Key Takeaways from EPA’s Draft Assessment on the Potential Impacts to Drinking Water Resources from Hydraulic Fracturing Activities

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Earlier this month, the United States Environmental Protection Agency (EPA) released the draft of its long-awaited study on the potential impacts of hydraulic fracturing on drinking water resources. The comprehensive 998-page study has met with considerable press, with industry representatives lauding its findings as validation of the safety of hydraulic fracturing while anti-fracking groups highlight the study’s significant—and self-confessed—limitations. The strong and varied reactions highlight the importance of this panoramic authority on the subject. Indeed, due to its comprehensive nature, it is clear that this single, exhaustive resource will supply useful ammunition for litigants in cases involving claims that hydraulic fracturing operations contaminated or depleted water supplies. For this reason, industry players should familiarize themselves with its contents, which could prove useful both in defending against litigation—particularly attempts to extricate defendants in the early stages of litigation through motions for summary judgment or Lone Pine orders—as well as identifying issues for consideration in developing industry best practices from a risk management perspective.

The increased attention to hydraulic fracturing in recent years, which has included a significant focus on alleged impacts on the quantity and quality of drinking water resources, has predictably led to a rising number of civil lawsuits. Presently, there are at least 28 pending groundwater contamination disputes, filed in states including Arkansas, New York, Oklahoma, Pennsylvania, Texas, and West Virginia.1 The EPA study tackles many of the key allegations of those lawsuits head-on, including claims that hydraulic fracturing operations contaminated drinking water resources by means of improper drilling, well capping, and/or cement casing;2 fracking flowback and/or produced water contamination;3 and improper disposal


of fracking waste. A growing area of fracking litigation involves claims that the use of wastewater injection wells to dispose of water used in fracking and other oil and gas drilling operations has led to an increase in earthquakes. Just last week a study published in the journal *Science* reported an association between wastewater injection wells and earthquakes, particularly for high-rate injection wells. The earthquake issue has been the subject of increasing media attention and recent litigation, but is beyond the scope of the EPA study, which focuses exclusively on the impact of hydraulic fracturing on water resources.

Although significantly qualified, EPA’s findings reaffirm the safety of hydraulic fracturing, providing additional hurdles to plaintiffs’ ability to survive the early stages of litigation in negligence and strict liability cases arising out of alleged drinking water contamination. In sum, the study “did not find evidence that [hydraulic fracturing activities] have led to widespread, systemic impacts on drinking water resources in the United States.” While the study did identify several specific impacts on drinking water resources, it concluded that “[t]he number of identified cases…was small compared to the number of hydraulically fractured wells.” Of note, however, EPA repeatedly qualified its findings with acknowledgments of the limitations of the data it synthesized. Perhaps most importantly, EPA cautioned that “the potential public health impact of hydraulic fracturing is not well understood,” citing the “lack of published, peer-reviewed epidemiological or toxicological studies…examining health effects resulting from water contamination due to hydraulic fracturing.” In the same vein, EPA explained that an evaluation of any potential risk to humans “would require knowledge of the specific chemicals that are present at a particular site, whether

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6 M. Weingarten et al., *High-Rate Injection Is Associated with the Increase in U.S. Mid-Continent Seismicity*, 348 Science 1336, available at [http://www.sciencemag.org/content/348/6241/1336](http://www.sciencemag.org/content/348/6241/1336).


9 Id.

10 Id. at 9-2.
or not humans are exposed to those chemicals and, if so, at what levels and for what duration, and the toxicity of the chemicals.”

Despite these qualifications, EPA’s summary outlines the “state of the science,” and the information and studies in the EPA assessment should help strengthen defendants’ early-phase summary judgment motions and arguments in support of Lone Pine orders, which can require a toxic tort plaintiff to demonstrate at least minimal evidence of causation (often by identifying the chemical or substance at issue, the specific injury alleged, and a causal link between the two) before the case proceeds. The EPA study indicates that these cases may turn on facts specific to the chemicals, sites, and geographic regions at issue rather than the mere presence of hydraulic fracturing operations. Indeed, due to the wide regional differences in hydraulic fracturing operations (including variations in chemicals used, underlying geologic formations, and water availability, among other factors), a universal theory of causation will likely be inadequate to move these cases forward. To that end, the study provides leverage for industry players to challenge the plaintiffs’ bar to formulate causation theories unique to each case, backed by experts able to cite studies tailored to the region and claims at issue.

The study’s usefulness in litigation is bolstered by its incorporation of and reliance on authoritative publications and data sources. In the study, EPA cites to scientific journal articles, peer-reviewed EPA reports, federal and state government reports, non-governmental organization reports, and oil and gas industry publications, and it incorporates data obtained from federal- and state-collected data sets, databases curated by federal and state government agencies, other publicly available data and information, and data submitted by industry to EPA. In addition, EPA outlined a detailed data evaluation strategy in its report that included reviewing all literature and data for “(1) applicability and utility, (2) evaluation and review, (3) soundness, (4) clarity and completeness, and (5) uncertainty and variability.”

11 Id. at ES-13.


13 See U.S. EPA, supra note 7, at 4-7, 4-47, 5-7, 5-18, 6-52, 7-15, 7-44.

14 Id.

15 Id. at 1-7.

16 Id.
The study itself is going through a public comment process and review by EPA’s Science Advisory Board.\(^{17}\)

In addition to its use in litigation, the study features research and anecdotal examples that may inform best practices in the oil and gas industry. Three issues of note to oil and gas industry participants include potential human hazards presented by chemicals in hydraulic fracturing fluid, flowback, and produced water; potential drinking water depletion brought about by the use of surface and ground water resources for hydraulic fracturing operations; and dangers associated with conducting hydraulic fracturing operations in or near older wells. First, the study evaluated the risks of using certain chemicals in hydraulic fracturing fluid, flowback, and produced water, and specifically discussed risks associated with four chemicals: benzene, pyridine, propargyl alcohol, and naphthalene.\(^{18}\) According to EPA, these chemicals “may be more likely than others to reach drinking water and create a toxicological hazard,” due to relative mobility, high hazard evaluations, frequent use, and/or presence in relatively high average concentrations.\(^{19}\) These findings and the underlying data could potentially bolster plaintiffs’ causation theories in litigation involving the use of those chemicals. Another issue of note is potential water resource depletion due to hydraulic fracturing. While the EPA study concluded that “[h]igh fracturing water use or consumption alone does not necessarily result in impacts to drinking water resources,”\(^{20}\) it notes that water depletion is a regional issue and dangers are increased in areas with relatively high fracking water use and low water availability, such as southern and western Texas.\(^{21}\) By way of example, approximately six percent of the Eagle Ford Shale suffers from excessive drawdown of local ground water, and one study suggests that operators in this area shift towards brackish water use to minimize future impacts to fresh water resources.\(^{22}\) The EPA study also points to potential future effects in the Denver Basin, where “all fractured wells…are in high or extremely high water-stressed areas,” but notes that the “lack of available data and literature limit[ed] its ability to assess the potential for impacts in this location.”\(^{23}\) From a risk management perspective, oil and gas operators should understand the water resource issues facing their areas of operation, and consider exploring alternative water sources, and/or increased recycling/reuse of water (an area of developing technology), where appropriate. Also

\(^{17}\) Id. at ii (disclaimer).

\(^{18}\) Id. at 9-36.

\(^{19}\) Id.

\(^{20}\) Id. at 4-15.

\(^{21}\) Id. at 4-21.

\(^{22}\) Id. at 10-5.

\(^{23}\) Id. at 4-32.
noteworthy are EPA’s warnings of the dangers associated with fracturing in or near older wells. EPA found that such operations can present increased risk of water contamination because older wells may not have been built to withstand the stresses associated with hydraulic fracturing or tested for their ability to do so.\textsuperscript{24} Oil and gas operators should evaluate these risks when considering hydraulic fracturing in or near older wells because, according to the study, these practices may lead to the escape of contaminants from within or along the outside of the wells into ground water resources.\textsuperscript{25}

While EPA’s conclusions are overwhelmingly positive for players in the oil and gas industry, the study does highlight a number of areas where there are potential issues to be addressed. Energy companies should take note of the study’s positive—and precautionary—aspects to ready themselves for continued litigation in the field.

\textit{If you have any questions about any of the topics discussed in this advisory, please contact your Arnold & Porter attorney or any of the attorneys listed below. To see a complete listing of our Hydraulic Fracturing Professionals, please click here.}

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\textsuperscript{24} \textit{Id.} at ES-15.  
\textsuperscript{25} \textit{Id.} at 10-10.