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April 15, 2011

Via Hand Delivery
Pamela Bush, Esquire
Commission Secretary and Assistant General Counsel
Delaware River Basin Commission
P.O. Box 7360
25 State Police Drive
West Trenton, NJ 08628-0360

Re: Comments on Draft Natural Gas Development Regulations

Dear Ms. Bush:

On December 9, 2010, the Delaware River Basin Commission ("DRBC") published for public notice and comment its *Proposed Amendments to the Water Quality Regulations, Water Code and Comprehensive Plan to Provide for Regulation of Natural Gas Development Projects* ("Draft Regulations"). The Draft Regulations contain proposed requirements formulated by the DRBC governing the exploration, development and production of natural gas in the Delaware River Basin. The purpose of this letter is to provide the DRBC with comments on behalf of Halliburton Energy Services, Inc. ("HESI") regarding certain important provisions of the Draft Regulations. Specifically, the comments focus on proposed requirements pertaining to the information that must be maintained and submitted to the DRBC by well pad operators regarding hydraulic fracturing operations.

HESI is a leading provider of services to the oil and gas industry and is the global leader with respect to hydraulic fracturing services. HESI helped pioneer the use of hydraulic fracturing in the 1940s and has provided hydraulic fracturing services in a wide variety of geographic settings and formations for over 60 years. During this time period, HESI has employed hydraulic fracturing technology at many hundreds of thousands of wells and has been responsible for numerous innovations in the field of hydraulic fracturing. In addition to innovations that increase natural gas production and allow natural gas wells to function on a more efficient basis, HESI has devoted substantial resources to developing hydraulic fracturing technologies with important direct environmental benefits. For example, HESI is in the process of developing:

- Fluid systems that enhance the reuse of produced water as the base fluid for hydraulic fracturing;

- Gelling agents that can be transported to well sites in dry form and mixed with hydraulic fracturing fluids on-site so as to eliminate the need for the use of liquid gel concentrates and reduce transportation across state roads; and

- A suite of technologies, called the CleanSuite™ Technologies, that, among other things, utilize both materials sourced from the food industry in hydraulic fracturing fluids and ultra violet light in lieu of certain conventional additives as part of hydraulic fracturing operations.

This wealth of experience makes HESI particularly well positioned to understand the natural gas production industry and to offer comments on the Draft Regulations, particularly as they relate to hydraulic fracturing stimulation practices. Additional information concerning HESI and its operations is included in Exhibit A to this letter.

HESI supports efforts to increase transparency associated with the additives used in hydraulic fracturing operations. Disclosure of additives will allow regulators, remediation personnel, and health professionals who interact with the hydraulic fracturing process to make informed decisions. At the same time, HESI uses a limited number of proprietary constituents as part of the services it renders to well operators, and the ability of HESI to continue to develop technologies that potentially reduce the environmental footprint of natural gas development operations depends upon the safeguarding of such trade secret information. Accordingly, HESI strongly believes that any requirements related to the reporting of additives and/or constituents used in the hydraulic fracturing process explicitly recognize the confidential nature of such information and afford such information necessary protection from public disclosure.

1. The Draft Regulations Should Defer to Host State Reporting Requirements and Include Explicit Protections for Trade Secrets and Confidential Commercial Information

Section 7.5 of the Draft Regulations proposes new requirements pertaining to the siting, design, construction and operation of well pads for natural gas activities generally. Section 7.5 of the Draft Regulations also includes additional requirements applicable to all well pads involving high volume hydraulically fractured wells.[1] Some of those new requirements prescribe the type of information that project sponsors must obtain and maintain about the composition of

[1] The Draft Regulations define "high volume hydraulically fractured wells" as "natural gas wells that use or are expected to use greater than 80,000 gallons or equivalent of hydraulic fracturing fluids, including water." Based upon HESI's extensive experience in the Marcellus Shale play, virtually all Marcellus Shale natural gas wells drilled within the Delaware River Basin will be considered high volume hydraulically fractured wells under this definition.

the fluids used to hydraulically fracture particular wells. The recordkeeping and reporting requirements in the Draft Regulations, however, differ in material respects from corresponding requirements recently promulgated in Pennsylvania that strike an appropriate balance between recordkeeping and reporting obligations on the one hand, and the need to protect trade secret and confidential proprietary information on the other, in order to encourage continued research and development in connection with hydraulic fracturing fluids. These proposed requirements will create unnecessary confusion and have the potential to needlessly impede oil and gas production without yielding any corresponding environmental benefits. Similar conflicts between DRBC and applicable state requirements will likely result once New York finalizes its recordkeeping and reporting regulations. Accordingly, as described in more detail below, the DRBC should revise the recordkeeping and reporting requirements with respect to hydraulic fracturing fluids so that they defer to, and thus are consistent with, host state requirements, just as the Susquehanna River Basin Commission has done already.

New Pennsylvania Requirements

On February 5, 2011, the Pennsylvania Environmental Quality Board published in the Pennsylvania Bulletin amendments to 25 Pa. Code Chapter 78. These regulations implement Pennsylvania's Oil and Gas Act and govern the procedures and rules for the drilling, alteration, operation and plugging of oil and gas wells.[2] The final amendments were the culmination of an extensive public notice and comment process that began in January 2010 and resulted in number of iterations of the proposed amendments before the final version ultimately went into effect this year.

Among the many amendments to Pennsylvania's oil and gas regulations are provisions that specify what must be included in the completion report that is submitted to the Pennsylvania Department of Environmental Protection ("PADEP") within 30 calendar days after completion of a natural gas well. Under these requirements, the completion report must include a stimulation record. The recent amendments amplify and expand on the requirements pertaining to the contents of the stimulation record, requiring well operators to submit extensive information about the additives used in stimulation fluids and the identities of the hazardous constituents contained in those additives based on information presented in Material Safety Data Sheets ("MSDSs") for the additives.[3] Specifically, under the amended version of 25 Pa. Code Chapter 78, a stimulation record must include, among other things: (1) a descriptive list of the chemical additives in the stimulation fluid; (2) the percent of each chemical additive in the stimulation fluid; (3) a list of the chemicals identified in the MSDS, by name and Chemical

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[2] *See* 41 Pa. Bull. 805 (February 5, 2011).

[3] An additive is a material that is used for a particular purpose in connection with the hydraulic fracturing process. For example, an additive might serve to reduce fluid friction or enable a proppant to remain suspended in the hydraulic fracturing fluid. Each additive will have a corresponding MSDS and may be comprised of one or more constituents.

Abstract Service ("CAS") number, corresponding to the specific chemical additive; (4) the percent in each chemical additive of each chemical listed in the MSDS; and (5) the total volume of the base fluid.[4]

At the same time that the amendments to 25 Pa. Code Chapter 78 require new and extensive information about the additives used in hydraulic fracturing fluids, the amendments recognize that there are tangible reasons (which are described in more detail below) for providing protection for the confidential commercial information and trade secrets associated with these additives. Specifically, the amendments explicitly allow well operators to designate portions of a stimulation record as containing trade secrets or confidential proprietary information. Once the well operator designates a portion of the stimulation record as confidential information, PADEP is required to prevent disclosure of such information to third parties as mandated by Pennsylvania's Right to Know Law.[5]

Importantly, the changes to 25 Pa. Code Chapter 78 do not limit PADEP's ability to obtain upon specific request the identity of any constituent of any additive used to hydraulically fracture a well, even if the constituent is not included in the stimulation record. This requested information, however, is again subject to protections afforded to trade secrets and confidential proprietary information under Pennsylvania's Right to Know Law.[6]

It should be noted that the fact that under the amendments to 25 Pa. Code Chapter 78, HESI and other service companies can assert trade secret and confidentiality claims with respect to information submitted in the stimulation record and/or other submissions does not mean that HESI considers all information about the additives used in hydraulic fracturing fluids to be confidential trade secrets and/or commercial information. Operators and service companies like HESI already disclose substantial amounts of information regarding the fluids used in hydraulic fracturing operations consistent with the framework of existing federal and state legal requirements. For example, HESI and well operators are required to keep MSDSs available on job sites in accordance with the federal Hazard Communication Standard promulgated by the United States Occupational Safety and Health Administration ("OSHA").[7] MSDSs specifically contain information regarding any constituents found in a product at a concentration of greater than 1% that are considered hazardous as well as information concerning the physical properties of the product, the known hazards associated with the product, measures to be taken in response

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[4] *See* 25 Pa. Code §78.122(b)(6).
[5] *See* 25 Pa. Code §78.122(c). Pennsylvania's Right-to-Know Law, while focused primarily on affording the public opportunities to obtain documents and information possessed by the government also reflects the strong public policy considerations that militate in favor of protecting trade secrets and confidential proprietary information from disclosure to third parties. Protection of intellectual property is a keystone for innovation, research and development.
[6] *See* 25 Pa. Code §78.122(d).
[7] *See* 29 C.F.R. § 1910.1200(i).

to a release of the product and relevant first aid information.[8] In addition, HESI has voluntarily implemented extra steps to facilitate the availability of information regarding fluids that it uses to hydraulically fracture wells. For example, HESI maintains a website that provides information to the public about the additives that go into the hydraulic fracturing solutions in use in Pennsylvania along with the constituents that comprise the additives.[9] In addition to the relevant MSDSs, the information on the website includes the product names of the additives, the specific purpose of each additive, and the concentration of that additive as used during hydraulic fracturing operations. The website also includes a separate list of information about the constituents used to form the identified additives that includes the CAS number of a constituent, the constituent's common use, and whether the constituent is listed as hazardous on an additive's MSDS. Obviously, HESI would not declare the information on its website about its hydraulic fracturing additives and constituents to be confidential trade secret or commercial information.

New York Framework

As the DRBC is aware, the New York State Department of Environmental Conservation ("NYSDEC") is currently in the process of finalizing its draft Supplemental Generic Environmental Impact Statement ("dSGEIS") on the Oil, Gas and Solution Mining Regulatory Program, which will likely result in new regulations applicable to natural gas development activities in New York. Portions of the dSGEIS referenced a number of considerations associated with the reporting of additives used in hydraulic fracturing operations and the constituents contained within such additives depending upon the specific techniques used to store and/or dispose of flowback water generated at a hydraulically fractured well. HESI previously submitted extensive comments on the dSGEIS that focused upon these reporting issues and offered an alternative approach that provided for extensive reporting of information concerning the additives associated with hydraulic fracturing, but also afforded appropriate levels of trade secret and confidential business information protections for such information. While NYSDEC has not yet addressed HESI's specific comments, at a minimum it is clear from the dSGEIS that NYSDEC recognizes a distinction between information concerning additives and the constituents that make up these additives, and that reporting information to regulatory authorities about the specific chemical makeup of these additives may not be necessary or appropriate in all circumstances. Moreover, it is clear that NYSDEC will be adopting provisions regarding the disclosure of information concerning hydraulic fracturing fluids that the Department has determined are appropriate for Marcellus Shale development in New York State in light of NYSDEC's responsibilities to protect the waters of the State.

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[8] *See* 29 C.F.R. § 1910.1200(e). Any chemicals that are carcinogens must be listed on the MSDS if they are present in a product at a concentration of greater than 0.1%. Chemicals that present physical hazards are listed on the MSDS regardless of concentration.

[9] *See,* http://www.halliburton.com/public/projects/pubsdata/Hydraulic_Fracturing/fluids_disclosure.html

The Inconsistencies of DRBC's Proposed Approach

Unlike the regulatory frameworks in place in Pennsylvania and under consideration in New York, the Draft Regulations fail to recognize the nuanced concerns related to reporting information regarding additives versus constituents, and the importance of including explicit protections for trade secret and confidential proprietary information related to hydraulic fracturing fluids.

First, the provisions of the Draft Regulations concerning the reporting of hydraulic fracturing fluid information conflate the terms "chemicals" and "additives," resulting in a regulatory requirement that is vague, misdirected and inconsistent with the Pennsylvania and New York frameworks described above. As used in Pennsylvania and New York, an "additive" is a substance (or combination of substances) having a specific purpose that is combined with a base fluid (typically water) and proppant (typically sand) to create a "fracturing fluid." Examples of common additives are scale inhibitors, biocides, surfactants, fluid loss additives and stabilizers. Each additive that HESI employs has a corresponding MSDS. The term "chemicals" can be interpreted to refer to the constituents of an additive. Each constituent in an additive may be assigned a CAS registry number.[10] The Draft Regulations, by contrast, do not distinguish between "additives" and "chemicals." Instead, Section 7.5(h)(2)(ii)(D) of the Draft Regulations uses the terms interchangeably by stating that:

> Project sponsors must maintain a record of the volumes/amounts of all chemicals/additives used for each hydraulic fracturing event. A list of the individual chemicals/additives with Chemical Abstract Services (CAS) registry number and Material Safety Data Sheets (MSDS) as well as amounts used for hydraulic fracturing must to [sic] be submitted to the Commission in the "DRBC Post Hydraulic Fracturing Report".[11]

Similarly, Section 7.2 of the Draft Regulations defines a "Post Hydraulic Fracturing Report" as

> a report listing the volumes and sources of water, wastewater and flowback and amounts of all chemicals and additives used during the hydraulic fracturing of a natural gas well.

Unlike the above-referenced provisions of the Draft Regulations, both the amendments to Pennsylvania's oil and gas regulations and the New York dSGEIS recognize the important distinction between the additives used during the hydraulic fracturing process and the

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[10] Not every constituent found within the additives used by HESI, however, has been assigned a CAS number.

[11] Section 7.2(h)(1)(iv)(C) of the Draft Regulations requires a well pad project sponsor to submit the Post Hydraulic Fracturing Report to the DRBC within 60 days of completion of the hydraulic fracturing event.

constituents that make up those additives. By contrast, the DRBC's use of the terms "chemicals" and "additives" interchangeably in the Draft Regulations does not provide for any meaningful distinction between these two important terms.

Moreover, the reporting requirement set forth in Section 7.5(h)(2)(ii)(D) of the Draft Regulations is a blanket standard that is not grounded upon any objective evaluation as to whether there is a need for the requested constituent information based upon a hazard to human health and/or the environment.[12] Pennsylvania, for example, acknowledges that information about the identity of the constituents contained within additives used during hydraulic fracturing operations is only relevant to the extent that those constituents pose a potential hazard based on an objective standard (*e.g.*, OSHA's hazard communication standard).

In addition, unlike the newly amended version of Pennsylvania's oil and gas regulations, the Draft Regulations fail to explicitly include protection for trade secret and confidential commercial information about additives (or particular constituents) that may be reported to comply with the Draft Regulations. Such protection appears generally to be available under Section 2.8.12 of the DRBC Rules of Practice and Procedure, which provides for the protection from disclosure of trade secrets, and commercial or financial information of a privileged or confidential nature. At the same time, the absence of an explicit reference to Section 2.8.12 of the DRBC Rules of Practice and Procedure is noticeable, especially in contrast to the corresponding explicit references in Pennsylvania's regulations concerning the information submitted as part of a stimulation record. In addition, the Pennsylvania regulations allow for service providers or other entities involved with hydraulic fracturing operations to submit constituent information directly to PADEP to protect any trade secret and confidential commercial information. The proposed DRBC regulations do not appear to recognize this option.

While Section 2.8.12 of the DRBC Rules of Practice and Procedure does explicitly exempt from disclosure privileged or confidential trade secret and commercial information, that exemption is not absolute. Section 2.8.15 of the DRBC Rules of Practice and Procedure vests the Executive Director with the discretion to disclose otherwise exempt records under certain limited circumstances, but that disclosure must be "consistent with the property rights of persons in trade secrets." Similarly, Sections 2.8.16 and 2.8.17 of the DRBC Rules of Practice and Procedure allow for the limited disclosure of otherwise exempt records to other federal government departments and agencies, and to consultants, advisory commissions, state and local government officials, and other special government employees for use in work in cooperation with the DRBC. Because the Draft Regulations do not contain any provisions or references to the protections for trade secrets and/or commercial information provided by Section 2.8.12 of the DRBC Rules of Practice and Procedure, the Draft Regulations also do not include procedures

[12] As required by OSHA, each MSDS provides information about a variety of issues pertaining to a particular additive including potential health risks posed by the additive, steps that may be necessary to respond to a release of the additive and actions that may be necessary to address exposure to the additive.

that would assure the regulated community that any disclosure pursuant to these exceptions to the disclosure exemptions would be done in a manner that does not compromise the property rights of persons in the disclosed trade secrets and/or commercial information.

As noted previously, HESI supports efforts to increase transparency associated with the additives used in hydraulic fracturing operations. HESI, however, invests substantial economic resources and efforts to develop its hydraulic fracturing fluid systems and technologies that deploy these fluids, and consequently treats them as proprietary and valuable trade secrets. Accordingly, HESI strongly opposes any reporting requirements that mandate or facilitate the release of valuable trade secret information, such as the identity of specific proprietary constituents used in highly specialized hydraulic fracturing fluids, in a manner that does not recognize that such information is trade secret and/or confidential commercial information, and that additional dissemination of such information is subject to the legal and regulatory mechanisms designed to protect such information from unfettered disclosure by government agencies.

It is well recognized that designing an effective hydraulic fracturing job requires a sophisticated understanding of the geologic, petrophysical and reservoir parameters of the hydrocarbon-bearing formation and its surrounding layers and the chemistry of the stimulation fluids themselves. In essence, implementing an effective hydraulic fracturing job requires the right "tools." HESI devotes substantial resources to understanding and improving the elements necessary to successfully stimulate a formation while ensuring the integrity of the production and water zones. To achieve these goals, HESI invests substantial resources in developing new fracturing fluids that will make hydraulic fracturing more effective and efficient. HESI has also made a strong commitment toward reducing the environmental footprint of its hydraulic fracturing fluid systems while maintaining the effectiveness of the fluid systems. For example HESI is currently deploying on a pilot basis its CleanStim™ technology, a fracture fluid system comprised of materials sourced entirely from the food industry.

Given its substantial investment in fracturing fluid chemistry and technology, HESI considers certain information about the fracturing fluid additives and/or constituents it uses, including the CAS registry number of specific constituents, to be proprietary. HESI believes that this information constitutes valuable trade secrets and confidential commercial information and so should be afforded appropriate protections. HESI's competitors also view their hydraulic fracturing fluids the same way. Therefore, HESI considers the protection of proprietary information related to its hydraulic fracturing fluids to be critical and indeed necessary in order to encourage the development and use of more effective methods to stimulate the production of natural gas supplies.[13]

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[13] Based on multiple studies that HESI has performed, the use of advanced proprietary hydraulic fracturing fluids typically results in an increase in production (which often can be quite significant) when compared to the use of non-proprietary, commodity-type fracturing fluids and/or technologies. Accordingly, advanced hydraulic fracturing fluids allow gas wells to be installed and operated more effectively and efficiently. Moreover, a number of HESI's

Accordingly, HESI recommends that Section 7.5(h)(2)(ii)(D) of the Draft Regulations include a specific reference to Section 2.18.12 of the DRBC Rules of Practice and Procedure to expressly recognize that any entity submitting hydraulic fracturing fluid information can obtain protections from disclosure of proprietary information. Furthermore, HESI recommends that the DRBC establish procedures to ensure that any disclosure of information pursuant to Sections 2.8.15, 2.8.16 or 2.8.17 of the DRBC Rules of Practice and Procedure is done in a manner that does not compromise the value of the protections for trade secrets and/or commercial information afforded by Section 2.8.12 of the DRBC Rules of Practice and Procedure. This is particularly critical because certain information related to hydraulic fracturing fluids may not be patentable and could be copied by any of HESI's competitors if they were to obtain such information. Any disclosure of non-protected sensitive constituent information would obviously serve as a substantial disincentive to the significant investment HESI continues to make to develop advanced hydraulic fracturing systems with key production and environmental benefits.

In sum, HESI believes that DRBC should defer to the respective states with respect to requirements for the disclosure of information concerning the makeup of hydraulic fracturing fluids, consistent with the approach adopted by the SRBC. Such an approach would avoid the imposition of requirements that may be duplicative and burdensome or that may potentially create confusion. To the extent the DRBC nevertheless imposes its own disclosure requirements, the Commission should clarify that appropriate protections will be provided for any trade secrets or confidential commercial information in order to avoid providing unnecessary disincentives for continued innovation with respect to critical stimulation technologies.

2. Reporting of Information Concerning Hydraulic Fracturing Fluids Should Occur After the Hydraulic Fracturing Event

The Draft Regulations contemplate that a project sponsor report information related to the fluids used to hydraulically fracture a well as part of the DRBC Post Hydraulic Fracturing Report. Based on its participation in stakeholder meetings with the DRBC, it is HESI's understanding that the DRBC is considering adding provisions to the Draft Regulations that would require reporting information about the additives that a project sponsor proposes to use at a well pad as part of the well pad Docket application that must be approved by the DRBC before natural gas development activities can commence. HESI believes that the more appropriate

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new technologies are designed to provide environmental benefits, such as facilitating the recycling of flowback fluids for reuse in hydraulic fracturing operations. The Delaware River Basin can reap substantial economic and environmental benefits from the new technologies developed as the result of the investment in research and development undertaken by HESI and other service companies. However, these new technologies are generally proprietary. Requiring the reporting of valuable proprietary information without assurances that such information is protected from further disclosure will discourage the development of these advanced technologies and limit the viability of using such advanced technologies in the Delaware River Basin.

procedure is to report such information after the hydraulic fracturing event has been completed as part of the Post-Hydraulic Fracturing Report because it: (1) enables the well pad operator to select the most appropriate additives based on conditions determined in the field at each well pad location; (2) facilitates the use of the latest suite of materials that at the time of Docket application may only be in the development stage; and (3) results in reporting the most accurate information. It will be difficult for project sponsors to provide information of this nature in advance of the approval of a well pad Docket because decisions regarding hydraulic fracturing fluid composition are made only after site specific information is gathered and thoroughly assessed (which, under the Draft Regulations could be five years after Docket approval of a Natural Gas Development Plan). Even if the DRBC chooses to require some level of information as part of the well pad Docket application about the proposed use of hydraulic fracturing fluids, the information provided must be afforded the same confidential and privileged trade secret/commercial business information protections that are applicable to analogous information submitted after a hydraulic fracturing event has been completed as part of the Post-Hydraulic Fracturing Report.

3. Recommendations

HESI believes that the DRBC can address the concerns described above concerning consistency with host state reporting frameworks and trade secret protections through minor revisions to the Draft Regulations. Specifically, HESI recommends that the DRBC revise Section 7.5(h)(2)(ii)(D) of the Draft Regulations to read as follows:

> *Project sponsors must maintain a record of the volumes and amounts of additives used for each hydraulic fracturing event as required by host state recordkeeping requirements. Information reported to the host state about the additives used for each hydraulic fracturing event must be submitted to the Commission in the DRBC Post Hydraulic Fracturing Report. Portions of the DRBC Post Hydraulic Fracturing Report may be designated as privileged or containing confidential trade secrets, commercial or financial information and therefore exempt from disclosure by the Commission in accordance with Section 2.8.12 of the Commission's Rules of Practice and Procedure.*

In addition, HESI recommends that the DRBC revise the first sentence of the definition of "Post-Hydraulic Fracturing Report" in the Draft Regulations to read as follows:

> *A report listing the volumes and sources of water, wastewater and flowback and information about the additives used during the hydraulic fracturing of a natural gas well.*

While the specific reference to Section 2.8.12 of the DRBC Rules of Practice and Procedure provides some assurances that the DRBC and the Executive Director will properly consider certain information about hydraulic fracturing fluids as confidential trade secrets and/or commercial information and take steps to protect such information, that designation is

meaningless if the DRBC invokes the discretionary provisions of Sections 2.8.15, 2.8.16 and 2.8.17 of the DRBC Rules of Practice and Procedure and discloses such information in a manner that compromises the value of the trade secrets or commercial information. Accordingly, HESI recommends that at the same time that the DRBC promulgates a final version of the Draft Regulations, the DRBC also adopt policies and procedures that respect and maintain the inherent value of the trade secrets and/or commercial information associated with the information designated as confidential.

Because discretionary disclosure under Section 2.8.15 of the DRBC Rules of Practice and Procedure is explicitly subject to "the property rights of persons in trade secrets," it is HESI's expectation that the Executive Director should not, and cannot, disclose any submission containing information about hydraulic fracturing fluid that has been properly designated as a confidential trade secret or commercial information under the discretionary authority provided by Section 2.8.15 of the DRBC Rules of Practice and Procedure. With respect to any disclosure to consultants, advisory committees, state and local government officials and other special government employees pursuant to Section 2.8.16 of the DRBC Rules of Practice and Procedure, HESI recommends that the DRBC adopt policies whereby the DRBC is required to give all persons who have an interest in maintaining the trade secret or commercial information designation at least 30 days advance notice before disclosing any designated information pursuant to Section 2.8.16 of the DRBC Rules of Practice and Procedure. The interested parties and the DRBC would use this 30 day window to explore ways to facilitate disclosure of the information in a form that allows the recipients to complete their work in cooperation with the DRBC, but also protects the confidential nature of the information. For example, in certain instances it may only be necessary to disclose the characteristics of the additive and/or constituents in question without identifying the additive and/or constituent by name. As an alternative, it may be sufficient to identify a constituent using the name of the chemical family of which it is a part rather than using the specific chemical name of the constituent. Moreover, depending on the circumstances, it may be appropriate to identify constituents used in hydraulic fracturing fluids without specifying the additive products in which those constituents are present. Finally, with respect to Section 2.8.17 of the DRBC Rules of Practice and Procedure, it is HESI's expectation that before disclosure of exempted trade secret or commercial information to a federal government department or agency, the DRBC will make an on the record finding that the federal government department or agency does in fact have concurrent jurisdiction over the matter and separate legal authority to obtain the specific information involved.

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We very much appreciate the opportunity to provide these comments on behalf of HESI regarding the Draft Regulations and would welcome the opportunity to discuss the Draft Regulations in more detail with the Commissioners and/or the DRBC staff.

Respectfully submitted,

Todd D. Kantorczyk
For MANKO, GOLD, KATCHER & FOX, LLP

TDK/tdk/10671-00022
cc: Stuart H. Kemp, Esq.

EXHIBIT A

Halliburton Energy Services, Inc. ("HESI") is a leading provider of services to the energy industry in connection with the development of natural gas wells. HESI provides a variety of services to operators of natural gas wells, including but not limited to providing drilling fluids and cementing services as well as conducting related logging and perforating work and providing various other services related to the development of natural gas resources. In particular, HESI is one of the leading providers of stimulation services for oil and gas wells, having pioneered hydraulic fracturing technology in 1949. HESI provides its services to well operators in many areas of the country, including New York and Pennsylvania.

The science of hydraulic fracturing includes an understanding of the geologic, petrophysical and reservoir parameters of the hydrocarbon-bearing formation and its surrounding layers and the chemistry of the stimulation fluids themselves. HESI spends significant research and development dollars understanding these parameters and their role in order to design stimulation programs that will successfully stimulate a formation in the manner desired, while ensuring the integrity of the production and water-bearing zones. As part of these efforts, HESI has devoted significant resources to develop more effective fracture stimulation fluid systems for a variety of subsurface environments, to ensure that natural gas resources are produced in the most effective manner possible and in accordance with all applicable environmental requirements. HESI's research efforts cover fluids that can be effectively used in conventional and unconventional natural gas wells, including coalbed methane, shales and tight sands.

HESI's innovations are not limited to those that directly increase production through the more effective creation and maintenance of induced fractures. HESI also devotes significant resources to developing effective solutions to issues raised by the industry with respect to other aspects of the hydraulic fracturing process, solutions that often have key environmental benefits. For example, HESI is developing fluid systems to facilitate the use of produced water rather than relying solely on fresh water as the base fluid for hydraulic fracturing. The reuse of produced water may have two benefits where such reuse is feasible: it limits the amount of produced water that must be disposed of while at the same time limiting the amount of fresh water that must be withdrawn from surface waters for hydraulic fracturing operations, thereby minimizing any potential impacts on aquatic ecosystems resulting from water withdrawals.

In addition, HESI is in the process of developing engineering solutions to various other aspects of the hydraulic fracturing process that would minimize the use of chemicals in that process. Among other things, HESI has been working on developing a means of bringing the gelling agent (typically guar) to the well site in dry form and mixing it with the hydraulic fracturing fluids without the use of a liquid gel concentrate ("LGC"), thereby eliminating the use of one category of chemicals and reducing the amount of chemicals requiring transport to the well site. HESI also has been in the process of developing its CleanSuite™ Technologies, which include the CleanStim™ technologies (a fracture fluid system comprised of materials sourced entirely from the food industry), the CleanStream™ system for controlling bacteria growth through the use of ultraviolet light, and the CleanWave™ system, which allows for onsite treatment of wastewater. Thus, when it is allowed to

develop and apply new technologies while protecting their proprietary aspects, HESI's product innovations can yield significant environmental benefits when conditions permit their use.

HESI's product development efforts have been viewed by our customers, the industry, various federal and state agencies and other entities as adding significant value. In fact, the Patent Board has recognized HESI as an industry leader and the leader among service companies in product innovation and the development of important solutions for our nation's energy industry. HESI intends to maintain its leadership position as it continues to develop products that will effectively enhance the production of gas from Marcellus Shale wells.