

**BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO**

IN THE MATTER OF CHANGES TO THE : CAUSE NO. 1R
RULES AND REGULATIONS OF THE OIL :
AND GAS CONSERVATION : DOCKET NO. 0803-RM-02
COMMISSION OF THE STATE OF :
COLORADO :

**REBUTTAL STATEMENT OF HALLIBURTON
ENERGY SERVICES, INC.**

Pursuant to the First Prehearing Order, Halliburton Energy Services, Inc. (“HESI”) hereby presents its rebuttal statement responding to the prehearing statements, written testimony and alternate proposals of various parties to this proceeding.

EXECUTIVE SUMMARY

Like other members of the oil and gas industry, HESI has significant concerns about a number of the regulations proposed by the Commission staff as well as proposals by a number of other parties that would add further restrictions to those already reflected in the Draft Rules. Many of these proposed requirements and restrictions lack any technical support, are based on unfounded concerns regarding the potential for environmental impacts from oil and gas development activities, and if implemented would fail to provide significant benefits in terms of protection of human health and the environment. Moreover, the staff has failed in many cases to adequately assess the impacts of its proposed regulations on industry and on oil and gas production and the proposals advanced by some parties would only add to these impacts. Given that some of the proposals of staff and other parties would adversely affect production of oil and gas without providing any significant benefits, these proposals are inconsistent with the mandate from the legislature to maximize production consistent with protection of human health and the environment and should be rejected by the Commission.

HESI takes specific issue with the assertions and alternate proposals of various parties regarding several sections of the proposed regulations. These sections include the following:

- Section 205 (Chemical Inventory) - HESI objects to the proposals of several parties to expand the universe of people who may be given access to information regarding chemicals used, stored or released at a well site that would be contained in a chemical inventory pursuant to Section 205 as proposed. A disclosure to members of the public of detailed information regarding specific chemicals would cause HESI’s proprietary formulas to lose their trade secret status and would result in an unconstitutional taking of HESI’s property. State laws such as the

Colorado Open Records Act recognize the importance of protecting trade secrets. Moreover, such disclosures would also be inconsistent with federal precedents for reporting of chemical information, such as the reporting requirements under Title III of the Superfund Amendments and Reauthorization Act of 1986. These federal precedents likewise recognize the importance of trade secret information and they provide adequate protection for those potentially exposed to chemicals while protecting trade secrets. There has been no demonstration that these federal precedents are insufficient to address the need to protect public health and the environment in Colorado.

At the same time, contrary to the cost-benefit analysis performed by the Commission staff the implementation of Section 205 as proposed will have substantial impacts on oil and gas production in Colorado due to the unavailability of HESI's proprietary products. In light of these impacts and the lack of demonstrated need for the inclusion of proprietary information in chemical inventories, these chemical inventory requirements as proposed are inconsistent with the legislative mandate to maximize production of oil and gas while protecting public health and the environment.

- Section 341 (Bradenhead Monitoring) - Again, the cost-benefit analysis for this section that was performed by the Commission staff fails to take into account the true impacts of this proposed regulation. Here the staff's analysis fails to take into account the potentially significant impacts of the requirement that stimulation fluids be confined to the objective formation, a requirement that could result in some wells not being fractured because the requirement could not be met with certainty and some wells never being drilled at all because they would not be productive without hydraulic fracturing. As with the chemical inventory requirements of Section 205, there is no demonstrated need for this requirement concerning confinement of stimulation fluids. Therefore this rule, like Section 205, is inconsistent with the mandate of the Colorado legislature to maximize oil and gas production while protecting public health and the environment.
- Section 317B (Performance Standards for Drinking Water Supply Areas) - HESI takes issue with the proposal that all hydraulic fracturing operations within Surface Water Drinking Water Supply Areas be conducted with "non-toxic fluids." This proposed limitation is vague and ill-defined and is certainly not necessary to address any impacts from the subsurface migration of fracturing fluids because there is no indication that such migration would ever threaten surface waters. Moreover, imposing restrictions on the type of fracturing fluids that can be used may adversely impact the productivity of individual wells.

- Section 608(b)(2) (Initial Baseline Testing for Coalbed Methane Wells) - HESI objects to the proposed creation of a presumption that in the absence of baseline water quality testing for specific chemical constituents an oil and gas well should be presumed to be the source of contamination discovered in a drinking water well in the same vicinity. Such a presumption would be overbroad and unsupported in light of the lack of evidence that chemicals such as stimulation fluids used at a well site would migrate to a nearby drinking water well. Indeed, numerous studies conducted by the U.S. Environmental Protection Agency (“EPA”) and others conclude that there are no confirmed instances of contamination of drinking water wells due to hydraulic fracturing.
- Section 316A (Reporting Concerning Injected Fluids) – HESI maintains that no demonstration has been made that current monthly reporting requirements need to be modified to require a detailed review and approval by the Director of the use of any stimulation fluids. Such a requirement would only create more procedural burdens for operators without providing any significant environmental benefits and is not technically justified.
- Section 502(b) (Variances) - HESI objects to the efforts of certain parties to make it more difficult to obtain variances from the requirements of specific regulations. Contrary to the suggestion of some parties, there is no basis for concluding that the existing variance procedure would be abused if the new regulations are in place. Current variance procedures have been and will remain appropriate for addressing issues under the regulations. Moreover, limiting the ability of the Director to issue variances without the need for a Commission hearing would take away flexibility that will be sorely needed if the proposed regulations go into effect.

Halliburton notes that it continues to object to the process adopted by the Commission to consider these extensive revisions to its regulations. The Commission has an obligation to consider these proposed revisions fully, taking into account the impacts of the regulatory revisions on the State of Colorado and its economy. *See* C.R.S. 24-4-101.5 (requiring “full consideration of the effects of the agency action”). The Commission has chosen to provide very limited time to hear evidence and argument on a broad range of topics, declining to grant HESI and other industry parties the time they seek to in order to have a reasonable opportunity to summarize, explain and synthesize for the Commissioners the vast array of information they will be asked to absorb and meaningfully consider over the next two months. Industry is told that its concerns in this regard are unfounded because the Commissioners will place primary emphasis on the written record in undertaking their deliberations. However, HESI submits that it will be virtually impossible for each Commissioner to review all of the material submitted by the numerous parties and staff in their prehearing statements, written testimony and exhibits as well as these rebuttals, material that will add up to thousands of pages.

The staff's response to this daunting task of review has been to assure the Commissioners that not all of the material need be reviewed because some portion of it is extraneous and/or repetitive. However, in a proceeding in which the staff is effectively a party and an advocate for its position, it is not the place of the staff to determine what materials submitted by other parties may or may not be worthy of review by the Commissioners. Indeed, in order to properly discharge their duties, the Commissioners must consider the entire record before them. HESI and the other industry parties are certainly willing to try to facilitate the deliberations of the Commissioners by highlighting the key issues and evidence through oral testimony but they are not being given an adequate opportunity to do so. HESI continues to believe that the resulting process is flawed and not calculated to lead to the outcome desired by the legislature, *i.e.*, regulations that truly balance oil and gas development with protection of human health and the environment.

REBUTTAL STATEMENTS

I. SECTION 205 – CHEMICAL INVENTORY

Several parties have addressed the chemical inventory requirements set forth in proposed Section 205. Among other things, the Oil and Gas Accountability Project and related parties (collectively "OGAP") have proposed that the information to be contained in a chemical inventory be expanded to include both volumes and concentrations of chemicals used, stored or released at a well site, which would make it even easier for competitors to determine the formulas of HESI's proprietary products from the information provided in the inventory. *See* Consolidated Final Prehearing Statement of the Oil and Gas Accountability Project, San Juan Citizens Alliance and the North Fork Ranch Landowners' Ass'n. Inc. ("OGAP Prehearing Statement") at 5. Moreover, OGAP has proposed that this detailed information concerning the volumes and concentrations of specific chemical constituents used at a well site should be available to adversely affected persons, which would include members of the public. *Id.* The Board of County Commissioners of Gunnison County has gone even further, arguing that this information regarding chemical usage should presumptively be made public "unless the applicant demonstrates otherwise, and the Director agrees in writing." Final Prehearing Statement Regarding the Draft Rules Published April 10, 2008 at 4.

These proposals underscore HESI's concerns regarding the provisions of Section 205 and the potential for its proprietary products to lose their trade secret status. Colorado law recognizes the importance of trade secrets. The Uniform Trade Secrets Act defines a trade secret as "the whole or any portion . . . of any scientific or technical information, design, process, procedure, formula, . . . confidential business or financial information . . . or other information which is secret and of value." C.R.S. § 7-74-102. The Colorado Open Records Act specifically provides that trade secrets are exempt from the public disclosure provisions of that statute. *See* C.R.S. § 24-72-204. At the same time, as the Colorado Supreme Court has noted, "[i]nformation that is public knowledge or that is generally known in an industry cannot be a trade secret. If an individual discloses his trade secret to others who are under no obligation to protect the confidentiality of the trade secret information, or otherwise publicly discloses the secret, his property right is extinguished." *City of Northglenn v. Grynberg*, 846 P.2d 175, 183 (Colo. 1993). Thus, the proposals of OGAP and the Gunnison County Commissioners would vitiate the trade secret status of HESI's proprietary formulas.

Such forced disclosure of trade secret information in order to gain access to Colorado markets would result in a taking of Halliburton's property without just compensation in violation of the Fifth Amendment to the U.S. Constitution. The Supreme Court has held that trade secrets are a property right protected by the Taking Clause of the Fifth Amendment. *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003 (1984). In fact, the courts have held that a list of the ingredients that make up a product, if properly protected as a trade secret, is a protected property interest under the Fifth Amendment. *Philip Morris, Inc. v. Reilly*, 312 F.3d 24, 32 (1st Cir. 2002) ("*Philip Morris*").

Moreover, the courts have made clear that a state may not condition access to its markets on a requirement that a company agree reveal its trade secrets. See *Philip Morris*, 312 F.3d at 39 n.11. In *Philip Morris*, the Commonwealth of Massachusetts enacted a law that required any tobacco company wishing to market its products in Massachusetts to list, by relative amount, all ingredients in their tobacco products in order to "reduce risks to public health." *Id.* at 26. The court noted that regulations such as these leave companies with a Hobson's choice: either comply with the disclosure requirement and forfeit its valuable trade secrets or withdraw from the market altogether. *Id.* at 50 (Selya, C.J., concurring in the judgment). See also *Pharm. Care Mgmt. Assoc. v. Rowe*, 2005 WL 757608, *10 (D. Me. 2005). However, a government may not impose an "unconstitutional condition" by requiring a person to give up a constitutional right – in this case the right to receive just compensation when private property is taken for public use – in exchange for a benefit conferred by the government when the benefit has little or no relation to the property. *Philip Morris*, 312 F.3d at 46. Accordingly, the court concluded that the disclosure of ingredients required under the Massachusetts law "violate[d] the Takings Clause by taking appellees' property without just compensation." *Id.* at 45-46.

HESI's fluid formulations are undoubtedly trade secrets. Given its substantial investment in fracturing fluid technology, HESI considers its fluid formulations to be proprietary and very valuable. For this reason HESI does not disclose these formulas to the public and does not permit public access to any information or data that would allow a company to determine the formulas on its own. Indeed, numerous operators in this proceeding have commented that they do not have access to HESI's proprietary formulas. Accordingly, HESI's proprietary formulas must be considered property protected under the Fifth Amendment.

As with the disclosure requirements in *Philip Morris*, enforcement of Section 205 would deprive HESI of the use and enjoyment of its property. There are two fundamental aspects of HESI's formulas – the specific chemicals that are included in any fluid mixture and the amount of each chemical in the mixture. Section 205 would require disclosure of both of these facets of the makeup of HESI's products. By knowing the identity and the relative amounts of chemicals used in HESI's fluids, a competitor could determine the concentrations of chemical constituents in HESI's proprietary formulas through various forms of reverse engineering or other types of calculations. Accordingly, the chemical inventory could provide a recipe for the recreation of HESI's proprietary products, resulting in adverse impacts on HESI's competitive position. OGAP's proposal would simplify this process for a competitor by requiring information concerning concentrations of chemicals to be included in the chemical inventory.

While proposed Section 205 provides that any information in a chemical inventory that is entitled to protection as a trade secret must be kept confidential and protected from disclosure, HESI believes that the inclusion of proprietary information – the identity of the chemicals in the fracturing fluids and the amounts of each – in a chemical inventory maintained by an operator and the release of that information to the Commission and the Department of Public Health and Environment creates the potential for wider dissemination of said information. Applying the suggestions of OGAP and the Gunnison County Commissioners would only ensure that such wider dissemination would occur. Such increased dissemination of information would jeopardize the status of HESI’s formulas as trade secrets, which in turn would jeopardize their protection under the Fifth Amendment.

Because these proprietary products are used not just in Colorado but in many cases are used worldwide, if HESI’s trade secret information were to be made public in Colorado that information would lose its trade secret status more broadly, thereby compromising HESI’s competitive position on a global basis. In light of these risks to its trade secret information, adoption of Section 205 in its current form would force HESI to confront the same Hobson’s choice that the U.S. Court of Appeals for the First Circuit rejected as being unconstitutional: either comply with the disclosure requirement and forfeit valuable trade secrets or withdraw from the Colorado market. Accordingly, putting HESI to this Hobson’s choice as advocated by OGAP and others would result in a taking of HESI’s property in violation of the Fifth Amendment.

Federal precedents regarding reporting of information concerning chemicals recognize the need to protect trade secrets while avoiding this Hobson’s choice. As discussed in HESI’s Prehearing Statement, disclosures of proprietary information regarding chemical identities and formulas would be inconsistent with these existing federal precedents. As noted by several other parties in their prehearing statements, *see, e.g.*, Williams Production RMT Co. Final Prehearing Statement at 9, operators currently comply with the chemical reporting requirements of Title III of the Superfund Amendments and Reauthorization Act of 1986 (“SARA Title III”), particularly the provisions of Section 311 relating to Material Safety Data Sheets (“MSDSs”) and the emergency and hazardous chemical inventory reporting requirements of Section 312. *See* 42 U.S.C. §§ 11021, 11022. Pursuant to Section 311, operators must submit MSDSs which they are required to maintain for hazardous chemicals used at a site to the local emergency planning committee (“LEPC”), the state emergency response commission (“SERC”) and the local fire department. *Id.* § 11021(a). However, unlike the proposed provisions of Section 205, MSDSs are not required to contain the identity and concentration of all chemicals in a mixture. *See* 29 C.F.R. § 1910.1200(g)(2)(i). Moreover, a manufacturer may withhold the specific identity of a chemical from an MSDS if the identity is a trade secret. *Id.* § 1910.1200(i).

Similarly, pursuant to the hazardous chemical inventory reporting requirements of Section 312, operators are required to submit a chemical inventory form to the LEPC, the SERC and the local fire department on an annual basis setting forth information concerning hazardous chemicals present at a facility above established thresholds; operators generally use the Tier II form for this purpose. *See* 42 U.S.C. § 11022(a). As with reporting under Section 311, the Tier II form does not require submission of information on all chemical constituents in a mixture. *See* 40 C.F.R. § 370.41. Again, the identity of a specific chemical can be withheld from the inventory form if it is a trade secret. *Id.* § 350.5(a). Such trade secret information may be

disclosed to health professionals where there is a written statement of medical need for the information and a written agreement requiring the health professional to maintain the confidentiality of the information. 42 U.S.C. § 11044. These provisions have been deemed by Congress and many states to provide adequate and appropriate disclosure of information to the public regarding chemical hazards.

Neither OGAP nor the Gunnison County Commissioners have provided any basis for concluding that these SARA Title III reporting requirements are insufficient in the context of oil and gas development in Colorado. As discussed in HESI's Prehearing Statement, the staff has likewise failed to demonstrate a need for more extensive reporting. The principal rationale offered by OGAP for its proposal is essentially the same one offered by the staff, *i.e.*, that if citizens and the state are unaware of what is in chemical products used and stored at a well site they will not know what chemicals to test for in the event that there is a release of chemicals. *See* OGAP Prehearing Statement at 5. However, this argument does not justify disclosure of detailed information regarding the identities and concentrations of all chemical constituents of stimulation fluids and other materials for several fundamental reasons. First, as discussed in HESI's Prehearing Statement, information concerning the amounts of chemicals present at a well site is irrelevant to the issue of what analytes to test for if there is a concern that a water well has been impacted by a release of chemicals from an oil and gas well site. Moreover, in the event testing is deemed necessary to determine if a water well or even a surface water has been impacted by a release, there is no need in the first instance for detailed information regarding every chemical constituent in the products involved in the release. By knowing the identity of a principal component of the material released, testing can be conducted for that principal component to determine if the water well or other resource has in fact been impacted.¹ Accordingly, there is no reason to maintain detailed information regarding chemical constituents in the chemical inventory in the first instance.

The lack of justification for the chemical inventory requirements in Section 205 and their proposed expansion as they apply to stimulation fluids is further underscored by a lack of prior incidents of confirmed impacts to water wells or other resources associated with releases from oil and gas well sites that might demonstrate that there is a significant issue that needs to be addressed by means that threaten to compromise critical trade secret protections. As demonstrated by HESI in its Prehearing Statement, a number of studies have concluded there are no confirmed incidents of contamination of drinking water aquifers due to stimulation operations. For example, EPA reached precisely this conclusion after undertaking an extensive study of the potential impacts of hydraulic fracturing of coalbed methane ("CBM") wells on underground sources of drinking water. *See* Exhibit 3 to HESI Prehearing Statement. Moreover, in light of the zonal isolation and other practices used by industry, there is no reason to believe that any such incidents are likely to occur. Thus, the chemical inventory requirements as proposed are likely to yield little real benefit.

At the same time, these chemical inventory provisions are likely to have a very substantial impact on oil and gas production in Colorado. As set forth in the testimony of Ron Hyden and Dale Davis submitted with HESI's Prehearing Statement, if the chemical inventory

¹ For example, staff took this approach in investigating allegations of impacts to the Amos well in 2001 and 2004, as discussed further below.

provisions as drafted – or certainly as OGAP and other propose to expand them – are implemented HESI will have little choice but to pull its proprietary products out of Colorado in order to avoid compromising the trade secret status of those products in a way that would harm HESI’s competitive position on a worldwide basis. HESI has demonstrated that the use of its proprietary stimulation products results in a 20 to 30% increase in production in a given well as compared to non-proprietary, commodity-type products. Thus, the unavailability of proprietary stimulation products in Colorado would mean foregone production of oil and gas on the order of 20 to 30%.

The staff has failed to consider these impacts in its efforts to justify the chemical inventory requirements. In its Cost-Benefit and Regulatory Impact Analysis for Section 205, the staff focuses solely on the administrative costs to operators of preparing and maintaining chemical inventories. Given this narrow focus, staff concludes that Section 205 is “expected to have minimal impact on economic competitiveness, job creation and state revenues.” Cost-Benefit and Regulatory Analysis: Rule 205 at 2. The staff further concludes that “we do not believe that the proposed regulation will result in any adverse effects . . . on small businesses, consumers, private markets, or state revenues.” *Id.* at 3. However, the staff analysis fails to take into account the real impact of the proposed regulation in terms of the unavailability of proprietary stimulation and other products and a resulting loss of oil and gas production. Mr. Davis has conducted an analysis of the overall economic impacts of this foregone production. The results of his analysis are set forth in Exhibit 10. In short, he concludes that if the three largest service providers – HESI, Schlumberger and BJ Services – are left with no choice and must remove their proprietary products from Colorado, the result would be foregone revenue amounting to approximately \$29 billion for the period from 2008 to 2020 because of reduced productivity for many wells stimulated with commodity-type products that would produce at a higher rate if proprietary stimulation products were used. This foregone revenue would have significant consequences for the State in terms of employment and tax revenue.

In light of these substantial impacts, HESI submits that Section 205 as proposed is inconsistent with the Commission’s statutory mandate. As reflected in the Oil and Gas Conservation Act, the legislature intended to permit each oil and gas pool in Colorado to “produce up to its maximum efficient rate of production . . . consistent with the protection of public health, safety, and welfare, including protection of the environment . . .” C.R.S. § 34-60-102(b). Section 205 will certainly not result in oil and gas wells producing at their maximum efficient rate, which in many cases could be achieved only after stimulation with proprietary products. Moreover, the chemical inventory requirements of Section 205 are not necessary to adequately protect public health and the environment. Thus, Section 205 fails to achieve the balance sought by the legislature between responsible and balanced production of oil and gas and protection of public health and safety and the environment. Therefore, Section 205 should be revised in accordance with the alternate proposal submitted by HESI with its Prehearing Statement.

II. SECTION 341

HESI believes it is appropriate to respond to two submissions concerning the bradenhead annulus monitoring requirements of Section 341. First, the Board of County

Commissioners of Garfield County argues in its Final Prehearing Statement that “Rule 341 should require immediate corrective action [by] the operator if the Bradenhead pressure testing indicates loss of well control.” Prehearing Statement and Alternative Proposals of the Board of County Commissions of Garfield County at 7. HESI actually agrees that corrective action should be taken immediately if there is a loss of well control and such action is in fact routinely taken as a matter of standard industry practice in those rare instances where there is a loss of well control. However, as discussed in its Prehearing Statement, HESI disagrees that a change in bradenhead annulus pressure of 100 psig is a reliable indicator of loss of well control. In fact, loss of well control is typically accompanied by pressure changes at least an order of magnitude greater than 100 psig.

Perhaps more importantly, HESI believes it is necessary to respond to the assertions in the staff’s regulatory analysis for Section 341. As with Section 205, the regulatory analysis focuses on the cost to operators of actually conducting the monitoring of bradenhead annulus pressure. The staff’s analysis states that “[w]hile operators may incur a cost associated with this rule change, such cost incurrence is unlikely because this rule seeks to codify a common practice” and because “costs typically associated with this type of recordkeeping practice are minimal.” Cost-Benefit and Regulatory Analysis: Rule 341 at 2. Accordingly, staff concludes that “there is no significant impact expected on the regulated community, economic competitiveness, job creation or state revenues or agencies” and that “[n]o adverse effects are currently anticipated from this proposed rule on small businesses, consumers, private markets or particular geographic regions.”

However, this analysis ignores the significant impacts that the requirement that stimulation fluids be confined to the objective formation is likely to have on stimulation operations. As discussed by HESI in its Prehearing Statement, this requirement could result in some wells simply not being hydraulically fractured because it would be virtually impossible to guarantee that the fracturing fluids would be placed only in the objective formation. This in turn would lead to a loss of productivity for some wells while other wells might never be drilled at all because they would not be economical in the absence of stimulation.

As with the chemical inventory requirements of Section 205, there is no demonstrated need for such a requirement concerning placement of stimulation fluids. As noted above, there are no confirmed instances of contamination of drinking water due to stimulation fluids being placed outside an objective formation. Moreover, other state programs contain no such requirement. For example, the regulations promulgated by the Oil and Gas Board of Alabama for hydraulic fracturing of coalbed methane wells do not contain any prohibition on stimulation fluids being placed outside of the objective formation. Rather, those regulations contain a set of restrictions based on the depth of the stimulation operation. *See* Ala. Admin. Code r. 400-3-8-.03. These regulations rely on standard industry practices such as zonal isolation for protecting drinking water sources rather than general prohibitions regarding placement of stimulation fluids that may unnecessarily restrict stimulation operations.

Thus, in its current form Section 341 also fails to conform with the legislative mandate to allow for maximum production consistent with protection of human health and the environment. As noted above, the restrictions on placement of stimulation fluids may result in limits on stimulation operations and result in foregone oil and gas production while providing no

demonstrated benefit in terms of protection of human health and the environment. Accordingly, the Commission should reassess the costs and benefits of Section 341 as proposed and modify the section consistent with HESI's alternate proposal.

III. SECTION 317B

HESI believes that a response is needed to assertions by parties in prehearing statements regarding several other provisions of the proposed rules. One such rule is Section 317B, which establishes performance standards for oil and gas operations that take place in surface drinking water supply areas. The Colorado Environmental Coalition and related parties have argued that the performance standards should include a provision requiring that all hydraulic fracturing operations within Surface Water Drinking Water Supply Areas be conducted with "non-toxic fluids." See Prehearing Statement of Colorado Environmental Coalition, *et al.*, at 23. As noted by HESI in its Prehearing Statement, HESI has developed fracturing fluids such as its Ultra Clean fracturing fluid technology that may be used in sensitive areas in some circumstances. However, HESI believes that a blanket requirement that all fracturing fluids used in these areas be "non-toxic" is overbroad and ill-defined. "Non-toxic" is a vague term with no established definition and the imposition of such a requirement may be difficult to comply with due to uncertainty regarding the meaning of the term.

Moreover, HESI takes issue with any suggestion that such restrictions on the use of fracturing fluids are appropriate to reduce risks of harm to groundwater. The principal concern with groundwater is its potential use as a source of drinking water. However, as discussed at length by HESI in its Prehearing Statement, there is no confirmed evidence that hydraulic fracturing operations have ever resulted in contamination of drinking water aquifers. As a result, there is no basis for concluding that broad restrictions on the type of fracturing fluids used are necessary and appropriate to protect drinking water. HESI likewise takes issue with any assertion that restrictions on the types of fracturing fluids used are necessary to address potential contamination of surface waters as a result of subsurface migration of fracturing fluids. There is no evidence that fracturing fluids would ever migrate through the subsurface in a way that would result in contamination of surface waters.

In addition, the Commission needs to consider the fact that placing restrictions on the types of fracturing fluids used may adversely impact the productivity of some wells. As discussed in the testimony of Ron Hyden, fracturing fluid systems are designed for a particular well based on the geologic conditions and other circumstances specific to that well. If certain fluids cannot be used in a well due to regulatory restrictions, the optimal mix of fluids that would maximize the productivity of a particular well may not be available, resulting in a loss of productivity for that well. In the absence of any demonstrated need to restrict the availability of fluids in order to protect human health and the environment, the limitation on the use of fracturing fluids proposed by the Colorado Environmental Coalition and others would be contrary to the legislative mandate to maximize production from oil and gas wells and therefore should be rejected.

IV. SECTION 608(B)(2)

HESI also believes a response is necessary to the proposal of OGAP with respect to Section 608(b)(2). Section 608(b) of the proposed regulations requires “baseline testing” of nearby water wells before a CBM well is drilled. OGAP argues that the language in Section 608(b)(2) should be modified to include the presumption that an operator is liable for any contamination of a water well unless that operator has provided baseline testing of the well that includes testing for all chemicals listed on the inventory maintained under Section 205 that are reasonably likely to be used in drilling completion, or workover operations. OGAP Prehearing Statement at 7.

In making this argument, OGAP references Pennsylvania Oil and Gas Act § 601.208, which states: “Unless rebutted by one of the five defenses . . . it shall be presumed that a well operator is responsible for the pollution of a water supply that is within 1,000 feet of the oil or gas well, where the pollution occurred within six months after the completion of drilling or alteration of such well.” The five defenses specified in this Pennsylvania statute include (1) the pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration survey; (2) the landowner or water purveyor refused to allow the operator access to conduct a predrilling or prealteration survey; (3) the water supply is not within 1,000 feet of the well; (4) the pollution occurred more than six months after completion of drilling or alteration activities; and (5) the pollution occurred as the result of some cause other than the drilling or alteration activity.

The presumption urged by OGAP is overbroad and unsupported. OGAP clearly views the presumption as a “hammer” to encourage operators to expand the scope of the initial baseline testing required under Section 608(b)(2) to cover a broad range of analytes. However, the operator may not know at the time of baseline testing what chemicals will be used as part of stimulation operations or even drilling or other operations and therefore may not know what chemicals are likely to be included in a chemical inventory for a particular well site. As a result, the operator might not know what chemicals to test for even if it wanted to take advantage of the presumption.

More importantly, there is no basis for automatically presuming that contaminants found in a drinking water well can be traced to an oil or gas well that may be as much as a half-mile away. While the testimony of COGCC Environmental Manager Debbie Baldwin which is cited by OGAP makes references to a few unidentified instances in which analytical data “have shown that impacts from oil and gas operations have occurred to the ground water,” numerous reports - including EPA’s extensive study of hydraulic fracturing - have concluded that no such links between fracturing fluids and drinking water wells have ever been demonstrated.

HESI also is concerned that if baseline testing for specific chemical constituents of stimulation fluids is required in order to rebut the presumption, HESI will be in a position of having to reveal the constituents of its proprietary products to allow the testing to occur. Such a requirement would implicate the concerns discussed previously regarding disclosure of trade secrets. For these reasons, OGAP’s suggested presumption should be rejected.

V. SECTION 316A

HESI likewise believes that the revisions to Section 316A proposed by Audubon Colorado et al. (the “Wildlife Parties”) are unsupported. Section 316A currently requires that operators file a monthly report using Form 14 concerning fluids injected, except for fluids used in fracturing, acidizing or similar treatments which are subject to separate reporting requirements. Form 14 requires reporting of the types and amounts of fluids injected downhole. The Wildlife Parties have proposed that all injected fluids, including fracturing and acidizing fluids, should be “described in detail” prior to use and that written authorization should be obtained from the Director prior to use in order to “avoid adverse impacts to public health and prevent possible contamination of aquifers which may be of future value for water supply and which may be hydraulically connected to surface water supplies.” *See* Testimony of Gerstle and Lynch at 3.

As support for their position, the Wildlife Parties cite a report by the Natural Resources Defense Council entitled *Drilling Down – Protecting Western Communities from the Health and Environmental Effects of Oil and Gas Production (“NRDC Report”)*. *Id.* However, this report contains a number of misstatements and unsupported assertions and does not justify the Wildlife Parties’ proposal. For example, the NRDC report states that hydraulic fracturing “is a suspect in impaired or polluted drinking water” in several states. However, in none of these cases has hydraulic fracturing been determined to be the cause of water quality issues experienced by homeowners in connection with a drinking water well. *NRDC Report* at 14.

A case in point is the McMillian well in Alabama. As discussed in EPA’s report on the impacts of hydraulic fracturing on underground sources of drinking water, the complaints of the McMillians concerning their well water were investigated extensively by EPA, the Alabama Department of Environmental Management and the Oil and Gas Board of Alabama, with each of these agencies conducting independent sampling of the McMillians’ well. *See* Exhibit 3 to HESI Prehearing Statement (EPA Report) at 6-11. EPA concluded that hydraulic fracturing played no role in the conditions seen in the McMillian well and the state agencies reached similar conclusions.

The same is true of the Amos well in Colorado, which NRDC highlights in its report. *NRDC Report* at 15. Mr. and Mrs. Amos complained in 2001 and again in 2004 about a variety of problems with their drinking water well, including reduced water volumes. Mr. and Mrs. Amos also specifically alleged that their well had been impacted by hydraulic fracturing operations conducted on a gas well approximately 750 feet away and that as a result they had been exposed to toxic chemicals, including 2-butoxyethanol (“2-BE”). After extensive investigation and repeated sampling of the Amoses’ well, Director Brian Macke indicated in a letter dated February 3, 2005 that the Commission staff had concluded that there were no indications that the Amos well had been impacted by fracturing fluids. The Director noted that the fracturing fluids used in the gas well were predominantly potassium chloride water with certain additives and that if fracturing fluids had impacted the Amos well elevated levels of potassium and chlorides would have been detected. However, despite repeated sampling, elevated levels of potassium and chlorides were not detected in the well. The Director further

noted in his letter that 2-BE is commonly found in cleaners such as Windex and that any exposure that Mrs. Amos may have had to 2-BE could have been associated with such cleaning products.²

Accordingly, the NRDC report does not undermine the conclusions of the EPA report, *i.e.*, that there have been no confirmed instances of contamination of drinking water wells as a result of hydraulic fracturing operations and that the risk posed to underground sources of drinking water as a result of hydraulic fracturing is low. Given this lack of risk, there is no basis for amending Section 316A to require the Director to review fracturing fluids in detail in advance of stimulation operations and to approve such operations before they commence. The proposal of the Wildlife Groups would simply add another layer of administrative review and further burden the oil and gas development process without providing any significant benefits in terms of protection of human health and the environment. This proposal should therefore be rejected.

VI. SECTION 502(B)

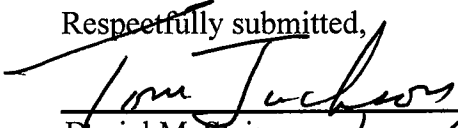
Finally, Halliburton objects to the efforts of OGAP to make it more difficult to obtain a variance from the requirements of the regulations. OGAP proposes to narrow the circumstances under which the Director may grant a variance from the requirements of the regulations without a hearing in front of the Commission. OGAP Prehearing Statement at 6. Currently under Section 502(b) the Director may grant a variance from any provision of the regulations if the operator shows it has made a good faith effort to comply with, or is unable to comply with, a specific requirement of the regulations and that the requested variance will not violate the basic intent of the Oil and Gas Conservation Act. OGAP proposes to allow the Director to issue a variance only where the oil and gas facility is covered by an approved comprehensive drilling plan; in all other circumstances a variance could only be issued by the Commission.

In making this proposal, OGAP suggests that the revisions to the regulations to protect public health, safety and welfare and wildlife would be undermined if variances were too easy to obtain. However, OGAP has offered absolutely no basis for concluding that the variance process would be abused if the regulations are generally adopted as proposed. The specter of abuse of the variance process is mere supposition and does not justify a revision to an existing process that would reduce the flexibility provided by the current variance process, flexibility that will be sorely needed if many of the new restrictions and procedures set forth in the Draft Rules go into effect. Accordingly, the Commission should decline to adopt OGAP's proposal.

² The NRDC report also attempts to cast doubt on EPA's extensive study of hydraulic fracturing of CBM wells by referencing the allegations of an EPA "whistle-blower" who claimed that the peer review process for EPA's study was flawed and that the report's conclusions were unsupported. *NRDC Report* at 15. However, the peer review process for the study was fully consistent with EPA guidelines for peer review and the study was reviewed by nine different EPA offices as well as other federal agencies such as the Department of Energy and the U.S. Geological Survey in addition to the peer review panel.

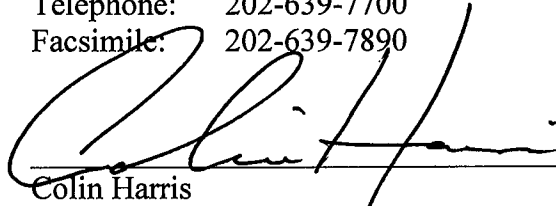
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CERTIFICATE OF SERVICE

I hereby certify that on this 6th day of June, 2008, I caused to be hand-delivered one original and fifteen (15) copies of the foregoing Rebuttal Statement of Halliburton Energy Services, Inc., addressed to the following:

Patricia Beaver, Hearing Manager
Docket No. 0803-RM-02
Oil and Gas Conservation Commission
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Denver, CO 80203

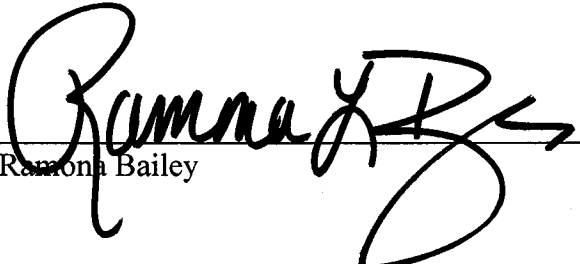
With an electronic copy sent to:

marc.fine@state.co.us

I also hereby certify that on this 6th day of June, 2008, I caused to be hand-delivered (2) copies of the foregoing Rebuttal Statement of Halliburton Energy Services, Inc., addressed to the following:

Kelly Rees
Colorado Department of Law
1525 Sherman Street, 7th Floor
Denver, CO 80203

I also hereby certify that on this 6th day of June, 2008, I served copies of the foregoing Rebuttal Statement of Halliburton Energy Services, Inc. on the parties on the attached Party List by electronic means.



Ramona Bailey

CERTIFICATE OF SERVICE

Party List

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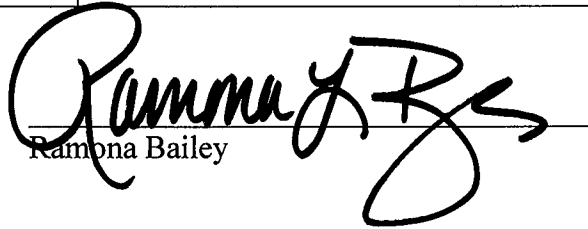
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Ramona Bailey

EXHIBIT 10

ANALYSIS OF ECONOMIC IMPACTS OF WITHDRAWAL OF PROPRIETARY PRODUCTS FROM COLORADO

I. Executive Summary

This study was conducted to evaluate the likely impacts of the Draft Rules for Oil and Gas Development in Colorado resulting from certain legislative changes in statutory provisions governing oil and gas well drilling and operations. Specifically this study was undertaken to estimate the impacts of proposed rules which would require energy service companies to reveal the chemical formulation of all products used at the well site.

The findings of this effort indicate a strong probability of a significant loss in natural gas production over time within the state of Colorado if the proposed rules require full disclosure of chemical formulation of products which are proprietary and force oil service companies to withdraw these products from Colorado in order to maintain the proprietary nature of the formulations. This estimate may be as high as \$29 billion dollars of production foregone depending upon the percentage of gas production coming from new wells drilled which is the type of production most likely to be impacted by the unavailability of proprietary stimulation fluids and other proprietary products.

II. Methodology and Assumptions

To determine the impacts of the proposed rules on natural gas production we attempted to understand the difference in natural gas production over time with and without the proposed rules for implementation of the legislation.

No additional effort was made to estimate alternative future scenarios and compare them with the base case. This would require extensive detailed basin analysis combining probable decline curves by basin. Some of these curves have already been modeled by ICF¹ (see ICF International), which undertook its study relative to assumed bracketed reductions of gas well drilling of 10, 20 and 30 percent.

We also focused our efforts only on natural gas. We estimate that approximately 90% of total production on a barrel oil equivalent basis comes from natural gas within Colorado.

We assumed a market environment in equilibrium over time, *i.e.*, production decline offset by production from new wells drilled, stable hydrocarbon prices, access to markets, etc. Given these assumptions we estimate the cumulative volumes lost and value foregone, due to the legislation's proposed rules, of natural gas production over time.

Our analysis focused on mapping the segments of production that would be impacted by the proposed rules. Existing production is defined by our analysis to include production from existing wells and production from new wells drilled. It can be argued and supported that both existing production and new well production are impacted by the implementation of the proposed rules. However, for the purpose of this analysis, we took a conservative approach and identified the production from new wells drilled as the segment impacted.

Next we determined the sub-segment of the new well production currently served by energy service companies which would suffer if intellectual property (IP) rights were lost. We also identified the sub-segment of the new well production which is served by energy service companies which may be indifferent to IP rights. We then determined the portion of the market whereby proprietary chemicals are currently used and the portion of the market whereby proprietary chemicals are not predominately used.

This process enabled us to systematically map the gas production which will be impacted by the proposed rules. This "gas production impacted" will be adversely affected assuming energy service companies remove proprietary products due to proposed rules which require revealing chemical formulation. No other provisions of the proposed regulations were evaluated.

Mapping the “gas production impacted” of existing natural gas production provided the basis for estimating the impact with and without the proposed rules and focused our effort on these two conditions solely as a result of the proposed regulatory requirements.

Once the “gas production impacted” was identified, the impact of removing IP protection was evaluated relative to the information presented in figures 1 and 2. Figure 1 shows Halliburton case history information that compares three offset wells with results achieved by fracturing using Mono-Prop. Mono-Prop is considered to be the optimized fracturing treatment (proprietary stimulation) and was compared with three offset wells without an optimized fracturing treatment (non-proprietary stimulation).

The horizontal axis of the graph shows the % reduction in per well production. In essence the results show a 19, 22, and 29% reduction in production when wells are fractured without a proprietary fracturing design as compared to wells fractured using proprietary products. In addition, another case history provides results that approach a 40% loss. However, figure 1 goes further to show on the vertical axis the % increase in wells required for the non-proprietary stimulation case in order to provide the same level of natural gas production as the proprietary stimulation case. The results indicate that to keep the same production using non-proprietary fracturing fluids would require that 24% to 41% more wells to be drilled.

This analysis in no way suggests or assumes that a reduction in production per well would cause an increase in drilling activity. It simply points out the loss in ‘economic efficiency’ by using non-optimized fracturing design and demonstrates that the legislation and the proposed rules as currently understood would have a significant cost in lost production resulting in foregone economic value to the state of Colorado.

Figure 1

Impact of Loss of Proprietary Chemicals (Loss in Economic Efficiency)

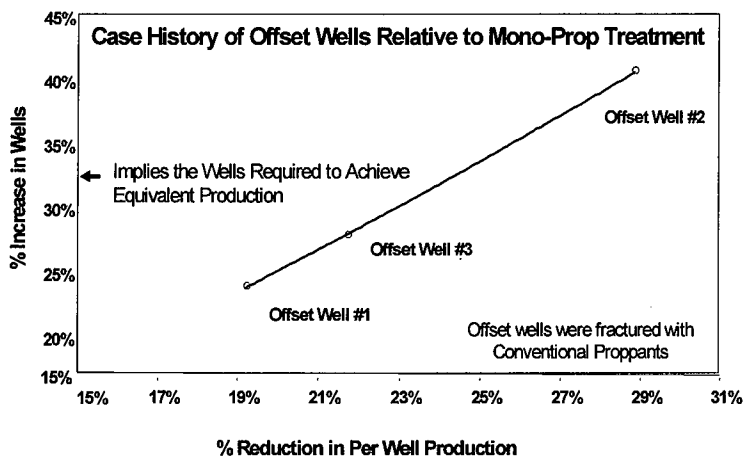
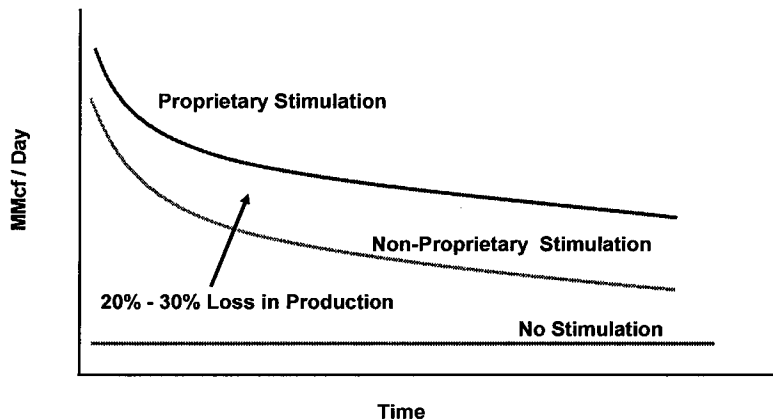


Figure 2 simply summarizes the above fracturing case histories within the context of with and without optimized fracturing treatments. The area of the curve between proprietary stimulation and non-proprietary stimulation represents the loss in production. This area ultimately becomes an economic externality; in other words, proposed rules to implement legislation will cause costs to the citizens of Colorado through lost natural gas production and foregone value produced.

Figure 2

Estimated Impact on Well Production



III. Analysis

Our analysis shows the impact relative to two cases: without and with the proposed regulation. Gas production for the year 2007 as shown below is based upon the ICF report: table 6, year - 2007, column - Total for DJ, Piceance, Raton, and San Juan basins.

The Without Regulation case assumes that gas production from new wells drilled equals production decline, stable hydrocarbon prices, access to markets, and production constant over time. Gas production from new wells drilled is 26% of total production.

The With Regulation case follows the Without Regulation assumptions and defines the natural gas production from new wells as 'natural gas impacted'. Sixty percent of the 'natural gas impacted' represents the 'proprietary chemical' market; 85% of this market is served by service companies whose proprietary chemical formulations would be jeopardized by the proposed regulations. This number represents about 16.8% of the total natural gas production.

Based on the case histories shown in figures 1 and 2 we believe there is an average 25% loss in production in this market for not using proprietary chemicals. This results in a 3.3% additional decline curve for the With Regulation case which when evaluated on a cumulative basis reduces 2007's gas production of 3.7 BCFD to about 2.4 BCFD for the year 2020.

Figure 4 represents the Without Regulation case, Figure 5 represents the With Regulation case, and Figure 6 represents the difference given 26% of gas production coming from new wells drilled. The Total numbers represent the sum across all 14 years. Since production is represented in BCFD then the figure for each year would need to be multiplied by 365 to convert to a yearly total.

Figure 4

Figure 5

Figure 6

Without Regulation Flat Market Environment				With Regulation Flat Market Environment				Estimated Impact of Regulation Resulting in Intellectual Property Lost			
	Gas Production	Gas Price	Est. Wellhead Revenue Per Day for Natural Gas Colorado		Gas Production	Gas Price	Est. Wellhead Revenue Per Day for Natural Gas Colorado		Gas Production	Gas Price	Est. Wellhead Revenue Per Day for Natural Gas Colorado
Year	BCFD	\$/MCF	(\$Mil)	Year	BCFD	\$/MCF	(\$Mil)	Year	BCFD	\$/MCF	(\$Mil)
2007	3.709	\$8.00	\$30	2007	3.709	\$8.00	\$30	2007	0.000	\$8.00	\$0
2008	3.709	\$8.00	\$30	2008	3.586	\$8.00	\$29	2008	(0.123)	\$8.00	(1.0)
2009	3.709	\$8.00	\$30	2009	3.467	\$8.00	\$28	2009	(0.242)	\$8.00	(1.9)
2010	3.709	\$8.00	\$30	2010	3.352	\$8.00	\$27	2010	(0.357)	\$8.00	(2.9)
2011	3.709	\$8.00	\$30	2011	3.241	\$8.00	\$26	2011	(0.468)	\$8.00	(3.7)
2012	3.709	\$8.00	\$30	2012	3.134	\$8.00	\$25	2012	(0.575)	\$8.00	(4.6)
2013	3.709	\$8.00	\$30	2013	3.030	\$8.00	\$24	2013	(0.679)	\$8.00	(5.4)
2014	3.709	\$8.00	\$30	2014	2.929	\$8.00	\$23	2014	(0.780)	\$8.00	(6.2)
2015	3.709	\$8.00	\$30	2015	2.832	\$8.00	\$23	2015	(0.877)	\$8.00	(7.0)
2016	3.709	\$8.00	\$30	2016	2.738	\$8.00	\$22	2016	(0.971)	\$8.00	(7.8)
2017	3.709	\$8.00	\$30	2017	2.648	\$8.00	\$21	2017	(1.061)	\$8.00	(8.5)
2018	3.709	\$8.00	\$30	2018	2.560	\$8.00	\$20	2018	(1.149)	\$8.00	(9.2)
2019	3.709	\$8.00	\$30	2019	2.475	\$8.00	\$20	2019	(1.234)	\$8.00	(9.9)
2020	3.709	\$8.00	\$30	2020	2.393	\$8.00	\$19	2020	(1.316)	\$8.00	(10.5)
Total	51.926		\$415	Total	42.094		\$337	Total	(9.832)		(78.7)
Est. Value of Foregone Gas Production ~\$ 29 Bil											

IV. Conclusion

This study was done to gain insight into the significance of economic impact and externalities which could likely result from the proposed chemical inventory requirements of the rules proposed to implement the requirements of H.B. 1298 and H.B. 1341. The results of the analysis suggest a 'major and significant' impact will likely occur if the rulemaking process does not carefully analyze potential unintended consequences of the rules. In essence, if the proposed rules determine that complete disclosure of chemical formulas must occur then this will result in a loss of intellectual property. Service Companies spend hundred of million dollars annually to develop proprietary chemicals that are designed to maximize the recovery of oil and gas resources. However, these chemical products will likely be taken off the market in the presence of the proposed rules in order to protect the intellectual property rights of the company that develops these products.

The full estimated impact of up to \$29 billion of production foregone will also result in impacts to employment, income, and tax revenues in the State of Colorado. This study has not attempted to evaluate those additional impacts. The conclusion of our analysis ends with a simple finding...the potential impact of one single chemical inventory provision of the proposed rulemaking is significant.

¹ Initial Study of the Potential Impacts of New Well Permitting Rules for the State of Colorado, May 12, 2008