



# Department of the Interior Bipartisan Infrastructure Law 40601 Report to Congress

## Orphaned Well Program - *Annual Report*

### *November 2022*

**FY  
22**



## Section 1: Orphaned Well Program Background

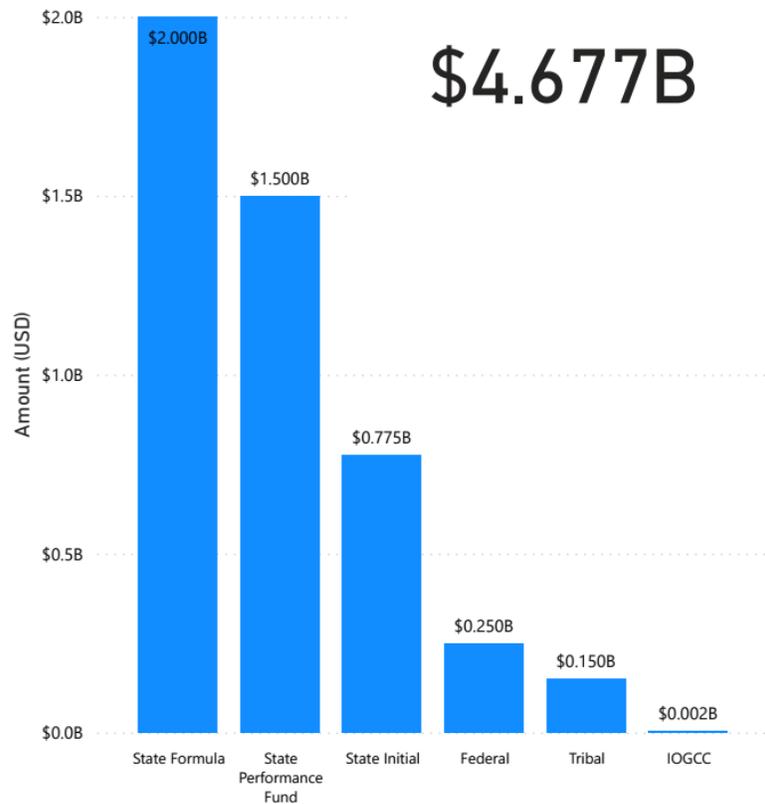
The Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58), signed into law on November 15, 2021, and also known as the Bipartisan Infrastructure Law (BIL), is a once-in-a-generation investment in our Nation’s infrastructure and competitiveness. Section 40601 of the BIL establishes the Orphaned Well Program to address legacy pollution, including methane emissions and water contamination. To achieve this, the BIL directs the Secretary of the Interior to establish programs to inventory and properly close orphaned wells on Federal, Tribal, State, and private lands. This report describes program accomplishments in FY 2022 and addresses the specific reporting metrics required in the BIL. These BIL reporting metrics are included in Section 3 of this report.

The BIL provided funds to the Department of the Interior (Department) to establish three new orphaned well plugging, remediation, and reclamation programs - \$250 million for wells on Federal lands, \$4.3 billion for wells on State and private lands, and \$150 million for wells on Tribal lands. Funding to plug and reclaim State and private wells is being made available to States through Initial grants, Formula grants, and Performance grants (see **Figure 1**). Funding to plug and reclaim wells on Tribal land will be available through Tribal grants. Funding for well plugging and associated site reclamation on federal lands was provided via direct transfer to the Bureau of Land Management (BLM), the U.S.

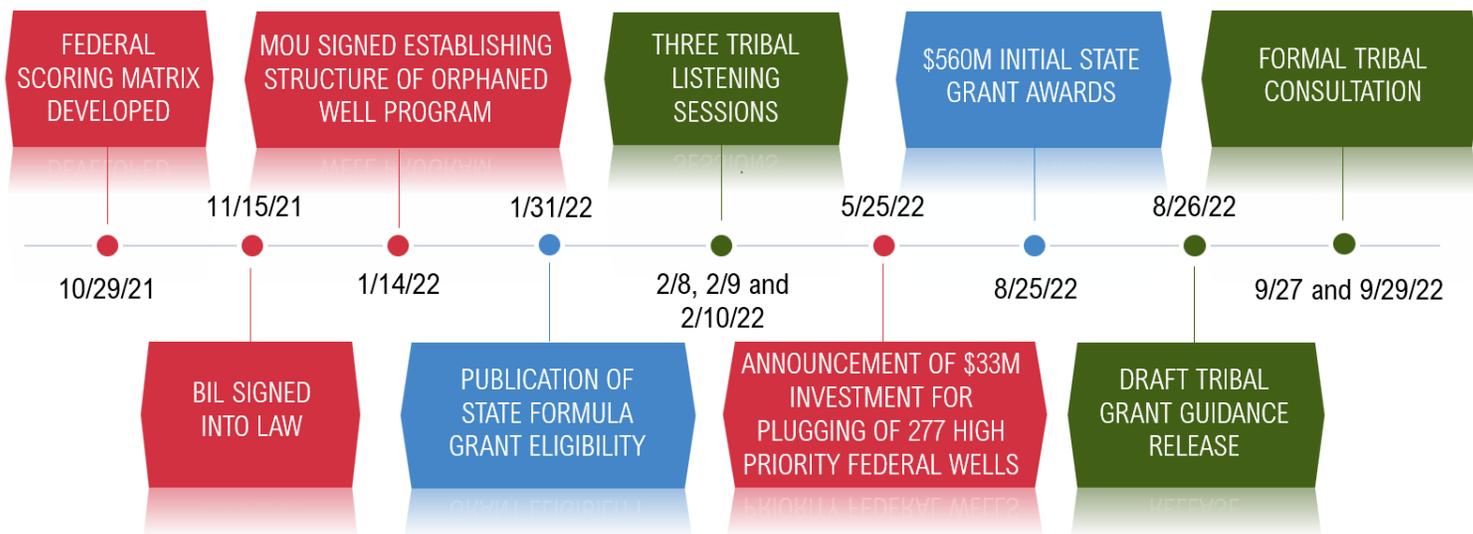
Major milestones of the orphaned well program that were achieved in FY 2022 are depicted in **Figure 2**.

Fish and Wildlife Service (FWS), the National Park Service (NPS), and the U.S. Forest Service (USFS) in FY 2022. Funding under this program may be used to identify and prioritize wells, track emissions and groundwater contamination leaking from wells, identify and address disproportionate burdens to underserved communities, remediate and reclaim orphaned wells, remediate soil, and restore native species and adjacent land.

**Figure 1** illustrates funding appropriated by program area.



**Figure 1: Allocation of Funds under the IIJA**



\*Legend: Tribal = Green, State = Blue, Federal = Red

Figure 2: FY 2022 Milestones Accomplished

A recent report by the U.S. Geological Survey (USGS) identified 117,672 documented orphaned oil and gas wells nationwide (See Figure 3 for the location of these wells).<sup>1</sup> The full extent of the orphaned well issue is not yet known. The U.S. Environmental Protection Agency (EPA) estimates that there are 2.7 million abandoned oil wells and 600,000 abandoned gas wells nationwide. EPA’s estimate includes undocumented wells (wells that need to be

verified) and documented wells that have yet to complete the orphaned well determination process. Many wells in the USGS study and in the EPA estimate are unplugged or poorly plugged and are likely to be emitting methane to the atmosphere. The oil and gas sector, which includes unplugged orphan wells, is estimated to contribute to more than 30% of the total U.S. methane emissions.<sup>1</sup>

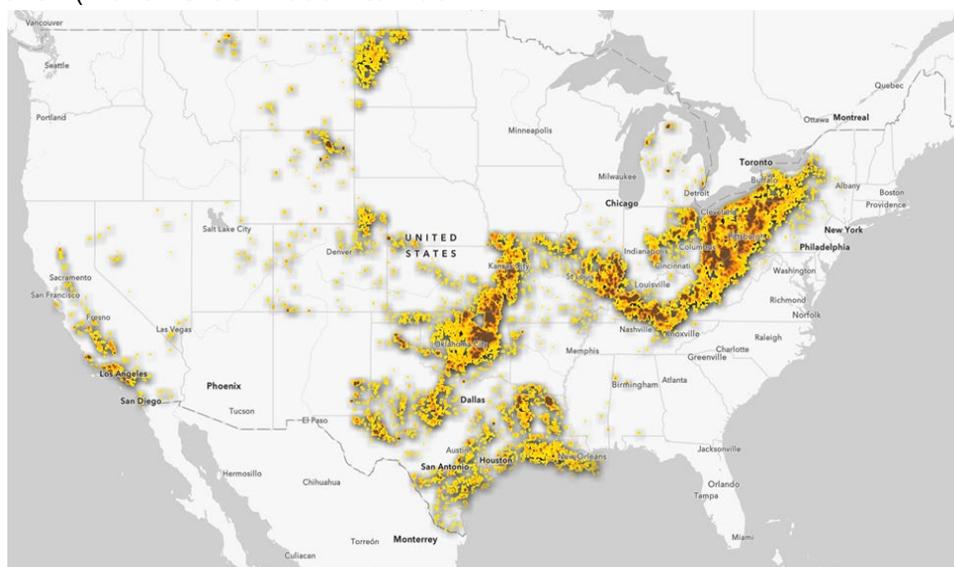


Figure 3: Location of Documented Unplugged Orphaned Wells in the U.S.<sup>2</sup>

<sup>1</sup> (Published 11/21). <https://www.whitehouse.gov/wp-content/uploads/2021/11/US-Methane-Emissions-Reduction-Action-Plan-1.pdf>

<sup>2</sup> (Last updated 08/22/22). <https://www.usgs.gov/data/united-states-documented-unplugged-orphaned-oil-and-gas-well-dataset>.

These figures are based on State law and regulation with regard to pursuing potentially responsible parties and for Federal land may not agree with Federal land manager estimates of orphaned wells.



# Section 2: FY 2022 Federal, State, and Tribal Program Accomplishments

## Federal Program Accomplishments

The Department, U.S. Department of Agriculture, Department of Energy, EPA, and Interstate Oil and Gas Compact Commission (IOGCC) signed a Memorandum of Understanding (MOU) on January 14, 2022, which outlines the agencies' commitment to working cooperatively under the Federal Program. The MOU also established a Technical Working Group (TWG) and an Executive Group to assist with implementation of the Federal Program.

A scoring matrix was used in FY 2022 to prioritize orphaned well plugging, reclamation, and remediation proposals. This matrix uses the following criteria: public health and safety, environmental harm mitigation, land use management priorities, and environmental justice. The TWG developed a protocol for measuring methane at the well-head, and also developed a draft orphaned well surface water and groundwater contamination protocol to guide field personnel in identifying potential impacts to groundwater or surface water associated with orphaned wells.

In June 2022, \$32.8 million was distributed to the BLM, the FWS, the NPS, and the USFS in support of well plugging and site reclamation at 277 well locations depicted in **Figure 4** below.

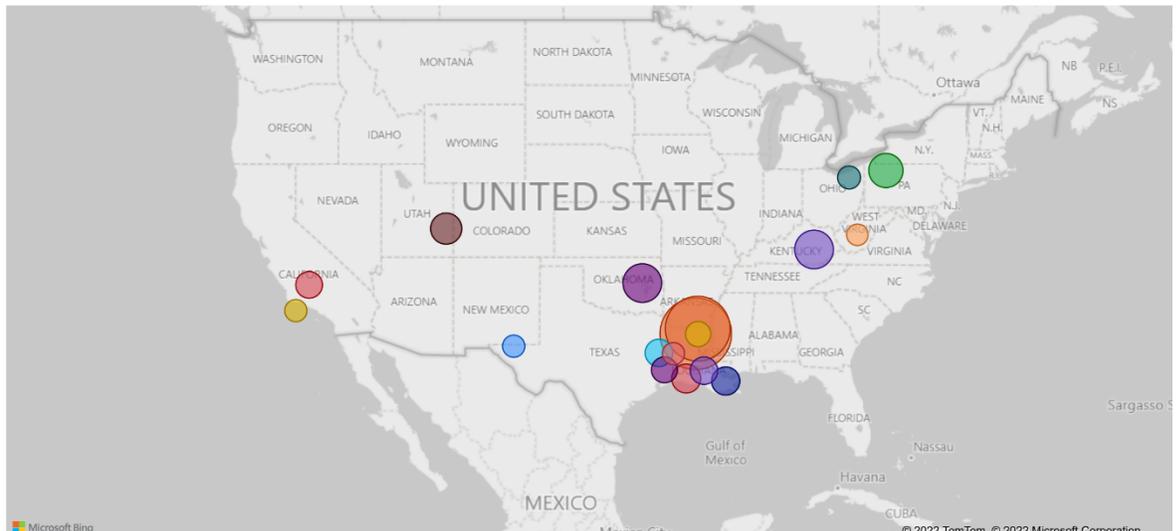
## State Grant Program Accomplishments

In August 2022, \$560 million in Initial State Grants was awarded to augment existing well plugging activities and to build capacity for State orphaned well plugging programs in 24 states. These Initial State Grant funds are expected to plug and reclaim nearly 10,000 wells on State and private lands. Twenty-two states received \$25 million large-scale Initial grants and 2 states received \$5 million small-scale Initial State grants.

The amounts awarded to States and Federal land managers, by State, are shown in **Figure 5** below. The number of wells to be plugged identified in Figure 5 have been provided by the States in the Initial State Grant applications.

### State-Location

- CA-Bakersfield Field Office BLM Lands
- CA-Channel Islands National Park
- KY-Daniel Boone National Forest
- LA-Atchafalaya National Wildlife Refuge
- LA-Black Bayou Lake National Wildlife Refuge
- LA-Darbonne National Wildlife Refuge
- LA-Jean Lafitte National Historic Park
- LA-Lacassine National Wildlife Refuge
- LA-Upper Ouachita National Wildlife Refuge
- OH-Cuyahoga Valley National Park
- OK-Deep Fork National Wildlife Refuge
- PA-Allegheny National Forest
- TX-Angelina National Forest
- TX-Big Thicket National Preserve
- TX-Guadalupe Mountains National Park
- TX-Sabine National Forest
- UT-Moab Field Office BLM Lands
- WV-Gauley River National Recreation Area



**Figure 4: Locations of 277 Federal Wells Funded in FY 2022 for Plugging**  
*Legend: Bubble size corresponds to the number of wells within the identified plugging location*

| State         | Initial State Grant Wells To Be Plugged (Average*) | Initial State grant Funding Amount | Federal Program Wells To Be Plugged | Federal Well Funding By State |
|---------------|--|------------------------------------|-------------------------------------|-------------------------------|
| Alaska        | 15   | \$25,000,000.00                    | 0                                   |                               |
| Arizona       | 246  | \$25,000,000.00                    | 0                                   |                               |
| Arkansas      | 227  | \$5,000,000.00                     | 0                                   |                               |
| California    | 171  | \$25,000,000.00                    | 10                                  | \$2,043,745                   |
| Florida       | 42   | \$25,000,000.00                    | 0                                   |                               |
| Colorado      | 140  | \$25,000,000.00                    | 0                                   |                               |
| Illinois      | 700  | \$25,000,000.00                    | 0                                   |                               |
| Indiana       | 400  | \$25,000,000.00                    | 0                                   |                               |
| Kansas        | 2352   | \$25,000,000.00                    | 0                                   |                               |
| Kentucky      | 1100   | \$25,000,000.00                    | 24                                  | \$2,640,000                   |
| Louisiana     | 575  | \$25,000,000.00                    | 163                                 | \$16,582,500                  |
| Michigan      | 447  | \$25,000,000.00                    | 0                                   |                               |
| Mississippi   | 0  | \$5,000,000.00                     | 0                                   |                               |
| Montana       | 254  | \$25,000,000.00                    | 0                                   |                               |
| Nebraska      | 225  | \$25,000,000.00                    | 0                                   |                               |
| New Mexico    | 200  | \$25,000,000.00                    | 0                                   |                               |
| New York      | 167  | \$25,000,000.00                    | 0                                   |                               |
| North Dakota  | 120  | \$25,000,000.00                    | 0                                   |                               |
| Ohio          | 245  | \$25,000,000.00                    | 3                                   | \$1,177,000                   |
| Oklahoma      | 1196   | \$25,000,000.00                    | 24                                  | \$1,320,000                   |
| Pennsylvania  | 50   | \$25,000,000.00                    | 18                                  | \$1,188,000                   |
| Texas         | 800  | \$25,000,000.00                    | 20                                  | \$6,226,000                   |
| Utah          | 0  |                                    | 14                                  | \$1,342,000                   |
| West Virginia | 160  | \$25,000,000.00                    | 1                                   | \$319,000                     |
| Wyoming       | 0  | \$25,000,000.00                    | 0                                   |                               |
| <b>Total</b>  | <b>9,832</b>                                       | <b>\$560,000,000</b>               | <b>277</b>                          | <b>\$32,838,245</b>           |

**Figure 5: Breakdown of Orphaned Well Program Funding by State**

*Note: The number of wells to be plugged were provided by the States in the Initial State Grant applications.*

*\*For states that provided a range of wells to be plugged with Initial State Grant funding, the average is listed above.*

## **Tribal Grant Program Accomplishments**

The BIL provides \$150 million for Tribal well plugging, remediation, and reclamation. The Department worked closely with the Bureau of Indian Affairs to conduct five meetings with Tribal leadership in February and September 2022. The application process will open to Tribes in the first quarter of FY 2023. The Tribal Grant Program consists of three types of grants: 1) Tribal Implementation Grants, 2) Program Development Grants, and 3) work performed in lieu of a grant (by the Secretary on behalf of a requesting Tribe).

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## Section 3: Program Metrics

### Program Metrics

The Department has developed a standard data reporting template to generate a comprehensive inventory of wells on Federal, Tribal, State, and private land. The template is designed to collect critical information such as well ID and type; surface and mineral managing entities; latitude and longitude; pre- and post-methane measurements; habitat restoration; surface water, groundwater, and soil contamination impacts; and community impacts. The template will eventually be housed in an enterprise database management system currently in production. To support this orphaned well database, the Department also is developing a field application for tablets and smartphones to consistently and efficiently collect, manage, and report technical data from the Federal, State, and Tribal programs. The database is being populated in three phases:

- Phase 1 – Federal well inventory (Q1 FY 2023);
- Phase 2 – State and private well inventory (Q2 FY 2023); and
- Phase 3 – Tribal well inventory.

The database is being developed with extensive input from the Federal partners that make up the TWG and is currently being field tested. The database will allow for Geographical Information System (GIS) analysis of data to track program metrics, evaluate program progress, and provide accurate information for program reporting, including the annual report to Congress.

The data being collected for the metrics described below are required in the BIL. This will ensure the ability to report on the successes of the Federal, State, and Tribal orphaned well programs. Where data does not yet exist or is in the process of being collected, the methods for future data collection are discussed.

### Inventory of Orphaned Wells

A comprehensive orphaned well inventory does not exist nationally, although the Environmental Defense Fund, the IOGCC, the BLM, and the USGS have all developed estimates on the number of documented orphaned wells. These estimates vary widely based on data collection and methodology, but the uncertainty of the estimates of documented and undocumented orphaned wells illustrates the challenges that the orphaned well program will face in plugging, remediating, and reclaiming orphaned wells.

The USGS data set estimates 117,672 wells in 27 states.<sup>1</sup> The 26 States that submitted Formula Grant notices of intent in December 2021 reported having 129,088 documented orphaned wells.

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*50 percent increase in the number of documented orphaned wells in states from 2018 to 2020*

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IOGCC reports indicate a 50 percent increase in the number of documented orphaned wells from 2018 to 2020. One of the largest factors contributing to the increase is the States' recent efforts to maintain more accurate inventories of orphaned wells.

**Figure 6** below displays the 117,652 wells from the USGS data set, as collected from the states. The graphic shows inventoried wells by state. Currently, no comprehensive inventory of wells by surface ownership is available. Department efforts will continue through the coming year to build an inventory of wells by surface ownership using the orphaned well database.

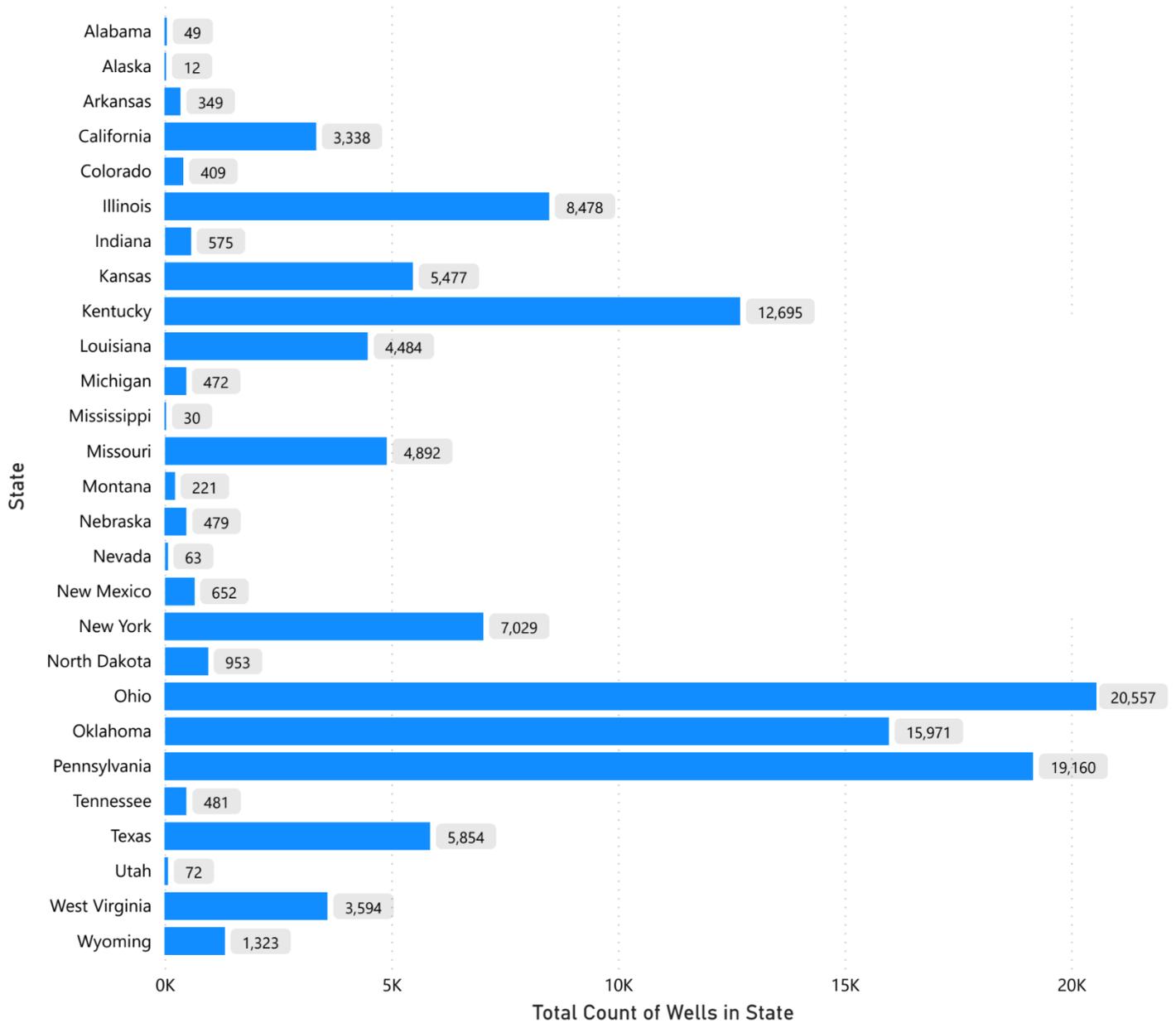


Figure 6: Inventory of Documented Unplugged Orphaned Wells on Federal,<sup>3</sup> State,<sup>4</sup> and Tribal<sup>5</sup> Land

### Inventory of Wells at Risk of Becoming Orphaned

The Department is exploring methods to identify and evaluate if a well is at risk of becoming orphaned. Data collected in the first year of the orphaned well program will inform the methodology to be applied to this reporting metric. Under the State performance grants, the

BIL provides an opportunity for States to reduce the risk of future orphaned wells by implementing regulatory improvement measures such as financial assurance reform, alternative funding mechanisms for orphaned well programs, and reforms to programs relating to well transfer or temporary abandonment. We intend to develop guidance for performance grants in FY 2023.

<sup>3</sup> ArcGIS Federal Land Layer

[https://services.arcgis.com/P3ePLMYs2RVChkXj/arcgis/rest/services/USA\\_Federal\\_Lands/FeatureServer](https://services.arcgis.com/P3ePLMYs2RVChkXj/arcgis/rest/services/USA_Federal_Lands/FeatureServer)

<sup>4</sup> ArcGIS State Land Layer

[https://services.arcgis.com/P3ePLMYs2RVChkXj/arcgis/rest/services/USA\\_Protected\\_Areas\\_State/FeatureServer](https://services.arcgis.com/P3ePLMYs2RVChkXj/arcgis/rest/services/USA_Protected_Areas_State/FeatureServer)

<sup>5</sup>ArcGIS Tribal Land Layer [https://services2.arcgis.com/FiaPA4ga0iQKduv3/arcgis/rest/services/AIANNHA\\_v1/FeatureServer](https://services2.arcgis.com/FiaPA4ga0iQKduv3/arcgis/rest/services/AIANNHA_v1/FeatureServer)

## Methane Emissions Quantification and Reduction

The Federal Orphaned Well Methane Measurement Protocol,<sup>6</sup> developed in FY 2022, was designed to assist with measuring and reporting methane emissions pre- and post-plugging. This protocol supports a better understanding of the relationship between methane and orphaned wells through the collection of qualitative and quantitative data. Analysis of the characteristics of higher emitting wells will inform future well plugging priorities and field activities. The methane measurement protocol describes a two-step process to capture data: a screening protocol (not detected, detected, and detected/may be high) and a flow rate measurement (applied when methane is detected in the screening step). The screening protocol can be performed rapidly with standard field equipment, while the flow rate measurement requires more specialized equipment and additional time. Flow rates in grams per hour will be reported in the orphaned well database and aggregated for the annual report to Congress.

### Jobs Created and Saved

The total FY 2022 obligations by the Department and USFS for Sec. 40601 are \$601.1 million. The number of jobs supported, an indicator of the jobs created and saved in the United States from this FY 2022 funding expenditure, is estimated by the Department to be 7,250. Of those 7,250 supported jobs, 2,615 are activities directly related to BIL Sec. 40601 and 4,635 reflect the secondary effects as those expenditures are re-spent throughout the economy.



**Figure 7: TWG training session with members from the Department and USFS at the Methane Emissions Technology Evaluation Center on methane monitoring and measurement**

### Acreage of Habitat Restored

A metric for acres of habitat restored is included in the data reporting template and will be aggregated for future reporting. Projects in FY 2022 did not reach the revegetation stage prior to the due date for this report, given that projects are just getting underway. Much of the FY 2022 funding distributed to Federal land managers and States is being placed on contracts for work to be performed in FY 2023.

<sup>6</sup> DOI Federal Orphaned Well Methane Measurement Protocol: <https://www.doi.gov/sites/doi.gov/files/federal-orphaned-wells-methane-measurement-guidelines-final-for-posting-v2.pdf>



Figure 8: A typical orphaned well.



Figure 9: An orphaned well partially submerged in standing water.

### Future Efforts

The orphaned well program will continue to address legacy pollution and community revitalization as plugging, remediation and restoration activities progress through the Federal, State, and Tribal programs described in this report. In 2023, the Department projects continued collaboration with Federal agencies,

States, and Tribes, building on the successes achieved in Year One of BIL Sec. 40601 implementation.

Additional program information is available online and will be updated regularly at:  
<https://www.doi.gov/oepc/legacy-pollution-remediation-and-reclamation>