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ONE HUNDRED ELEVENTH CONGRESS

# Congress of the United States

## House of Representatives

COMMITTEE ON ENERGY AND COMMERCE

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### MEMORANDUM

February 18, 2010

**To: Members of the Subcommittee on Energy and Environment**

**Fr: Chairman Henry A. Waxman and Subcommittee Chairman Edward J. Markey**

**Re: Examining the Potential Impact of Hydraulic Fracturing**

Today, we are sending letters to eight oil and gas service companies regarding the chemicals they use in their hydraulic fracturing fluids. This memorandum explains why we are taking this action.

#### Executive Summary

One of the most promising trends in U.S. energy supplies is the development of new technologies for extracting natural gas from shale deposits and other unconventional sources. Hydraulic fracturing, along with horizontal drilling technology, has allowed oil and gas companies to reach and extract oil and natural gas once thought unattainable. As a result, proven domestic reserves of natural gas have expanded exponentially in recent years. Reliable access to this cleaner-burning fossil fuel could enhance our energy independence and reduce our reliance on more carbon-heavy sources of energy.

As the oil and gas industry applies this technology to more wells in more parts of the country, it is important to ensure that the process is safe and environmentally sound. Environmental organizations, public health groups, and local communities have expressed concerns about the potential impact of the injection of hydraulic fracturing fluids in wells located in or near underground sources of drinking water. Others have raised concerns about the quantity of water needed to hydraulically fracture oil and gas wells and the disposal of contaminated wastewater from fracturing operations. The letters that we are sending today are designed to help answer these questions.

In 2003, EPA entered into a voluntary memorandum of agreement (MOA) with the three largest hydraulic fracturing companies, Halliburton, BJ Services, and Schlumberger, to eliminate diesel fuel from hydraulic fracturing fluids injected into certain wells located in underground

sources of drinking water. Aside from this MOA, there is virtually no federal regulation of hydraulic fracturing. In 2005, Congress exempted the practice of hydraulic fracturing from the Safe Drinking Water Act (SDWA), except when the injected fluids contain diesel fuel. Oil and gas companies can use additives and chemicals besides diesel fuel in their hydraulic fracturing fluids, but federal regulators have no authority to limit the types and volumes of these substances. Indeed, oil and gas companies do not need to report to federal regulators what their fracturing fluids contain or where they are used.

As Chairman of the House Committee on Oversight and Government Reform in the last Congress, Chairman Waxman requested and received some data from Halliburton, BJ Services, and Schlumberger on the chemicals used in their fracturing fluids. According to this data, two of these companies used diesel fuel as a fracturing fluid between 2005 and 2007. Halliburton reported using more than 807,000 gallons of seven diesel-based fluids, a potential violation of the MOA. BJ Services reported using 1,700 gallons of two diesel-based fluids in several fracturing jobs in Arkansas and Oklahoma. In a letter to the Oversight Committee, BJ Services acknowledged that these events were “in violation of the MOA.” The companies also indicated that they used other chemicals in their fracturing fluids – such as benzene, toluene, ethylbenzene, and xylenes – that could pose environmental and human health risks.

The information provided to the Oversight Committee did not specify whether these fluids were injected into wells located in or near underground sources of drinking water. This is an important issue because injecting the chemicals in or near sources of drinking water could create contamination risks. In addition, it could be a violation of the Safe Drinking Water Act if the fluids contain diesel fuel. The information also did not address how the companies dispose of their fracturing fluids and whether this is being done in an environmentally safe manner.

Three of the letters being sent today seek additional information from Halliburton, BJ Services, and Schlumberger on these and related issues. In addition, we are seeking similar information from five smaller fracturing companies that comprise a growing share of the market.

The extraction of natural gas from unconventional sources appears to hold great potential for enhancing our energy independence and reducing air pollution, including carbon emissions. But as the development of this new technology proceeds, it should be conducted in an environmentally safe manner. The purpose of the letters is to help the Committee assess whether the new technology poses any environmental or public health risks that Congress should address.

## **I. Background**

### **A. The Promise of Developing Unconventional Natural Gas Supplies**

Estimates of domestic natural gas reserves have increased sharply in recent years. In a biennial report released earlier this year, the Potential Gas Committee, a group of academics and industry experts supported by the Colorado School of Mines, raised its assessment of proven and potential U.S. natural gas reserves by 35%. The group attributed this substantial jump to the

increased accessibility of shale gas.<sup>1</sup> The consulting firm PFC Energy reports that shale gas production has expanded from 1% of U.S. natural gas production in 2000 to approximately 10% today.<sup>2</sup> And experts expect a sustained swell in exploration of unconventional sources. The Energy Information Administration (EIA) within the Department of Energy predicts that unconventional gas exploration will be the largest contributor to increases in domestic natural gas production over the next two decades, with its share of domestic production growing to 56% in 2030.<sup>3</sup> While EIA foresees tight sand formations as the largest source of unconventional natural gas, it notes that shale is the fastest growing source and predicts that accelerated shale gas production will continue.<sup>4</sup>

Formations with shale gas potential stretch across much of the United States. Exploration of these formations in Texas, Arkansas, and Louisiana has been underway for years, and exploration in the Marcellus Shale that spans New York, Pennsylvania, and West Virginia is intensifying. Experts at Pennsylvania State University believe that the Marcellus Shale alone could hold enough gas to meet U.S. demand for 14 or more years.<sup>5</sup>

New natural gas supplies could enhance the stability and environmental sustainability of U.S. energy use. Unconventional sources of natural gas would reduce disruptions to supply from Gulf Coast hurricanes and limit the nation's reliance on natural gas imports. In addition, increased use of natural gas to power vehicles could reduce domestic imports of petroleum. Natural gas emits only about half as much carbon as coal, making it an attractive source of electricity generation as the nation seeks to reduce its production of greenhouse gases. Unlike coal-burning and nuclear power plants, natural gas plants can cut on and off quickly and could supplement energy from wind and solar power.<sup>6</sup> For these reasons, many experts, including U.N. Foundation leader and former Colorado Senator Timothy Wirth, believe that "natural gas can serve as a bridge fuel to a low-carbon, sustainable energy future."<sup>7</sup>

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<sup>1</sup> Potential Gas Committee, *Potential Gas Committee reports unprecedented increase in magnitude of U.S. natural gas resource base* (June 18, 2009).

<sup>2</sup> *An Energy Answer in the Shale Below? New Technology Opens Vast Stores of Natural Gas, and the Land Rush Is On*, Washington Post (Dec. 3, 2009).

<sup>3</sup> U.S. Department of Energy, Energy Information Administration, *Annual Energy Outlook 2009*, at 77 (online at [http://www.eia.doe.gov/oiaf/aeo/pdf/trend\\_4.pdf](http://www.eia.doe.gov/oiaf/aeo/pdf/trend_4.pdf)) (accessed Feb. 2, 2010).

<sup>4</sup> *Id.*

<sup>5</sup> *An Energy Answer in the Shale Below? New Technology Opens Vast Stores of Natural Gas, and the Land Rush Is On*, Washington Post (Dec. 3, 2009).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

## B. Concerns about Hydraulic Fracturing

According to the Department of Energy, advances in hydraulic fracturing technology, as well as a rise in the price of natural gas, have made it possible for oil and gas companies to extract gas resources once thought unattainable.<sup>8</sup> In hydraulic fracturing, the companies force fracturing fluids and propping agents into existing oil and gas production wells at extremely high pressure, which cracks the oil or gas seams and allows trapped natural gas and oil to escape. Without hydraulic fracturing and improvements in horizontal drilling, oil and gas companies likely would not be able to access unconventional sources of oil and natural gas in an economical manner.

Hydraulic fracturing is not without controversy and concern. Oil and gas companies use a variety of additives and chemicals in their fracturing fluids with the goal of widening and extending the length of the fractures and transporting large amounts of material to “prop open” the fractures. While some of these additives are harmless, such as sand used as a proppant, others may contain constituents of potential concern to human health and the environment.<sup>9</sup> Several communities have raised concerns about this practice’s potential impact on drinking water, with some alleging that hydraulic fracturing is to blame for the contamination of local wells.<sup>10</sup>

Federal regulators currently do not have access to a full accounting of the types and quantities of chemicals used in hydraulic fracturing fluids, although some states require disclosure. Under the Emergency Planning and Community Right to Know Act, approximately 22,000 industrial and federal facilities must report to EPA the quantity of toxic chemicals they release, store, or transfer, which is then made public in the annual Toxics Release Inventory (TRI). Oil and gas exploration and production facilities are exempt from this reporting requirement.<sup>11</sup> EPA also does not have authority under the Safe Drinking Water Act (SDWA) to require disclosure of the chemicals injected in hydraulic fracturing operations.

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<sup>8</sup> U.S. Department of Energy, *Modern Shale Gas Development in the United States: A Primer* (Apr. 2009) at 9.

<sup>9</sup> Environmental Protection Agency, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs* (June 2004) (EPA 816-R-04-003) at 4-3.

<sup>10</sup> See, e.g., *With Natural Gas Drilling Boom, Pennsylvania Faces an Onslaught of Wastewater*, ProPublica (Oct. 4, 2009); *Dirty Well Water Raises Stink Near Drilling Sites; Residents Cite Gas Firm for Poor Quality*, Arkansas Democrat-Gazette (July 5, 2009); *Debate Shows Merits, Dangers of Drilling Technique*, Associated Press (Dec. 23, 2008); *Controversial Path to Possible Glut of Natural Gas*, Christian Science Monitor (Sept. 18, 2008).

<sup>11</sup> 40 C.F.R. § 372.23.

EPA has raised particular concerns about diesel fuel, noting that the “use of diesel fuel in fracturing fluids poses the greatest threat” to underground sources of drinking water.<sup>12</sup> Diesel contains constituents regulated under SDWA because of their toxicity, including benzene, toluene, ethylbenzene, and xylenes (BTEX chemicals).<sup>13</sup> The Department of Health and Human Services, the International Agency for Research on Cancer, and EPA have determined that benzene is a human carcinogen.<sup>14</sup> Chronic exposure to toluene, ethylbenzene, or xylenes can damage the central nervous system, liver, and kidneys.<sup>15</sup>

In December 2003, EPA entered into a voluntary memorandum of agreement with the three largest hydraulic fracturing companies, Halliburton, BJ Services, and Schlumberger, to “eliminate diesel fuel in hydraulic fracturing fluids injected into coalbed methane production wells in underground sources of drinking water.”<sup>16</sup> The MOA focused on coalbed methane wells, as these wells tend to be shallower and closer to underground sources of drinking water than conventional oil and gas production wells. The MOA does not contain any enforcement provisions nor does it confer immunity in an action to enforce the SDWA or EPA’s regulations on underground injection.<sup>17</sup>

In 2005, Congress exempted hydraulic fracturing from regulation under the SDWA as part of the Energy Policy Act.<sup>18</sup> Many dubbed this provision the “Halliburton loophole” because of Halliburton’s ties to then-Vice President Cheney and its role as one of the largest providers of hydraulic fracturing services.<sup>19</sup> Specifically, Congress modified the definition of “underground injection” to exclude “the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production

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<sup>12</sup> U.S. Environmental Protection Agency, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs* (June 2004) (EPA 816-R-04-003) at 4-11.

<sup>13</sup> *Id.*

<sup>14</sup> U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, *Public Health Statement for Benzene* (Aug. 2007).

<sup>15</sup> U.S. Environmental Protection Agency, *Basic Information about Toluene in Drinking Water* (online at [www.epa.gov/safewater/contaminants/basicinformation/toluene.html](http://www.epa.gov/safewater/contaminants/basicinformation/toluene.html)), *Basic Information about Ethylbenzene in Drinking Water* (online at [www.epa.gov/safewater/contaminants/basicinformation/ethylbenzene.html](http://www.epa.gov/safewater/contaminants/basicinformation/ethylbenzene.html)) and *Basic Information about Xylenes in Drinking Water* (online at [www.epa.gov/safewater/contaminants/basicinformation/xylenes.html](http://www.epa.gov/safewater/contaminants/basicinformation/xylenes.html)) (accessed Feb. 2, 2010).

<sup>16</sup> Memorandum of Agreement between the U.S. Environmental Protection Agency and BJ Services Company, Halliburton Energy Services, Inc., and Schlumberger Technology Corporation (Dec. 12, 2003).

<sup>17</sup> *Id.*

<sup>18</sup> Pub. L. No. 109-58 (2005).

<sup>19</sup> *The Halliburton Loophole*, New York Times (Nov. 9, 2009).

activities.”<sup>20</sup> As a result of this exemption, EPA cannot use the SDWA to regulate hydraulic fracturing unless it can show the use of diesel fuels.

Environmental groups, public health officials, and communities across the country have raised other concerns about hydraulic fracturing, beyond potential impacts on drinking water. In Texas, state regulators are responding to tests showing high levels of benzene in the air near wells in the Barnett Shale gas fields.<sup>21</sup> In Pennsylvania, state regulators are facing a new challenge of how to ensure proper disposal of the millions of gallons of wastewater generated from natural gas development in the Marcellus Shale.<sup>22</sup> In New York, the state Department of Environmental Conservation analyzed wastewater extracted from wells and found levels of radium-226 as high as 267 times the limit safe for discharge into the environment and thousands of times the limit safe for people to drink.<sup>23</sup> Others have raised concerns about water scarcity, since the drilling and hydraulic fracturing of a horizontal shale gas well may require 2 to 4 million gallons of water.<sup>24</sup>

### C. EPA’s Recent Work on Hydraulic Fracturing

In May 2009, EPA Administrator Lisa Jackson said that she found allegations of drinking water contamination linked to hydraulic fracturing “startling” and told members of Congress that it may be time to take another look at the safety of the hydraulic fracturing process.<sup>25</sup> EPA hired a consulting firm to survey media reports and publicly available documents describing several cases of drinking water contamination allegedly linked to hydraulic fracturing. Based on this review of available literature, the firm concluded that 12 of the contaminant cases examined “may have a possible link to hydraulic fracturing, but, to date, EPA has insufficient information on which to make a definitive decision.”<sup>26</sup>

In Pavillion, Wyoming, EPA, using its authority under the Superfund program, has been testing residential and municipal wells, in response to community concerns about declining drinking water quality. The first phase of testing found hydrocarbons and 2-butoxyethanol, a

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<sup>20</sup> 42 U.S.C. § 300h(d).

<sup>21</sup> *State worried about air pollution near Barnett Shale wells*, Star-Telegram (Nov. 22, 2009); *Agency finds high benzene levels on Barnett Shale*, Associated Press (Jan. 27, 2010).

<sup>22</sup> *What can be done with wastewater?*, Pittsburgh Post-Gazette (Oct. 4, 2009).

<sup>23</sup> *Is New York’s Marcellus Shale Too Hot to Handle?*, ProPublica (Nov. 9, 2009).

<sup>24</sup> Department of Energy, *Modern Shale Gas Development in the United States: A Primer* (Apr. 2009) at 64.

<sup>25</sup> House Committee on Appropriations, Subcommittee on Interior, Environment, and Related Agencies, Testimony of the Honorable Lisa Jackson, Administrator, U.S. Environmental Protection Agency, *Hearing on the Environmental Protection Agency*, 111th Cong. (May 19, 2009).

<sup>26</sup> Cadmus Group, *Hydraulic Fracturing: Preliminary Analysis of Recently Reported Contamination* (Sept. 2009).

foaming agent used in hydraulic fracturing fluids, in several wells. While EPA has been unable to “pinpoint any specific source at this time,” the agency acknowledged a potential connection between this contamination and nearby oil and gas production activities.<sup>27</sup>

The conference report for the Department of the Interior, Environment, and Related Agencies Appropriations Act for Fiscal Year 2010, signed into law on October 30, 2009, requested that EPA conduct a new scientific study of the hydraulic fracturing process. Specifically, the report states that EPA is to “carry out a study of the relationship between hydraulic fracturing and drinking water, using a credible approach that relies on the best available science, as well as independent sources of information.”<sup>28</sup>

## II. The Oversight Committee Investigation

As Chairman of the House Committee on Oversight and Government Reform, Chairman Waxman wrote to the CEOs of Halliburton, BJ Services, and Schlumberger and requested data on the types and volume of chemicals used in their hydraulic fracturing fluids between 2005 and 2007.<sup>29</sup> The information provided shows that at least two of these companies continued to use diesel fuel in their fracturing fluids after signing the 2003 agreement with EPA. It also shows that they use other chemicals in their fluids that could be a cause for concern if they entered drinking water supplies.

### A. Halliburton

Halliburton provided data to the Oversight Committee revealing that it continued to use diesel and BTEX chemicals in the company’s fracturing fluids after signing the MOA:

- Halliburton reported using fluids containing diesel fuel in 2005, 2006, and 2007 to fracture oil and gas wells in 15 states. Specifically, Halliburton reported using more than 807,000 gallons of seven diesel-based fluids over the three year period.<sup>30</sup>

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<sup>27</sup> U.S. Environmental Protection Agency, *Pavillion Groundwater Investigation, Pavillion, Wyoming: Phase I Sampling Results* (Aug. 11, 2009).

<sup>28</sup> Conference Report for the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010, 111th Cong. (2009) (Rept. 111-316).

<sup>29</sup> Letter from Henry A. Waxman, Chairman, Committee on Oversight and Government Reform, to David Lesar, Chairman, President, and CEO, Halliburton (Nov. 26, 2007); Letter from Henry A. Waxman, Chairman, Committee on Oversight and Government Reform, to Andrew Gould, Chairman and CEO, Schlumberger (Nov. 26, 2007); Letter from Henry A. Waxman, Chairman, Committee on Oversight and Government Reform, to J.W. Stewart, Chairman, President, and CEO, BJ Services (Nov. 26, 2007).

<sup>30</sup> Halliburton Material Safety Data Sheet (MSDS), *BC-200* (Jan. 2009); Halliburton MSDS, *CL-22M Crosslinker* (Jan. 2009); Halliburton MSDS, *Diesel Fuel* (Jan. 2008); Halliburton MSDS, *LGC-8* (Jan. 2009); Halliburton MSDS, *LGC-35* (Jan. 2009); Halliburton MSDS, *LGC-V* (Jan. 2007); Halliburton MSDS, *LGC-VI* (Jan. 2009).

- Halliburton also reported using fracturing fluids containing BTEX chemicals in 2005, 2006, and 2007 to fracture oil and gas wells in 14 states. Specifically, Halliburton reported using nearly 235,000 gallons of six fracturing fluids containing BTEX chemicals over the three year period.<sup>31</sup>

Halliburton's data did not distinguish between fracturing fluids used in oil wells versus natural gas wells and did not specify whether the company used fracturing fluids containing diesel in coalbed methane wells located within underground sources of drinking water, as prohibited by the MOA.

## **B. BJ Services**

BJ Services provided data to the Oversight Committee revealing that it continued to use diesel and BTEX chemicals in the company's fracturing fluids in coalbed methane wells after signing the MOA:

- BJ Services reported using 1,706 gallons of diesel-based slurry in two dozen coalbed methane fracturing jobs in Arkansas and Oklahoma in 2005, 2006, and 2007.<sup>32</sup> In a letter to the Oversight Committee, counsel for BJ Services acknowledged that these events "were in violation of the MOA" and expressed a commitment to uncovering how they occurred. The company's counsel also noted that BJ Services subsequently sent a reminder to "all employees who design or perform fracturing operations about the requirements of the MOA."<sup>33</sup>
- In addition to the diesel-based slurries, BJ Services reported using 833 gallons of other fluids containing diesel fuel to fracture coalbed methane wells in Arkansas and Oklahoma in 2005, 2006, and 2007.<sup>34</sup> Counsel for BJ Services also reported that the company uses "biodegradable balls (typically about an inch in diameter) that are pumped into the wellbore to seal the perforation openings; they ultimately break apart, fall to the bottom of the wellbore, and dissolve, never actually entering the oil/gas reservoir."<sup>35</sup> These

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<sup>31</sup> Halliburton MSDS, *Aromatic 100* (Jan. 2008); Halliburton MSDS, *Barsol D-100* (Jan. 2007); Halliburton MSDS, *Parachek 160 Paraffin Inhibitor* (June 2007); Halliburton MSDS, *Parasperse Cleaner* (June 2007); Halliburton MSDS, *Xylene* (June 2007); Halliburton MSDS, *Xylene Bottoms* (Jan. 2007).

<sup>32</sup> BJ Services Company MSDS, *XLFC-1* (Nov. 2006); BJ Services Company MSDS, *XLFC-5* (Nov. 2006).

<sup>33</sup> Letter from Counsel to Henry A. Waxman, Chairman, Committee on Oversight and Government Reform (Jan. 24, 2008).

<sup>34</sup> BJ Services Company MSDS, *FLC-42L* (Oct. 2006); BJ Services Company MSDS, *GW-3L* (Oct. 2006).

<sup>35</sup> Letter from Counsel to Henry A. Waxman, Chairman, Committee on Oversight and Government Reform (Jan. 24, 2008).



biodegradable balls contain diesel fuel, according to company documents.<sup>36</sup> The company did not say explicitly whether it used these fracturing fluids and materials in violation of the MOA.

- BJ Services also reported using 217 gallons of a fluid containing xylene, one of the toxic BTEX chemicals, to fracture coalbed methane wells in three states in 2005, 2006, and 2007.<sup>37</sup>

BJ Services provided data only on fluids used to fracture coalbed methane wells. The Oversight Committee did not receive data on whether BJ Services used diesel-based fluids in other types of fracturing jobs between 2005 and 2007.

### C. Schlumberger

Based on the data Schlumberger provided to the Oversight Committee, we have no evidence that the company used diesel-based fluids to fracture coalbed methane wells between 2005 and 2007. Schlumberger did report using 170 gallons of two corrosion inhibitors that contain nonspecific “aromatic hydrocarbons.”<sup>38</sup> This is a category of chemicals that can include benzene and other BTEX chemicals.<sup>39</sup> Schlumberger did not provide data on its fracturing activities in other types of wells.

## III. The Need for Additional Investigation

The information provided by the companies raises several questions. First, the use of diesel fuel in fracturing fluids by Halliburton and BJ Services raises questions about the effectiveness of the 2003 MOA and whether the companies violated the Safe Drinking Water Act when they used these fluids.

Second, the companies provided data on which chemicals they used in their hydraulic fracturing fluids, but they did not specify whether they injected these fluids in wells located in, near, or below underground sources of drinking water. This information is needed to assess whether the use of the chemicals posed a threat to drinking water supplies.

Third, the responses indicated that the companies used other potentially dangerous chemicals besides diesel fuel in hydraulic fracturing fluids. Halliburton and BJ Services, for example, both reported using some BTEX chemicals in their fluids. According to the New York

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<sup>36</sup> BJ Services Company MSDS, *BioSealers* (Oct. 2006).

<sup>37</sup> BJ Services Company MSDS, *NE-118* (Oct. 2006).

<sup>38</sup> Schlumberger MSDS, *Corrosion Inhibitor A261* (Feb. 2005); Schlumberger MSDS, *Corrosion Inhibitor A262* (Apr. 2005).

<sup>39</sup> See New York Department of Environmental Conservation, *Draft Supplemental Generic Environmental Impact Statement Well Permit Issuance for Horizontal Drilling And High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs* (Sept. 2009) at 5-53.

State Department of Environmental Conservation, oil and gas companies have proposed using hundreds of chemicals in hydraulic fracturing fluids in the Marcellus Shale formation in New York, including more than a dozen different petroleum distillates.<sup>40</sup> More information about these chemicals and their use is required to assess their potential environmental impact.

Another set of questions involves the practices of smaller companies. When Halliburton, BJ Services, and Schlumberger signed the diesel MOA in 2003, the three companies performed 95% of the hydraulic fracturing jobs in the United States each year.<sup>41</sup> Since that time, smaller companies have increased their market share. Frac Tech, for example, describes itself as “one of the largest and fastest growing land stimulation companies.”<sup>42</sup> Superior Well Services says it is a “growing oilfield services company operating in many of the major oil and natural gas producing regions of the United States.”<sup>43</sup> Little is known about the practices of these and other small and medium sized companies that provide fracturing services across the country.

Finally, many have raised concerns about how oil and gas companies dispose of fracturing fluids and other produced water after it is extracted from the well. The Oversight Committee did not request any information on wastewater produced from hydraulic fracturing operations. More information is needed to assess the chemical contents of this waste and determine how companies can dispose of it in an environmentally safe manner.

#### **IV. The Committee’s Letters**

To help answer these questions, the Subcommittee on Energy and Environment is sending a new request to eight companies engaged in hydraulic fracturing in the United States: Halliburton, BJ Services, and Schlumberger, as well as Frac Tech Services, Superior Well Services, Universal Well Services, Sanjel Corporation, and Calfrac Well Services, five smaller companies that comprise a growing share of the market. The Committee is requesting the most recent data on the types and quantities of chemicals used in hydraulic fracturing fluids with additional information on whether the companies injected these fluids in, near, or below an underground source of drinking water. The Committee also is requesting documents related to any allegations that the hydraulic fracturing caused harm to human health or the environment. In

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<sup>40</sup> New York City Council Committee on Environmental Protection, Testimony of Dusty Horwitt, Senior Counsel, Environmental Working Group, (Oct. 23, 2009), citing New York Department of Environmental Conservation, *Draft Supplemental Generic Environmental Impact Statement Well Permit Issuance for Horizontal Drilling And High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs* (Sept. 2009) at 5-45-5-51, 5-53.

<sup>41</sup> Environmental Protection Agency, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs* (June 2004) (EPA 816-R-04-003) at 4-19.

<sup>42</sup> Frac Tech Services Home Page (online at [www.fractech.net/about/index.htm](http://www.fractech.net/about/index.htm)) (accessed Feb. 1, 2010).

<sup>43</sup> Superior Well Services Home Page (online at [www.superiorwells.com/index.php](http://www.superiorwells.com/index.php)) (accessed Feb. 1, 2010).

addition, the Committee is requesting information on the chemical contents of water produced from hydraulic fracturing operations and how the companies dispose of this waste.

Hydraulic fracturing and other new technologies for unlocking unconventional natural gas supplies have tremendous potential. These technologies have created a natural gas boom in parts of the country that can contribute to the nation's energy independence and reduce carbon emissions. But as the use of these technologies expands, there needs to be oversight to ensure that their use does not threaten the public health of nearby communities. The goal of this investigation is to provide the Committee with a fuller understanding of the promise and the potential risks posed by the use of hydraulic fracturing to produce oil and natural gas from unconventional sources.

For additional information, please contact Alison Cassady or Stacia Cardille of the Committee staff at (202) 226-2424.