F I S C A L I M P A C T R E P O R T

SPONSOR Egolf/Sanchez, M. **ORIGINAL DATE** 02/10/13 **LAST UPDATED** **HB** 335

SHORT TITLE Water Resource Testing & Damage Remedies **SB**

ANALYST Weber

ESTIMATED ADDITIONAL OPERATING BUDGET IMPACT (dollars in thousands)

	FY13	FY14	FY15	3 Year Total Cost	Recurring or Nonrecurring	Fund Affected
Total		$25.0		$25.0	Nonrecurring	General Fund
		$25.0	$25.0	$50.0	Recurring	

(Parenthesis ( ) Indicate Expenditure Decreases)

SOURCES OF INFORMATION

LFC Files

Responses Received From
Attorney General's Office (AGO)
Energy, Minerals and Natural Resources Department (EMNRD)
Office of the State Engineer (OSE)
Department of Health (DOH)

SUMMARY

Synopsis of Bill

House Bill 335 (HB 335) proposes to require owners of oil and gas operations who conduct hydraulic fracturing operations to conduct a hydrologic and geologic assessment of the potential risks to ground and surface waters within a 2000 meter radius of a well head to a depth of 1,000 feet below the well's target depth. The bill requires water testing, and sets forth the constituents that must be tested. Testing must be conducted "before the drilling, during the drilling, one week after conclusion of the hydraulic fracturing operation and six months post-well completion." The water is to be tested for: (1) pH; (2) specific conductance; (3) total dissolved solids; (4) dissolved gases, including methane, ethane and propane; (5) alkalinity, including total bicarbonate and carbonate as CaCO3; (6) major anions bromide, chloride, fluoride, sulfate, nitrate and nitrite as N phosphorus; (7) major cations calcium, iron, magnesium, manganese, potassium and sodium; (8) other elements, including barium, boron, selenium and strontium; (9) presence of bacteria, including iron related, sulfate reducing and slime forming; (10) total petroleum hydrocarbons and compounds, including benzene, toluene, ethylbenzene and xylenes; and (11) field observations such as odor, water color, sediment, bubbles and effervescence.

Testing must be paid for by the owner of the well and certified by a professional engineer or other professional acceptable to the Oil Conservation Division (OCD) of the Energy, Minerals and Natural Resources Department (EMNRD), and made publicly available on the OCD website.

The bill establishes a cause of action for "damage" caused by hydraulic fracturing, with a three year statute of limitations running from the date of the last water test sample results published by OCD on its website. A prevailing plaintiff is entitled to an award of attorney fees and may recover punitive damages.

If there is a "statically significant increase" in the constituents tested, there is a presumption that it was caused by hydraulic fracturing operation, which may be rebutted by clear and convincing evidence in court.

HB 335 requires OCD to establish bonding requirements through rule for costs associated with remediation of contamination from hydraulic fracturing.

Finally, a new definition of "hydraulic fracturing" is added to the Oil and Gas Act in 70-2-1 NMSA 1978.

FISCAL IMPLICATIONS

The EMNRD projects an immediate fiscal impact for costs associated with publication of notice and court reporter fees for rule promulgation. The requirements for additional bonding for potential water remediation could result in the need for additional personnel to review and manage the bonding program. This will depend on the rules adopted by the Division.

The Operating Budget Impact table above shows a rough estimation of $25,000 nonrecurring start-up costs for one year only and $25,000 for continuing work load to maintain the tasks associated with the bill. This would include staff time and storage of the water samples.

SIGNIFICANT ISSUES

AOC provides some background on this topic including identification of other states that are requiring regulation:

Hydraulic fracturing, commonly referred to as "fracking," has been used on vertical wells since the 1940's, but has taken on growing significance for energy use and the environment in the United States in recent years because of new technologies that allow for horizontal drilling, the use of great volumes of water for drilling, and the use of chemical additives, under significant pressure, to stimulate oil and gas production. The fracturing fluids are pumped deep into wells at pressures sufficient to create or restore small fractures in reservoir rock needed to make oil or gas production possible. Formations, including shale plays with high permeability and porosity, previously considered to be inaccessible, may now be accessed. These new plays have provided a substantially increased domestic supply of gas, and are considered by many as a "bridge fuel" to cleaner, renewable energy sources for the future. New Mexico has shale plays that may be explored through fracking and horizontal drilling.

Water and sand make generally make up over 98 to 99.5 percent of the fracturing fluids, and chemical additives are used. http://fracfocus.org/hydraulic-fracturing-how-it-works/hydraulic-fracturing-process (accessed Jan. 23, 2013). Because of the potentially harmful nature of some of the chemical additives used in hydraulic fracturing, there has been concern from the public about potential ground water contamination as a result of "fracking." The extent to which ground water contamination presents a risk is the subject of much debate nationally and, in particular, in those states that have shale plays that are subject to hydraulic fracturing treatment.

There is no comprehensive federal regulatory scheme for the regulation of hydraulic fracturing, and presently much of the regulation is being conducted at the state level. As a result of public concern, many states in which hydraulic fracturing is taking place have passed laws or regulations governing hydraulic fracturing treatment, including laws and regulations requiring baseline water testing and post-drilling testing. States that require some type of testing include Oklahoma, Nebraska, North Dakota, Illinois, Ohio, West Virginia, Virginia, and New York. Center for Energy Economics and Policy, "A Review of Shale Gas Regulations by State," (Sept. 24, 2012)[1]. These states' testing requirements vary; some require testing of all surface waters and domestic wells within a given radius.

A number of independent reports recommend baseline monitoring. *See, e.g.,* Sec. of Energy Advisory Bd., "Shale Gas Production Subcommittee 90-Day Report, p. 23 (U.S. Dept. of Energy, Aug. 18, 2011) (Subcommittee "recommend[s] that states and localities adopt systems for measurement and reporting of background water quality in advance of shale gas production activity")[2]; Interfaith Center on Corporate Responsibility and Investor Environmental Health Network, "Extracting the Facts: An Investor Guide to Disclosing Risks from Hydraulic Fracturing Operations," p. 4 (One of 12 "core management goals" is to "[p]rotect water quality by rigorous monitoring: Identify baseline conditions in neighboring water bodies and drinking water sources and routinely monitor quality during natural gas operations")[3].

There are a number of industry groups that recommend baseline monitoring in accordance with regulatory requirements; baseline water testing has benefits to industry. *See, e.g.,* Marcellus Shale Coalition, "Recommended Practices: Pre-Drill Water Supply Surveys," (Aug. 28, 2012) ("The Marcellus Shale Coalition is recommending that operators conduct a pre-drill water survey on identified water supply sources within a given area of the well pad surface location, as is required by the relevant regulatory agency.")[4]; American Petroleum Institute, "Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines," p. 20 (API Guidance Document HF1, 1st ed., Oct. 2009) (before a well is drilled, "water samples from any source of water located nearby should be obtained and tested in accordance with applicable regulatory

ENMRD projects that impact from the bill New Mexico on oil and gas development could be staggering. HB 335 would apply to all new wells in New Mexico that use hydraulic fracturing. A very high percentage of new wells incorporate the hydraulic fracturing process; last year, over 1600 new wells were completed. New wells are usually drilled at a depth between 5,000 and 15,000 feet, with many producing at 9,000 to 13,000 feet. Many of the new wells also extend horizontally for thousands of feet. These wells often cost several million dollars to complete.

---

[1] http://www.rff.org/centers/energy_economics_and_policy/Pages/Shale_Maps.aspx.
[2] http://www.slideshare.net/MarcellusDN/doe-shale-gas-production-subcomittee-second-ninety-day-report-nov-18-2011.
[3] http://www.iehn.org/documents/frackguidance.pdf.
[4] http://marcelluscoalition.org/wp-content/uploads/2012/08/Pre_Drill_Water_Supply_Surveys_8.28.12.pdf.

While HB 335 does not explicitly require the drilling of a new well to conduct the assessment, in most cases, it will be unlikely that an existing well will be available within the area and at the required depth to use for testing. Therefore, the owner would be required to drill a new well, or possibly rework and deepen an existing well, to conduct the testing. The additional cost would be in the hundreds of thousands, if not over a million dollars, for each new well.

HB 335 appears to apply to all waters, regardless of whether they can be used for any purpose. The Division is charged with protection against contamination of fresh water supplies designated by the state engineer, yet this bill expands that protection to all waters, even those that are not designated, i.e. containing total dissolved solids above 10,000 mg/l. Drinking water aquifers and protectable waters are found at much shallower depths than the oil and gas producing formations, and are protected by several strings of casing and cement.

ADMINISTRATIVE IMPLICATIONS

ENMRD outlines administrative responsibilities for the Division:

If the bill is enacted as written, the Division would have to change its C-101 Form (application for permit to drill) to include water test results.

The Division would have to file an application for rulemaking with the Oil Conservation Commission to promulgate a new bonding rule.

In order to determine a bond amount that would cover all costs associated with possible remediation of surface and ground water, multiple aspects of remediation must be understood. To begin the Division would have to identify the constituents, the area of the contamination and the hydrogeology of the area, all are highly variable. After identification, then it is likely an investigation would occur. Typical investigation costs are between $50,000 and $60,000. Investigation does not include the remediation process. Remediation costs include actual clean-up of the site, disposal costs, transportation costs and possible monitor wells. The range of remediation of ground water clean-up is from $100,000 to $1,000,000 or more.

Promulgating a rule for potential costs is difficult at best. The Division would most likely err towards the worst case scenario. A worst case scenario would require a multi-million dollar bond. A multi-million dollar bond is beyond the ability of small operators and some larger operators may choose not to develop their leases. If leases are not developed, waste of the resource occurs.

Under current rules, the Division holds operators responsible for remediation. This remediation can take many years and, as stated above, significant sums of money. The current remediation rules are protective of the environment.

HB 335 requires the Division to maintain the samples at the owner's expense. Although the bill requires the owner to pay for storage of the samples, it is still the Division's responsibility to maintain the samples in a controlled environment and develop a tracking system. Certain sample components would cease being detectable after 60 days. Maintaining test results is more practical and allows for comparison between the different sampling events.

DOH comments on potential health risks from contaminated water:

There are potential health problems that can result from exposure to contaminants in water, even at very low concentrations. People can be exposed to contaminants in water not only by drinking the water, but also by eating foods prepared with the water, eating produce or meats that were grown or raised on the contaminated water, breathing chemicals that have vaporized from the water or absorbing them through direct contact with skin while showering or bathing. About 20 percent of the population in New Mexico (or estimated 350,000 people) receives their water from private wells of which groundwater is the source, especially in rural areas. These communities may be more vulnerable to the negative health effects of groundwater degradation. (https://nmtracking.org)

TECHNICAL ISSUES

ENMRD notes HB 335 requires rules to be adopted by the Division. Rules under the Oil and Gas Act are normally adopted by the Oil Conservation Commission.

The OSE comments on areas where clarity of definition could lead to confusion for implementation:

Several terms in the bill are undefined, which may lead to uncertainty in implementing some provisions of the bill. An example is "statistically significant increase" as used in Subsection E. Detailed requirements for hydrologic and geologic assessments and baseline and other water testing are not specified in the bill, which again may lead to uncertainty in implementing these provisions. For example, the requirement in Subsection B to test ground water resources located as much as 1,000 feet below the target depth of a proposed well prior to drilling that well would necessitate drilling of a separate well or wells for this purpose. The extent of this requirement is unspecified in terms of how many such wells are required within the 2,000-meter radius area around each proposed well, and what water-bearing strata must be tested (in other words, what constitutes a "ground water resource"). The frequency of sampling and testing is not specified, and it is not clear whether data from existing wells may be used. Also it is unclear if the statistically significant increase of any component is to be identified solely based on the testing required in Subsections B and D, or if other testing may be used. Many other examples exist.

OTHER SUBSTANTIVE ISSUES

The Environmental Protection Agency is currently engaged in a study on hydraulic fracturing and its potential impact on drinking water resources. A first progress report was released in December 2012. A final draft report is expected to be released for public comment and peer review in 2014. New Mexico oil and gas operations are included in the study. Information on the study and links to the December status report are available at http://www.epa.gov/hfstudy/.

MW/svb