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From waste to asset: Avoiding EPA's definition of sham recycling

Oil and gas companies have a lot to consider when running their operations, including how to properly dispose of their wastes, and should ensure that they are aware of possible pitfalls and changes. One of those pitfalls is when the U.S. Environmental Protection Agency (EPA) considers a company's treatment of its drilling waste to be "sham recycling."

Waste history/regulation. Exploration and production activities produce wastes and by-products. At the federal level, these wastes are governed by the EPA under the Resource Conservation and Recovery Act (RCRA). Per current RCRA definitions, E&P wastes—such as solid drilling waste (drilling mud and cuttings that are produced from drilling a new wellbore into the subsurface)—are exempt from hazardous waste rules, and are, therefore, left up to individual states to regulate.

As innovations and changes are made that enhance efficiency in drilling, the physical and chemical characteristics of drilling wastes evolve. EPA last issued a regulatory determination for E&P wastes in 1988; however, in a recent consent decree issued by the U.S. District Court for the District of Columbia, EPA will be required to review its regulations for E&P wastes by 2019 and, if necessary, make appropriate updates by 2021. E&P companies should be proactive in their waste management policies and ensure that their current practices are not only in compliance with current regulations, but are also scientifically defensible and, whenever possible, compliant with any expected regulatory changes.

The EPA encourages recycling of wastes into useable materials. Currently, each state has its own requirements for management of E&P wastes, with most states allowing for some form of recycling of drilling waste. Recycling of drilling waste can be both economically and environmentally advantageous; however, operators should ensure that the recycled waste meets EPA's definition and requirements, and is not considered "sham recycling."

Defining sham recycling. EPA states that sham recycling may include situations when a secondary material is ineffective or only marginally effective for the claimed use; used in excess of the amount necessary; or handled in a manner inconsistent with its use as a raw material or commercial product substitute. In the case of solid drilling waste, the primary method of recycling is for use as a construction material to build or rehabilitate lease roads, drill pads, and even local, public roads. When properly done, drilling waste can be safely and effectively processed, and used as a construction material; however, there are some cases where the recycling process would be considered a sham, as per EPA's definition.

The transportation industry has established requirements and specifications for materials used in road construction, such as bearing capacity, compressive strength and resilient modulus. Drilling waste does not possess the physical properties necessary to meet any known formal engineering specification for a construction material, and it must go through some process that gives the waste those physical properties desirable and consistent with the intended use. A simple way of determining whether a process can be considered legitimate is to first verify that the process has performance metrics for the produced material and then to ensure that those metrics are achieved during processing. A good indicator of sham recycling is the lack of a well-defined end-product.

Qualifying waste recycling processes. Once it is determined that a process can achieve desired performance metrics, the next way to qualify whether a recycling process is legitimate is to look at the amount of material produced, compared with the initial volume. Many times, the process used to achieve the performance metrics is by dilution with an inert material. In order to be considered recycling, the raw material must provide some value to the final product, rather than simply being diluted down to a negligible amount. The recycled product must also have value and

be marketable. When properly recycled, operators should see their recycled waste as an asset that can be used back on their own locations and roads. If it is necessary to give or donate the material to a third party, there is a good chance that there is little to no value in the product.

Finally, the recycled product should not pose a greater threat of harm to human health, or the environment, than the material being replaced. Drilling waste can contain constituents that pose such risks; however, when properly processed, these risks can be mitigated. By utilizing technologies such as solidification/stabilization (S/S), a method used to prevent or slow the release of harmful chemicals from wastes, the wastes can be processed in such a way as to be considered legitimate recycling. Unlike methods that can be considered sham recycling, S/S treats the waste, using both physical and chemical mechanisms that impart properties that can achieve engineering specifications, while also being protective of human health and the environment.

When evaluating recycling options for solid drilling waste management, E&P companies should avoid sham recycling and search for solutions featuring S/S. Additionally, S/S can provide beneficial reuse to E&P companies in the form of construction material for lease roads and drilling pads. Since S/S is one of the most commonly used treatment technologies at federal Superfund sites, it is scientifically defensible to the EPA, unlike many of the other currently-legal drilling waste disposal options.

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