allow time for wells issued compliance orders toward the end of the scope to be re-inspected.

Of the 5,711 wells with compliance orders that were re-inspected, 2,326 (41%) of those re-inspections occurred more than 30 days beyond the timeframe allowed for compliance.

Similar to routine inspections, OC has not developed any procedures for re-inspections. Standardized procedures that outline when and under what circumstances re-inspections should be conducted would help ensure that CESs understand what is required of them. We reviewed documentation for some cases where re-inspections were not performed and, in some instances, an explanation for why the well was not inspected was provided. For example, one case included documentation of a plug and abandon report that the CES signed instead of conducting a re-inspection. However, without standardized procedures that outline criteria for re-inspections, OC cannot ensure that they are done appropriately and consistently among the districts.

OC did not consistently issue penalties after a re-inspection found that operators with compliance orders still had not corrected violations. According to OC, penalties are primarily assessed when a re-inspection shows that an operator has not corrected violations cited in a compliance order. Of the 5,711 wells that were re-inspected, 1,452 (25%) wells cited in 1,066 compliance orders[17] also failed the re-inspection. Of these 1,066 compliance orders, 148 involved wells that were eventually orphaned and, according to OC, did not require a penalty. However, OC did not issue a penalty for 507 (55%) of the 918 remaining orders. We reviewed several of these cases and found that instead of penalties, OC often granted multiple extensions for these wells to give the operator time to bring the well into compliance. The example below illustrates one of these cases.

- OC conducted a routine inspection on August 1, 2007, and found an abandoned well site that according to production data had not produced since 1998. The inspector recommended that the operator plug the well and on August 29, 2007, OC issued a compliance order requiring the operator to do so.
- On December 28, 2007, the inspector conducted a re-inspection and found that the well was not plugged.
- On January 10, 2008, OC issued an extension until March 2008 for the operator to plug the well.
- On April 22, 2009, OC issued another letter granting an extension until July 1, 2009, for the operator to plug the well. On May 19, 2009, OC received a letter from the operator noting that she had not received the compliance order timely because of an address change and advised that she would take care of the issues immediately.
- On June 2, 2009, OC sent another letter reiterating that the well must be plugged by July 1, 2009. OC performed an inspection on August 24, 2009, and found that the well was still not plugged.

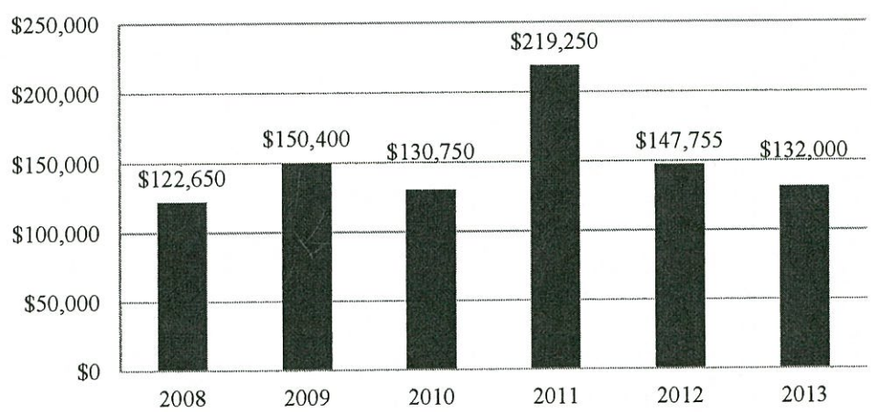
[17] Compliance orders can contain multiple wells.

- On October 20, 2009, OC orphaned the well, as well as 78 other wells owned by this operator, and as of May 2014 the well is not yet plugged.

Although OC has the authority to impose civil penalties, it does so infrequently. Although the Commissioner is authorized to impose civil penalties of not more than $5,000 a day for each day of violation, OC developed a penalty matrix which is used as a guide in assigning penalties as one-time amounts. This penalty matrix includes penalties ranging from $200 to $5,000 for noncompliance with regulations depending on the severity of the violation.[18] For example, operators who fail to file well test reports may receive a $200 penalty per report not filed, whereas contamination of a groundwater aquifer may receive a $5,000 penalty per occurrence.

Since fiscal year 2008, OC has issued only an average of $150,468 in penalties each year for violations identified on inspections or violations from not submitting required reports, such as well tests.[19] Exhibit 8 summarizes the amount of penalties issued each year since fiscal year 2008.

Exhibit 8
Civil Penalties Issued
Fiscal Years 2008-2013



Source: Prepared by legislative auditor's staff using data from OC and SONRIS.

To test whether OC issued penalties appropriately, we calculated how many operators failed to submit well tests in fiscal years 2011 and 2012.[20] According to OC's penalty matrix, failure to file required well tests may result in a $200 penalty per report not submitted. However, we found 589 operators that did not submit their required well test reports on their 3,492 wells. Each operator should have submitted four reports over the two-year period, which equals 2,356

[18] However, the penalty for perforating too close to a unit line can be from $50,000 to $100,000.
[19] This amount does not include 23 penalties totaling $1.2M for perforating too close to a unit line which is usually self-reported by the operator or from looking at directional surveys in permitting.
[20] More detailed information on well tests and who did not submit is found on page 17.

reports not submitted. Given that the civil penalty amount for not submitting these reports is $200 per report, a total of $471,200 in penalties were not assessed.

OC's enforcement process does not appear to deter operators from having subsequent violations. As stated earlier, OC does not always issue penalties when it identifies violations on inspections. It will only issue a penalty if an operator fails to comply with a compliance order upon re-inspection. As a result, if OC identifies violations, operators simply have to fix their error(s) and they are not penalized. For example, only a small percentage of total violations eventually resulted in a penalty. From fiscal years 2008 to 2013, OC identified at least 7,930[21] violations on routine inspections. However, OC issued only 849 (10.7%) inspection-related civil penalties for these violations. Because of OC's inconsistent enforcement process, we identified operators with multiple violations, multiple compliance orders, and additional failed inspections after receiving a compliance order. Specifically, we found the following:

- Of the 1,027 operators with at least one failed inspection from fiscal years 2008 through 2013, 649 (63%) failed multiple inspections. The 10 operators with the most failed inspections had between 97 and 255 each.
- Of the 1,227 operators who received compliance orders, 677 (55%) received more than one order from fiscal year 2008 through 2013. The 10 operators with the most orders had between 48 and 177 each.
- Of the 844 operators with compliance orders that received at least one routine inspection after its initial compliance order, 602 (71%) received at least one more failed routine inspection after the order.

OC may also prohibit non-compliant operators from profiting from production by suspending the operator's authority to transport oil or by keeping revenue for natural gas sold in escrow. However, like compliance orders, this action only encourages operators to come into compliance. As soon as operators correct outstanding violations, their profits are released to them and they are allowed to continue normal operations. These actions also do not appear to deter future noncompliance. For example, of the 120 operators who received this type of action, 82 (68%) received a subsequent compliance order for additional violations.

Recommendation 7: OC should develop formal enforcement procedures outlining what types of violations should be addressed by what enforcement actions.

Recommendation : As part of its enforcement procedures, OC should include criteria for when and under what circumstances re-inspections should be conducted.

Recommendation 9: OC should increase its use of civil penalties, especially for operators with multiple instances of noncompliance.

[21] This is a conservative estimate as there were 7,930 total failed routine inspections of oil and gas wells. Each failed inspection contains at least one violation, but could contain multiple.

Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

OC's current process does not effectively identify inactive wells.

OC does not have an effective process for identifying inactive wells. Identifying wells that are inactive and no longer producing oil or gas is important because these wells are at higher risk of becoming abandoned. Once a well is no longer producing, it can either be placed into future utility status if the operator has future use of the well, such as converting the well into a service well, or if the well has no future utility, it must be plugged by the operator within 90 days, in accordance with OC regulations.

Inactive wells are classified as either:
1) Future Utility - wells currently not producing but may have some use in the future (i.e., as a saltwater disposal well or be placed back into production)
2) No Future Utility - non-producing wells that are not expected to have any further use. OC regulation requires that operators plug these wells within 90 days.

OC's current regulations do not require operators to report actual production by well and therefore cannot monitor to identify if a well becomes inactive. The most accurate way for OC to identify inactive wells is to require that operators report production by well; however, OC regulations do not require this. OC requires that operators report production amounts through monthly production reports that are used to calculate mineral royalties and severance taxes owed to the state. However, these reports show production amounts on a lease or unit basis which usually consists of multiple wells. According to OC personnel, production reports showing total monthly production by an operator on a particular lease or unit cannot be used to determine how much a well produces because production is not reported on a well by well basis. Most of the other states we surveyed monitor production on individual wells. According to OC, to monitor production by individual well, operators would have to install flow meters on wells which are currently not required and would be expensive. OC did require that gas be reported on a per well basis, but eliminated this requirement in 2000.

Exhibit 9
Abandoned Inactive Well Still in Active Status in SONRIS

According to OC, routine inspections are the primary method OC currently uses to monitor wells to identify whether a well is still producing. However, as stated previously, OC did not always complete its required routine inspections. Without monitoring an individual well's production, OC cannot identify a well that is no longer producing and therefore in need of being plugged by the operator or placed in future utility.

OC's additional methods are insufficient for identifying inactive wells. Inactive wells may also be identified on two different periodically submitted reports. According to OC regulations, operators must indicate their inactive wells on both inactive well reports and well test reports and identify the well as having either future utility or no future utility. However, inactive well reports are not used by OC because they are not submitted electronically and are therefore ineffective at identifying inactive wells. Well test reports also require the operator to identify their wells as inactive, and also include the results of well tests showing a well's potential daily rate of production. According to OC, it reviews these well test reports, ensures that all operators have submitted them timely, and updates all well status changes in SONRIS. However, this method is not effective for identifying inactive wells because of the following:

- **Although regulations require that all producers submit well tests, OC allows operators of certain wells to be exempt.** According to OC, it does not require that stripper lease wells or incapable gas wells in the Monroe Field submit well tests. Stripper lease wells are wells that produce less than an average of 10 barrels of oil per day and are part of a lease. Incapable gas wells are wells that are incapable of producing an average of 250,000 cubic feet of gas per day. In fiscal year 2012, there were approximately 17,000 stripper lease wells and 8,000 incapable gas wells in the Monroe Field exempt from well tests. However, these exemptions are not included in the regulations and OC could not provide any official policy or other documentation that these exemptions are allowed. However, because these wells are low producing wells they have a higher risk of becoming inactive. Therefore, exempting these types of wells makes it impossible for OC to effectively monitor and identify when wells become inactive.

- **Although regulations require that well test reports for oil wells be submitted six times per year, OC only requires them twice a year.** OC changed this requirement to semiannually through correspondence to all operators on August 21, 2000, in an effort to reduce reporting requirements on the regulated industry and OC staff workload. However, regulations have not been updated to reflect this change.

- **Even though it reduced the number of well tests required, OC did not ensure that operators submitted required well test reports twice a year.** As of July 1, 2010, there were 25,802 wells that should have had a well test report submitted by the well's operator. However, operators did not submit well tests reports on 3,492 (13.5%) of these 25,802 wells during fiscal years 2011 and 2012. In addition, of the 22,310 wells that did have well test reports submitted, 3,899 (17.5%) of the wells did not submit the required number of reports (four reports) over the two fiscal years.

- **Operators may not be reporting wells as inactive once they are no longer producing.** Of the 18,476 wells that submitted all four well test reports in fiscal years 2011 through 2012, 6,027 (32.6%) had no production potential reported on the well during this timeframe. Of those wells with no production potential, 238 wells were listed as active by their operators. Since these wells had no production

potential reported on them over a two-year period, this could indicate that they may no longer be active, producing wells and therefore need to be plugged or placed into future utility.

Although OC regulations do not require that operators report production by well, the Louisiana Department of Revenue (LDR) requires that operators of incapable and stripper wells report production by well. As mentioned earlier, incapable wells produce less than an average of 25 barrels of oil a day and stripper wells produce less than an average of 10 barrels per day. Both types of wells pay reduced severance taxes because of their low production. In order to accurately determine whether these wells continue to be eligible for reduced severance taxes, LDR requires that operators report production by well every month. We used LDR production data to determine whether wells with no production during fiscal years 2010 to 2012 were listed as active in OC's SONRIS and found that 349 (37%) of 954 wells were listed as active producing wells. The fact that these wells did not produce any oil during this timeframe may indicate that these wells are inactive.

Because current regulations do not require that operators report production by well and OC does not use the operator submitted inactive well reports or ensure that operators submit required well test reports, its process is insufficient to identify wells that are no longer producing. Therefore, OC cannot ensure that inactive wells are properly acted upon by the operators in a timely manner, which may increase the likelihood that they are abandoned and ultimately orphaned by the state.

Recommendation 10: OC should develop a reliable and efficient method to identify inactive wells, which may include requiring operators to report production on a well basis or periodically obtaining production data on low producing wells from LDR.

Recommendation 11: OC should ensure that operators submit all well test reports as required by regulations. If OC continues to allow operators to submit two well test reports instead of the six currently required by regulations, it should revise the regulations to reflect current practice.

Recommendation 12: If OC continues to allow stripper lease wells and incapable gas wells in the Monroe Field to be exempt from well tests, it should formalize this exemption in the regulations.

Recommendation 13: OC should develop a method for operators to submit electronic inactive well reports so that OC can use these reports to identify inactive wells.

Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

OC did not consistently ensure that inactive wells identified as having no future utility were plugged as required by state regulations.

OC regulations require that all wells classified as having no future utility be plugged by the operator within 90 days unless the Commissioner approves the well being placed on a plugging schedule or grants an extension. Inactive wells with no future utility that are not properly plugged pose environmental and public safety risks and may eventually become orphaned. However, as illustrated below, we found that OC did not always ensure that inactive wells were plugged as required by regulations. We used wells identified by their operators as inactive on well test reports that were submitted in fiscal years 2008 through 2013 to determine if OC addressed inactive wells with no future utility and found the following:

- **OC is not always issuing compliance orders to plug inactive wells with no future utility.** During fiscal years 2008 through 2013, 747 wells were self-reported on well tests as having no future utility. Of these, 482 (64.5%) were not properly plugged by their operator as required by state regulations. If an inactive well with no future utility is not addressed by the operator within 90 days, OC has the authority to issue a compliance order requiring that the operator plug the well. However, of the 482 wells listed as having no future utility on well test reports submitted during fiscal years 2008 through 2013, but not plugged by the well's operator, OC did not issue compliance orders on 416 (86.3%) as of June 30, 2013. As a result, OC is not always holding operators accountable for plugging their wells.

- **OC did not always ensure wells were properly plugged or were plugged timely after ordering the operator to do so through compliance orders.** During fiscal years 2008 through 2013, OC ordered 2,323 wells to be plugged through compliance orders.[22] As of June 30, 2013, SONRIS indicated that 1,225 (53%) wells were compliant with the order as the well had either been plugged by the operator, placed into future utility status, or placed back into production. When comparing these wells to other records, we determined that 591 of these wells were actually plugged, but only 129 were plugged within the 90-day timeframe, as directed by OC. According to OC regulations, a well may be plugged within a timeframe greater than 90 days if it is included in a schedule of abandonment or granted an extension of time by the Commissioner. Of the remaining 1,098 wells that were not in compliance, 663 were in a "pending" status and had not been addressed by the operator, and 435 were orphaned or were pending being orphaned. Exhibit 10 summarizes the timeframe and outcome of the wells ordered plugged through compliance orders from fiscal years 2008 through 2013.

[22] This figure is higher than the number of wells that were reported as having no future utility because OC can also issue orders to plug for wells in other statuses (e.g., future utility, active, etc.).

Exhibit 10
Outcome of Wells Ordered Plugged During Fiscal Years 2008-2013
As of June 30, 2013

Outcome	Wells	Percent
Plugged	591	25.4%
Within 90 Days	*129*	*21.8%*
Greater than 90 Days	*462*	*78.2%*
Compliant through Other Means	634	27.3%
Pending Plugging	663	28.5%
Orphaned or Pending Orphaned	435	18.7%
Total Wells Ordered Plugged	**2,323**	**100.0%**

Source: Prepared by legislative auditor's staff using SONRIS data.

As the exhibit shows, there are 663 wells that were pending being plugged. Although the wells in this status may have been approved for an extension, none of the extension requests were in SONRIS because OC does not upload compliance orders and associated documents in SONRIS until the well is in compliance. We reviewed the 663 in pending status to see how long ago they were ordered to be plugged and found that 323 (48%) were ordered to be plugged three or more years ago. As stated earlier, OC can approve extensions. However, OC needs to begin tracking these extensions electronically so it can better monitor inactive wells and ensure that those with no future utility are plugged in a timely manner.

Recommendation 14: OC should ensure that wells identified as having no future utility are plugged within 90 days as required by regulations.

Recommendation 15: OC should ensure that when it issues a compliance order to plug a well, the operator plugs the well in a timely manner.

Recommendation 16: OC should develop a method to track when a schedule of abandonment or an extension is granted.

Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

OC does not have sufficient regulations regarding inactive wells with future utility. As a result, wells can be placed in this status for extended periods of time to avoid being plugged and are at a higher risk of becoming orphaned.

In accordance with regulations, once operators place their inactive wells under future utility status, they must specify if the well will be placed back into production or be used for alternative purposes (such as a service well or saltwater disposal well). Although regulations require that OC district managers periodically review all wells in future utility status, OC does

not have any provisions that require operators to specify the timeframe in which the well will be put back into production or to limit the amount of time that an inactive well can be kept in future utility status. As a result, operators may be "hiding" inactive wells under this status to avoid plugging the well and may eventually abandon the well.

As of June 30, 2013, there were 11,269 inactive wells listed in future utility status, according to OC's SONRIS. Of these 11,269 wells, 5,239 (46.5%) were listed as being in future utility status for over 10 years. Exhibit 11 summarizes the length of time these wells have been in future utility status as of June 30, 2013.

Exhibit 11
Future Utility Wells
As of June 30, 2013

Years in Status	# Wells	Percent
0 - 3 Years	2,741	24.3%
3.1 - 5 Years	1,090	9.7%
5.1 - 10 Years	2,199	19.5%
10.1 - 25 Years	3,275	29.1%
25.1 - 50 Years	1,535	13.6%
50.1+ Years	429	3.8%
Grand Total	**11,269**	**100.0%**

Source: Prepared by legislative auditor's using data from SONRIS.

Unlike Louisiana, most states we reviewed specify a timeframe for how long wells can be kept in future utility. These timeframes range from one year to five years with provisions for extensions. Exhibit 12 summarizes timeframes and extensions for the states we reviewed.

Exhibit 12 Timeframes for Inactive Wells*		
State	**Initial Period**	**Extensions**
Alaska	Indefinite	No specific time period
California	None, but require that operators with idle wells not covered by an indemnity bond put $5,000 in escrow, file an indemnity bond for $5,000, or pay annual fees ranging from $100 to $500 per well	
Colorado	1 year	1 year, unlimited number
Louisiana	No time limit	N/A
New Mexico	5 years	4 years, unlimited number
North Dakota	1 year	1 year, unlimited number
Oklahoma	5 years	2 years, unlimited number
Pennsylvania	5 years	Year to year, unlimited number
Texas	1 year	1 year, 4 times; unlimited number for bonded wells
Wyoming	2 years	2 years, unlimited number

*States have different terminology for inactive wells, such as idle wells and temporarily abandoned.
Source: Prepared by legislative auditor's staff using IOGCC information and information from state websites.

Wells in future utility may be at a higher risk of becoming orphaned. We also found that many orphan wells were classified as having future utility prior to being orphaned. We analyzed 8,682 wells that were ever in an orphan status to determine the well's status prior to being orphaned and found that 1,982 wells (22.8%) were listed in future utility status prior to being orphaned which was the second most frequent status.[23] Of the 1,982 wells listed in future utility prior to becoming orphaned, 1,774 (89.5%) were in this status for longer than three years. This may indicate that the longer an inactive well is listed in future utility status, the higher the risk that the well may be orphaned.

To address the risk of future utility wells becoming orphaned, five of the nine states we reviewed require that operators provide additional financial security on wells in future utility status. Having financial security on the well would allow the state to use it to plug and abandon the well should the operator orphan the well. For example,

- Colorado requires additional financial security ranging from $10,000 to $20,000 depending on the well depth.

[23] Future utility was second behind "Active - Producing" wells which made up 48% of well statuses immediately prior to a well being orphaned. However, as stated in this report, OC does not effectively monitor oil and gas wells to ensure that inactive wells that are no longer producing are identified. Therefore, it is likely that many of those active wells should have had either a future utility or no future utility status prior to orphaning.

- Texas may require additional financial security for the amount it costs to plug all of the operator's inactive wells or $2 million, whichever is less.

- California requires operators to place $5000 per inactive well in escrow or pay annual idle well fees ranging from $100 to $500 per well per year.

Currently, OC regulations state that the Commissioner or his agent may require "the posting of a reasonable bond with good and sufficient surety in order to secure the performance of the work of proper abandonment" but the Commissioner has never required this for all future utility wells. Of the 11,269 wells listed in future status as of June 30, 2013, 8,554 (75.9%) were not covered by financial security.

Recommendation 17: OC should develop a specific timeframe for how long an inactive well can remain in future utility status, including how often and under what circumstances extensions will be granted.

Recommendation 18: OC should consider requiring additional financial security or charging a yearly fee for wells in future utility status because the longer a well is in this status, the higher the likelihood that it will be abandoned.

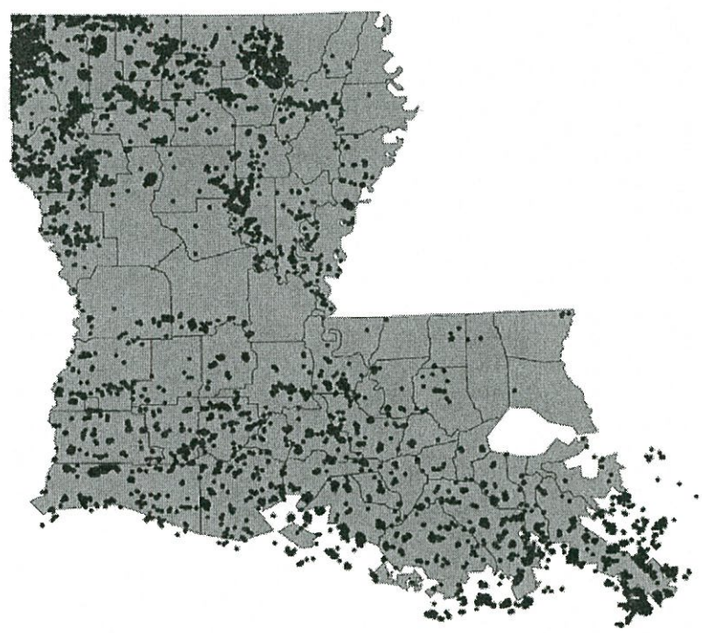
Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

Because OC has not always identified and effectively regulated inactive wells, the current orphaned well population may grow in the future.

As of July 2013, there were 2,846 known orphaned wells in Louisiana. However, because OC has not always identified and effectively regulated inactive wells, the current orphaned well population may grow. For example, because OC does not have an effective process to identify inactive wells, many of these unidentified inactive wells may already be abandoned by their operators, but have not yet been orphaned. In addition, since OC does not have sufficient regulations over inactive wells, which have a high risk of becoming orphaned, many of these wells may also become orphaned. As of June 30, 2013, there were 12,181 oil and gas wells in an inactive status (both future and no future utility status), which represents 21% of the total oil and gas well population. Of these, 8,528 wells have been classified as having future utility for greater than three years and 887 wells have been in no future utility status for longer than 180 days. Both of these populations of wells (9,415 in total) can be considered at risk of being orphaned.

Exhibit 13 shows a map of the current population of orphaned wells (in red) with all the inactive wells (in blue) that are at risk of being orphaned.

Exhibit 13
Wells At Risk of Becoming Orphaned
As of June 30, 2013



Source: Prepared by legislative auditor's office using SONRIS data.

Implementing and enforcing stronger regulations may result in an increase in the current population of orphan wells, as many operators may not be able to afford to plug all of their inactive wells or may have already abandoned the well. However, if implemented, better methods will ultimately help to reduce the number of orphaned wells in the long-run. For example, inactive wells will be identified sooner through routine inspections and through better monitoring of a well's production. In addition, better enforcement would result in operators being required to take action once their well goes off production when the likelihood of the operator having the financial capabilities to address the well are higher. In addition, stronger regulations to require that all operators provide financial security in an amount sufficient to cover the cost to plug the well will provide the state with the funding necessary in the event it is orphaned.

Objective 2: Has the Office of Conservation effectively managed the current population of orphaned wells?

OC has not always effectively managed the current population of orphaned wells. According to OC, it is unable to keep pace with the growing population of orphaned wells. During fiscal years 2008 through 2013 OC was only able to annually plug an average of 95 orphaned wells even though an average of 170 additional wells were orphaned each year. Overall, we found the following:

- Because it changed its focus to plug urgent and high priority orphaned wells, OC is not able to reduce the total population of orphaned wells. Because of the increased costs associated with plugging higher risk wells, OC has reduced the number of wells plugged each year. Although focusing on urgent and high priority wells helps ensure that wells that pose a greater risk are addressed first, this focus has reduced the number of wells plugged from 177 in fiscal year 2010 to 42 in fiscal year 2013.

- OC did not always conduct required inspections of orphaned wells. Of the 270 wells orphaned from September 2010 to April 2013, OC did not inspect 124 (46%) of 270 orphaned wells within 90 days and 87 (70%) of these 124 were not inspected at all as of July 2013. In addition, OC did not conduct routine inspections of 1,630 (76%) of 2,156 orphaned wells every three years in accordance with timeframes established by the Commissioner. Conducting inspections is important to ensure that wells are appropriately prioritized for plugging and that conditions at the well site do not pose a risk to the environment.

- OC has not used $1.5 million in financial security collected from operators whose wells were orphaned. Although OC has collected financial security on 208 orphaned wells, it has not yet used these funds to plug the wells because they are waiting on a legal interpretation on how to transfer these funds.

- OC does not routinely recover costs from operators who abandoned wells but does seek recovery costs from previous operators. Since 1993, OC has recovered $3.6 million from 13 previous operators of orphaned wells.

- Increasing production fees and identifying other sources of funds, such as permit fees, civil penalties, and inactive well fees, would help generate additional funding to help reduce the current population of orphaned wells.

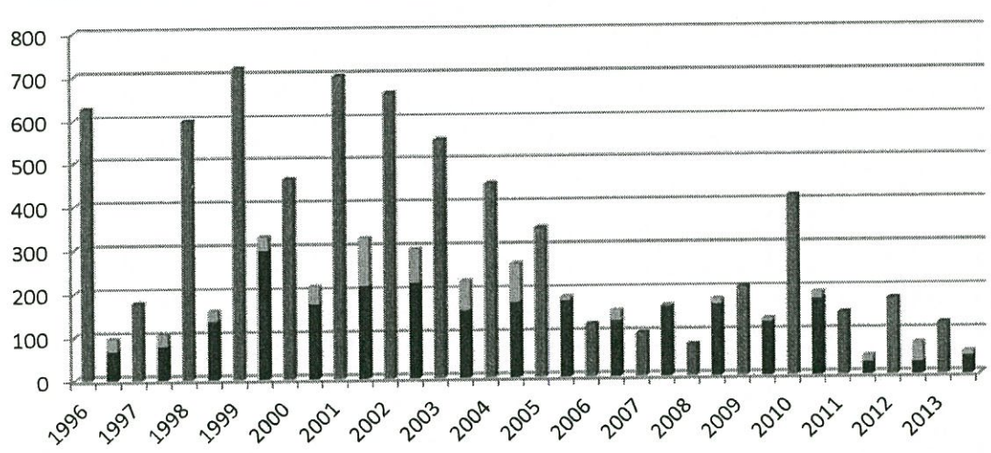
Because OC changed its focus to plug urgent and high priority orphaned wells, OC is unable to reduce the total population of orphaned wells.

Exhibit 14
Barataria Bay Accident Which Changed Plugging Focus

OC uses a priority system to determine when to plug orphaned wells. This system ranks well sites from one (urgent) to four (low) depending on various risk factors, including whether the well is leaking, whether the well is a navigational hazard, and whether the well is within a certain distance of a public water supply. Since 2011, OC has focused on plugging urgent and high priority wells since these wells pose the most environmental and public safety risks. OC shifted its priority when a barge collided into an orphaned oil well in Barataria Bay, causing a discharge of oil into the surrounding environment, as shown in Exhibit 14.

While this focus helps ensure that OC addresses the riskier wells first, it has significantly decreased the total number of wells OC is able to plug each fiscal year (an average of 33 wells since 2011) due to the increased costs associated with plugging higher priority wells (an increase from $26,000 to $163,000 per well average). Exhibit 15 summarizes the number of wells added to the orphaned population each year versus the number of orphaned wells plugged.

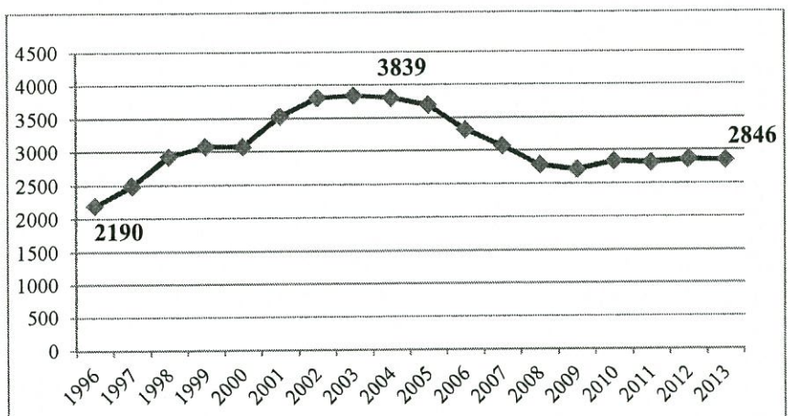
Exhibit 15
Orphan Wells Added Versus Total Plugged
FY 1996 to 2013



Source: Prepared by legislative auditor staff using information provided by OC.

As a result of the decrease in the number of wells plugged each year, the total population of orphaned wells remained at near constant levels since fiscal year 2011, or slightly over 2,800 wells as shown in Exhibit 16.

Exhibit 16
Number of Orphaned Wells
Fiscal Year 1996 to 2013



Source: Prepared by legislative auditor's staff using data from OC.

OC did not always conduct required inspections of orphaned wells.

According to a September 21, 2010 memorandum, district Conservation Enforcement Specialists (CESs) are required to inspect orphaned wells within 90 days of orphaning. CESs are also required to conduct routine inspections of orphaned wells at least once every three years. However, we found that OC did not always conduct these required inspections as detailed below.

Initial Inspections. The purpose of initial orphan inspections is to assign a priority rating to the orphaned well. However, of the 270 wells orphaned from September 2010 to April 2013, OC did not inspect 124 (46%) of 270 orphaned wells within 90 days and 87 (70%) of these 124 were not inspected at all as of July 2013. The amount of time these 87 wells had been orphaned ranged from 130 to 953 days. Conducting these inspections is important to ensure that wells are prioritized for plugging appropriately.

Routine Inspections. The purpose of routine inspections is to monitor the well site to determine if the priority rating of the well should be increased if the condition of the well deteriorates. However, we found that OC did not inspect 1,630 (76%) of 2,156 orphaned wells at least once every three years in accordance with timeframes established by the Commissioner. Conducting inspections of orphaned wells is important because if conditions at the well site deteriorate, the cost of remediating the site would likely increase. In addition, because these orphaned wells do not have any operator to monitor and maintain the site or to report incidents, it is important that the state properly inspect and monitor the condition of these wells.

Recommendation 19: OC should ensure that it conducts inspections to prioritize orphaned wells within 90 days as required.

Recommendation 20: OC should ensure that it conducts routine inspections as required by the Commissioner.

Summary of Management's Response: OC agrees with these recommendations. See Appendix A for OC's full response.

OC has not used $1.5 million in financial security collected from operators who orphaned wells.

As discussed earlier, some operators are required to provide financial security when issued a permit to drill oil and gas wells. Financial security provides the state with funds to plug wells in the event that the operator abandons the well. Since financial security went into effect in July 2000, 208 wells that had financial security in place have been orphaned. Because financial security was in place, the state was able to collect $1.5 million to plug these wells. OC placed this money it collected on financial securities into an escrowed account. However, OC has not used any of this money to plug the associated orphaned wells because it is waiting on a legal interpretation on how to transfer these funds. OC could use this money to enter into additional projects to plug these orphaned wells and further reduce the total population. As shown in Exhibit 17, some of these wells that had financial security collected on them have been orphaned for over 10 years.

Exhibit 17
Orphaned Wells with Financial Security
Fiscal Year 2001 - 2013

Years Orphaned	Number of Wells	Percent
0 - 1	14	6.7%
1 - 3	88	42.3%
3 - 5	70	33.7%
5 - 10	24	11.5%
Over 10	12	5.8%
Total	**208**	**100%**

Source: Prepared by legislative auditor's staff using data from SONRIS.

Recommendation 21: OC should use available funds from its escrow account to plug the orphaned wells that had financial security.

Summary of Management's Response: OC agrees with this recommendation. See Appendix A for OC's full response.

OC does not routinely recover costs from operators who orphaned wells but does seek recovery costs from previous operators.

According to a October 21, 2009 memo from the Commissioner to a previous DNR Secretary, because orphaning wells involves the determination that either no responsible party can be found or the responsible party is unable to undertake actions ordered by the Commissioner, recovery from the last responsible party is "inherently unlikely." Therefore, although 160 orphaned wells have been plugged voluntarily by operators who orphaned them, DNR stated that it does not routinely seek recovery costs from responsible parties.

According to the memo, OC does not seek recovery costs from operators who orphaned wells because OC cannot always identify who the responsible parties are or who their officers or interest owners are. OC cannot identify these individuals because it does not require that companies submit detailed information on their annual organization reports. OC requires that all operators submit an organizational report each year that provides information on owners, directors, and officers. However, OC does not require social security numbers or other unique identification information, such as driver's license numbers, which would help OC better locate individuals who are associated with orphaned wells. OC also does not seek recovery costs because, according to OC, when an operator cannot perform site restoration activities ordered through compliance orders, it is nearly always due to a lack of financial capability.

Although OC does not routinely seek to recover costs from operators who orphaned wells, it has sought recovery costs from previous operators. R.S. 30:93 only allows DNR to seek recovery costs from prior operators of orphaned wells when the cost of site restoration exceeds $250,000.[24] According to OC, it is rare for a site restoration project to exceed this amount. Since 1993, there have been a total of 13 individual cost recoveries from previous operators totaling $3,604,209. Exhibit 18 shows an example of a site restoration project.

Exhibit 18
Site Restoration Project

Voluntary site specific trust accounts (SSTAs) help ensure operators pay for site restoration costs. According to OC, many orphaned wells may result from larger companies selling low producing wells to smaller companies because decreased well production may no longer support overhead costs and profit margins for the larger company. The smaller companies may then abandon these wells once they are no longer producing because they do not have the funds to properly plug them. Of the total population of wells (8,682) that have ever been orphaned, 6,537 (75%) were transferred at least once prior to the orphaned date.

[24] This amount was raised by Act 225 in 2004 from $200,000 to $250,000 at the request of industry.

Because OC has sought cost recovery from previous operators, some operators who sell their wells are establishing SSTAs. R.S. 30:88 allows operators selling wells to other operators to establish voluntary SSTAs to provide a source of funds for plugging wells and restoring sites. These accounts are usually established because the previous operators do not want to be held liable for costs in the event the operator purchasing the wells later abandons them. In most cases, these accounts are funded by the operator purchasing wells, but both parties may also contribute. The amount of funding needed for the SSTA is based on a site assessment conducted by an outside contractor who estimates the cost of restoring the site. Once the SSTA is fully funded[25] the party transferring the wells and prior owners will not be held liable by the state for any restoration costs regardless of the total cost. OSR currently manages approximately 56 SSTAs involving 1,004 wells totaling over $66,870,193.

According to OC, no wells with SSTAs have ever been orphaned. Therefore, since a high percentage of orphaned wells were transferred prior to the orphan date and no wells associated with SSTAs have ever become orphaned, the legislature should encourage more operators to establish these voluntary accounts by reducing the minimum site restoration recovery cost from $250,000 to a lower amount that is more in line with what actual site restoration costs are estimated to be.

Matter for Legislative Consideration: To encourage operators to enter into voluntary SSTAs, the legislature should consider decreasing the minimum site restoration recovery cost amount from $250,000 to one that is more in line with actual site restoration costs.

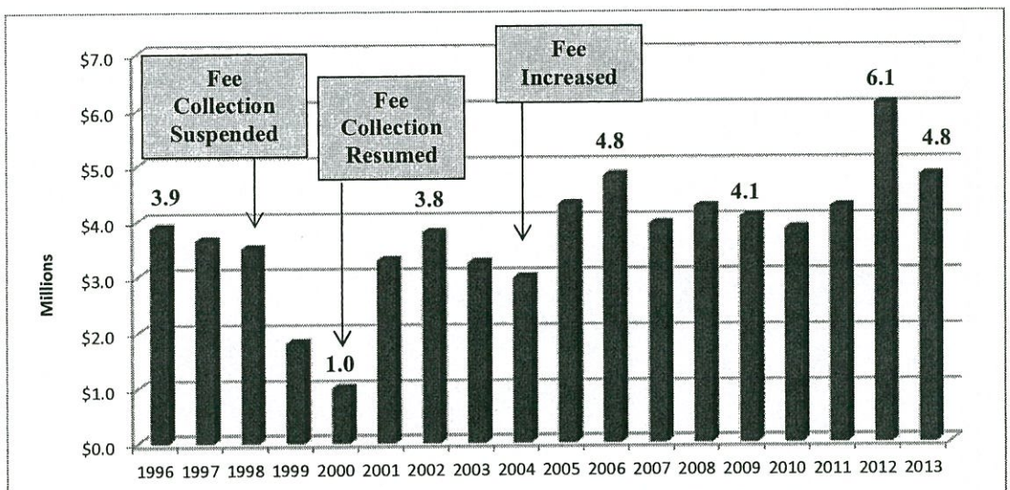
Increasing production fees and identifying other sources of funds would generate additional funds to help reduce the current population of orphaned wells.

R.S. 30:86 establishes the Oilfield Site Restoration (OSR) Fund to provide funds for site restoration and plugging costs associated with orphaned wells. The fund was established by statute in 1993 and is funded primarily[26] from a fee on oil and gas production in the state, paid quarterly by oil and gas operators. Some wells[27] are exempt from paying the fee and other wells pay a reduced production fee. The production fee consists of $0.015 for every barrel of oil and condensate produced and $0.003 for every thousand cubic feet of gas produced, equaling

[25] Funding of the SSTA includes contributions to the account at the time of the transfer and at least quarterly payments to the account until it is fully funded. The SSTA may be funded with cash or bonds in a form and of a type acceptable to the commissioner. When transfers of well sites occur subsequent to the SSTA but prior to the end of the economic life, the commissioner and acquiring party redetermine the cost and agree upon a funding schedule.
[26] Other revenue sources are possible such as private contributions, interest earned on the fund, civil penalties or costs recovered from responsible parties for site restoration, grants, donations, and sums allocated from other sources. However, according to OC, the primary source is the production fee.
[27] Wells that are exempt from severance taxes are also exempt from this fee. Incapable and stripper wells pay a reduced production fee. These exemptions and reduced fees resulted in approximately $4.4 million in lost revenue to the fund.

approximately $4.8 million in fiscal year 2013, or 0.03% of total oil and gas revenue for that year.[28] Exhibit 19 summarizes the amount collected in the OSR Fund since fiscal year 1996.

Exhibit 19
Amount Collected in OSR Fund[29] in Millions
Fiscal Years 1996 to 2013



Source: Prepared by legislative auditor's office using information from OC.

As the exhibit shows, the production fee was suspended from fiscal years 1998 to 2000 because the fund reached its cap of $10 million. The production fee resumed in fiscal year 2000 when the fund went below $6 million. In 2004, Act 412 increased the fee by 50%. As a result of the fee increase, annual fee collections increased and, subsequently the total number of orphaned wells decreased to 2,709 in fiscal year 2009, a decrease of 29%. Despite this increase, the current production fee is not sufficient to address the current population of orphaned wells, as the number of wells orphaned each year exceeds the number of wells removed from the orphan list.

Other sources of revenue could also help to increase funding. In addition to production fees, other states use different sources of funds to plug orphaned wells. According to an Interstate Oil and Gas Compact Commission (IOGCC) survey in 2008, states use the following four sources of funds:

1. Fees, including annual fees, permit fees, civil penalties, and fees for inactive wells

2. Public funds, including appropriations and agency operating budgets

[28] Based on average oil and gas prices and the total amount of oil and gas produced in Louisiana during fiscal year 2013, operators would have received approximately $16 billion in total revenues from the sale of their oil and gas.
[29] The OSR Fund has been raided three times since its inception. In fiscal year 2006, $423,566 was extracted from the OSR Fund, but this amount was credited back to the fund in FY 2008. The OSR fund was also raided in FY 2009 and FY 2012 for $277,388 and $260,854, respectively; however, according to DNR, these amounts have never been deposited back into the Fund's account.

3. Revenue, including forfeited bonds and proceeds from the sale of any equipment of value at the plugging site

4. Taxes, including excise taxes and production taxes

Exhibit 20 summarizes what sources of funds the other states we reviewed use to plug abandoned or orphaned wells.

Exhibit 20
Sources of Funding for Plugging Orphaned Wells in Other States

State	Source(s) of Funding
Alaska	Operating budget
California	Production assessment and idle well (inactive well) fee
Colorado	Mill levy imposed on the market value of oil and gas produced
Louisiana	Production fee
New Mexico	Percentage of severance tax and forfeited bonds
North Dakota	Permit fee, civil penalties, operating budget, forfeited bonds, salvage
Oklahoma	Excise tax of one hundredth of one percent of the gross value of oil and gas produced
Pennsylvania	Permit fees and surcharges from $100 to $200 per well
Texas	Production taxes, permitting fees, organizational report filing fees enforcement penalties
Wyoming	Conservation tax on oil and gas revenue, bond revocations, fines and equipment sales

Source: Prepared by legislative auditor's staff using IOGCC information.

As the exhibit shows, states use a variety of sources to generate funding for plugging wells. For example, Texas's Oil and Gas Regulation and Cleanup Fund is derived from a combination of production taxes, permit fees, enforcement penalties and fees for filing organizational reports. In fiscal year 2012, Texas's fund received approximately $44.5 million in revenue. We found that Texas charges higher fees than Louisiana for certain permits and for filing organizational reports because it adds a surcharge on top of the base fee amount. For example, in Texas it costs $200 for a permit to drill less than 2,000 feet which is similar to Louisiana's permit fee of $252 for wells 3,000 feet or less; however, Texas adds a 150% surcharge on top of this permit fee to be paid into its orphan well program, which makes the total permit fee $500. In addition, Louisiana charges all operators a $105 one-time fee for filing its organizational report, while Texas charges operators a fee of $300 to $1,000 depending on the operator's number of wells. However, with the surcharge, the total fee for filing organizational reports ranges from $750 to $2,500.

The legislature should consider other sources of funds, such as surcharges on permit fees and other forms, civil penalties, and fees imposed on inactive wells, to provide additional funding to address the orphan well population.

Matter for Legislative Consideration: The legislature should consider increasing the production fee it requires operators to pay for the OSR Fund and increase the cap of the fund.

Matter for Legislative Consideration: The legislature should consider additional sources of revenue for the OSR Fund, such as a surcharge on current fees, or dedicating a portion of other revenue, such as permit fees, civil penalties, or organizational report fees to the fund.

APPENDIX A: MANAGEMENT'S RESPONSE

Bobby Jindal
GOVERNOR

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

Stephen Chustz
SECRETARY

James H. Welsh
COMMISSIONER OF CONSERVATION

May 15, 2014

Mr. Daryl Purpera, CPA
Louisiana Legislative Auditor
Post Office Box 94397
Baton Rouge, Louisiana 70804-9397

Dear Mr. Purpera:

I would like to open the Office of Conservation's response to the final audit report by thanking the audit team and other staff members of the Office of the Legislative Auditor for their efforts in working to encapsulate the Office of Conservation's regulation of oil and gas well operations in a manner that not only defines the most significant challenges to that regulatory effort, but provides recommendations and insights on dealing with those challenges moving forward.

The Office of Conservation has already been in the process of addressing several of the concerns listed in the report. Many of the issues raised in the audit report are being addressed as part of Conservation's review of statutes and rules regarding plug-and-abandonment of wells pursuant to the Louisiana Legislature's HCR 102 of 2014.

It is important to note that Conservation takes the job of regulating the oil and gas industry seriously, with field agents conducting an average of about 26,000 site inspections a year (more than 160,000 were conducted over the period audited) in addition to geologists, engineers, accountants and other professionals monitoring production, reviewing well designs and assessing site geology, among other functions. At the same time the office handles new drilling and well activity, it must also work to find the best ways to manage the information and operations dating back through the previous century of drilling activity, including some active wells that pre-date the Great Depression.

Conservation staff and management have been diligent in working to resolve these issues and will continue seeking a means to do so that does not create unintended consequences such as sharply increasing the rate of wells having to be declared orphaned.

This audit report provides validation for Conservation's recognition of those issues, well-founded suggestions for a path forward, and also an independent viewpoint that may serve as clear justification for new rulemaking that allows the state to take the next step in the ongoing

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effort to seek ways to adapt regulation to new developments in available technology and to changing industry practices in continuing to promote responsible operations in the industry.

In light of the foregoing, I would like to address the audit report findings and recommendations (Audit comments in italics):

Unlike other states, OC's current regulations do not require that all operators provide financial security. Currently, 25% of oil and gas wells have financial security.
Conservation agrees with the recommendations related to this comment. Most producing states, upon adopting financial security rules, had to make some regulatory accommodation for wells that pre-existed such rules and Louisiana was no different when adopting financial security rules in 2000. As was observed in the audit report, Louisiana's implementation of financial security rules came much later than other major producing states – some states rules pre-dated Louisiana's by more than 75 years – meaning a much larger population of pre-existing wells that had to be considered when developing financial security rules that would not create the potential of a massive wave of wells Conservation would likely have to declare orphaned and bring into the Oilfield Site Restoration Program.

Recommendation 1: OC should consider revising its current regulations and require that all operators provide financial security or some type of financial assurance on newly permitted wells or wells with amended permits.
Conservation agrees with this recommendation. Conservation re-visited the issue of financial security between 2009 and 2011, and had much the same findings as the current audit report. That effort ran into the same obstacles encountered during the initial rulemaking in dealing with old active wells without having to declare a massive number of wells as orphaned, thereby potentially adding to the burden on the OSR Program while removing economic assets and production. However, recommendations made in this audit report offer a potential path forward as well as an independent view that can be utilized as justification for new rulemaking to address the issue in a phased approach as opposed to past attempts that sought a sweeping solution through a single regulatory mechanism that attempted to address all issues.

OC's financial security amounts outlined in regulations are not sufficient to cover the cost of plugging all wells.
Conservation agrees with the recommendations related to this comment. In the 2009-2011 study mentioned previously, Conservation staff came to a similar conclusion. Few states require financial security in amounts great enough to cover the cost of plug-and-abandonment of all wells operated, but Conservation will utilize the audit report as justification and guidance to initiate a new rulemaking effort that seeks a balanced solution. The key considerations will be providing for a financial security method that guarantees increased funding for plug-and-abandonment without creating a burden so great that a sharp increase in the number of wells Conservation would have to orphan could result, potentially increasing the burden on the OSR program while removing potential economic assets and decreasing overall production.

Recommendation 2: OC should revise its current regulations to increase the amount for financial security to be more reflective of the costs to properly plug and remediate orphaned

well sites. Additionally, financial security amounts should be periodically reviewed and adjusted to ensure they are reflective of the costs to plug and remediate orphan well sites.
Conservation agrees with this recommendation. Conservation will utilize the audit report as justification and guidance to initiate a new rulemaking effort that seeks a balance between sufficient financial security and not placing an unaffordable burden on existing operators. This issue will also be part of the study conducted under HCR 102 or 2014.

OC did not inspect at least 26,828 (53%) of 50,960 oil and gas wells in accordance with timeframes established by the commissioner and 12,702 (25%) were not inspected at all during this timeframe
OC cannot identify the actual number or type of violations cited on inspections because it does not capture the information in a format that can be easily quantified.
Conservation agrees with the recommendations related to this comment. It should be noted that the records demonstrate Conservation's inspectors were active and making inspections throughout the period – conducting more than 160,000 inspections (site field inspection, narrative reports, orphan, production, reserve pit) over the audit period. At an average of more than 26,000 per year, inspectors were making enough site visits to meet the stated goal, but often had to make multiple visits to new drilling operations (particularly in response to public concerns during the Haynesville Shale drilling boom), wells being re-worked or sites that had violations, complaints or incidents – Conservation now recognizes that the aggressive goal it set for itself may have been too ambitious, and will adopt a more risk-based approach as discussed in the audit report.

As noted, conversion of the SONRIS database from its original purpose of providing a public repository of electronic records to a regulatory management tool is a process that is ongoing, and Conservation will utilized the guidance provided by the audit report in its continuing effort to make SONRIS an effective tool to quantify the types of violations reported by inspectors.

Recommendation 3: ***OC should develop standard inspection procedures, including specific frequencies for inspections and how inspections should be scheduled.***
Recommendation 4: ***OC should monitor districts and hold them accountable for compliance with inspection frequencies.***
Recommendation 5: ***OC should develop the capability in SONRIS to capture types of violations cited on inspections.***
Conservation agrees with these recommendations. Conservation restructured its Engineering Division in early 2013 to provide greater focus and management on inspection and enforcement. At the same time, a standard operating procedure has been under development to establish methods for monitoring the progress of inspection schedules and routines for the districts to ensure metrics are in place to gauge district performance. Software development is planned to assist supervisors and staff with managing and prioritizing this large workload. In the meantime, Conservation will utilize existing technology to improve in this area.

Recommendation 6: ***OC should consider developing a risk-based inspection process that considers non-compliance as a factor in how often a well should be inspected.***

Conservation agrees with this recommendation, and will create standard operating procedures to better define risk factors used in determining well inspection frequency to better allocate manpower where it is most needed and effective.

OC has not developed an effective enforcement process that sufficiently and consistently addresses noncompliance and deters operators from committing subsequent violations.
Conservation agrees with the recommendations related to this finding. Conservation staff and management agree that a standard operating procedure should be drafted to ensure all violations reported are properly addressed. It should also be noted that simply counting violations per operator can lead to mischaracterization of an operator's efforts to comply with regulations, especially in light of the fact that a single finding on an inspection, even for a well sign issue or uncut grass, results in failure of that inspection. This can be a particular issue for large operators with thousands of wells spread across many parishes. An operator with 1,000 or 2,000 wells across several parishes may incur several violations over the course of five or six years that is not necessarily indicative of irresponsible operation.

Recommendation 7: ***OC should develop formal enforcement procedures outlining what types of violations should be addressed by what enforcement actions.***
Recommendation 8: ***As part of its enforcement procedures, OC should include criteria for when and under what circumstances re-inspections should be conducted.***
Conservation agrees with these recommendations. Conservation staff has initiated the development of formal enforcement procedures detailing the enforcement action to be taken for all types of violations. Previous practice had been variable based on the diverse sets of conditions presented in each individual case – from well or operator history to site-specific or area-specific issues or geologic conditions to observations made by field agents. While the case-by-case approach has certain merits in individual instances, Conservation is in agreement that formalized procedures are a better and more efficient management tool for the overall well population, and training is being developed along with standard operating procedures to achieve that end.

Recommendation 9: ***OC should increase its use of civil penalties, especially for operators with multiple instances of non-compliance.***
Conservation agrees with this recommendation. A standard operating procedure is being developed to establish and set criteria for civil penalties and evaluate their effectiveness in ensuring compliance. It is recognized that the goal of enforcement actions is to obtain compliance, not to serve as a regular source of revenue, and consistent enforcement activities and ongoing outreach to operators may ultimately result in decreasing the need for civil penalties.

Recommendation 10: ***OC should develop a reliable and efficient method to identify inactive wells, which may include requiring operators to report production on a well basis or periodically obtaining production data on low producing wells from LDR.***
Conservation agrees with this recommendation. Staff began work to set up electronic reporting of inactive wells in 2009, but the effort was delayed pending funding to upgrade SONRIS to automate the process. Funding has now been identified and Conservation expects to have a system in place by the end of the calendar year. Staff is working with the state Office of

Information Technology to develop a system to make tracking and quantifying of inactive wells more efficient in determining problem areas. Changes made to inspection tracking and management will also assist with this effort.

***Recommendation 11:* OC should ensure that operators submit all well test reports as required by regulations. If OC continues to allow operators to submit two well test reports instead of the six currently required by regulations, it should revise the regulations to reflect current practice.**

Conservation agrees with this recommendation. Long-standing practice in Conservation had shifted to requiring two well test reports a year due to the sheer volume of reports from wells across the state being unmanageable. Well tests were a critical tool in the period when allowables were a hard cap on production, but since that period, well tests have been required, but no longer play a significant role toward their original purpose. Conservation viewed organizing and maintaining that many reports from each well per year as an inefficient use of manpower, but had not codified that policy in rules. Conservation commits to changing the regulation to match longstanding practice.

***Recommendation 12:* If OC continues to allow stripper lease wells and incapable gas wells in the Monroe Field to be exempt from well tests, it should formalize this exemption in the regulations.**

Conservation agrees with this recommendation. On the issue of submitting well tests from such fields, again, the sheer volume of reports from the many wells in such fields was found to be unmanageable, and organizing and maintaining those records was seen as an inefficient use of manpower, but policy was not codified in rules. In addition, well tests were a critical tool in the period when allowables were a hard cap on production, since that period, well tests have been required, but no longer played a significant role toward its original purpose, therefore reporting only when a new well was brought into production in such fields was determined to be appropriate. Conservation commits to changing the regulation to match longstanding practice.

***Recommendation 13:* OC should develop a method for operators to submit electronic inactive well reports so that OC can use these reports to identify inactive wells.**

Conservation agrees with this recommendation. Staff began work to set up electronic reporting of inactive wells in 2009, but the effort was delayed pending funding to upgrade SONRIS to automate the process. Funding has now been identified and Conservation expects to have a system in place by the end of the calendar year. Staff are working with the state Office of Information Technology to develop a system to make tracking and quantifying of inactive wells more efficient in determining problem areas.

***Recommendation 14:* OC should ensure that wells identified as having no future utility are plugged within 90 days as required by regulations.**

Conservation agrees with this recommendation. A standard operating procedure is being developed to establish methods for tracking plugging schedules. In addition, as funds for upgrading the SONRIS system become available, Conservation's goal is to create an automated tracking system to better manage inspector workload for follow up.

***Recommendation 15:* OC should ensure that when it issues a compliance order to plug a well, that the operator plugs the well in a timely manner.**
Conservation agrees with this recommendation. A standard operating procedure is being developed to establish methods for tracking compliance orders and deadlines. In addition, as funds for upgrading the SONRIS system become available, Conservation's goal is to create an automated tracking system to better manage inspector workflow utilizing risk-based processes in making site visits to such wells. In the meantime, Conservation will utilize other technology to manage compliance tracking.

***Recommendation 16:* OC should develop a method to track when a schedule of abandonment or an extension is granted.**
Conservation agrees with this recommendation. Conservation does believe it is good policy to work with operators making good faith efforts to either bring wells back into production or plug-and-abandon, to ensure the best chance that operators plug such wells without them having to be moved into the OSR program as orphaned wells. A standard operating procedure is being developed to establish methods for tracking schedules of abandonment and extensions.

OC does not have sufficient regulations regarding inactive wells with future utility. As a result, wells can be placed in this status for extended periods of time to avoid being plugged and are at a higher risk of becoming orphaned.
Wells in future utility may be at a higher risk of becoming orphaned.
Conservation agrees with the recommendations related to this finding. Conservation's previous review of this issue came to a similar conclusion, but also recognized that such wells have value both from potential new production under a new operator willing to deepen or re-work existing wells and from potentially minimizing the environmental footprint of production by reducing the need for drilling new wells. As part of the study Conservation will conduct in accordance with HCR 102 of 2014, new rules will be considered to better manage inactive wells in a way that does not create unintended consequences that could lead to a larger population of wells declared orphaned.

***Recommendation 17:* OC should develop a specific timeframe for how long an inactive well can remain in future utility status, including how often and under what circumstances extensions will be granted.**
Conservation agrees with this recommendation. Conservation does believe it is good policy to work with operators making good faith efforts to either bring wells back into production or plug-and-abandon, to ensure the best chance that operators plug such wells without them having to be moved into the OSR program as orphaned wells. A standard operating procedure is being developed to establish methods for tracking schedules of abandonment and extensions. In addition, as funds for upgrading the SONRIS system become available, Conservation's goal is to create an automated tracking system to better manage inspector workload for inspections and extension timeframes.

***Recommendation 18:* OC should consider requiring additional financial security or charging a yearly fee for wells in future utility status because the longer a well is in this status, the higher the likelihood that it will be abandoned.**

Conservation agrees with this recommendation. While fee increases require legislative approval, the issue of making use of financial security as a tool for managing inactive and future utility wells is an important consideration for further review, and will be part of the study conducted in accordance with HCR 102 of 2014 to ensure that actions taken do not create unintended consequences that could lead to a larger population of wells declared orphaned.

Because OC did not always effectively regulate oil and gas wells, the current orphan well population may grow in the future. Because it changed its focus to plug urgent and high priority orphaned wells, OC is unable to reduce the total population of orphaned wells

Conservation agrees with the recommendations related to this finding. In considering orphaned wells, it should be noted that orphaning is an enforcement action taken by Conservation, and, in and of itself, is evidence of forceful regulation. Orphaning is the most severe regulatory step Conservation can take to either motivate operators to comply with regulations or stop the operations of non-responsive operators – depriving operators of the equipment and infrastructure in which they invested, in addition to lost production revenue. The OSR program has cleared the majority of the highest-priority well sites, and all remaining high-priority sites currently on the OSR list are expected to be plugged within the next few years, allowing the OSR program to return to its previous higher rate of plug-and-abandon projects completed per year.

***Recommendation 19:* OC should ensure that it conducts inspections to prioritize orphan wells within 90 days as required.**

Conservation agrees with this recommendation. A standard operating procedure is being developed to establish methods for tracking schedules of inspections. In addition, as funds for upgrading the SONRIS system become available, Conservation's goal is to create an automated tracking system to better manage inspector workload for site visits. In the meantime, Conservation will utilize existing technology to improve in this area and will evaluate the policy on the appropriate timing to establish priority of orphaned wells.

***Recommendation 20:* OC should ensure that it conducts required routine inspections as required.**

Conservation agrees with this recommendation. A standard operating procedure is being developed to establish methods for developing inspection schedules and to establish baseline procedures for inspectors to follow in conducting inspections. As suggested in the audit report, Conservation will adopt a more risk-based approach for scheduling inspection of wells, including those in the OSR program. In the meantime, Conservation will utilize existing technology to improve in this area.

OC has not used $1.5 million in financial security collected from operators who orphaned wells.

***Recommendation 21:* OC should use available funds from its escrow account to plug the orphaned wells that had financial security.**

Conservation agrees with this recommendation. Orphaned wells are plugged based upon their priority ranking on the prioritization list approved by the Oilfield Site Restoration Commission. To date, no wells covered by financial security have met the priority requirements to be plugged by the OSR program. Conservation is exploring legal avenues for addressing wells with financial

security escrow accounts in OSR bid packages for higher-priority wells to ensure funds are expended effectively.

In closing, I would once again like to thank the members of the audit team for their efforts and their recommendations.

With kind regards, I am

Very truly yours,

James H. Welsh
Commissioner of Conservation

JHW/dsw

APPENDIX B: SCOPE AND METHODOLOGY

We conducted this performance audit under the provisions of Title 24 of the Louisiana Revised Statutes (R.S.) of 1950, as amended. We conducted this audit in compliance with R.S. 24:522, which directs the legislative auditor to complete and publish at least one performance audit for each executive department agency within a seven-year period. The purpose of this audit was to determine if the Office of Conservation (OC) effectively regulated oil and gas wells to ensure operators comply with regulations. Specifically, we focused on OC's permitting (financial security requirements), monitoring, and enforcement processes. We also determined whether OC is effectively managing wells already orphaned. We primarily used Strategic Online Natural Resources Information System (SONRIS) data from fiscal years 2008 to 2013. The audit objectives were as follows:

Objective 1: Has OC effectively regulated oil and gas wells to ensure that operators comply with regulations?

Objective 2: Has OC effectively managed the current population of orphaned wells?

This performance audit was conducted in accordance with generally accepted government auditing standards issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and recommendations based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and recommendations based on our audit objectives. To answer our objectives, we reviewed internal controls relevant to the audit objectives to mitigate the risk of inaccurate data and performed the following audit steps:

- Researched Louisiana Revised Statutes, Administrative Code, Executive Budget documents, and DNR's website to understand OC's legal authority, role in the regulation of oil/gas and orphaned wells, and policies and procedures as it relates to regulation of oil/gas wells and orphaned wells.
- Interviewed DNR and OC staff to obtain an understanding of the policies and procedures and practices related to oil and gas regulation and orphaned wells.
- Interviewed OSR Commission members and other stakeholders to understand the role of the Commission as it relates to orphaned wells.
- Interviewed Conservation Enforcement Specialist staff in all three districts and accompanied them on site visits and inspections of oil and gas wells.
- Obtained and analyzed data from DNR's SONRIS to determine if OC adhered to its policies and procedures. Assessed the reliability of this data using

reasonableness tests and sample testing. Also evaluated input controls over SONRIS. When we identified reliability issues with data, we either eliminated the unreliable data from our analysis, corroborated the data with documentation, or disclosed the limitations of the data.

- Evaluated OC's financial security requirements, including comparing amounts to actual project costs and to other states.
- Obtained and analyzed inspection data including whether inspections and re-inspections were conducted as required.
- Obtained and reviewed well test data to identify non-producing wells and reviewed OC's processes for identifying inactive wells.
- Obtained well history data to evaluate the history of oil and gas wells over time, specifically the history of currently orphaned wells.
- Obtained compliance order and penalty data and determined whether compliance orders were issued for violations.
- Selected nine states that were listed as top oil and gas producers in October 2013 by the US Energy Information Administration to compare their regulation of oil and gas and also of orphaned wells to Louisiana's. These states include Texas, North Dakota, California, Alaska, Oklahoma, New Mexico, Pennsylvania, Wyoming, and Colorado. We researched and contacted these states to understand their policies and procedures as it relates to permitting, financial security, inspections, enforcement, and orphaned wells.

APPENDIX C: BACKGROUND

Office of Conservation Overview. The Office of Conservation (OC) is created through Revised Statute (R.S.) 30:1 and is directed by the Commissioner of Conservation (Commissioner), who is appointed by the governor. State law authorizes OC to regulate the exploration and production of oil, gas, and other natural resources, and thereby protect public health and the environment. In fiscal year 2014, OC had 38 authorized Conservation Enforcement Specialist positions and a budget of $20,276,229.

Orphaned Wells. The Oilfield Site Restoration (OSR) Program was created in 1993 within OC through the Oilfield Site Restoration law (R.S. 30:80 *et seq.*) to address the growing problem of unrestored orphaned oilfield sites in Louisiana. Orphaned wells are abandoned oil and gas wells for which no responsible party can be located, or such party has failed to maintain the well site in accordance with state rules and regulations. As of January 2014, there were 2,905 orphaned wells in Louisiana. The focus of the OSR Program is to properly plug and abandon orphaned wells and to restore sites to approximate pre-well site conditions. Program oversight is provided by the OSR Commission, consisting of 10 members. Funding for the OSR Program is entirely generated from a fee on oil and gas production in the state ($0.015 per barrel of oil and condensate and $0.003 per thousand cubic feet of gas produced) deposited into the OSR Fund. As of January 2014, the OSR Fund contained $5,980,182.

Potential Environmental Effects. Wells that are not in compliance with regulations, wells that are leaking, and wells that are not properly plugged and abandoned pose significant environmental risks, such as contamination of ground or surface water, spillage into the surrounding environment, contamination of other oil and gas formations, and interference with future agricultural use of the surrounding areas. According to the Interstate Oil and Gas Compact Commission, "wells can pose both physical and environmental hazards, because hydrocarbons, salts, and ground water migrate. An unplugged well creates a conduit allowing these materials to mingle, either contaminating underground aquifers and water wells or seeping to the surface to contaminate fields, waterways, or ponds. As unplugged wells deteriorate over time, they can cave in on themselves or give way to unsuspecting animals or humans." In addition, unplugged and abandoned wells can be potential hazards to public safety. For example, wells located in water can act as navigational hazards to boat traffic, as demonstrated in 2010 when a barge collided with an orphaned well in Barataria Bay resulting in approximately 7,000 gallons of oil spilled.

OC Regulatory Processes. Exhibit 21 outlines how these activities are used to regulate oil and gas wells, including the responsibilities of OC and operators.

Exhibit 21
Overview of Regulation of Oil and Gas Wells

Stage of Well	Operator	Office of Conservation (OC)
Pre-Drilling	• Files an Organization Report with OC prior to the date of initial operation and annually thereafter. • Applies for permit to drill through OC.	• Processes and issues permit to drill if application is complete • May require financial security on well if operator is new or has history of noncompliance.
Drilling	• Begins drilling operations.	• Inspects drilling process and is present when drilling tests are conducted. • Issues a daily allowable to produce.
Production	• Submits monthly production reports to OC. • Submits production potential tests. • Reports well on inactive report if inactive for 6 months.	• Routinely inspects wells to ensure compliance with Statewide Order 29-B. • Uses enforcement actions to gain compliance from non-compliant operators. • Audits production reports against transportation reports.
End of Production	• Classifies inactive wells as either having future utility or no future utility. • Plugs and abandons well within 90 days if no future utility.	• Must periodically review wells classified as having future utility. • Inspects plug and abandonment of inactive well by operator.
Orphan	• Operator fails to maintain well in compliance with rules and regulations.	• OC declares well site to be orphaned if no responsible party can be located, or such party has failed or is financially unable to undertake actions ordered by the Commissioner and the well either: o Was not plugged or maintained in accordance with rules and regulations or o Constitutes a danger to public health, the environment, or an oil or gas strata. • Through the OSR Program, properly plugs and abandons orphan wells and returns them to pre-well site conditions.

Source: Prepared by legislative auditor's staff using information gathered from OC.

APPENDIX D: OTHER STATES' FINANCIAL SECURITY REQUIREMENTS

State (Date First Required)	Type(s)	Individual Securities	Blanket Securities
Alaska (1958)	Surety Bond; Personal Bond; Performance Bond; Cash Deposit; Letter of credit; Certificate of deposit; Bid bond	Not less than $100,000 unless the applicant demonstrates the cost of well plugging is less than $100,000	≥ $200,000 for all wells
California (1931)	Indemnity bond, Certificate of Deposit, Cash, Surety Bond	$15,000 < 5000 feet; $20,000 < 10,000 feet; $30,000 > 10,000 feet	Between $100,000 and $1 million; dependent upon number of wells and the number of idle wells
Colorado (1951)	Bond or other surety instrument, Cash, Letter of credit; Certificate of deposit; Certificate of Insurance, Escrow account or sinking fund; Lien or other security interest in real property or financial statements	$10,000 < 3,000 feet; $20,000 ≥ 3,000 feet If operator has excess inactive wells, the amount increases by $10,000 to $20,000 for each excess well.*	$60,000 for less than 100 wells; $100,000 for more than 100 wells
Louisiana (2000)	Certificate of deposit; Performance bond; Letter of credit	$1 per foot < 3,000 feet; $2 per foot (3,001'-10,000'); $3 per foot (> 10,000')	$25,000 to $2.5 million, dependent on number of wells and locations
New Mexico (1935)	Cash, Letter of credit, Security interest, Surety and/or performance bonds	$5,000 plus $1 per foot of projected well-depth in some counties, $10,000 plus $1 per foot of well depth in others	$50,000 for all wells
North Dakota (1941)	A surety bond, Cash bond or other form deemed acceptable by the commission	$50,000 per well	$100,000 for all wells
Oklahoma (1922)	Financial statement proving a net worth of over $50,000 verifiable by financial institutions; Surety bond; Letter of credit; Cash; Certificate of Deposit; Bank joint custody receipt; "Other approved negotiable instrument"	Oklahoma does not distinguish between blanket and individual securities - the amount is $25,000 regardless of the number of wells, though this can be raised or lowered at the department's discretion.	
Pennsylvania (1985)	Bonds (Surety, Performance, Negotiable, Zero Coupon); Cash; Certificates of Deposit; Automatically irrevocable letters of credit	$4,000 or $10,000 per well, dependent upon depth	From $35,000 and up to $600,000, dependent upon well depth and number

State (Date First Required)	Type(s)	Individual Securities	Blanket Securities
Texas (1983)	Performance bonds; Letters of Credit; Cash Deposit; Well-specific plugging insurance policy	$2 per foot of well depth	$25,000 - $350,000, dependent upon numbers and locations (the amount could potentially be higher if operator has multiple inactive wells)
Wyoming (1951)	Performance or Surety Bond; Cash; Certificate of deposit; Letter of credit	$10,000 < 2000 feet; $20,000 > 2000 feet	$75,000 for all wells, unless a blanket bond of $25,000 was posted for wells drilled prior to July 1, 2000

*An operator has excess wells if its inactive well count exceeds the operator's financial assurance amount divided by $10,000 for inactive wells less than 3,000 feet deep or $20,000 for inactive wells greater or equal to 3,000 feet deep.
Source: Prepared by legislative auditor's staff using data from other states and from GAO's 2010 report, *Oil and Gas Bonds*.

EXHIBIT 3

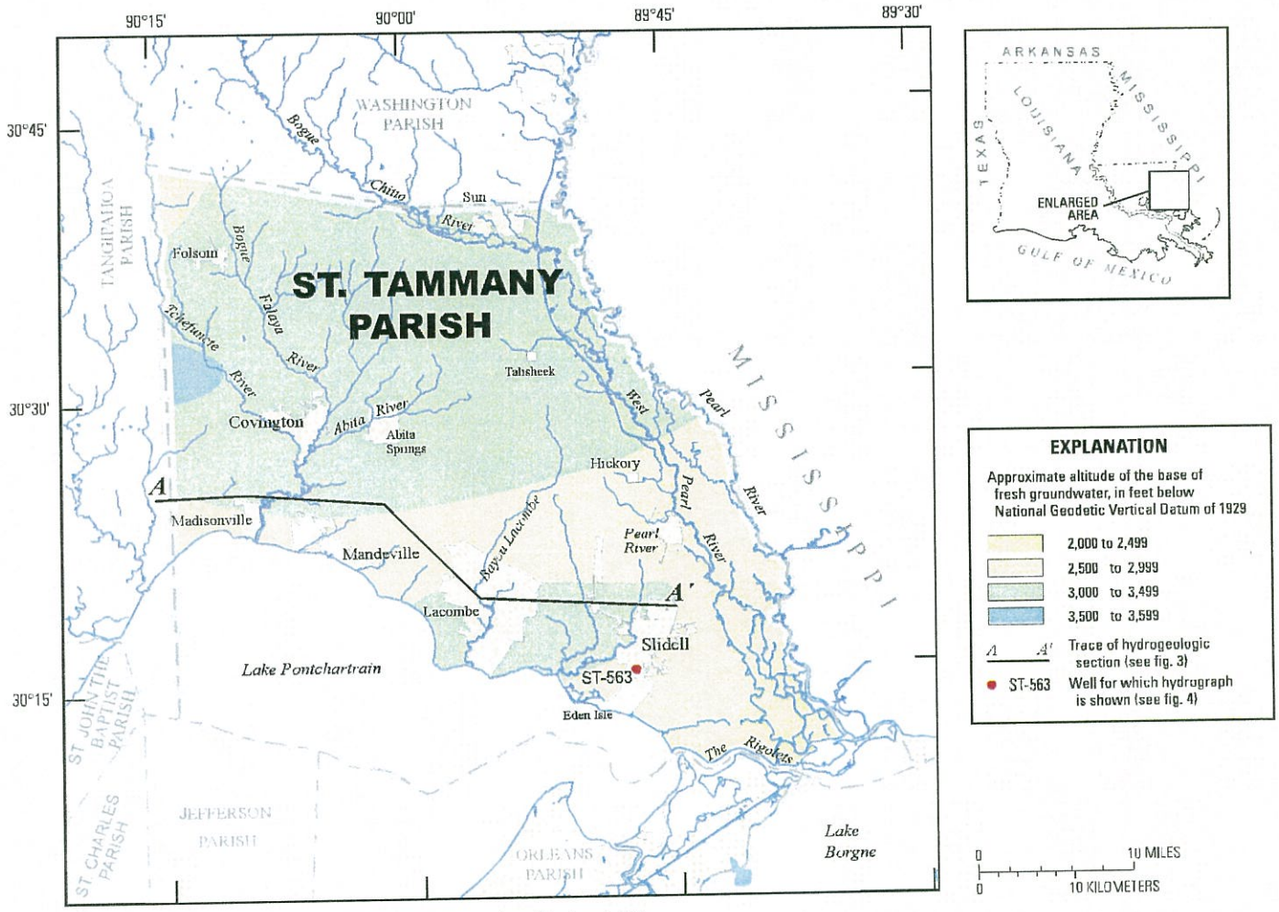
In cooperation with the Louisiana Department of Transportation and Development

Water Resources of St. Tammany Parish

Introduction

St. Tammany Parish, located in southeastern Louisiana (fig. 1), contains fresh groundwater and surface-water resources. In 2005, about 22.8 million gallons per day (Mgal/d) were withdrawn from water sources in St. Tammany Parish (fig. 2). Almost 100 percent (22.7 Mgal/d) was withdrawn from groundwater, and less than 1 percent (0.06 Mgal/d) was withdrawn from surface water (table 1). Withdrawals for public supplies accounted for 70 percent (16 Mgal/d) of the total water withdrawn (table 2). Withdrawals for domestic use were 28 percent (6 Mgal/d). Generally, water withdrawals in the parish increased from 1960 to 1970, decreased from 1970 to 1985, and again increased from 1985 to 2005 (fig. 2).

This fact sheet summarizes basic information on the water resources of St. Tammany Parish, La. Information on groundwater and surface-water availability, quality, development, use, and trends is based on previously published reports listed in the references section.



Base modified from Official Map of Louisiana, Louisiana Department of Transportation and Development, 1986

Figure 1. Location of study area, St. Tammany Parish, Louisiana.

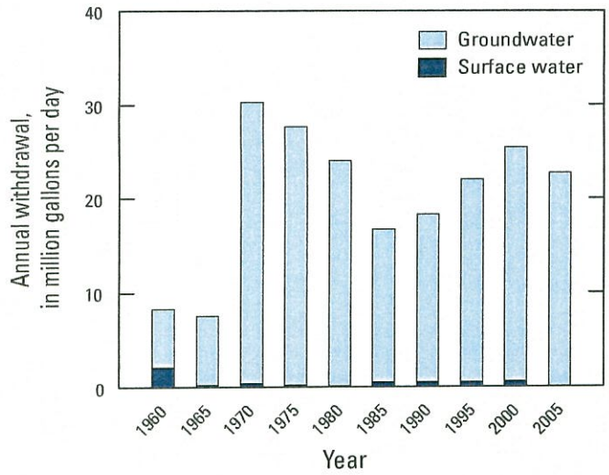


Figure 2. Water withdrawals in St. Tammany Parish, Louisiana, 1960–2005.

Table 1. Water withdrawals, in million gallons per day, by source in St. Tammany Parish, Louisiana, 2005 (Sargent, 2007).

Aquifer, aquifer system, or major water body	Groundwater	Surface water
Chicot equivalent aquifer system	5.99	
Evangeline equivalent aquifer system	12.32	
Jasper equivalent aquifer system	4.39	
Surface water bodies		0.06
Total	22.7	.06

Table 2. Water withdrawals, in million gallons per day, by category in St. Tammany Parish, Louisiana, 2005 (Sargent, 2007).

	Groundwater	Surface water	Total
Public supply	15.89	0	15.89
Industrial	.14	0	.14
Power generation	0	0	0
Rural domestic	6.44	0	6.44
Livestock	.06	.04	.11
Rice irrigation	0	0	0
General irrigation	.13	.01	.15
Aquaculture	.03	0	.03
Total	22.7	.06	22.76

Groundwater Resources

The groundwater resources of St. Tammany Parish, from near surface to deepest, include the Chicot equivalent aquifer system, the Evangeline equivalent aquifer system, and the Jasper equivalent aquifer system (fig. 3). Aquifers in the parish generally dip and thicken to the south. Recharge to the aquifers is from rainfall, leakage from overlying aquifers, and seasonal input from rivers. Discharge from the aquifers is by natural flow into rivers, leakage into underlying aquifers, and withdrawal from wells.

Fresh groundwater (water with a chloride concentration less than 250 milligrams per liter [mg/L]) is present from land surface to about 3,000 to 3,500 ft below National Geodetic Vertical Datum of 1929 (NGVD 29) in most of northern St. Tammany Parish (fig. 1) and to about 2,400 to 3,200 ft below NGVD 29 in southeastern parts of the parish; however, some intermediate sands at depths less than 2,500 ft near Lake Pontchartrain may contain saltwater (water with a chloride concentration that exceeds 250 mg/L). Freshwater from aquifers in St. Tammany Parish is soft (less than 60 mg/L, as calcium carbonate [$CaCO_3$]) and generally does not exceed the U.S. Environmental Protection Agency's (EPA) 2006 Secondary Maximum Contaminant Levels (SMCLs)[1] for drinking water for chloride, iron, manganese, and dissolved solids. Some aquifers may contain iron or manganese concentrations that exceed the EPA's SMCLs.

Well-registration records from the Louisiana Department of Transportation and Development (DOTD) indicate that there are about 10,860 active wells screened in the aquifers in St. Tammany Parish, including about 9,740 domestic, 650 public-supply, 430 irrigation, and 40 industrial wells. About 23 Mgal/d of groundwater was withdrawn in St. Tammany Parish in 2005, and most was for public-supply (16 Mgal/d) and domestic (6 Mgal/d) use.

The Chicot Equivalent Aquifer System

The Chicot equivalent aquifer system in St. Tammany Parish consists of two adjacent, near-surface aquifers: the upland terrace aquifer in the northern half of the parish and the upper Ponchatoula aquifer in the southern half of the parish. The base of the aquifer system ranges from about 0 to 500 ft below NGVD 29.

In 2005, about 26 percent (6.0 Mgal/d) of the groundwater used in St. Tammany Parish was withdrawn from the Chicot equivalent aquifer system. Most of the water was withdrawn from the upland terrace aquifer (3.8 Mgal/d) and the upper Ponchatoula aquifer (2 Mgal/d). About 5.3 Mgal/d of the total groundwater withdrawn in this system were for domestic use, and about 0.6 Mgal/d were for public-supply use.

The base of the Chicot equivalent aquifer system ranges from about 0 ft below NGVD 29 in northern St. Tammany Parish to 500 ft below NGVD 29 in the southern parts of the parish. Aquifers in the Chicot equivalent aquifer system typically consist of 50- to 300-ft-thick units of sand and gravel.

The Chicot equivalent aquifer system contains water-bearing units throughout St. Tammany Parish. Aquifers in the system typically yield fresh water that is soft and does not exceed the EPA's SMCLs (table 3). Water from aquifers in this system generally exceeds the SMCL for iron, and water from the upland terrace aquifer may exceed the SMCL for manganese.

[1] The SMCLs are nonenforceable Federal guidelines regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water. At high concentrations or values, health implications as well as aesthetic degradation might exist. SMCLs were established as guidelines for the States by the U.S. Environmental Protection Agency (1992).

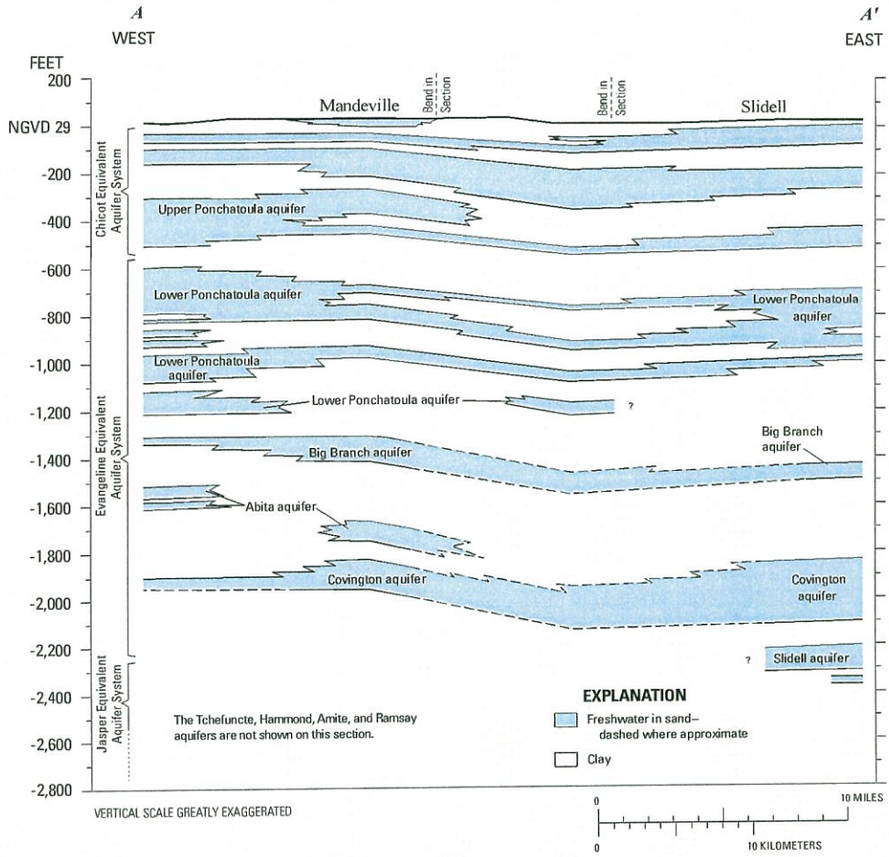


Figure 3. Generalized west-to-east hydrogeologic section through St. Tammany Parish, Louisiana (Griffith, 2003). Trace of section shown on figure 1.

About 9,300 wells are screened in the Chicot equivalent aquifer system, and most are used for domestic (8,505), public-supply (406), irrigation (363), or industrial (22) purposes. Reported well yields from wells screened in the aquifer system generally range from about 3 to 80 gallons per minute (gal/min).

The Evangeline Equivalent Aquifer System

The Evangeline equivalent aquifer system underlies the Chicot equivalent aquifer system and in St. Tammany Parish consists of, from near surface to deepest, the lower Ponchatoula, Big Branch, Abita, Covington, and Slidell aquifers. In 2005, about 54 percent (12.3 Mgal/d) of the groundwater used in the St. Tammany Parish was withdrawn from the Evangeline equivalent aquifer system. Most of the water was withdrawn from the Slidell aquifer (6.5 Mgal/d), the Abita aquifer (2.7 Mgal/d), and the lower Ponchatoula aquifer (2.3 Mgal/d). About 10.4 Mgal/d of the total groundwater withdrawn in this system were for public-supply, and about 1.2 Mgal/d were for domestic use.

The Evangeline equivalent aquifer system contains water-bearing units throughout St. Tammany Parish. The base of the aquifer system ranges from about 1,800 to possibly about 3,000 ft below NGVD 29 south of Slidell. Aquifers in the Evangeline equivalent aquifer system typically consist of 50- to 200-ft-thick units of medium to very coarse sand.

Freshwater from aquifers in the Evangeline equivalent aquifer system is typically soft and does not generally exceed the EPA's SMCLs; however, some freshwater may contain iron and manganese concentrations that exceed those SMCLs (table 3). Saltwater is present in the Big Branch aquifer near Lacombe and the Lake Pontchartrain shoreline.

About 10,860 wells are screened in the Evangeline equivalent aquifer system, and most are used for domestic (9,740), public-supply (654), irrigation (429), or industrial (38) purposes. Reported well yields from wells screened in the Evangeline equivalent aquifer system generally range from about 4 to 300 gal/min.

Water levels in the lower Ponchatoula and Big Branch aquifers are about 20 to 35 ft above NGVD 29 and have declined by as much as about 0.3 ft per year from 1996 to 2005. Water levels in the Abita, Covington, and Slidell aquifers are about 50 to 70 ft above NGVD 29 and have declined by as much as about 1.3 ft per year from 1978 to 2005 (fig. 4).

Table 3. Summary of selected water-quality characteristics for freshwater in the Chicot equivalent aquifer system and the Jasper and Evangeline equivalent aquifer systems in St. Tammany Parish, Louisiana, 1939–2007 (U.S. Geological Survey, 2008b).

[Values are in milligrams per liter, except as noted.°C, degrees Celsius; PCU, platinum cobalt units; µS/cm, microsiemens per centimeter; SU, standard units; $CaCO_3$, calcium carbonate; µg/L, micrograms per liter; NA, not applicable; SMCL, Secondary Maximum Contaminant Level established by the U.S. Environmental Protection Agency, 2006]

	Temperature (°C)	Color (PCU)	Specific conductance, field (µS/cm at 25 °C)	pH, field (SU)	Hardness (as $CaCO_3$)	Chloride, filtered (as Cl)	Iron, filtered (µg/L as Fe)	Manganese, filtered (µg/L as Mn)	Dissolved solids, filtered
Chicot equivalent aquifer system									
Median	22.4	10	256	7.1	12	6.8	165	80	171
10th percentile	21	0	40	5.4	4.7	3.1	<10	.8	43.8
90th percentile	25	50	584	8.6	24.6	27.2	1,085	170	275.6
Number of samples	46	16	41	27	48	50	18	21	17
Percentage of samples that meet SMCLs	NA	66	NA	45	NA	100	64	46	100
Jasper and Evangeline equivalent aquifer systems									
Median	28.3	5	294.5	8.5	6	4	50	30	195
10th percentile	23	0	182.2	7	1	2.4	6	<10	145.1
90th percentile	34.6	35	634.8	9	20	25	855	190	394.4
Number of samples	100	76	108	81	104	131	66	60	72
Percentage of samples that meet SMCLs	NA	76	NA	48	NA	100	83	62	99
SMCLs									
	NA	15	NA	6.5–8.5	NA	250	300	50	500

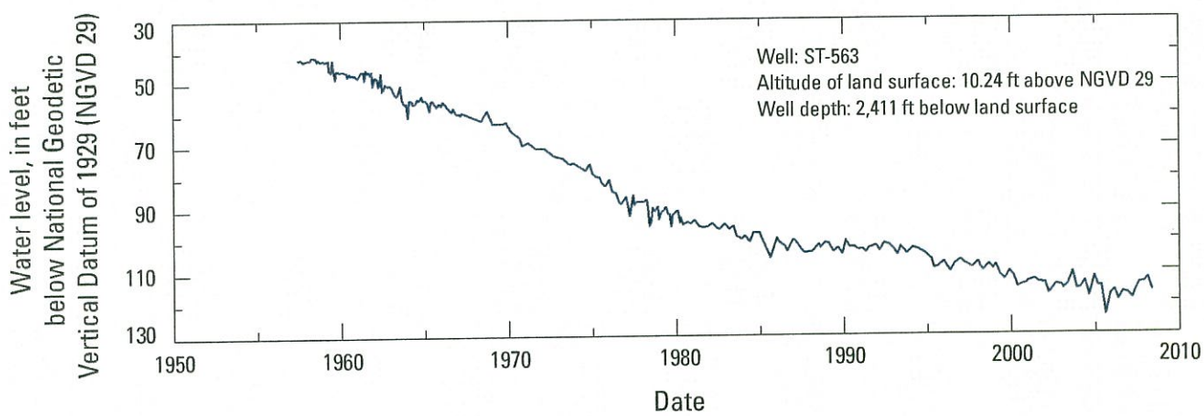


Figure 4. Water levels in well ST-563 screened in the Slidell aquifer in St. Tammany Parish, Louisiana (see fig. 1 for well location).

The Jasper Equivalent Aquifer System

The Jasper equivalent aquifer system underlies the Evangeline equivalent aquifer system and in St. Tammany Parish consists of, from shallowest to deepest, the Tchefuncte, Hammond, Amite, and Ramsay aquifers. In 2005 about 19 percent (4.4 Mgal/d) of the groundwater used in St. Tammany Parish was withdrawn from the Jasper equivalent aquifer system. Most of the water was withdrawn from the Tchefuncte aquifer (1.9 Mgal/d), the Hammond aquifer (2.1 Mgal/d), and the Amite aquifer (0.4 Mgal/d). About 4.4 Mgal/d (almost 100 percent) was withdrawn for public supply use.

The base of the aquifer system ranges from 2,350 ft below NGVD 29 in northern areas of the parish to as deep as 3,300

ft below NGVD 29 near Covington. Aquifers in the Jasper equivalent aquifer system typically consist of 50- to 250-ft-thick units of fine to coarse sand and some pea gravel.

The Jasper equivalent aquifer system contains water-bearing units throughout St. Tammany Parish. Saltwater is present in some of the aquifers in the system at and to the south of Slidell and Lacombe. Aquifers in the system typically yield freshwater that is soft and does not generally exceed the EPA's SMCLs; however, some freshwater may exceed the SMCLs for pH, iron, and manganese (table 3).

About 70 wells are screened in the Jasper equivalent aquifer system, and most are used for public-supply (32), domestic (22), or irrigation (9) purposes. Reported well yields from wells screened in the aquifer system generally range from about 90 to 1,830 gal/min. In 2006, water levels in the Jasper aquifer system generally ranged from about 100 ft above NGVD 29 in the northern part of the parish to about 70 ft above NGVD in the southern part of the parish.

Surface-Water Resources

Lake Pontchartrain and the Pearl, West Pearl, Tchefuncte, and Bogue Chitto Rivers are the primary sources of surface water in St. Tammany Parish. In 2005, about 0.06 Mgal/d of surface water was withdrawn in St. Tammany Parish; about 0.04 Mgal/d were used for livestock, and about 0.01 Mgal/d were used for general irrigation. Other surface water resources in the parish include the Abita and Bogue Falaya Rivers. Although Lake Pontchartrain is a huge potential source of water for St. Tammany Parish, water in the lake is brackish to salty and would require treatment for most uses.

The average discharge for the Pearl and West Pearl Rivers at the town of Pearl River was about 9,470 cubic feet per second (ft^3/s) (6,120 Mgal/d) for the period 1964–70. Water in the Pearl and West Pearl Rivers is generally fresh, but during periods of low flow, saltwater has intruded 2 to 3 mi upstream from Lake Borgne.

The average discharge for the Tchefuncte River near Folsom was about 159 ft^3/s (103 Mgal/d) for the period 1944–2007. Water in the Tchefuncte River is generally fresh, but during periods of low flow, saltwater has intruded from Lake Pontchartrain upstream to the City of Covington. Water in the Tchefuncte River generally is soft but may be moderately hard (61–120 mg/L as $CaCO_3$) and slightly acidic (pH less than 6.5 standard units) (table 4).

The average discharge for the Bogue Chitto River near Bush was about 2,000 ft^3/s (1,289 Mgal/d) for the period 1938–2007. Analyses of water quality samples from the river indicate that the water is typically soft but may be slightly acidic and exceed the EPA's SMCL for iron (table 4).

Table 4. Summary of selected water-quality characteristics for the Tchefuncte and Bogue Chitto Rivers in St. Tammany Parish, Louisiana, 1953–95.

[Values are in milligrams per liter, except as noted. °C, degrees Celsius; µS/cm, microsiemens per centimeter; SU, standard units; µg/L, micrograms per liter; $CaCO_3$, calcium carbonate; NA, not applicable; SMCL, Secondary Maximum Contaminant Level established by the U.S. Environmental Protection Agency, 2006]

	Specific conductance, field (µS/cm at 25 °C)	Oxygen, dis-solved	pH, field (SU)	Hardness (as $CaCO_3$)	Calcium, filtered (as Ca)	Magnesium, filtered (as Mg)	Sodium, filtered (as Na)	Chloride, filtered (as Cl)	Sulfate, filtered (as SO_4)	Iron, filtered (µg/L as Fe)
Tchefuncte River below Covington[1]										
Median	512	NA	6.5	38	6.1	2.6	53	126	16	40
10th percentile	57	NA	5.6	8	2	.3	5.3	5.9	1.8	10
90th percentile	2,102	NA	7	180	20	33	290	609.2	72	92
Number of samples	103	0	61	63	61	61	61	103	61	59
Percentage of samples that meet SMCLs	NA	NA	55	NA	NA	NA	NA	58	100	100
Bogue Chitto River near Bush[2]										
Median	44	8.15	6.4	9	2	.9	4	6.1	2.1	200
10th percentile	36.9	7	5.9	7	1.6	.5	2.7	4.2	1	87.6
90th percentile	49	10	6.9	10.2	2.7	1.1	5.1	7.8	4.3	280
Number of samples	180	160	190	189	178	175	176	186	182	78
Percentage of samples that meet SMCLs	NA	NA	45	NA	NA	NA	NA	100	100	94
SMCLs										
	NA	NA	6.5–8.5	NA	NA	NA	NA	250	250	300

[1]Station number 07375224 (U.S. Geological Survey, 2008b; specific data at http://nwis.waterdata.usgs.gov/la/nwis/qwdata/?site_no=07375224).

[2] Station number 02492000 (U.S. Geological Survey, 2008b; specific data at http://nwis.waterdata.usgs.gov/la/nwis/qwdata/?site_no=02492000).

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