

IDLE AND ORPHAN OIL AND GAS WELLS: STATE AND PROVINCIAL REGULATORY STRATEGIES

**Supplemental Information on
Orphan Well Plugging and Site Restoration**



2024

ABOUT IOGCC

The Interstate Oil and Gas Compact Commission (IOGCC) is a multi-state government agency that champions the conservation and efficient recovery and storage of domestic oil and natural gas resources while protecting human health and safety and the environment. IOGCC provides member states and international affiliates with a clear and unified voice and serves as a primary authority on issues surrounding these vital resources.

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DISCLAIMER

The states and provinces provided the information for this report. The authors and editors have endeavored to summarize this information in an accurate and meaningful way.

Should you have a question about the contents of this report, feel free to contact IOGCC for assistance. Please note, however, that a question regarding information from a specific state or province may be referred to sources within the state or province.

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INTRODUCTION

This supplementary report updates information previously published by IOGCC in the 2021 report entitled *Idle and Orphan Oil and Gas Wells: State and Provincial Regulatory Strategies*. It includes data on orphan wells and orphan well plugging and site restoration activities and expenditures from 2018 through 2023, with a focus on activities since 2020.

IOGCC sent a survey requesting data for calendar years 2021 through 2023 to its member and associate member states and Canadian affiliates. Twenty-nine states and four Canadian provinces responded to the survey. The report compiles and summarizes data from the survey, compares it to data from previous surveys, and analyzes trends.

Please read this report in conjunction with the 2021 report. The 2021 report provides background information on applicable terminology, regulations, practices, and procedures.

SURVEY RESULTS

This section of the report summarizes and analyzes the information collected through the supplementary survey. The tables in the next section provide more detail on each state or province.

DOCUMENTED WELLS DRILLED AND NOT PLUGGED

The 29 states responding to the supplementary survey reported a total of 1,620,896 wells drilled and not plugged as of December 31, 2023—a slight increase from 2020. The four responding Canadian provinces reported a total of 344,938—a 7.4 percent decrease from 2020.

Table 1 shows the totals for 2020 and 2023 in each of the responding states and provinces. For 27 states and all four provinces, **Table 1** breaks the totals down among the following well types: oil and gas production, oil-and-gas-related injection, oil-and-gas-related monitoring, gas storage, and other.

DOCUMENTED ORPHAN WELLS

The 29 responding states reported a total of 141,959 documented orphan wells as of December 31, 2023. While the states continue to plug orphan wells as discussed later in this report, the number of orphan wells documented in the states increased by 54 percent since 2020. The four Canadian provinces reported 6,047 documented orphan wells as of December 31, 2023, a 27 percent increase since 2020.

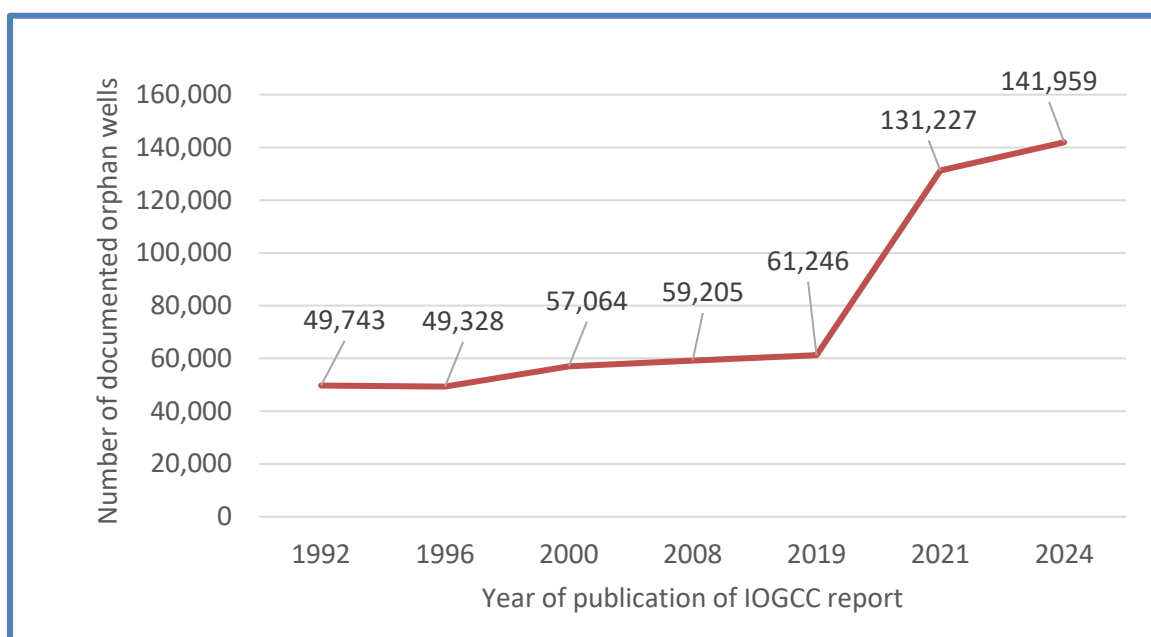
Changes in the numbers of documented orphan wells are attributable to several factors. Wells are removed from the inventory as they are plugged or are transferred to new operators. Wells are added to the inventory as states and provinces document orphan wells that were previously unknown or unverified and as some operators go out of business.

The biggest portion of the recent increases in state numbers reflects the efforts of the states to document their orphan wells. States have focused time and effort on refining their criteria for orphan status, verifying and updating information on operators and wells in their databases, and confirming

the existence, status, and location of wells using field inspection and drone surveillance. The result is a more complete inventory of documented orphan wells.

Figure 1 reflects the numbers of documented orphan wells in the states as published through the years in IOGCC reports on idle and orphan wells. Note that **Figure 1** does not include data from the Canadian provinces, which were not surveyed for this data before 2019.

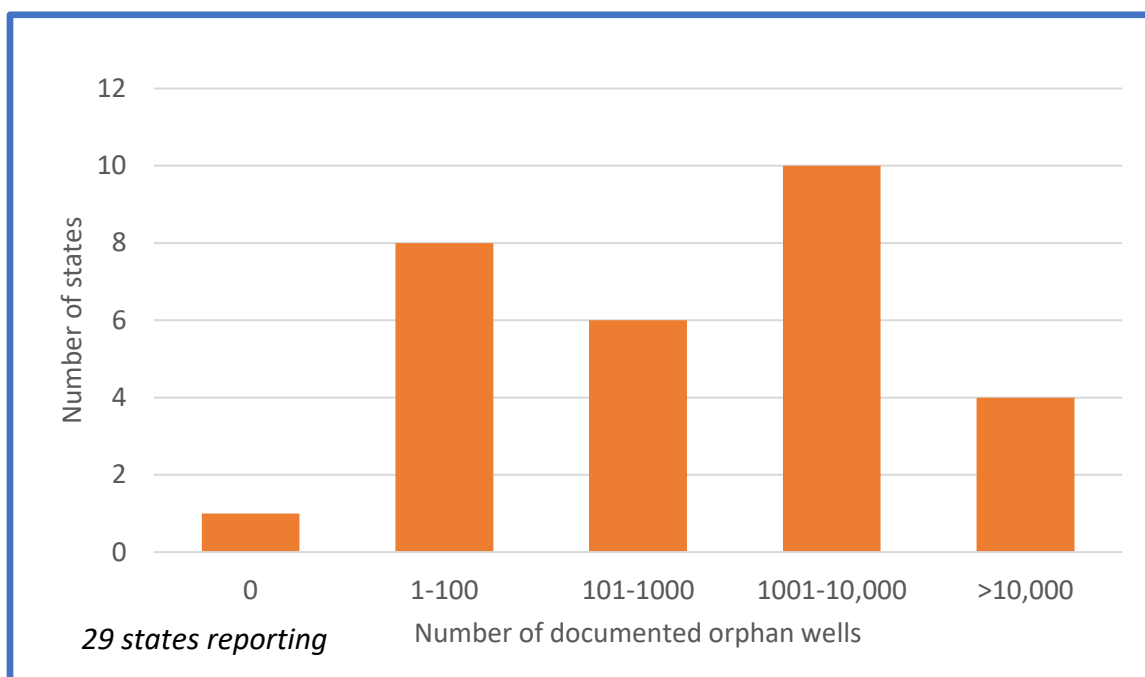
Figure 1. Trend in State Reports of Documented Orphan Wells



The number of documented orphan wells by state or province ranges from zero to 27,240 in the states and zero to 3,268 in the provinces. For the states, the ratio of documented orphan wells to total wells that have been drilled and not plugged ranges from zero to 83 percent, with an overall average of 8.8 percent. For the provinces, the ratio of documented orphan wells to total wells that have been drilled and not plugged ranges from zero to 5.2 percent, with an overall average of 1.8 percent.

Figure 2 summarizes the numbers of documented orphan wells in the states in 2023. See **Table 2** for a detailed breakdown.

Figure 2. Documented Orphan Wells in States (2023)



In many cases, the states and provinces have a record of the last known operator of an orphan well. Twenty-seven states and four provinces reported on known operators of the documented orphan wells. Three-quarters of the orphan wells in the reporting states and essentially all the orphan wells in the provinces have known operators. Most of those operators have one to ten wells in their name.

Figure 3 summarizes the information reported by the states and provinces on known operators. See **Table 3** for details. Two states did not report this data, so the total number of documented orphan wells with known operators in **Table 3** does not match the total number of documented orphan wells in **Table 2**.

Figure 3. Documented Orphan Wells with Known Operators (2023)

	States (27 reporting)		Provinces (4 reporting)	
Documented orphan wells	104,862		6,047	
With operator known	80,817	77.1%	6,045	99.9%
Known operators of orphan wells	12,676		260	
With 1 well	6,291	49.6%	97	37%
With 2-10 wells	5,010	39.5%	108	42%
With 11-100 wells	1,274	10.1%	45	17%
With >100 wells	101	0.8%	10	4%

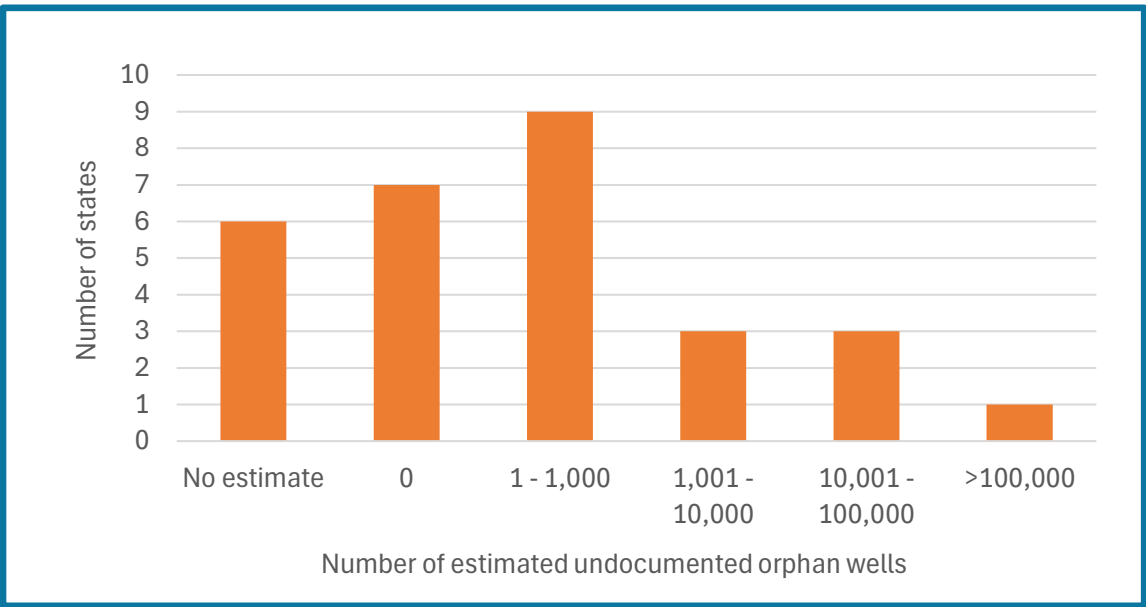
UNDOCUMENTED WELLS

The term “undocumented well” refers to a well that is entirely unknown to the regulatory agency or a well of which the agency has some evidence, but which requires further records research or field investigation for verification. For 2023, the total number of undocumented orphan wells estimated by the states is between 250,000 and 740,000.

Six states did not provide an estimate. Seven states and the four provinces reported no undocumented orphan wells. The remaining 16 states reported an estimate of 2 to 100,000 or more undocumented orphan wells.

Figure 4 summarizes the estimated numbers of undocumented wells reported by states. The detailed breakdown appears in **Table 2**.

Figure 4. Estimated Undocumented Orphan Wells in States (2023)



These estimates are by their nature imprecise. Some states reported a wide range in the estimated number and others were unable to provide any reliable estimate. States are working to better define the numbers, locations, and risks of undocumented orphan wells with assistance from the United States Department of Energy.

ORPHAN WELL PLUGGING AND SITE RESTORATION

The states accelerated their orphan well plugging operations in 2023 largely due to the availability of federal funds to supplement state funds. The federal funds came in the form of initial grants awarded by the United States Department of the Interior under the Infrastructure Investment and Jobs Act.

In the three-year period from 2021 through 2023, the states plugged 15,325 orphan wells, of which 7,240 were plugged with federal funds. The provinces plugged 3,291.

As of December 31, 2023, the states have plugged at least 96,988 orphan wells since the start of their orphan well plugging programs. This is conservative number, because not all states have precise records for early years. The provinces have plugged at least 9,514 wells since the start of their plugging programs. Refer to **Table 4A** for details.

Figure 5 shows the number of orphan wells plugged by the states in 2018 through 2023.

Figure 5. Orphan Wells Plugged by States (2018-2023)

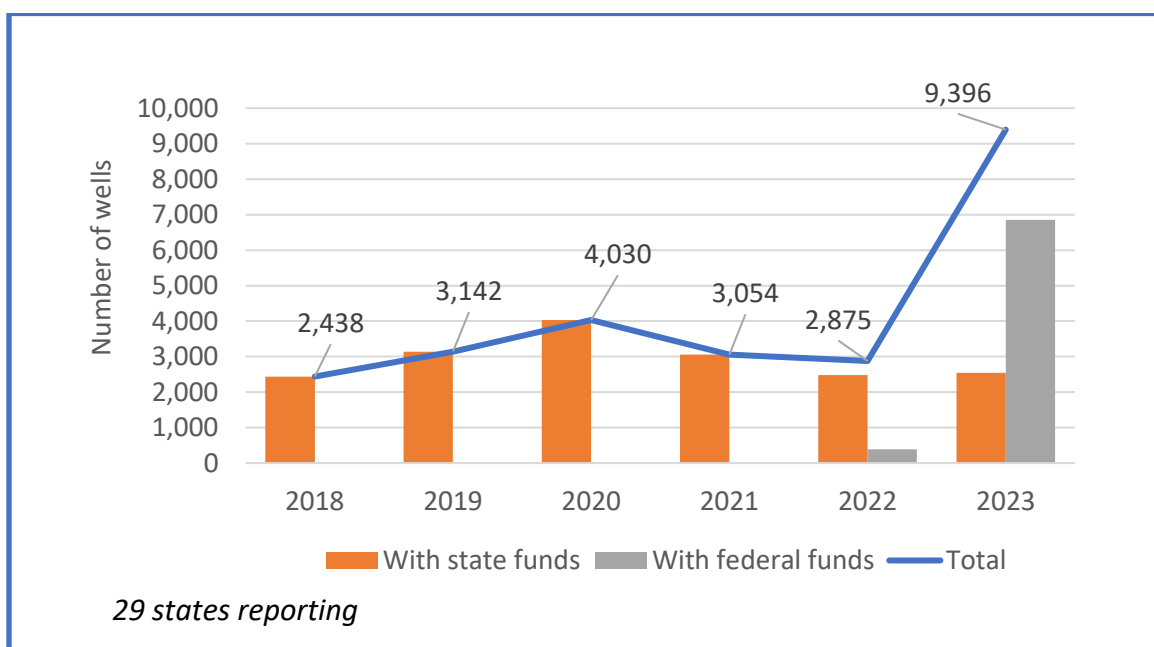
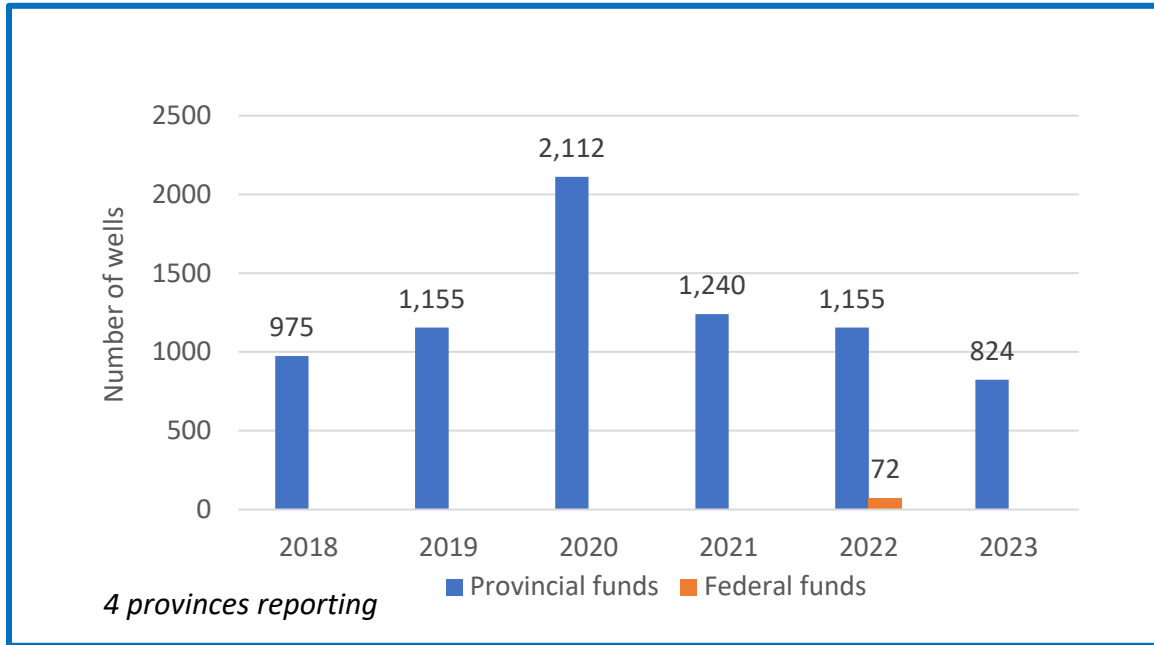


Figure 6 shows the number of orphan wells plugged by the provinces in 2018 through 2023.

Figure 6. Orphan Wells Plugged by Provinces (2018-2023)



The cost to plug an orphan well varies widely depending on well depth and condition, location, accessibility, and other factors. For the 25 states that reported expenditures for plugging of orphan wells from 2021 through 2023, the average expenditure per well ranged from \$3,664 to \$343,750 with an overall average of \$36,505. For the two provinces that reported expenditures for plugging of orphan wells during the same period, the average expenditure per well was C\$91,196. In both the states and the provinces, the average cost per well increased significantly between 2018 and 2023. See **Tables 4A, 4B, and 5** for details on plugging expenditures.

Figure 7 shows the average cost of plugging an orphan well for the 26 states that reported expenditures in 2018 through 2023.

Figure 7. Average Cost of Orphan Well Plugging by States (2018-2023)

	2018	2019	2020	2021	2022	2023
Wells plugged	2,438	3,142	4,030	3,054	2,875	9,396
Cost per well	\$20,502	\$24,861	\$30,814	\$25,129	\$34,139	\$41,139

The restoration required at orphan well sites varies widely depending on the age, condition, and location of the sites. The information gathered for this report does not support a determination of the

overall average expenditure for site restoration because of the differences among the states and provinces in how they define terms, conduct operations, and allocate costs.

Most states conduct basic site restoration as part of an orphan well plugging operation. For these states, the expenditures reported in **Table 4B and 5** combine plugging and basic site restoration. Other states and the provinces conduct and account for plugging and restoration separately. Some states conduct site restoration at some sites separately even if they conduct basic site restoration as part of orphan well plugging. See **Tables 6A, 6B, and 7** for details on the restoration activities that have been accounted for separately.

TOTAL WELLS PLUGGED

Responsible operators conduct most of the well plugging and site restoration in the states and provinces. **Figure 8** shows the total number of wells, including orphan wells, plugged in the states from 2018 to 2023. **Figure 9** shows the corresponding numbers for the Canadian provinces. See **Tables 8A and 8B** for a breakdown of plugging by well types.

Figure 8. Total Wells Plugged in States

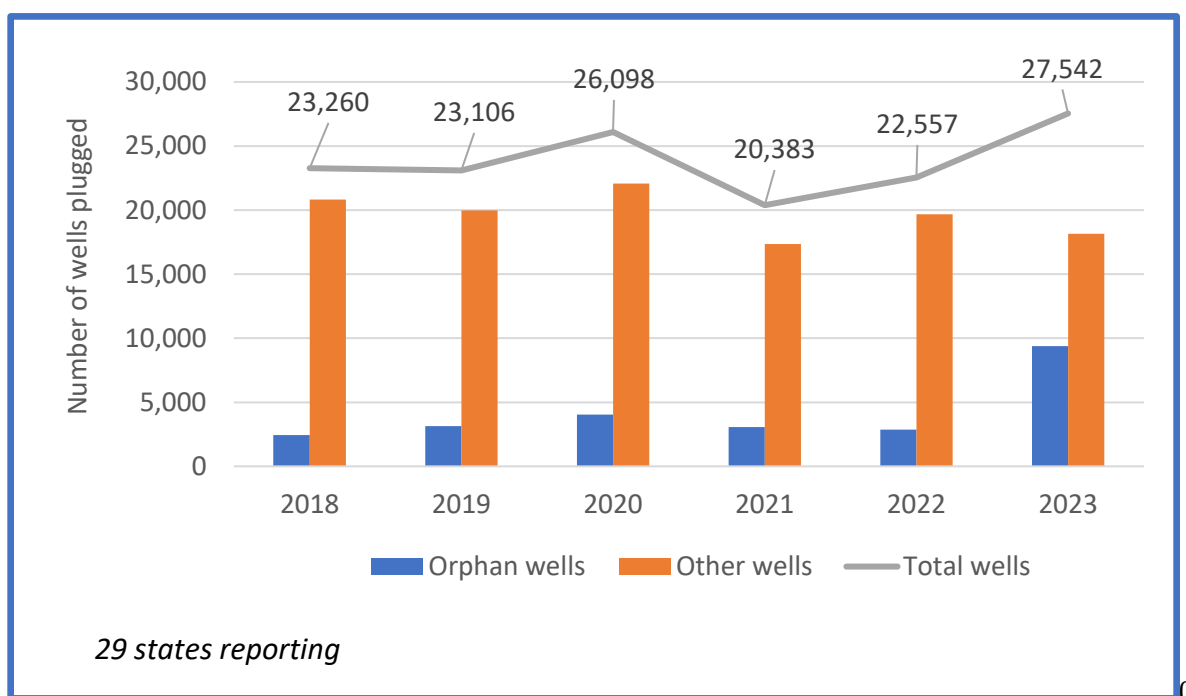


Figure 9. Total Wells Plugged in Provinces

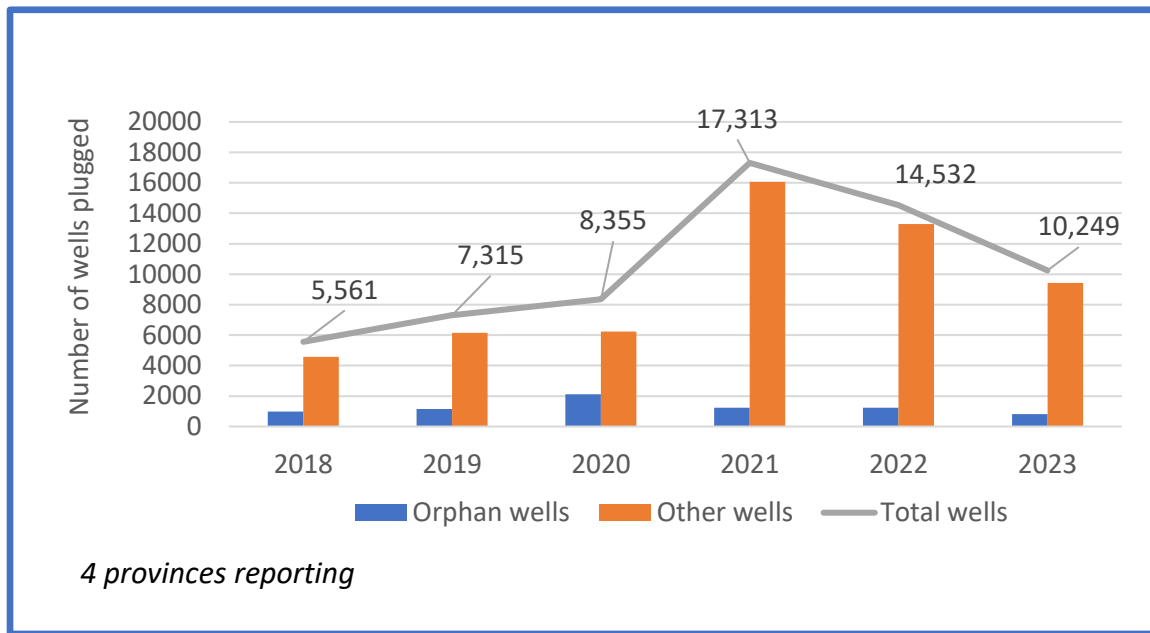
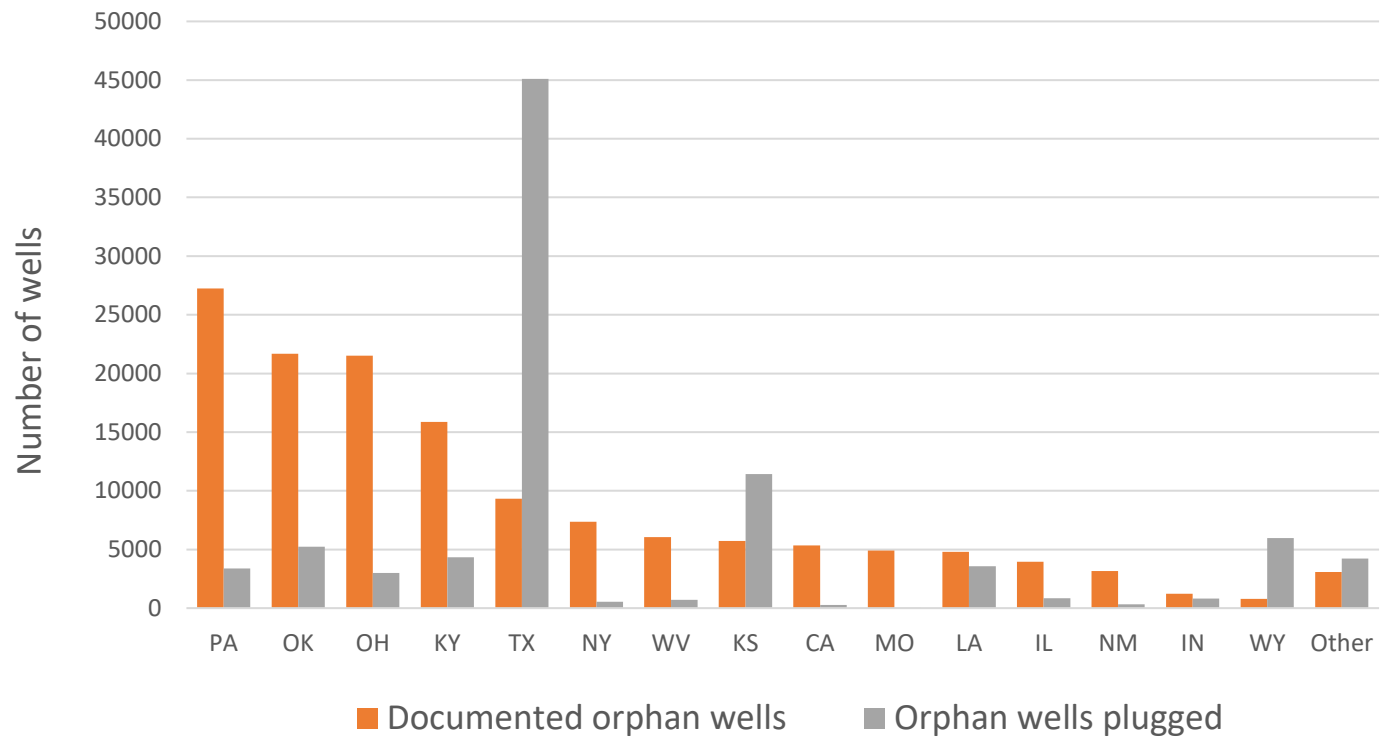


Figure 10 shows both the number of documented orphan wells in the states and the total number of orphan wells plugged by the states as of December 31, 2023.

Figure 10. Documented Orphan Wells and Orphan Wells Plugged in States



29 states reporting

REFERENCES

1. Interstate Oil and Gas Compact Commission, 2021, *Idle and Orphan Oil and Gas Wells: State and Provincial Regulatory Strategies*.
2. Interstate Oil and Gas Compact Commission, 2023, *Idle and Orphan Oil and Gas Wells: State and Provincial Regulatory Strategies, Supplemental Information on State Prioritization Systems for Orphan Wells*.

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TABLE NOTES

1. Blank fields indicate that no data was reported or available.
2. Tables 1, 2, and 3 and the two columns on the far right of Table 6A show data as of December 31 of each year. Other data are for the calendar year.
3. Expenditures by Canadian provinces are shown in Canadian dollars.
4. In responding to the survey for this supplementary report, some states adjusted some data previously reported for 2018-2020. Those adjustments did not significantly affect the totals and are not highlighted in these tables. Anyone interested in identifying those adjustments may compare the tables in this supplementary report with the tables in IOGCC's 2021 report.
5. States use different terms and definitions for the wells and activities addressed in this report. To the extent feasible, they have applied IOGCC terminology in supplying data for this report. Please refer to the 2021 report for further discussion of IOGCC terminology.
6. See the Table of Contents on page 2 for a list of the tables.

Table 1. Documented Wells Drilled and Not Plugged (2020, 2023)

State or Province	Oil and gas production		Oil-and-gas-related injection		Oil-and-gas-related monitoring		Gas storage		Other		Total	
	2020	2023	2020	2023	2020	2023	2020	2023	2020	2023	2020	2023
Alabama	6,754	6,564	245	241	0	0	14	14	18	20	7,031	6,839
Alaska	3,583	3,650	1,627	1,670	26	27	14	26	263	268	5,513	5,641
Arkansas	17,489	17,183	1,021	774		2	11	10	0	0	18,521	17,969
California	58,493	70,395	13,807	25,988	3,584	4,425	323	295	0	429	76,207	101,532
Colorado	50,980	48,253	688	679	230	225	258	248	0	0	52,156	49,405
Idaho	10	15	0	0	0	0	0	0	2	2	12	17
Illinois		24,011		1,701		406		1,074		391	44,165	27,583
Indiana	5,652	6,104	1,136	1,116	0	0	973	821	90	117	7,851	8,158
Kansas	95,332	92,646	18,305	18,087	10	10	883	832	0	8,170	114,530	119,745
Kentucky	57,818	57,785	2,715	2,685	0		599	611	0		61,132	61,081
Louisiana											59,093	59,753
Michigan	14,576	13,176	1,124	1,065	0	0	2,116	2,105	2,506	1,088	20,322	17,434
Mississippi	5,060	4,742	1,221	1,227	94	181	163	153	0	7	6,538	6,310
Missouri	2,707	2,713	435	423	49	41	65	72	327	2,649	3,583	5,898
Montana		13,675		1,219		19		246		83	14,200	15,242
Nebraska	2,098	1,662	612	541	0	0	0	56	0		2,710	2,259
Nevada	105	105	15	15	0	0	0	0	0	0	120	120
New Mexico	55,620	54,947	4,134	3,286	115	16	24	2	20	134	59,913	58,385
New York	16,080	16,189	853	952	136	133	850	838	4,715	4,459	22,634	22,571
North Dakota	19,574	21,126	1,343	1,335	8	31	0	0	0	88	20,925	22,580
Ohio	61,211	60,860	396	410	0	0	3,351	3,233	0	0	64,958	64,503
Oklahoma	215,312	133,698	11,119	10,397	0	130	311	296	0	70,891	226,742	215,412
Pennsylvania	130,946	139,591	2,328	2,275	239	245	1,415	1,448	3	1,871	134,931	145,430
Tennessee	5,012	4,850	0	9	0	0	0	0	0	176	5,012	5,035
Texas											440,749	435,731
Utah	13,865	14,116	1,997	1,967	15	3	64	65	379	77	16,320	16,228
Virginia	8,690	8,633	9	10	0	2	38	38	0	9	8,737	8,692
West Virginia		63,966		537		93		1,365		8,673	74,596	74,634
Wyoming	44,659	42,117	4,162	4,169	413	368	49	55	0	0	49,283	46,709
Totals - States											1,618,484	1,620,896
Alberta	221,728	202,690	12,727	15,157	5,303	5,314	244	233	26,672	22,038	266,674	245,432
British Columbia	16,056	13,614	457	513	107	110	6	10	0	1,641	16,626	15,888
Northwest Territories	86	19	2	0	0	0	0	0	0	0	88	19
Saskatchewan	80,481	73,916	8,619	9,456	0	0	110	119	90	108	89,300	83,599
Totals - Provinces	318,351	290,239	21,805	25,126	5,410	5,424	360	362	26,762	23,787	372,688	344,938

Table 2. Documented and Undocumented Orphan Wells (2018, 2020, 2023)

State or Province	Documented orphan wells			Estimated undocumented orphan wells	
	2018	2020	2023	2020	2023
Alabama	3	26	52	0	700
Alaska	14	14	43	0	4
Arkansas	484	418	443		
California	16	2,777	5,333	17,986	0
Colorado	252	313	650	200	200
Idaho	0	0	0	0	0
Illinois	4,253	4,355	3,946		
Indiana	1,028	1,459	1,238	<100	~300
Kansas	5,709	5,632	5,713		5,285
Kentucky	13,266	14,367	15,870	3,000	3,000
Louisiana	3,621	4,260	4,786		
Michigan	98	154	388	0	0
Mississippi	21	11	24	6	1,000
Missouri	327	327	4,896	2,009	500
Montana	231	222	94		
Nebraska	75	103	466	120	120
Nevada	6	6	7	0	0
New Mexico	374	3,375	3,158		
New York	4,043	7,073	7,375	34,000	34,000
North Dakota	0	341	80	0	0
Ohio	910	972	21,508	36,342 to 66,400	34,500 to 65,100
Oklahoma	1,372	2,799	21,684	105,907	61,049
Pennsylvania	8,703	27,972	27,240	100,000 to 560,000	100,000 to 560,000
Tennessee		446	775	54	81
Texas	6,989	6,514	9,313		
Utah	33	41	34		0
Virginia	10	9	11	0	0
West Virginia	6,302	6,309	6,042	9,000	9,000
Wyoming	3,083	1,907	790	0	2
Totals - States	61,223	92,202	141,959	310,000 to 800,000	250,000 to 740,000
Alberta	3,127	2,983	1,955	0	0
British Columbia	326	754	824	0	0
Northwest Territories	0	0	0	0	0
Saskatchewan	609	1,043	3,268	0	0
Totals - Provinces	4,062	4,780	6,047	0	0

Table 3. Operator Status of Documented Orphan Wells (2023)

State or Province	Documented orphan wells		Known operators			
	Operator known	Operator unknown	With 1 well	With 2-10 wells	With 11-100 wells	With ≥100 wells
Alabama	52	0	1	2	2	0
Alaska	2	45	0	1	0	0
Arkansas	443	0	55	32	7	1
California	5,333	5	743	318	82	5
Colorado	629	32	60	24	6	2
Idaho	0	0	0	0	0	0
Illinois	3,946	244	130	171	75	6
Indiana	689	218	172	84	10	0
Kansas	5,713	0	392	334	87	8
Kentucky						
Louisiana	4,771	15	730	408	72	5
Michigan	388	0	32	4	5	1
Mississippi	24	0	8	2	11	0
Missouri	4,888	8	730	458	54	7
Montana	93	1	16	3	3	0
Nebraska	466	120	3	5	2	2
Nevada	7	0	5	2	0	0
New Mexico	3,158	0	117	179	45	5
New York	3,295	4,193	279	146	47	4
North Dakota	114	0	3	4	1	0
Ohio						
Oklahoma	14,912	6,772	1,192	1,366	287	10
Pennsylvania	19,529	7,711	836	683	273	31
Tennessee	856	0	68	101	21	0
Texas	9,313	0	456	500	152	12
Utah	32	2	10	10	0	0
Virginia	10	1	9	1	0	0
West Virginia	1,364	4,678	236	154	24	0
Wyoming	790	0	8	18	8	2
Totals - States	80,817	24,045	6,291	5,010	1,274	101
Alberta	1,955		50	53	20	5
British Columbia	822	2	10	16	6	2
Northwest	0	0				
Saskatchewan	3,268	0	37	39	19	3
Totals - Provinces	6,045	2	97	108	45	10

Table 4A. Orphan Well Plugging with State or Provincial Funds—Number of Wells

State or Province	Orphan wells plugged						Plugged since start of program
	2018	2019	2020	2021	2022	2023	2023
Alabama	0	0	0	10	0	1	11
Alaska	0	0	0	0	0	0	0
Arkansas	25	25	1	23	5	13	794
California	29	60	43	0	25	33	272
Colorado	14	33	57	87	38	44	>600
Idaho	0	0	0	0	0	0	0
Illinois	9	20	23	13	0	0	831
Indiana	5	15	7	6	15	8	~829
Kansas	168	137	161	342	281	93	11,434
Kentucky	9	66	298	116	85	15	4,328
Louisiana	219	1	135	110	144	20	3,566
Michigan	6	5	2	4	5	0	395
Mississippi	5	11	0	0	0	0	460
Missouri	0	0	0	0	0	0	1
Montana	11	1	2	6	1	0	449
Nebraska	16	21	13	15	6	0	299
Nevada	0	0	0	0	0	0	0
New Mexico	60	36	49	42	51	6	333
New York	45	95	68	9	17	31	554
North Dakota	3	0	282	0	0	3	368
Ohio	51	92	150	144	176	304	2,990
Oklahoma	58	127	112	80	260	165	5,240
Pennsylvania	6	9	18	9	22	24	3,384
Tennessee	33	77	66	3	24	23	700
Texas	1,332	1,779	1,473	1,329	1,215	1,744	45,090
Utah	1	1	2	15	0	0	132
Virginia	0	0	1	0	0	0	14
West Virginia	0	2	1	2	13	18	704
Wyoming	333	529	1,066	689	101	2	5,970
Totals - States	2,438	3,142	4,030	3,054	2,484	2,547	89,748
Alberta	799	982	1,922	1,150	1,062	683	7,995
British Columbia	84	29	105	47	16	58	646
Northwest Territories	0	0	0	0	0	0	0
Saskatchewan	92	144	85	43	77	83	873
Totals - Provinces	975	1,155	2,112	1,240	1,155	824	9,514

Table 4B. Orphan Well Plugging with State or Provincial Funds—Expenditures

State or Province	Expenditures for plugging						Includes restoration (Yes or No)	
	2018	2019	2020	2021	2022	2023	2018-2020	2021-2023
Alabama	\$0	\$0	\$0	\$560,000	\$0	\$2,179,000	Yes	Yes
Alaska	\$0	\$0	\$0	\$0	\$0	\$0		
Arkansas	\$227,825	\$56,521	\$420,434	\$77,649	\$395,944	\$438,150	Yes	
California	\$5,896,686	\$9,981,893	\$14,072,753	\$0	\$1,291,418	\$1,702,994	Yes	No
Colorado	\$309,658	\$2,213,728	\$1,968,306	\$4,655,040	\$2,373,963	\$3,551,293	Yes	Yes
Idaho	\$0	\$0	\$0	\$0	\$0	\$0		
Illinois	\$447,000	\$721,537	\$750,914	\$769,141	\$0	\$0	Yes	Yes
Indiana	\$45,399	\$187,960	\$90,432	\$97,735	\$328,169	\$332,360	Yes	Yes
Kansas	\$773,762	\$755,943	\$556,246	\$2,305,922	\$1,980,824	\$1,224,275	Yes	Yes
Kentucky	\$33,000	\$298,000	\$1,291,000	\$968,997	\$421,875	\$462,711	Yes	Yes
Louisiana	\$6,400,000	\$4,638,918	\$5,939,013	\$7,314,239	\$15,505,018	\$14,279,916	Yes	Yes
Michigan	\$585,756	\$795,199	\$678,862	\$819,349	\$859,318	\$121,677	Yes	Yes
Mississippi	\$168,000	\$497,635	\$0	\$0	\$0	\$3,000,000	Yes	
Missouri	\$0	\$0	\$0	\$0	\$0	\$5,200		No
Montana	\$387,000	\$416,625	\$264,667	\$534,782	\$74,891	\$0	Yes	Yes
Nebraska	\$170,000	\$320,000	\$270,000	\$475,000	\$240,000	\$0	Yes	Yes
Nevada	\$0	\$0	\$0	\$0	\$0	\$0		
New Mexico	\$1,356,099	\$1,022,249	\$2,154,826	\$2,578,152	\$4,587,955	\$971,262	Yes	No
New York	\$1,400,000	\$4,190,000	\$2,850,000	\$1,948,036	\$1,641,167	\$1,196,647	Yes	Yes
North Dakota	\$224,334	\$0	\$37,797,531	\$0	\$0	\$178,810	Yes	
Ohio	\$3,000,000	\$8,867,580	\$14,035,390	\$11,163,841	\$17,799,412	\$34,398,253	Yes	Yes
Oklahoma	\$1,293,466	\$1,640,774	\$1,495,135	\$1,631,460	\$4,873,436	\$3,119,913	No	No
Pennsylvania	\$474,111	\$1,446,580	\$1,499,741	\$530,039	\$1,600,239	\$1,059,902	Yes	Yes
Tennessee	Unknown	\$213,505	\$131,000	\$8,925	\$94,348	\$79,902	Yes	Yes
Texas	\$24,502,884	\$36,381,395	\$31,126,662	\$34,390,520	\$33,953,578	\$53,040,253	No	No
Utah	\$88,244	\$65,546	\$102,704	\$862,184	\$0	\$0		Yes
Virginia	\$0	\$0	\$111,854	\$0	\$0	\$0	Yes	
West Virginia	\$0	\$236,804	\$185,829	\$260,100	\$1,214,189	\$2,488,769		Yes
Wyoming	\$2,200,000	\$3,165,531	\$6,386,223	\$4,791,625	\$545,900	\$54,310	Yes	Yes
Totals - States	\$49,983,244	\$78,113,923	\$124,179,522	\$76,742,736	\$89,781,644	\$123,885,597		
Alberta	C\$45,800,000	C\$46,200,000	C\$63,700,000	C\$79,705,717	C\$124,355,622	C\$68,065,822	No	No
British Columbia	C\$8,500,000	C\$7,000,000	C\$18,500,000	C\$8,700,000	C\$1,800,000	C\$2,500,000	No	No
Northwest Territories	\$0	\$0	\$0	\$0	\$0	\$0		
Saskatchewan							No	No
Totals-Provinces	C\$54,300,000	C\$53,200,000	C\$82,200,000	C\$88,405,717	C\$126,155,622	C\$70,565,822		

Table 5. Orphan Well Plugging with Federal Funds

State or Province	Orphaned wells plugged		Expenditures for plugging		Includes restoration (Yes or No)
	2022	2023	2022	2023	
Alabama	0	0	\$0	\$0	
Alaska	0	0	\$0		No
Arkansas	0	56	\$0	\$817,937	Yes
California	0	4	\$0	\$670,546	No
Colorado	5	69	\$326,748	\$7,503,805	Yes
Idaho	0	0	\$0	\$0	
Illinois	91	323	\$2,000,000	\$15,500,000	Yes
Indiana	0	239	\$0	\$15,559,833	Yes
Kansas	0	1,914	\$0	\$20,118,735	Yes
Kentucky	193	442	\$3,427,710	\$16,221,257	Yes
Louisiana	0	684	\$0	\$37,500,000	Yes
Michigan	0	197	\$0	\$12,477,500	Yes
Mississippi	0	16	\$0	\$2,500,000	Yes
Missouri	0	0	\$0	\$0	No
Montana	0	137	\$0	\$10,367,828	Yes
Nebraska	27	251	\$566,000	\$7,150,000	Yes
Nevada	0	0	\$0	\$0	
New Mexico	4	133	\$663,806	\$19,078,911	
New York	0	10	\$0	\$5,857,264	Yes
North Dakota	0	73	\$0	\$4,543,897	No
Ohio	0	19	\$0	\$6,068,687	Yes
Oklahoma	0	593	\$0	\$12,952,561	No
Pennsylvania	0	124	\$0	\$11,563,105	Yes
Tennessee					
Texas	71	663	\$1,386,039	\$22,825,995	No
Utah	0	0	\$0	\$0	Yes
Virginia	0	0	\$0	\$0	
West Virginia	0	199	\$0	\$23,006,631	Yes
Wyoming	0	703	\$0	\$8,374,109	Yes
Totals - States	391	6,849	\$8,370,303	\$260,658,601	
Alberta					
British Columbia	72	0	C\$15,000,000	\$0	No
Northwest Territories	0	0	\$0	\$0	
Saskatchewan					
Totals - Provinces	72	0	C\$15,000,000	\$0	

Table 6A. Orphan Well Site Restoration with State or Provincial Funds—Number of Sites

State or Province	Sites restored separately from plugging						Number of plugged orphan wells needing restoration	
	2018	2019	2020	2021	2022	2023	2020	2023
Alabama	0	0	0	0	0	4	0	1
Alaska	0	0	0	0	0	0	1	0
Arkansas	0	0	1			3	0	0
California	0	0	0	0	0	0	0	0
Colorado	47	53	55	30	77	85	454	
Idaho	0	0	0	0	0	0	0	0
Illinois	0	0	0					
Indiana	0	0	0	0	2	0	10	8
Kansas	37					47		
Kentucky	0	0	0				0	
Louisiana	0	0	0	0	0	0	Unknown	Unknown
Michigan	6	0	0	2	0	0	1	186
Mississippi	0	0	8	0	1	0	1	0
Missouri	0	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	2	55
Nebraska	7	8	5	5	2	0		0
Nevada	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0	227	326
New York	0	0	0	0	0	0	0	0
North Dakota	0	6	186			5	156	60
Ohio	0	0	0	0	0	0		
Oklahoma	608	712	539	548	695	1,173		
Pennsylvania	0	0	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0	0	0
Texas	132	257	125	269	260	240	0	0
Utah	1	1	2	5	0	0	5	0
Virginia	0	0	0	0	0	0	0	0
West Virginia	4	0	0	0	0	0	Unknown	Unknown
Wyoming	0	0	0	0	0	0		310
Totals-States	842	1,037	921	859	1,037	1,557	856	946
Alberta	85	146	267	252	351	494	4,889	8,954
British Columbia	15	31	61	30	21	34	396	612
Northwest Territories	0	0	0	0	0	0	0	0
Saskatchewan	36	33	111	45	23	71	577	3,268
Totals - Provinces	136	210	439	327	395	599	5,862	12,834

Table 6B. Orphan Well Site Restoration with State or Provincial Funds—Expenditures

State or Province	Expenditures for restoration, if not included in plugging expenditures					
	2018	2019	2020	2021	2022	2023
Alabama	\$0	\$0	\$0	\$0	\$0	\$140,000
Alaska	\$0	\$0	\$0	\$0	\$0	\$0
Arkansas	\$0	\$0	\$8,641			\$303,872
California	\$0	\$0	\$0	\$0	\$0	\$0
Colorado	\$352,970	\$1,748,567	\$1,686,069	\$593,755	\$617,665	\$535,346
Idaho	\$0	\$0	\$0	\$0	\$0	\$0
Illinois	\$0	\$0	\$0			
Indiana	\$0	\$0	\$0	\$0	\$19,230	\$0
Kansas	\$26,730			\$40,266	\$22,302	\$579,628
Kentucky	\$0	\$0	\$0			
Louisiana	\$0	\$0	\$0	\$0	\$0	\$0
Michigan	\$83,697	\$0	\$0	\$48,590	\$0	\$0
Mississippi	\$0	\$0	\$43,037	\$0	\$36,075	\$0
Missouri	\$0	\$0	\$0	\$0	\$0	\$0
Montana	\$0	\$0	\$0	\$0	\$0	\$0
Nebraska	\$98,000	\$18,000	\$6,000	\$15,000	\$12,000	\$0
Nevada	\$0	\$0	\$0	\$0	\$0	\$0
New Mexico	\$0	\$0	\$0	\$0	\$0	\$0
New York	\$0	\$0	\$0	\$0	\$0	\$0
North Dakota	\$0	\$203,055	\$28,870,850			\$1,338,826
Ohio	\$0	\$0	\$0	\$0	\$0	\$0
Oklahoma	\$4,300,000	\$6,441,406	\$5,558,005	\$5,457,522	\$7,046,653	\$11,735,689
Pennsylvania	\$0	\$0	\$0	\$0	\$0	\$0
Tennessee	\$0	\$0	\$0	\$0	\$0	\$0
Texas	\$761,020	\$2,520,379	\$2,273,584	\$13,186,480	\$11,916,484	\$10,663,291
Utah	\$16,772	\$13,452	\$24,462	\$133,923	\$0	\$0
Virginia	\$0	\$0	\$0	\$0	\$0	\$0
West Virginia	\$79,607	\$0	\$0	\$0	\$0	\$0
Wyoming	\$0	\$0	\$0	\$0	\$0	\$0
Totals-States	\$5,718,796	\$10,944,859	\$38,470,648	\$19,475,536	\$19,670,409	\$25,296,652
Alberta	C\$22,900,000	C\$26,900,000	C\$47,800,000	C\$49,155,327	C\$48,783,883	C\$70,856,178
British Columbia	C\$500,000	C\$6,500,000	C\$12,500,000	C\$8,800,000	C\$13,200,000	C\$21,000,000
Northwest Territories	0	0	0	0	0	0
Saskatchewan						
Totals - Provinces	C\$23,400,000	C\$33,400,000	C\$60,300,000	C\$57,955,327	C\$61,983,883	C\$91,856,178

Table 7. Orphan Well Site Restoration with Federal Funds

State or Province	Sites restored separately from plugging		Expenditures for restoration, if not included in plugging expenditures	
	2022	2023	2022	2023
Alabama	0	0	\$0	\$0
Alaska	0	0	\$0	\$0
Arkansas	0	0	\$0	\$0
California	0	0	\$0	\$0
Colorado	83	126	\$1,143,653	\$4,912,908
Idaho	0	0	\$0	\$0
Illinois				
Indiana	0	0	\$0	\$0
Kansas	0	0	\$0	\$0
Kentucky				
Louisiana	0	0	\$0	\$0
Michigan	0	0	\$0	\$0
Mississippi	0	25	\$0	\$2,500,000
Missouri	0	0	\$0	\$0
Montana	0	0	\$0	\$0
Nebraska	27	251	\$32,700	\$78,400
Nevada				
New Mexico	0	3	\$0	\$1,783,600
New York	0	0	\$0	\$0
North Dakota	0	54	\$0	\$11,084,917
Ohio	0	0	\$0	\$0
Oklahoma				
Pennsylvania	0	0	\$0	\$0
Tennessee				
Texas	0	0	\$0	\$0
Utah	0	0	\$0	\$0
Virginia	0	0	\$0	\$0
West Virginia	0	0	\$0	\$0
Wyoming	0	0	\$0	\$1,591,480
Totals - States	110	459	\$1,176,353	\$21,951,305
Alberta				
British Columbia	20	0	C\$10,000,000	\$0
Northwest Territories	0	0	\$0	\$0
Saskatchewan				
Totals - Provinces	20	0	C\$10,000,000	0

Table 8A. Total Wells Plugged, Including Orphan Wells (2018-2020)

State or Province	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells
	2018					2019					2020				
Alabama	13	124	2	8	147	22	113	6	9	150	36	153	24	7	220
Alaska	41	5	2	0	48	89	12	7	4	112	30	1	12	8	51
Arkansas	74	110	13	0	197	62	114	8	0	184	33	166	9	0	208
California	749	64	304	229	1,346	1,046	21	752	108	1,927	1,227	25	850	52	2,154
Colorado	925	1,188	11	58	2,182	1,208	1,311	19	34	2,572	787	841	29	71	1,728
Idaho	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0
Illinois	423	5	54	0	482					553					413
Indiana	56	8	12	22	98	122	24	25	49	220	70	13	24	14	121
Kansas	1,234	409	244	370	2,257	1,328	335	256	384	2,303	1,140	356	266	198	1,960
Kentucky	166	30	18	52	266					319					557
Louisiana	437	305	55	266	1,063	342	362	73	160	937	261	315	67	147	790
Michigan	70	145	18	0	233	63	253	3	0	319	43	156	3	0	202
Mississippi	61	19	16	38	134	49	24	18	13	104	29	11	19	13	72
Missouri	7	5	15	37	64	2	0	3	4	9	4	4	2	0	10
Montana	24	42	7	0	73	31	43	8	0	82	25	152	10	8	195
Nebraska	48	0	11	0	59	52	0	8	0	60	55	0	11	0	66
Nevada	1	0	0	0	1	2	0	0	0	2	1	0	0	0	1
New Mexico	480	160	59	0	699	474	259	84	9	826	184	117	21	0	322
New York	89	27	8	24	148	121	51	36	15	223	105	11	38	28	182
North Dakota	130	7	19	0	156	127	6	14	0	147	141	0	34	7	182
Ohio	105	211	2	0	318	106	211	3	0	320	103	207	1	0	311
Oklahoma	545	554	95	1,607	2,801	618	484	120	2,466	3,688	397	323	23	2,289	3,032
Pennsylvania	134	329	8	53	524	141	335	1	66	543	134	262	2	32	430
Tennessee	22	46	0	60	128	29	79	0	66	174	27	65	0	48	140
Texas					7,566					5,046					10,860
Utah	58	82	23	14	177	28	127	15	25	195	45	102	10	78	235
Virginia	0	85	0	0	85	0	98	1	0	99	0	76	0	0	76
West Virginia					171					220					152
Wyoming	203	1,549	81	4	1,837	267	1,435	63	0	1,765	148	1,234	46	0	1,428
Totals - States	6,095	5,509	1,077	2,842	23,260	6,329	5,697	1,523	3,419	23,106	5,025	4,590	1,501	3,000	26,098
Alberta	1,574	1,969	140	0	3,683	1,643	2,815	220	0	4,678	1,667	3,498	292	45	5,457
British Columbia	51	207	19	95	372	63	393	19	65	540	53	538	14	114	722
Northwest Territories	4	0	0	0	4	1	0	0	0	1	3	0	0	0	3
Saskatchewan	434	981	80	7	1,502	1,131	816	138	11	2,096	771	1,278	111	13	2,173
Totals-Provinces	2,063	3,157	239	102	5,561	2,838	4,024	377	76	7,315	2,494	5,314	417	172	8,355

Table 8B. Total Wells Plugged, Including Orphan Wells (2021–2023)

State or Province	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells	Oil wells	Natural gas wells	Injection wells	Other wells	Total wells
	2021					2022					2023				
Alabama	7	130	5	4	146	23	83	5	6	117	11	97	6	5	119
Alaska	28	11	1	13	53	40	9	5	17	71	47	4	9	0	60
Arkansas	54	84				61	52				118	67	2	0	187
California	696	30	568	152	1,446	989	18	634	109	1,750	627	16	375	87	1,105
Colorado	733	691	12	54	1,490	707	817	13	30	1,597	716	918	3	22	1,659
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	331	15	54	78	478	434	18	82	48	583	620	64	129	25	839
Indiana	62	8	24	36	130	94	4	15	30	143	187	94	42	91	414
Kansas	1,298	308	307	467	2,380	1,269	243	378	494	2,384	2,302	514	776	557	4,149
Kentucky	267	79	39	119	504	373	89	46	118	626	321	60	40	208	629
Louisiana	289	173	83	103	648	382	284	108	143	917	564	608	162	193	1,527
Michigan	62	139	12	137	350	56	147	17	106	326	67	111	14	99	291
Mississippi	28	36	13	11	88	85	36	31	19	171	78	45	26	19	168
Missouri	2	0	1	0	3	0	0	29	2	32	4	6	12	0	22
Montana	62	39	5	12	118	46	21	7	7	81	106	112	20	17	255
Nebraska	85	5	10	55	155	91	8	5	60	164	142	110	10	55	317
Nevada	1	0	0	0	0	2	0	0	0	2	1	0	0	0	1
New Mexico	366	251	65	5	687	400	400	66	1	867	353	194	35	1	583
New York	98	21	21	33	173	85	9	19	6	119	127	46	15	14	202
North Dakota											226	1	54	7	288
Ohio	95	70	0	212	377	83	71	2	175	331	96	87	0	297	480
Oklahoma	534	368	97	204	1,203	779	407	153	175	1,514	1,175	511	329	290	2,305
Pennsylvania	119	297	3	54	473	199	322	9	76	606	184	328	8	107	627
Tennessee	9	11	0	35	55	10	15	0	76	101	15	14	0	66	95
Texas					7,100					8,224					9,114
Utah	117	79	18	55	269	161	69	26	54	311	106	84	22	29	241
Virginia	0	103	0	0	103	0	87	0	0	87	0	98	0	0	98
West Virginia	23	138	4	80	245	16	154	3	66	239	31	87	17	200	335
Wyoming	228	1,405	70	6	1,709	198	894	67	35	1,194	292	1,045	91	4	1,432
Totals - States	5,594	4,491	1,412	1,925	20,383	6,583	4,257	1,720	1,853	22,557	8,516	5,321	2,197	2,393	27,542
Alberta	3,486	6,077	512	1,805	11,880	3,405	5,633	402	1,590	11,030	2,197	3,366	353	1,282	7,198
British Columbia	153	456	27	188	824	63	357	13	158	591	164	226	55	142	587
Northwest Territories	0	0	0	0	0	5	0	0	0	5	63	0	2	0	65
Saskatchewan	2,740	1,632	232	5	4,609	2,000	802	96	8	2,906	1,618	636	122	23	2,399
Totals - Provinces	6,379	8,165	771	1,998	17,313	5,473	6,792	511	1,756	14,532	4,042	4,228	532	1,447	10,249