Orphan and Idle Wells in Louisiana

Technical Appendix

Gregory B. Upton Jr.
LSU Center for Energy Studies

Mark Agerton
UC Davis Department of Agricultural and Resource Economics

Ipsita Gupta
LSU Department of Petroleum Engineering

Kanchan Maiti
LSU Department of Oceanography & Coastal Sciences

Siddhartha Narra
LSU Center for Energy Studies

Brian Snyder
LSU Department of Environmental Sciences

Joanna Walker
LSU Center for Energy Studies

July 2025

This technical appendix is supplementary to the main white paper report on orphan and idle wells in Louisiana.

A Tables

Table A1: Summary statistics by Hi-Flow measurement and district

	Orphan				Idle			
	Measured		Not measured		Measured		Not measured	
	Monroe	Shreveport	Monroe	Shreveport	Monroe	Shreveport	Monroe	Shreveport
Well count	386	458	1,420	1,576	4	1	3,085	7,850
Dist to road (km)	.17	.16	.35	.2	.098	.038	.2	.2
	(.18)	(.18)	(.4)	(.28)	(.099)	(.)	(.26)	(.24)
MD (1,000 ft)	2.3	1.9	3	2.7	1.9	.95	3.2	5.1
	(.38)	(1.3)	(2.2)	(2.1)	(.42)	(.)	(2.3)	(4.5)
Years idle	12	19	15	23	26	16	17	15
	(11)	(12)	(14)	(12)	(14)	(.)	(12)	(10)
Well age (years)	48	52	50	54	50	66	53	47
	(9.2)	(19)	(13)	(19)	(16)	(.)	(20)	(23)
Log cum. production (BOE)	8.7	8.1	8.9	8.8	6.9	6.3	9.7	10
	(1.1)	(1.4)	(1.5)	(1.6)	(2)	(.)	(1.6)	(2.1)
Cum. oil production (bbl)	267	9,661	12,096	18,401	106	557	36,478	19,633
	(2,598)	(58,768)	(67,827)	(57,241)	(140)	(.)	(131,511)	(102,996)
Cum. gas production (mcf)	53,542	16,867	89,538	89,272	21,020	0	240,694	790,246
	(47,241)	(100,617)	(340,244)	(475,168)	(33,231)	(.)	(1,658,674)	(1,854,533)
Factor-variable percent								
Missing production data?=1	2.8%	28%	13%	38%	0%	0%	16%	23%
In coal region?=Yes	0%	27%	0%	21%	0%	0%	.36%	22%
Product type=Not specified	3.1%	14%	13%	23%	0%	0%	13%	14%
Product type=Oil	4.1%	62%	11%	61%	50%	100%	36%	49%
Product type=Gas	93%	24%	76%	16%	50%	0%	52%	37%

Notes: Top row is well count. Middle rows are mean and standard deviation in parentheses. Bottom variables are percentages. Not all wells have oil or gas production, so these are conditional means.

Table A2: Summary statistics by chamber measurement and district

	Orphan				Idle			
	Measured		Not measured		Measured		Not measured	
	Monroe	Shreveport	Monroe	Shreveport	Monroe	Shreveport	Monroe	Shreveport
Well count	88	106	1,718	1,928	2	1	3,087	7,850
Dist to road (km)	.13	.11	.33	.19	.069	.083	.2	.2
	(.15)	(.15)	(.38)	(.27)	(.011)	(.)	(.26)	(.24)
MD (1,000 ft)	2.4	1.8	2.9	2.6	1.7	1.2	3.2	5.1
	(.81)	(.94)	(2)	(2)	(.0049)	(.)	(2.3)	(4.5)
Years idle	20	27	14	22	30	18	17	15
	(15)	(8.5)	(13)	(12)	(0)	(.)	(12)	(10)
Well age (years)	52	63	49	53	41	42	53	47
	(14)	(17)	(12)	(19)	(.0039)	(.)	(20)	(23)
Log cum. production (BOE)	8.5	8.2	8.8	8.7	7.8	9.1	9.7	10
	(1.2)	(1.5)	(1.4)	(1.6)	(.065)	(.)	(1.6)	(2.1)
Cum. oil production (bbl)	1,007	24,918	9,741	15,803	2,393	8,858	36,448	19,632
	(5,360)	(69,014)	(60,998)	(57,188)	(155)	(.)	(131,465)	(102,996)
Cum. gas production (mcf)	43,277	3,589	82,957	73,903	0	0	240,542	790,246
	(42,922)	(18,480)	(306,064)	(423,646)	(0)	(.)	(1,658,046)	(1,854,533)
Factor-variable percent								
Missing production data?=1	18%	48%	10%	35%	0%	0%	16%	23%
In coal region?=Yes	0%	14%	0%	23%	0%	0%	.36%	22%
Product type=Not specified	15%	19%	11%	21%	0%	0%	13%	14%
Product type=Oil	14%	78%	9.5%	60%	100%	100%	36%	49%
Product type=Gas	72%	2.8%	80%	19%	0%	0%	52%	37%

Notes: Top row is well count. Middle rows are mean and standard deviation in parentheses. Bottom variables are percentages. Not all wells have oil or gas production, so these are conditional means.

Table A3: Summary statistics by well status and district

	Plugged orphans		Unplugged orphans			Idle		
	Monroe	Shreveport	Lafayette	Monroe	Shreveport	Lafayette	Monroe	Shreveport
Well count	179	356	1,725	1,627	1,678	8,381	3,089	7,851
Dist to road (km)	0.14	0.16	3.7	0.33	0.2	8.6	0.2	0.2
	(0.14)	(0.17)	(7.1)	(0.39)	(0.28)	(10)	(0.26)	(0.24)
MD (1,000 ft)	2.3	1.8	9.7	2.9	2.7	9.4	3.2	5.1
	(0.15)	(1.2)	(4)	(2.1)	(2)	(3.6)	(2.3)	(4.5)
Years idle	11	18	23	15	23	22	17	15
	(10)	(12)	(13)	(14)	(12)	(13)	(12)	(10)
Well age (years)	48	49	49	50	55	52	53	47
	(7.7)	(18)	(20)	(12)	(19)	(20)	(20)	(23)
Log cum. production (BOE)	8.7	8	12	8.8	8.8	12	9.7	10
	(0.94)	(1.5)	(1.8)	(1.5)	(1.6)	(1.7)	(1.6)	(2.1)
Cum. oil production (bbl)	170	9,122	212,349	10,481	18,078	431,187	36,422	19,630
	(1,579)	(63,423)	(696,570)	(63,129)	(55,997)	(1,241,204)	(131,418)	(102,988)
Cum. gas production (mcf)	44,958	17,151	3,168,719	85,644	85,323	2,862,252	240,357	790,115
	(30,803)	(109,166)	(8,372,923)	(316,826)	(462,637)	(10,456,754)	(1,657,423)	(1,854,407)
Missing production data?								
1	1.1%	23%	29%	11%	39%	13%	16%	23%
In coal region?								
Yes	0%	31%	0%	0%	21%	0%	0.36%	22%
Product type for the well								
Not specified	1.7%	11%	31%	12%	23%	22%	12%	14%
Oil	3.4%	62%	39%	10%	61%	58%	36%	49%
Gas	95%	27%	30%	78%	16%	20%	52%	37%

Notes: Top variables have mean and standard deviation below in parentheses. Bottom variables are percentages. Not all wells have oil or gas production, so these are conditional means.

Table A4: Linear cost model estimates

	(1) Monroe	(2) Shreveport	(3) Combined	(4) Final
Dist to road (km)	-0.0333	8.872**	6.793**	5.550*
	(4.926)	(3.042)	(2.586)	(2.371)
MD (1,000 ft)	-6.197	8.509***	8.056***	7.915***
	(12.08)	(0.522)	(0.497)	(0.454)
Log cum. production (BOE)	1.890*	0.0829	0.617	0.544
	(0.822)	(0.384)	(0.349)	(0.321)
Missing production data?	-1.024	-6.338***	-6.599***	-7.332***
	(7.696)	(1.325)	(1.287)	(1.250)
In coal region?	0	-2.738**	-3.288**	-3.010**
	(.)	(1.013)	(1.023)	(1.033)
Years idle	0.0684	-0.0706	-0.0154	
	(0.0921)	(0.0480)	(0.0405)	
Well age (years)	0.127	0.00275	0.0144	
	(0.0944)	(0.0349)	(0.0319)	
Product type				
Oil	-7.056	-3.411	-2.563	
	(12.29)	(1.817)	(1.745)	
Gas	1.279	-4.110*	-3.361	
	(5.770)	(1.974)	(1.868)	
Oil or Gas				-3.689*
				(1.651)
District				
Monroe	40.78		30.57***	35.03***
	(30.89)		(3.699)	(2.954)
Shreveport		22.85***	18.02***	22.07***

Continued on next page

Table A4 – continued from previous page

	(1) Monroe	(2) Shreveport	(3) Combined	(4) Final
		(3.575)	(3.338)	(2.756)
Leaking	-1.091	2.093	0.730	
	(1.551)	(1.158)	(0.927)	
Land use				
Developed & Other Human Use	1.420	1.637	1.159	
	(4.312)	(1.741)	(1.607)	
Forest & Woodland	3.590	2.671	2.150	
	(3.738)	(1.430)	(1.307)	
Recently Disturbed or Modified	7.630	1.570	3.391*	
	(4.009)	(1.728)	(1.521)	
Shrub & Herb Vegetation	8.572	0.656	4.675	
	(4.569)	(4.412)	(2.611)	
Open Water		-8.810	-9.743	
		(5.023)	(5.125)	
Observations	179	354	533	535
$\hat{\sigma}$	8.589	8.207	8.442	8.770
R^2	0.131	0.644	0.695	0.667
adj R^2	0.0621	0.629	0.686	0.662
Joint F	1.975	1.833	1.776	
F dof	7	8	8	
Pr(F)	0.0614	0.0700	0.0793	
F	0.553	0.263	0.418	
Pr(F)	0.458	0.609	0.518	

Standard errors in parentheses

Omitted land use class is 'Agricultural & Developed Vegetation.'

Omitted product type is 'No product specified.'

Dependent variable is P&A cost, including allocated overheads and wastage (thou 2020 USD).

Continued on next page

Table A4 – continued from previous page

	(1) Monroe	(2) Shreveport	(3) Combined	(4) Final

All wells in Monroe district plugged by Dynamic, and all wells in Shreveport, by Lemoine.'

Joint F is for H_0 that years Years Idle, Well Age, and Land Use coefficients are all zero.

The within-district R^2 for the final model (4) is 0.484 after partialling out district indicator variables.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A5: SCM breakeven leak rates under various leak duration assumptions

	Duration (yrs)	Social cost of leak (USD_{2020}) $1\,g\,h^{-1}$	Breakeven leak rate ($g_{CH_4}\,h^{-1}$) SCM Only
2023–23	1	\$16	3,044
2023–27	5	\$85	587
2023–32	10	\$177	282
2023–42	20	\$378	132
2023–52	30	\$593	84
2023–62	40	\$809	62
2023–72	50	\$1,017	49

Notes: Calculations assume that a leak persists at a constant rate. We take the social cost of methane (SCM) from EPA (2023, Table A.5.1, p. 154). All costs are measured in USD_{2020}. Office of Management and Budget (2023, Appendix D) mandates that benefit-cost analyses use a 2% discount rate, so we take the SCM under the 2% discount rate and use 2% to compute the present value of a leak of a given duration. All values are rounded to the nearest whole number. To convert $t_{CH_4}\,yr^{-1}$ to $g_{CH_4}\,h^{-1}$, we assume that there are 365.25 days per year. The last column shows the minimum leak rate ($g_{CH_4}\,h^{-1}$) for the SCM benefits of abated methane to equal a \$50,000 P&A cost.

B Figures

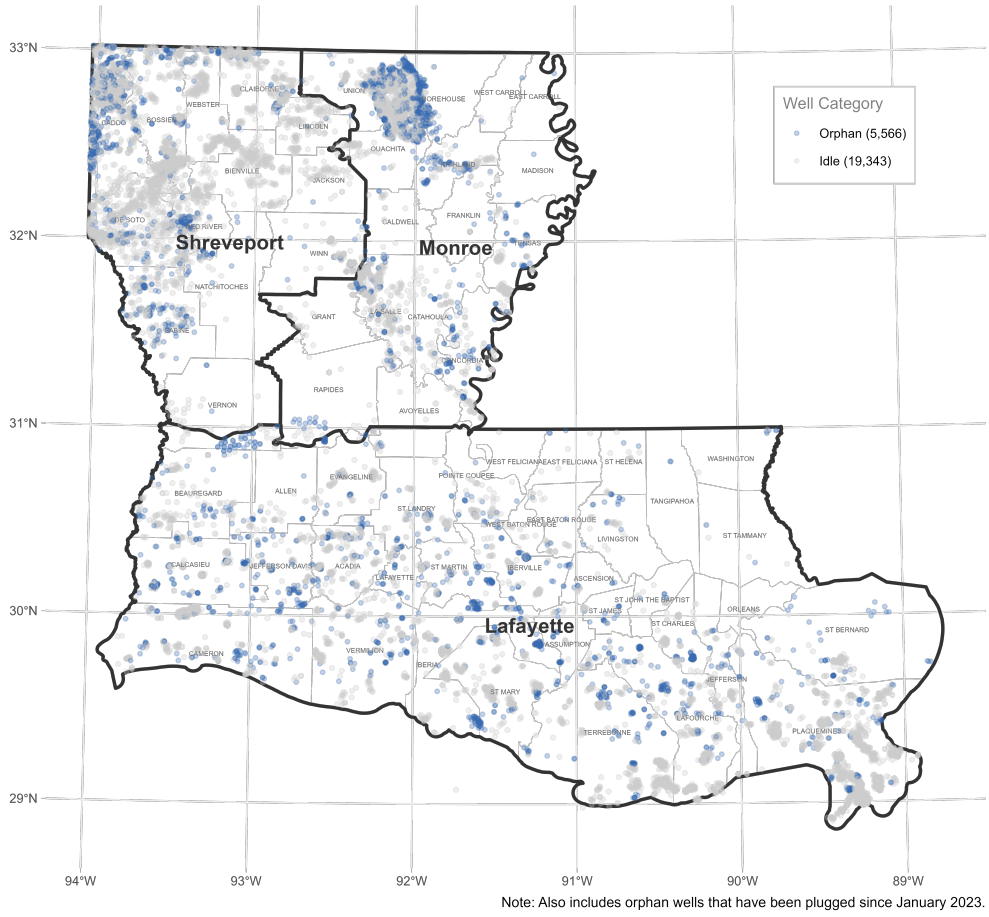


Figure B1: Distribution of oil and gas wells by orphan and idle well categories

C Data

The oil and gas well data is compiled using the Louisiana DENR Strategic Online Natural Resources Information System (SONRIS). Each well is identified by a combination of the American Petroleum Institute (API) number and well serial number. API well numbers are an industry standard comprised of 10-digit (in some cases 12 and 14 digits) unique numbers assigned to every oil and gas well in the U.S. Well serial numbers are permanent identification numbers assigned to each well upon approval of the Application for (or to

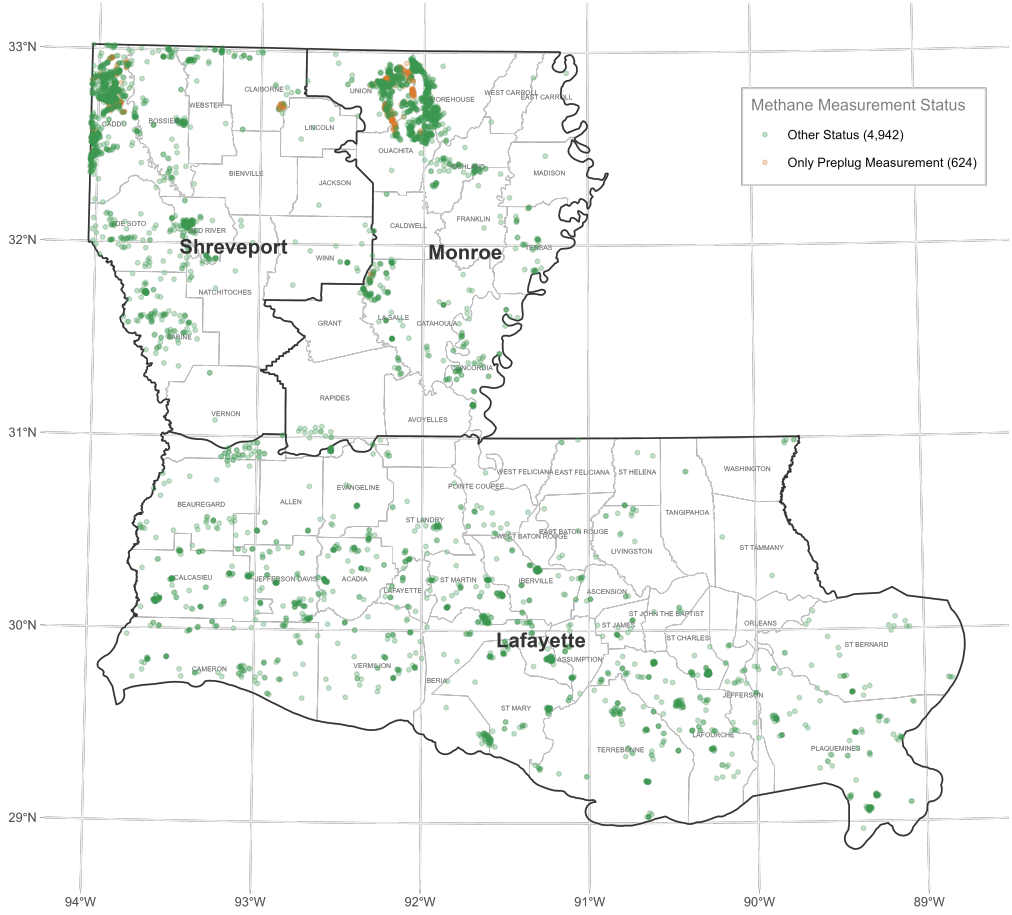


Figure B2: Distribution of orphan wells by methane measurement status

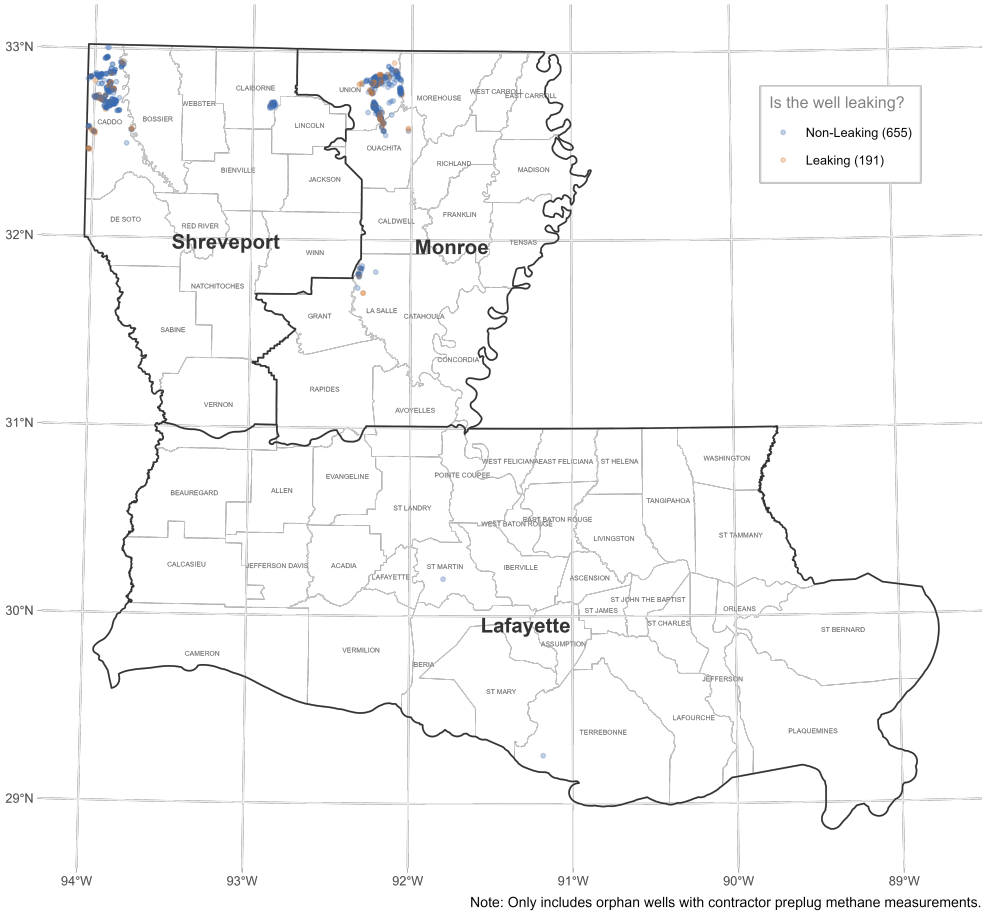
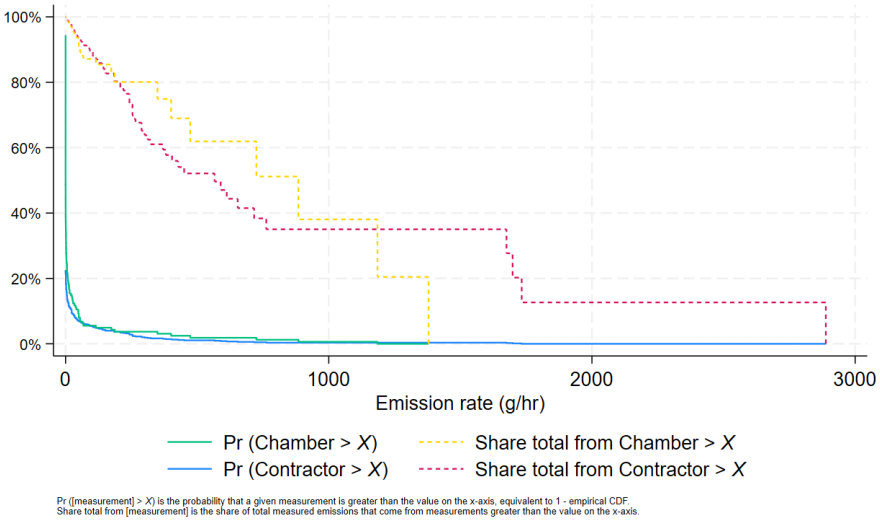
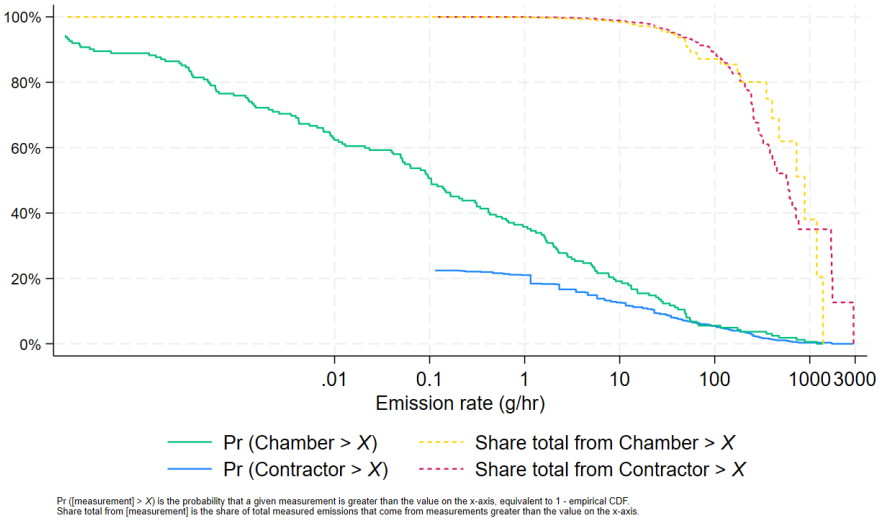


Figure B3: Distribution of orphan wells by methane leak status. Only wells with Hi-Flow methane measurements are shown



(a) Linear scale



(b) Logarithmic scale

Figure B4: Distribution of emission rates from Hi-Flow and chamber measurements. Linear scale (top) shows largest emitters' contribution to total emissions, while logarithmic scale (bottom) shows the full range

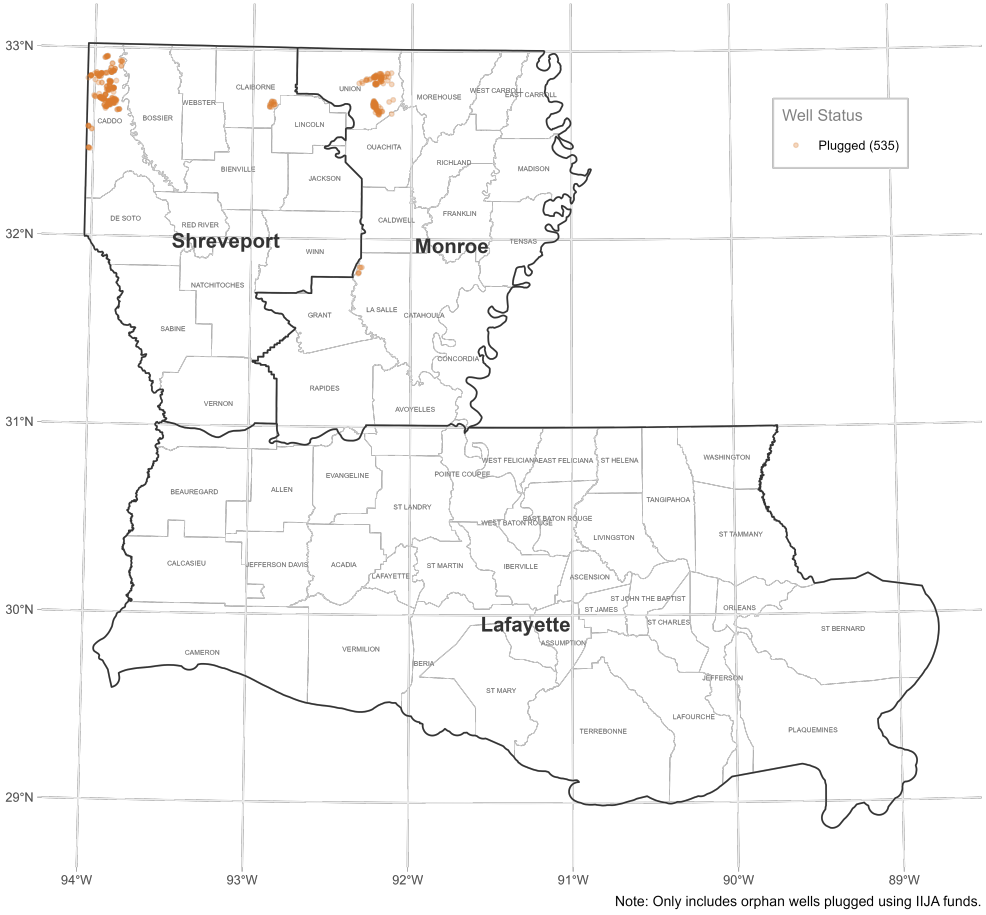


Figure B5: Distribution of orphan wells plugged using IIJA funds

Renew) Permit to Drill for Minerals (MD-10-R). A comprehensive list of all data sources used in this study is provided in Table C6.

We merge the well data with historical production data from Enverus (previously DrillingInfo). We use well status codes as listed in the SONRIS database alongside historical production data to identify wells that may be at higher risk of becoming orphan and are potential candidates for decommissioning. In instances where a well status is not listed in SONRIS, we also use data from Enverus to inform the decision. We note that older wells are more likely to have incomplete records. Thus, we urge the reader to interpret our statistics as estimates.

We note that our analysis focuses exclusively on *documented* wells that are catalogued in the SONRIS database. It is possible that undocumented, unplugged wells exist. These are likely to be older wells.

C.1 Data Sources

Table C6 shows the list of all data sources that are used in this study along with their purpose. These include both flat text files and spatial data files used to identify well location characteristics that are not readily available in the SONRIS database.

Table C6: Data sources

Dataset	Format
Panel A: Well Data	
Oil and gas wells (Louisiana Department of Energy and Natural Resources Office of Conservation 2024d)	Shapefile
Oil and gas wells (Louisiana Department of Energy and Natural Resources Office of Conservation 2024g)	Flat Files
Haynesville Shale wells (Louisiana Department of Energy and Natural Resources Office of Conservation 2024b)	Shapefile
Injection wells (Louisiana Department of Energy and Natural Resources Office of Conservation 2024c)	Shapefile
Production Data (Enverus 2024)	Flat Files
Panel B: Spatial Data	
State offshore boundary (Louisiana Department of Energy and Natural Resources Office of Conservation 2022)	Shapefile
State owned or leased lands (Louisiana Department of Energy and Natural Resources Office of Conservation 2024f)	Shapefile
State coastal zone boundary (Louisiana Department of Energy and Natural Resources Office of Conservation 2024e)	Shapefile
TIGER/Line 2022 US states (United States Census Bureau 2022b)	Shapefile
TIGER/Line 2022 US roads (United States Census Bureau 2022a)	Shapefile
Vegetation types (Davidson and McKerrow 2016)	Shapefile
Federal lands (U.S. Geological Survey 2014)	Shapefile
Conservation Districts (Louisiana Department of Energy and Natural Resources Office of Conservation 2024a)	Shapefile

Note: In addition, well flat files are obtained from the SONRIS Data Subscription Service (Louisiana Department of Energy and Natural Resources Office of Conservation 2024g)

C.2 Data Limitations and Considerations

Wells with missing API number: There are 16,570 wells (6.7%) lacking a valid API number, with the API numbers being formatted as "00-000-00000-00" or "0". Some of these wells have spud dates as early as 1907, and the mean spud year of these wells is 1937. 7,856 (47.4%) of these invalid API wells lack a spud date, and 248 wells are classified as orphan. Because of these invalid API numbers, these wells cannot be matched with the Enverus production database, and how long they have been inactive is unknown. Hence the status codes assigned by SONRIS serve as the definitive current status for these wells.

Wells with missing measured depth: The depth of a well is a key determinant of its P&A cost. However, the SONRIS database does not provide measured depths for a few wells, especially older ones.[1] For these cases, we impute the well's depth using the measured depth of the closest neighbor well. For wells that do not have the surface location listed in the database, we use the measured depth value from the Enverus database.

Wells with missing spud date: Missing well spud dates are estimated using the well permit date if available. If not, the earliest reported status date from the well's history is used instead.

Wells named "Federal Well": There are over 13,500 wells in the SONRIS wells database that have the well name "FEDERAL WELL". The status code for these wells is listed as "VIRTUAL/BAD DATA". These wells have missing surface coordinate information and other attribute information such as spud date, measured depth and API well number. These observations are therefore not considered in any analyses. These wells are different from the federal wells that are identified by spatially intersecting well locations with USGS federal lands as outlined in Appendix C.6.

Wells with status code "Water": There are 66 wells that have the well status code listed as "Water". These are presumed to be water wells and are not considered in cost estimations and tabulations.

Enverus production data: Well production in the Enverus database is reported by API number. In cases where the original reported production is at the lease or unit level, Enverus

[1] *Measured depth* is the total distance from the top of the wellbore to the end of the bottom hole. Measured depth is missing in less than one percent of wells.

allocates production at the well level. Only 97,300 wells have reported production in the Enverus database. A vast majority (92.6%) of the wells in the SONRIS database without corresponding production data are already P&Aed. According to the data compiled from both SONRIS and Enverus at the beginning of July 2025, about 3,600 wells (9.3) that are currently listed as "Active" in the SONRIS database have missing production data from Enverus.

C.3 Spatial Analysis

We perform several data processing and cleaning steps before modeling P&A costs and methane emissions.

Region code classification: Wells are intersected with different spatial boundary layers to identify the geographic locations of wells: (1) Wells that intersect with the offshore boundary layer are assigned to the "Offshore" region; (2) Coastal zone wetland wells are identified by intersecting well locations with the vegetation layer polygon. The vegetation layer polygon shapefile is made up of multiple vegetation codes, namely brackish, intermediate, saline, and freshwater marshes as well as swamps and open water in the coastal zone; (3) federal land wells are identified by intersecting wells with the United States Geological Survey (USGS) federal lands polygon layer (U.S. Geological Survey 2014); (4) Haynesville shale wells are identified using the well condition code;[2] (5) north and south onshore wells are identified from the "State Zone" field available in the wells database.

Coal-bearing region wells: The original map of the coal-bearing regions in Louisiana is obtained from the DENR's report (Louisiana Department of Energy and Natural Resources 2023). Coal-bearing region wells are identified by simply intersecting the well locations with the coal-bearing polygons created by digitizing these areas into a GIS shapefile.

Distance to road: Parish-level GIS shapefiles of road segments are obtained from the Census TIGER/Line shapefile and then merged to compile a single shapefile. The distance to the nearest well location is then calculated from each orphan and idle well location.

Vegetation classification: The vegetation type of well locations is determined using the USGS National Gap Analysis Program Terrestrial Ecosystems - Ver 3.0 land cover data for the continental U.S. This raster dataset represents continuous land cover map of the

[2]A shapefile of all Haynesville well locations is also available from the SONRIS GIS portal.

U.S with a 30 m x 30 m cell resolution. The vegetation types in the dataset are described according to the NatureServe's Ecological Systems Classification (Comer et al. 2003), as well as land use classes described in the National Land Cover Dataset 2011 (Homer et al. 2015).

C.4 Well Status Reclassification

We use well status codes as listed in the original SONRIS well database and supplement this data with information from Enverus databases to reclassify wells into a smaller set of categories. We note that Enverus does not have the same set of well status categories as listed in the SONRIS database. Any discrepancies between the two databases are harmonized into five categories below while giving precedence to the SONRIS well status codes.

Active wells: All "Active Producing", "Active Injection", and "Active Producing/Cyclic Injection" well status codes are reclassified as "Active" wells irrespective of the status listed in the Enverus database.

Plugged and abandoned wells: All "Dry and Plugged", "Plugged and Abandoned" and "P&A per Inspection" categories are reclassified as "P&A" wells irrespective of the status listed in the Enverus database.

Temporarily abandoned wells: Temporarily abandoned wells are identified using the "Temporarily Abandoned Well" status code in the SONRIS database irrespective of the status listed in the Enverus database.

Orphan wells: Orphan wells are identified using two status codes: "Act 404 Orphan Well -Injection and Mining" and "Act 404 Orphan Well-Eng" wells in the SONRIS database.

Inactive, idle or shut-in wells: The last category is a combination of well categories that are deemed to be non-active and that do not fall in the previous four categories. These include well status codes, "Shut-In Dry Hole - Future Utility", "Shut-in Dry Hole - No Future Utility", "Shut-In Productive - Future Utility", "Shut-In Productive - No Future Utility", "Plugged Back - No Perforations - No LUW", "Shut-in Waiting on Pipeline", "Shut-in Waiting on Market", "Inactive Well, No Responsible Party", "Inactive Injection Well (Commercial or Other)", "Multiple Completed/PA-35 Well", "PA-35 Temporary Inactive Well to be Omitted

from Production Report".[3] This category also includes any other non-abandoned well types that have not produced within the past five years, based on data from the Enverus database.

Additional considerations: The well status codes that do not fall in the above five categories such as "Reverted to Landowner - Freshwater", "Reverted to Single Completion", "Reverted to Landowner - Resident Consumption", "Surface Location - State Jurisdiction, Bottom Hole Location -Federal Jurisdiction", and "Converted - Serial Number Change" are confirmed using the status code from the Enverus database.

Certain wells have a "Permit Expired" status for their most recent permit, while earlier permits for the same well (identified by well API and permit dates) may have different status codes. In such cases, the last non-permit expired status is assigned to the well because the well had been spudded in the past, but the latest permit is expired.

C.5 Summary Statistics

Table C7 presents the number of wells drilled within the state as documented in the SONRIS database. Panel A differentiates wells by their location: *Haynesville Shale Wells* as identified by SONRIS well condition code;[4] *orphan wells* as identified from the well status codes corresponding to Act 404 wells; wells that are *inactive*; wells that are located in *coastal wetlands* including open water, marshes and swamps; wells in *state offshore boundary*; wells in *state onshore* areas that are further divided into north and south regions; and wells that are located in *federal lands*.

Of the approximately 224,000 wells drilled,[5] 22% have been drilled in state offshore and wetlands, with the remaining wells drilled in state onshore areas. When onshore areas are further broken down, 2.1% (4,590 wells) are designated as Haynesville Shale wells, 78% (175,130 wells) are located in onshore regions of north and south Louisiana, and 1.6% (3,620 wells) are located in federal lands.

In Panel B of Table C7, we differentiate wells by their current status.[6] About 160,550 or 72% of all wells that have been spudded to date have been permanently P&Aed. Less

[3]Form PA-35 is filed for a temporary inactive well, with no stock on hand, to be omitted from the Operators Oil and Gas Monthly Production Report.

[4]Well condition code "51" corresponds to Haynesville Shale wells.

[5]Although the original SONRIS wells dataset has 260,600 rows, wells that are identified as federal wells, wells with missing spud dates, wells with missing location information, wells with expired permits, and wells with "VIRTUAL/BAD DATA" are ignored in this well count.

[6]Note that there are many different status designations for a well that has been permanently P&Aed. As discussed in Section C, all wells are allocated to one of the well statuses listed in Table C7.

Table C7: Well counts by location and current status

	Well Count
Panel A: Well Location	
State Offshore	4,300
Coastal Wetlands	44,560
Haynesville Shale	4,590
Federal Lands	3,620
Onshore North	116,680
Onshore South	50,240
Total	223,960
Panel B: Well Status	
Active	38,600
Permanent P&A	160,550
Temporary P&A	460
Orphaned	4,900
Idle, Shut In, or Inactive	19,460
Total	223,960

Notes: SONRIS well status codes are aggregated into a smaller number of groups that are similar. "Active" category includes both producing oil & gas wells and injection wells. Please refer to section C.4 for detailed classification of wells from original SONRIS well status codes. This does not include federal wells, wells with missing spud dates, wells with missing location information, and wells with expired permits.

than 17% are either currently listed as active or being used for active injection. Thus, the remaining approximately 24,400 wells are plausible candidates for P&Aing at this time.

Table C8 provides an overview of well measured depth (in ft) and spud year statistics across different regions. The data suggests considerable variability in drilling depth and spud dates across these regions, likely influenced by geological factors and regulatory environments. Notably, in the Haynesville region, wells have a significantly greater average depth of more than 18,000 ft. This region also exhibits more recent drilling activity with a median spud year of 2012 compared to other areas with average spud years of late 1960s to early 1970s. Conversely, wells in the Onshore North region and Federal Lands are shallower with an average depth of 3,870 ft and 4,428 ft, respectively.

Table C8: Well measured depth and spud year statistics by region.

	Offshore	Coastal Wetlands	Haynesville	Federal Lands	Onshore North	Onshore South
Measured Depth (ft)						
Mean	9,904	9,622	18,097	4,528	3,908	9,013
SD	3,577	4,175	2,568	3,571	3,212	4,178
Min	360	120	600	133	100	100
Max	24,990	26,000	27,820	22,473	30,937	30,494
Median	9,740	10,004	17,214	2,385	2,637	9,504
Spud Year						
Mean	1972	1968	2014	1972	1969	1969
SD	16	17	5	20	24	21
Min	1929	1911	1943	1914	1901	1911
Max	2022	2024	2024	2023	2024	2024
Median	1968	1965	2012	1976	1972	1967

Source: Louisiana Department of Energy and Natural Resources, Strategic Online Natural Resources Information System.

C.6 Federal Land Wells

Federal wells are determined by intersecting well surface locations with the GIS polygon shapefile of federal lands published by the USGS (U.S. Geological Survey 2014). We identified 3,600 wells in these areas from the SONRIS database. Table C9 presents statistics on measured depth and spud year for wells on federal lands within Louisiana, categorized by their current status. The largest category consists of over 2,000 plugged wells, with active wells forming the second-largest group at over 1,120. Federal lands within the state boundary contain around 220 orphan wells and an additional 250 classified as idle, shut-in, or inactive. While a few wells exceed 20,000 ft in depth, the average measured depth for

wells that have not been P&Aed is under 4,000 ft.

Table C9: Measured depth and spud year statistics of federal wells by well status.

	Active	P&A	Orphaned	Idle or Shut-in	Total
Measured Depth (ft)					
Mean	3,781	5,056	3,569	4,506	4,531
SD	2,890	3,718	3,858	4,085	3,572
Median	2,279	3,550	2,319	2,300	2,385
Count	1,124	2,022	223	246	3,615
Spud Year					
Mean	1979	1967	1974	1975	1972
SD	18	21	12	19	20
Median	1980	1966	1976	1977	1976
Count	1,124	2,022	223	246	3,615

Source: Louisiana Department of Energy and Natural Resources, Strategic Online Natural Resources Information System.