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The Federal Role in Orphan Oil and Gas Well Reclamation

Production of oil and gas in the United States began in the late 19th century and continues to contribute to meeting U.S. fuel and petrochemical demands. Over time, federal and state requirements were put in place to manage such aspects of oil and gas development as siting, safety, emissions, and reclamation. Prior to federal and state regulations, many oil and gas wells were “orphaned,” or left unreclaimed. In many cases, particularly for early oil and gas development, little is known about the status, location, and depth of those wells. Additionally, more recent oil and gas wells, operating subject to federal or state regulation, could become orphaned if a well operator is unwilling or financially unable to complete reclamation of a well site that has ceased production operations. The federal role in reclaiming orphan oil and gas wells has been limited to wells located on federal lands. In the 117th Congress, the Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58) expanded the federal role in reclaiming orphan oil and gas wells by increasing funding for the federal reclamation program and establishing a grant program to assist state and tribal orphan well programs. This In Focus discusses the federal and state roles in permitting wells, background of orphan oil and gas wells, potential environmental impacts, and related provisions in the IIJA.

Federal and State Roles in Permitting Oil and Gas Wells

The scope of regulations that govern oil and gas well operations may vary from one operation to another depending on the applicability of federal, state, or local regulations to specific activities, and the regulatory jurisdiction in which an operation is located. Congress has not authorized nationwide federal requirements for permitting and reclaiming oil and gas wells. Under current law, the federal role for permitting oil and gas wells or reclaiming orphan wells is generally limited to those on federal lands. The Bureau of Land Management (BLM) of the U.S. Department of the Interior (DOI) is the principal permitting agency for oil and gas production operations on federal onshore lands pursuant to the Mineral Leasing Act of 1920, as amended, and certain other authorities. The scope of reclamation of oil and gas wells in the regulations includes plugging and capping the well, as well as reclaiming any equipment and land disturbances at the site resulting from the production operations. On nonfederal lands, a state or tribe would be primarily responsible for permitting oil and gas wells or reclaiming orphan wells within their respective jurisdictions under their own laws, regulations, and programs. Compliance with federal and state regulatory requirements is enforced mostly through permits. Performing oil and gas operations without the requisite permits is unlawful and may be subject to enforcement by federal or state regulators, depending on their respective jurisdictions. There is no singular permit

issued at the federal or state level that governs all aspects of an oil and gas operation. Other permits also may be required to ensure compliance with other requirements that govern particular facets of an operation, such as air quality and water quality permits.

On federal lands, oil and gas operators are required to provide a surface use plan prior to construction at the site to identify how the site will be disturbed and reclaimed, as part of the permit issued by BLM. Federal requirements for oil and gas well sites may include capping the well, the removal and disposal of equipment and wastes, the regrading and contouring of the site, and revegetation of the well pad and related disturbed lands. As part of a federal permit, BLM requires an operator to provide a bond, or financial assurance, which could be forfeited to BLM to complete the reclamation if the operator does not complete the reclamation requirements. In the event that the bond is not sufficient, the ability of BLM to complete the site reclamation would depend on its federal land management authorities and funding. On nonfederal lands, state or tribal reclamation and bonding requirements may vary or be similar in scope and purpose to federal requirements, depending on their respective laws and regulations.

Orphaned Wells Background

In general, oil and gas wells may become orphaned under two differing sets of circumstances, depending on whether the well operated prior to federal or state regulation. First, operators of oil and gas wells may have left these sites abandoned or unreclaimed years or decades prior to the development of federal or state permitting and reclamation requirements. Wells that operated prior to regulation sometimes are referred to as “legacy” wells. As of 2016, the U.S. Environmental Protection Agency (EPA) estimated the total national inventory of orphan oil and gas wells was 3.11 million, but EPA noted other researchers have estimated that the inventory of orphan wells ranged between 2.1 million to 3.0 million at that time. Although EPA has estimated the national inventory of orphan oil and gas wells, the actual number, geographic location, and condition of each well and well site may not be fully understood. Because of the lack of information collected prior to regulation, federal and state agencies have faced challenges in estimating the numbers, locations, and conditions of these “legacy” orphan wells within their respective jurisdictions.

For more recent operations subject to federal or state regulation, an oil and gas well could become orphaned if a well operator does not complete the site reclamation following production operations. In those instances, completing the well site reclamation may become the responsibility of the federal or state regulatory authority

depending on whether the site is located on federal or nonfederal land, respectively. Generally, a bond is required as a condition for the issuance of a permit to operate an oil or gas well, which would be forfeited to the regulatory agency to complete the well site reclamation if the operator does not complete the permit requirements. In the event that the bond is not sufficient to complete site reclamation, the remainder of the well reclamation may be subject to the availability of additional resources. The availability of funds for sites located on nonfederal land generally would depend on the resources of the state or tribe with jurisdiction of the site. Funding for sites located on federal land generally would be subject to annual appropriations to federal land management agencies for well site reclamation.

In September 2019, the Government Accountability Office (GAO) issued a report that examined the adequacy of oil and gas well reclamation bonds at sites located on federal lands. GAO reported that BLM identified 89 oil and gas wells that were newly orphaned between July 2017 and April 2019, and that BLM estimated \$46 million in reclamation costs for these 89 wells. GAO observed that operators may leave a site unreclaimed, as the “bonds have not prevented orphaned wells because bond values may not be high enough to cover the potential reclamation costs for all wells under a bond, as may be needed if they become orphaned.” GAO recommended that Congress consider authorizing an additional mechanism to recover funds from orphan well operators if a bond proves insufficient to pay the reclamation costs. Additionally, GAO recommended that BLM adjust bond levels to more accurately reflect the costs to complete site reclamation. States and tribes may face similar issues at former well sites on nonfederal lands, depending on the adequacy of their respective bonding requirements if a well site operator does not complete the reclamation, and the availability of other resources if a bond proves insufficient to cover the costs.

Potential Environmental Impacts

Stakeholders have expressed concerns regarding the environmental impacts of orphan oil and gas wells, including the threat of contamination to adjacent groundwater, the release of fugitive greenhouse gas (GHG) emissions (i.e., methane and CO₂) from uncapped or partially capped wells, and potential public safety hazards. For orphan oil and gas wells abandoned decades ago, prior to establishment of applicable regulations, potential environmental and public safety issues may not become apparent until years or decades after abandonment. The type and magnitude of environmental impacts and potential risks would depend on a host of site-specific factors, such as the geology, the nature of the extraction operation, the design and construction of a well, and the technique and material used to plug the well opening (if capped). While fugitive emissions from individual orphan wells may be relatively small compared to other anthropogenic greenhouse gas sources, some have expressed concern about the cumulative emissions from all orphan wells combined that may have a broader impact in terms of their scale or magnitude in comparison to other sources. In addition to potential environmental impacts from orphan oil and gas wells, unreclaimed sites may pose safety risks or present economic issues among affected communities, such

as threats of potential combustion or land that may be unsuitable in its present condition for redevelopment.

Infrastructure Investment and Jobs Act

Section 40601 of the IJA expanded the federal role in orphan oil and gas well reclamation by providing \$4.68 billion in supplemental appropriations for the federal reclamation program and grants to state and tribal programs to complete reclamation within their respective jurisdictions. The cost to reclaim an orphan well site may vary considerably, depending on the site-specific conditions. Some researchers have estimated the median cost to plug and reclaim an orphan well site at \$76,000, and assert certain orphan well sites may exceed \$1 million. The extent to which the IJA funding would be sufficient to reclaim the inventory of orphan wells would depend on the site-specific costs for a well site, the actual inventory of wells, and the implementation of reclamation programs. Of the total appropriation provided in Section 40601 of the IJA, Congress appropriated funding for grants for various purposes, which are briefly described below.

Federal Program—\$250 million. The \$250 million appropriations for DOI to carry out orphan oil and gas well reclamation on federal lands.

Initial Grants to States—\$775 million. Initial grants to states would support administrative actions necessary to assess and update the inventory of their orphan well sites, prepare applications for obtaining formula and performance grants, and would be used to carry out the activities under those grants. Each state may request up to \$25 million for these grants, subject to the Secretary of the Interior’s approval.

Formula Grants to States—\$2 billion. The amount a state receives for a formula grant would be dependent upon the factors considered in the state’s application. Congress prescribed those factors in the IJA as oil and gas industry job losses between March 1, 2020, and November 15, 2021, and the amount of documented orphan oil and gas wells in the state. To be eligible to receive a formula grant, a state must submit an application documenting, among other information, the state program’s current authorities and activities, activities to be carried out using the formula grants, and the means by which reclamation activity information are made public.

Performance Grants to States—\$1.5 billion. Performance grants consist of two types of grants, regulatory improvement grants and matching grants. Regulatory improvement grants are subject to the demonstration that the state has, within a 10-year period after the initial grant application, strengthened state plugging and reclamation standards and financial assurance mechanisms. Matching grants would be provided in equal amounts to the difference between the annual state spending between 2010 and 2019, and the amount the state expects to spend during the fiscal year the state receives the grant. Those grants are limited to a cumulative total of \$30 million per state from FY2022 to FY2031.

Tribal Orphan Well Reclamation—\$150 million. Tribal grants are intended to address orphaned oil and gas wells on tribal lands. An Indian tribe may apply for a grant to carry out orphan well reclamation projects. Alternatively, an Indian tribe may submit an application for the Secretary to carry out reclamation on tribal lands, in lieu of a grant.

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