

OIL AND GAS CONSERVATION COMMISSION, STATE OF COLORADO

PREHEARING STATEMENT OF THE COLORADO WATER UTILITY COUNCIL

IN THE MATTER OF CHANGES TO THE RULES OF THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF COLORADO TO CONSIDER HYDRAULIC FRACTURING DISCLOSURE RULES

The Colorado Water Utility Council (CWUC, or Council), through its members, pursuant to the Report of the Oil and Gas Conservation Commission and First Prehearing Order, hereby submits its Prehearing Statement in the matter of changes to the rules of the Oil and Gas Conservation Commission of the State of Colorado to consider hydraulic fracturing disclosure rules.

The Prehearing statement is in two parts. One part is this text. The second part is planned testimony for the December 5th rulemaking hearing in the form of a power point presentation marked Exhibit A. This text will emphasize the key points the CWUC wishes to make and help the Colorado Oil and Gas Conservation Commission (Commission) and others understand Exhibit A.

Exhibit A provides information that describes the Colorado Water Utility Council and our members. The Council is part of the regional affiliate of the American Water Works Association, comprised of members residing in Colorado, New Mexico and Wyoming. The American Water Works Association, which has a community of 60,000 members, has a national policy on the topic of hydraulic fracturing used for energy production. As slide 2 presents, the CWUC represents water utilities supplied by groundwater and/or surface waters that serve over 80% of the state's population.

Since this rulemaking concerns the topic of disclosure, the CWUC has provided information about its relevant principles and has provided additional disclosures pertinent to hydraulic fracturing on slides 4 and 5.

Slide 6 is commentary on where we need to go as a society and proposes that an independent certification process for hydraulic fracturing fluid formulations and/or constituents would serve the oil and gas industry well. Independent certification would allow a compromise on trade secrets and disclosure without limiting product selection. Independent certification would protect water supplies, promote proper waste management, and improve public trust. Independent certification could be referenced and recognized by local jurisdictions, waste management entities, and emergency responders.

Slide 7 is commentary from the Council that the form of disclosure that would achieve the highest possible level of stewardship for water suppliers and the environment is the pre-registration of independently certified formulations and constituents, disclosure prior to

commencement of hydraulic fracturing, and documentation after completion. Flowback and produced waters would be fully characterized for the additives remaining and the constituents picked-up from the sub-surface.

Commentary on the adequacy and inadequacy of www.FracFocus.org (FracFocus), from the perspective of water utilities, is described in slides 8 through 12.

Slide 8 lists water and wastewater components associated with hydraulic fracturing and categorize the components as an input, output, or subsurface. Slide 8 provides commentary on where FracFocus adds value, which is in identifying the constituents brought to the well site, the proportion of a constituent in overall mix, and the composition of the mixture at the point of introduction to the subsurface. Slide 8 as well as slide 9 illustrate that FracFocus provides incomplete knowledge of the composition of other water/wastewater streams that may be generated-primarily the outputs, from a waste management prospective.

Slide 10 makes the point that water and wastewater management entities need to be aware of the chemicals being used and that proper management of all of these waters/wastes and chemicals requires: 1) knowledge of the chemical constituents, 2) knowledge of the physical and chemical characteristics and concentration, 3) recognition of their treatability, or lack of treatability, and their propensity to upset, interfere with, or pass through wastewater treatment, 4) recognition of their impact on drinking water and wastewater treatment plant residuals.

Slide 11 is a screenshot of a typical graphic available in FracFocus that identifies well locations that have been hydraulically fractured. Note the proximity of well sites to water reservoirs and well density. A question exists amongst utilities as to the longevity of such data, specifically whether such data will be available for decades to come or only be available for 5 years? More specifically, will the data be available to water resource managers involved in water supply projects. For the Northern Water Conservancy District's proposed Galeton Reservoir, the issue of exposure to hydraulic fracturing chemicals has been raised by non-proponents during the environmental review process. On November 15, the City of Longmont in a 5 hour long city council meeting addressed public concern over proposed drilling activity that would perform hydraulic fracturing underneath and around a drinking water reservoir. Such data is good but it needs to be available for long periods of time. Retention of data associated with hydraulic fracturing, chemical and non-chemical, needs to be for multiple decades similar to other water resource data.

Slide 12 is a screenshot of a typical graphic available in FracFocus that lists hydraulic fracturing fluid constituents. It is provided here to illustrate that one of the constituents is labeled "Confidential Business Information" and its chemical and physical properties are not disclosed nor are they discernable. In this case, the unknown constituent represents 0.00468% of a 2,124,014 gallon mixture but without knowing its density, the overall mass is not known nor is any of its physical or chemical characteristics. For this constituent, there is no knowledge of: 1) its degree of solubility, or miscibility, 2) whether it is biocidal and could jeopardize biological wastewater treatment process performance, 3) whether it is toxic to aquatic species, 4) its degree of persistence in the environment, 5) its treatability in wastewater treatment facilities, 6) its fate and transport properties in the subsurface (diffusion/dispersion/retardation), 7) its treatability in

conventional water treatment facilities, or 8) whether it has potential to raise the Total Organic Carbon (TOC) concentration (and change coagulation requirements for water treatment plants (WTPs)), or 8) change the composition or magnitude of disinfection by-products formation through changes in precursor constituents.

Slide 13 introduces some exhibits, which will be described below and summarized in the list of Exhibits.

Slide 14 summarizes data contained in Exhibit D which provides insight on how many hydraulic fracturing chemicals contain at least one unknown constituent. Approximately 11% of the 2500 products reported contained at least one constituent that was not identified. On a volume basis, 12% of 780 million gallons had a least one constituent not identified.

Slides 15 and 16 summarize some statistics from the Bureau of Land Management (BLM) and identifies that BLM plans to revise their best management practices and disclosure requirements in part because of water quality concerns in the Eastern U.S. Slide 16 describes the prevalence of current disposal wastewater disposal practices and speculates that disposal practices may change as result of increased well activity, new regulations, or new disclosure requirements.

Slide 17 introduces Exhibit F, which is an EPA memorandum authored by James A. Hanlon, the Director of the Office of Wastewater Management. The memo's subject line reads "Regulating Natural Gas Drilling in the Marcellus Shale under the NPDES Program." One portion of the memo is highlighted in a quote: "Disposal of Hydraulic fracturing flowback water (HFFW) has become a challenging issue that has resulted in uncertainty about the disposal options and potential water quality impairments."

Slide 18 introduces Exhibit B, which is the technical support document for the development of effluent limitation guidelines (ELGS) for wastewaters associated with coal bed methane and shale gas extraction. These ELGs when applicable are relevant to the disposal of hydraulic fracturing fluids and produced waters via centralized waste treatment plants, municipal wastewater treatment plants (WWTPs), or via surface discharge. Wastewater management entities typically require disclosure to evaluate acceptance and to preserve environmental compliance.

Slides 19 through 21 introduce Exhibit C, which the draft study plan for an EPA conducted comprehensive study of hydraulic fracturing mandated by congress in response to recent public concern. This study plan which was recently finalized in November of 2011 includes the management of flowback and produced waters and could impact disclosure.

Slides 22 through 28 introduce a report published by the Water Research Foundation entitled "Workshop on Natural Gas Development Issues for Drinking Water Utilities." The Water Research Foundation (WRF) supports both water and wastewater utilities and has completed over 900 projects valued at \$460 million over 45 years. Among the attendees at this workshop were utilities impacted by natural gas development activities in the Marcellus shale play.

The WRF report documents the key concerns of water utilities towards hydraulic fracturing. The top 5 concerns were reported as:

- 1) Generation of significant quantities of industrial wastewater.
- 2) Use of toxic chemicals, risks of spills, source water contamination.
- 3) Potential risk to critical water supply infrastructure.
- 4) Increased level of industrial activity, heavy truck traffic, land clearing for roads, drill pads, and pipelines.
- 5) Water quality impacts associated with withdrawal of large volumes of surface and/or groundwater.

The WRF report also identified research needed for management and protection of water supplies. The top 4 of 14 proposed research topics were reported:

1. Project #2 – Improved Methods for Predicting Chemical Characteristics of Flowback Water and Produced Water (Brine).
2. Project #4 – Water Supply Monitoring Protocols/Methods and Best Management Practices
3. Project #8 – Perception and Communication of Hydraulic Fracturing Risks.
4. Project # 10 – Identification of Subsurface Risks, Risk Mitigation Measures, and Appropriate Areas of Concern for Utilities.

The WRF Report describes water utilities as customer driven organizations that must be able to appropriately respond to customer concerns. The participants in the workshop asked:

“Do regulations include requirements for an effective communications protocol between oil and gas operators and water utilities for water withdrawals, chemical disclosure, and emergency response?”

Recognizing that water utilities operate in the water quality reality of parts per billion (ppb) and parts per trillion (ppt); and that wastewater utilities operate in water quality reality of ppm, ppb, and perhaps lesser concentrations for toxicity reduction: and that endocrine disruptors are issues at ppb and ppt levels, knowledge of all wastewater constituents (i.e. full disclosure) is paramount and fundamental to public health and consumer confidence.

The following quotes from the WRF Report illustrated the need to communicate and to adequately disclose the chemicals used in hydraulic fracturing:

“Fracturing fluids are commonly reported to consist of 98 to 99.5% water and sand with the remaining 0.5 to 2.0% consisting of an array of chemical additives used to control fluid properties during the various stages of the fracturing process. Though the proportion of chemicals in fracturing fluids is low relative to the large amount of water required, meaningful assessment of potential water quality impacts requires that chemical additives be expressed on a mass basis. For a 4 million gallon frac mix comprised of 1 to 2 percent chemicals, the mass of chemical additives would be approximately 167 to 334 tons.”

“The use of fracturing fluid additives containing known or suspected carcinogens, endocrine disrupting compounds (EDCs), or other contaminants that may cause human health impacts from long term or chronic exposure at very low doses is of particular concern for water suppliers. Potential health risks may result from introducing hundreds of tons of fracturing chemicals into a watershed on a regular basis over a period of several decades that increases the gradual penetration of low levels of contaminants into the environment.”

The oil and gas industry is continuing to develop new chemicals to improve hydraulic fracturing and there is increasing pressure to develop less toxic alternatives. The USEPA study is anticipated to include an assessment of chemical lifestyles and may provide additional insight into potential risks and available alternatives.”

Slides 29 through 31 draw a parallel between the water and wastewater industries and hydraulic fracturing. Water and wastewater utilities add chemicals directly to water and/or the environment. They also manage chemicals that could leach contaminants or contribute contamination. They also manage reaction products may be generated as a result of adding chemicals to water. They manage chemical dosages to control toxicity to acceptable levels. Unlike hydraulic fracturing, water and wastewater utilities have found a way to add chemicals to water while maintaining the public trust. Public trust is accomplished through the use of standards and regulatory agency mandated use of independently certified products. Additives to drinking water are independently certified by the National Sanitation Foundation (NSF) to meet requirements of AWWA standards. For example, there are hundreds of coagulant additives certified by NSF, each with its own maximum permissible dose based on toxicity and other criteria. Similar tools and techniques are perceived not to be applied by entities conducting hydraulic fracturing or formulating hydraulic fracturing fluids. Similar tools and techniques are needed with regard to hydraulic fracturing. In addition to certified products meeting standards applied at doses acceptable from a toxicity perspective, the most sophisticated water systems also test product purity.

Water and wastewater utilities have also found ways to coordinate the disposal of water treatment plant wastes and waste management issues. When water treatment plants discharge

waste to another entity's wastewater treatment plant, full disclosure of the constituents and characteristics of the waste stream are required. Water and wastewater utilities are also required to fully disclose the use of chemicals to regulatory authorities for design reviews and permit approvals. Wastewater utilities are also subject to whole effluent toxicity (WET) testing of effluents and subsequent toxicity reduction studies if toxicity is observed. Knowledge of constituents in a waste stream is required to examine toxicity reduction.

Slides 32 through 34 are intended to remind that surface water impacts are possible through spills of concentrated chemicals used in hydraulic fracturing. Even with careful management, the large number of trucks carrying concentrated chemicals and an equivalent number of trucks carrying flowback and produced waters to disposal sites, is a real threat to water quality. The question is not if there will be a spill, but how a spill gets managed. Without full and timely disclosure of the chemicals used in hydraulic fracturing, and without knowledge of the composition of flowback and produced waters, how do water utilities and the public know that spill response has been properly managed and mitigated? Without full disclosure and analytical methods to match each constituent, how can water quality monitoring occur to assure the public that there are no long term effects of the spill? Slide 34 is an example pulled directly from the website of the water utility impacted by a truck accident and spill of concentrated chemicals in an area believed by first responders to be a threat to a water supply. The lack of precise and timely information only exacerbates the situation and sets the stage for prolonged public concern. Incomplete, incorrect, or untimely information is in neither the water utilities nor the oil and gas industries best interest to maintain public confidence.

Slide 35 is commentary on where we need to go as a society and proposes that an independent certification process for hydraulic fracturing fluid formulations and/or constituents would serve the oil and gas industry well. Independent certification would allow a compromise on trade secrets and disclosure without limiting product selection. Independent certification would protect water supplies, promote proper waste management, and improve public trust. Independent certification could be referenced and recognized by local jurisdictions, waste management entities, and emergency responders.

Slides 34 and 35 lists policy questions identified by the CWUC pertaining to the Commission's proposed rules.

- How does disclosure as proposed in the revised regulations achieve multiple and /or mutual purpose(s) of stakeholders and affected parties? And, in particular water utilities.
- Does disclosure as proposed in the revised regulations achieve the highest possible stewardship of the environment?
- Why are the COGCC's proposed disclosure regulations less strict than the Secretary of Energy's Advisory Board's Shale Gas Production Subcommittee's August 18, 2011 recommendation that regulatory agencies immediately develop rules to require disclosure of all chemicals used in hydraulic fracturing fluids on both public and private lands?

- Why are the COGCC's proposed disclosure regulations less strict than the Secretary of Energy's Advisory Board's Shale Gas Production Subcommittee's August 18, 2011 statement that it should be a routine industry practice to measure the composition of all stored return (flowback and produced) waters and to publicly report the composition?
- Has COGCC requested or received advice from CDPHE-WQCD or CDPHE-HMWMD regarding the need for full disclosure, or the challenges that regulated facilities would face if chemical constituents are not disclosed, or inappropriately managed? If COGCC and CDPHE have not conversed on disclosure, consider this a request to do so and to report the conversation in the Statement of Basis and Purpose.
- Has CDPHE refused to opine regarding the degree of disclosure or information needed for proper waste management? If so, consider this a request to describe the response in the Statement of Basis and Purpose.
- Do COGCC and CDPHE have a coordinated and comprehensive plan for managing hydraulic fracturing fluid disposal? Will the Memorandum's of Agreements (MOAs) in place between the two agencies be revised to implement the adopted disclosure rules?

Slide 38 is commentary from the Council that the form of disclosure that would achieve the highest possible level of stewardship for water suppliers and the environment is the pre-registration of independently certified formulations and constituents, disclosure prior to commencement of hydraulic fracturing, and documentation after completion. Flowback and produced waters would be fully characterized for the additives remaining and the constituents picked-up from the sub-surface.

Slides 39 and 40 provide commentary from the Council that water suppliers would be best served in an approach to disclosure that achieves the highest level of stewardship. The highest level of stewardship would occur when:

- Pre-registration of independently certified formulations and constituents is required.
- Disclosure prior to commencement of hydraulic fracturing is required.
- Full documentation of formulations, additives, constituents, and concentrations used after completion activities is required.
- Full characterization of flowback and produced waters for the additives remaining and the constituents picked-up from the sub-surface is required.
- Disclosure rules are subject to periodic review and revision.
- Longer retention of records is practiced.

Slide 40 explains that there are several reasons to periodically re-open disclosure rules for the purpose of revisions and coordination with other regulatory and stakeholder efforts. For instance, it would be beneficial in 2015 to incorporate the findings and management concepts that would arise from the following efforts:

- The EPA's development of categorical pretreatment standards for shale gas extraction and coal-bed methane extraction industries.
- EPA's comprehensive review of hydraulic fracturing on drinking water resources.
- DOI/BLM issuance of revised disclosure regulations.

Slide 40 also explains that there are several reasons to retain hydraulic fracturing and chemical data for extended periods of time. The proposed rules are silent on a specific data retention timeframe but 5 years is identified in existing rules. If the council is interpreting this correctly, 5 years is much too short for the timeframes associated with water supply or contaminant transport. Timeframes of 40 to 50 years is more realistic for water supply reservoir sites. Considering that mining impacts have taken multiple decades for water quality impacts to show up, 5 years of retention of data too short. Slide 40 also notes that in Pavilion, WY contamination was observed 40 plus years after start of production and 10 plus years after a significant increase in well activity in the late 1990's.

Slide 41 describes the modifications to the Statement of Basis and Purpose (SBP) requested by the Council. The Council requests that SBP should be revised to reflect that water utilities were not part of the "conservation community" referenced in the SBP as having been consulted or a participant in the development of the SBP or the proposed rules. The Council requests that the SBP be revised to describe why the IOGCC or the Ground Water Protection Council is a suitable independent entity to entrust with repository duties for archiving disclosure data for future generations of Coloradoans. The Council also requests that the SBP address why an agency of Colorado Government is not appropriate or capable of being the repository for archiving disclosure data. Lastly, the Council requests that the SBP provide a rationale for why 5 years of data retention is adequate for all stakeholders, particularly water utilities/suppliers.

Slide 42 describes the modifications to the proposed rules requested by the Council. These modifications include:

- Rule 205A.B.(2): Add requirements for disclosure of all chemicals, inclusive of additives, constituents, and concentrations, proposed for use in hydraulic fracturing prior to commencement of hydraulic fracturing. (Pre-disclosure, full disclosure)
- Rule 205A.B.(2): Add requirements that limit use of chemicals and formulations to only those pre-certified for use by an independent organization. (Pre-certification)
- Rule 205A.B.(2): Add requirements for full chemical characterization of flowback and produced waters.

- Add a new subpart F to Rule 205: to specifically describe retention requirements for hydraulic fracturing fluids, additives, constituents and concentrations and increase the retention of hydraulic fracturing disclosure records to a minimum of 40 years.
- Rule 205 A.B.(3)(A): Require full review and, if warranted, revision of all disclosure related rules in 2015 for purpose of intra-agency coordination and enhancing the effectiveness of these proposed rules.
- Rule 205A.B. (5): Add disclosure to water and wastewater professionals for 1) source water protection planning, 2) in the event of suspected water contamination, 3) spills, or 4) concurrent with seeking approval to discharge to a wastewater management entity.

Slides 43 through 45 present the American Water Works Association Water Utility Council's national policy on hydraulic fracturing for energy production. Slide 45 describes the Colorado Water Utility Council's proposed modifications to the national policy.

List of Exhibits

Exhibit A

A power point presentation entitled "*Rocky Mountain Section American Water Works Association*, Colorado Water Utility Council, Hydraulic Fracturing Disclosure Rules, Testimony of the Colorado Water Utility Council before the Colorado Oil and Gas Conservation Commission, December 5, 2011, Docket No. 1112-RM-04." [Attached]

Exhibit B

Technical Support Document for the 2010 Effluent Guidelines Program Plan, October 2011, EPA 820-R-10-021.

http://water.epa.gov/lawsregs/lawguidance/cwa/304m/upload/tsd_effluent_program_10_2011.pdf

Exhibit C

Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources, Office of Research and Development, EPA/600/D-11/001/February 2011/www.epa.gov.research.

http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/FINAL-STUDY-PLAN-HF_Web_2.pdf

Exhibit D

Workshop on Natural Gas Development Issues for Drinking Water Utilities: Published by the Water Research Foundation, May, 2011.

http://www.waterrf.org/ProjectsReports/ExecutiveSummaryLibrary/4301_ProjectSummary.pdf

Exhibit E

Chemicals Used in Hydraulic Fracturing, April 2011, House of Representatives, Energy and Commerce Committee Report.

<http://democrats.energycommerce.house.gov/sites/default/files/documents/Hydraulic%20Fracturing%20Report%204.18.11.pdf>

Exhibit F

EPA Memo from James A. Hanlon, Office of Wastewater Management to Water Division Directors pertaining to Regulating Natural Gas Drilling in the Marcellus Shale under the NPDES Program, March 17, 2011.

http://www.epa.gov/npdes/pubs/hydrofracturing_faq_memo.pdf

Exhibit G

Memorandum of Agreement For The Implementation of SB 181 Amendments of the Colorado Water Quality Control Act (25-8-101, et seq), entered into August 28, 1990 by and between the Colorado Department of Public Health, Water Quality Control Commission (WQCC), Water Quality Control Division(WQCD), The Colorado Department of Natural Resources (DNR) and the Colorado Oil and Gas Conservation Commission (OGCC). Available in the Library Section of the COGCC website.

<http://cogcc.state.co.us/>

Exhibit H

Memorandum of Agreement Between the Water Quality Control Division and the Oil and Gas Conservation Commission Response to Spills/Releases to Surface Water, undated, as available from the COGCC website on November 18, 2011. Available in the Library Section of the COGCC website.

<http://cogcc.state.co.us/>

Submitted this 23rd day of November, 2011.

JIM MILLER, P.E.

By: 

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c/o Denver Water

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CERTIFICATE OF SERVICE

I hereby certify that on the 23rd day of November, 2011, one original and 13 copies of the foregoing **PREHEARING STATEMENT FOR THE COLORADO WATER UTILITY COUNCIL** was served by hand delivery to the following:

Mr. Peter Gowen
Acting Hearing Manager
Docket No. 1112-RM-04
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

With one electronic copy (sent in .pdf format) to cogcc.rulemaking@state.co.us

I further hereby certify that on the 23rd day of November, 2011, one copy of the foregoing **PREHEARING STATEMENT FOR THE COLORADO WATER UTILITY COUNCIL** was served by hand delivery to the following:

Mr. Jake Matter
Colorado Department of Law
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I further hereby certify that on the 23rd day of November, 2011, one copy of the foregoing **PREHEARING STATEMENT FOR THE COLORADO WATER UTILITY COUNCIL** was served by electronic mail to the following:

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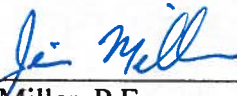
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Exhibit A

Rocky Mountain Section American Water Works Association
Colorado Water Utility Council

Hydraulic Fracturing Disclosure Rules

Testimony of the Colorado Water Utility Council
before the
Colorado Oil and Gas Conservation Commission
December 5, 2011
Docket No. 1112-RM-04

Colorado Water Utility Council

Our People:

Water System Managers/Operators
Compliance Managers
Laboratory Managers/Supervisors
Operations Managers
Legislative/Regulatory Affairs Staff
Utility Engineers/Project Managers/Planners
Consulting Engineers
WQCD, CWCB, CWPRDA, DOLA, USGS, EPA, AWWA Staff
Staff of Organizations with Common Interests

Voting:

Utilities – 1 vote regardless of number of participants
Non-Utilities – In-eligible to vote.
Simple majority at meetings properly noticed.
2/3 majority of respondents on E-mail ballots.
Most issues are unanimously decided.
Rotating leadership.

Geographic Representation:

Typically – Colorado Front Range
Recently – Statewide

Membership/Mailing List:

Approx. 50 Utility “Voting” Members
Approx. 230 on mailing list
New Mexico and Wyoming Members

Population Served by Members:

4,181,772
83% of Colorado’s Population

Organizations with Common Interests:

Colorado/National Rural Water Assoc.
Colorado Water Congress
Special District Association
Colorado Municipal League

Outline of Testimony

- **Preliminary Matters**

- Who the CWUC is.
- CWUC Principles/Disclosures.
- National AWWA policy on hydraulic fracturing.

- **Commentary on FracFocus.org**

- Where FracFocus adds value.
- Where FracFocus is inadequate.

- **Factual Issues**

- Recent EPA announcements/notices.
- Water Research Foundation workshop priorities.

- **Policy Issues**

- Proper waste management requires full disclosure.
- Pre-disclosure benefits water utilities and the environment.
- Goal should be highest level of stewardship; full disclosure and pre-certification and pre-registration would move products towards being less toxic and easier to manage.
- Make a comparison to industries that add chemicals directly to water/environment.
- Request modifications to SBP and proposed rules.
- Request that disclosure rules be re-opened in 2015.
- Propose a change to AWWA's national policy on hydraulic fracturing.

CWUC Principles/Disclosures

- The Colorado Water Utility Council:
 - Is pro-water quality and pro-public health.
 - Is pro-stewardship and sustainability.
 - Has members that use oil and gas products.
 - Has members that depend on energy to treat and move water.
 - Has members that provide and sell water/wastewater services to the oil and gas sector.
 - Is a stakeholder in this issue because its members extract and manage water (and even oil and gas) from the same lands, watersheds, and in a few cases the same aquifers that are impacted by oil and gas activity.

CWUC Principles/Disclosures

- The Colorado Water Utility Council:
 - Is not anti-fracking.

- Water wells may be hydraulically fractured.
- Water-only and water-less based hydraulic fracturing has been employed.

As a society, non-toxic or relatively benign formulations are where we need to go.

Pre-certification

Where we Need to Go as a Society

- An independent certification process for hydraulic fracturing fluid formulations and constituents would serve the oil and gas industry well.
 - Allows compromise on trade secrets/disclosure.
 - Can be referenced and recognized by local jurisdictions, waste management entities, and emergency responders.
 - Protects water supplies.
 - Promotes proper waste management.
 - Improves public trust.

Proposed Policy Goal

- The form of disclosure that would achieve the highest possible level of stewardship for water suppliers and the environment is the pre-registration of independently certified formulations and constituents, disclosure prior to commencement of hydraulic fracturing, and documentation after completion. Flowback and produced waters would be fully characterized for the additives remaining and the constituents picked-up from the sub-surface.

Inputs/Outputs Associated with Hydraulic Fracturing (FracFocus adds Value)

Inputs

- Fresh/Potable water or recycled water.
- Concentrated chemicals.

FracFocus.org

- Hydraulic fracturing fluids after mixing.

FracFocus.org

Below Ground

- Water (and chemicals) that remain below surface.

FracFocus.org

Outputs

- Flowback water/waste.
- Produced water/waste.
- Water/waste routed to waste impoundments.
- Water/waste hauled to Class II injection wells for disposal.
- Water/waste hauled to other classes of injection wells for disposal.
- Water/waste discharged to surface water, or treated and discharged.
- Water/waste hauled to WWTP and discharged to surface water.
- Contaminated stormwater.
- Groundwater that becomes surface water.

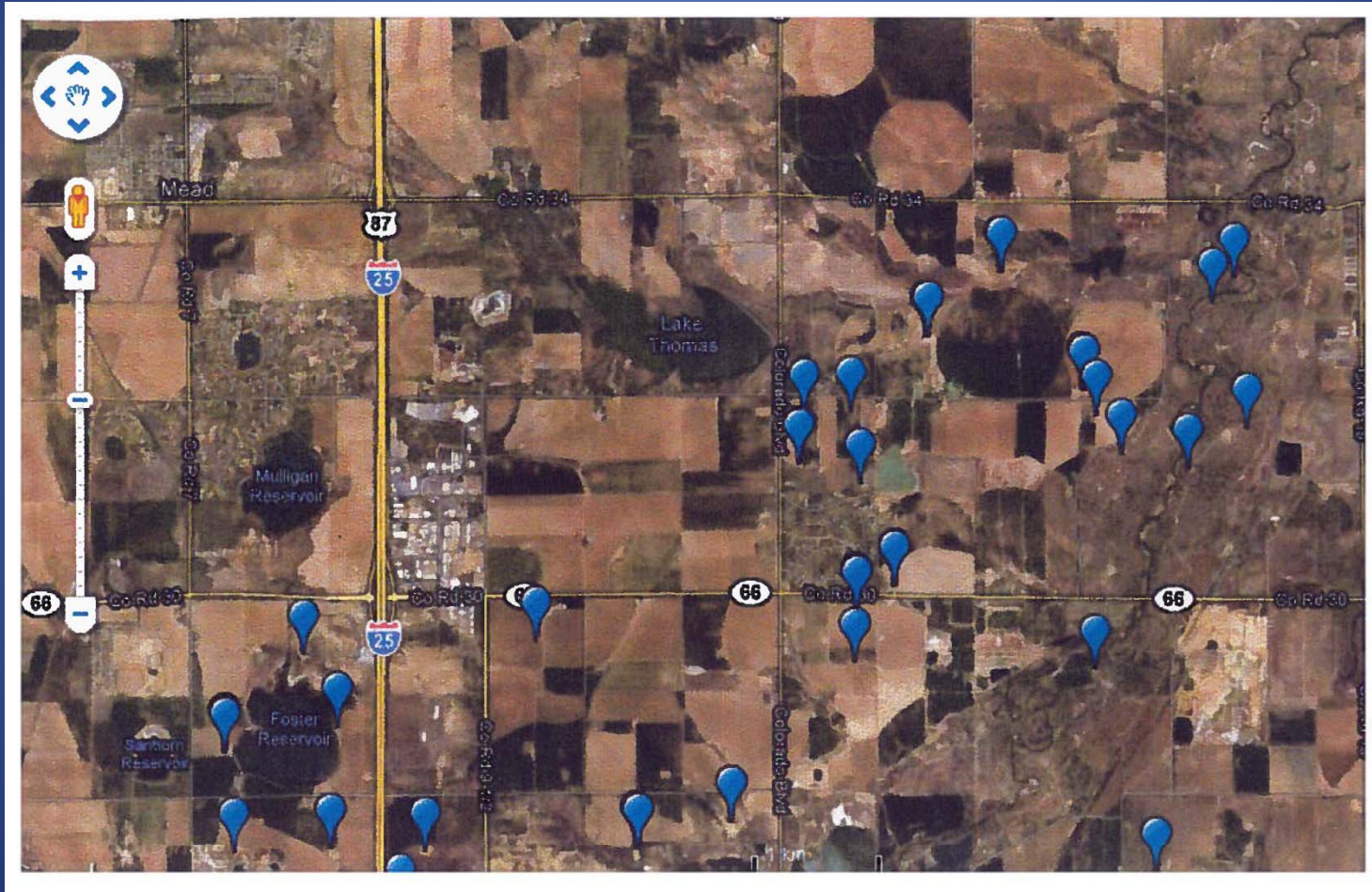
Water Inputs/Outputs Associated with Hydraulic Fracturing (FracFocus Inadequate)

- Recycled water.
- Flowback water/waste.
- Produced water/waste.
- Water/waste routed to waste impoundments.
- Water/waste hauled to Class II injection wells for disposal.
- Water/waste hauled to other classes of injection wells for disposal.
- Groundwater that becomes Surface water
- Water/waste discharged to surface water, or treated and discharged.
- Water/waste hauled to WWTP and discharged to surface water.
- Water/Wastewater hauled or piped to industrial or Centralized Waste Treatment (CWT) Plant.
- Contaminated stormwater.

Proper Management of Water/Waste and Chemicals (FracFocus Inadequate)

- **Proper management of all of these waters/wastes and chemicals requires:**
 - Knowledge of the chemical constituents.
 - Knowledge of the physical and chemical characteristics and concentration.
 - Recognition of their treatability, or lack of treatability, and their propensity to upset, interfere with, or pass through treatment.
 - Recognition of their impact on drinking water and wastewater treatment plant residuals.
- **Water and Wastewater management entities need to be aware of the chemicals being used.**

FracFocus.org



FracFocus.org

- Density/Mass
- Degree of Solubility/Miscibility
- Biocidal
- Toxicity
- Persistence
- Wastewater Treatability
- Diffusion/Dispersion/Retardation
- Drinking Water Treatability
 - Coagulatable
 - Filterable
 - Oxidizable
 - Adsorbable
- Disinfection by Products
 - TOC or Bromide

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	10/12/2011
State:	CO
County:	Weld
API Number:	06-123-33244
Operator Name:	Noble Energy Inc
Well Name and Number:	Franklin C08-02 HNX
Longitude:	-104.58646
Latitude:	40.32104
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	8,804
Total Water Volume (gal):	2,124,014

Hydraulic Fracturing Fluid Composition

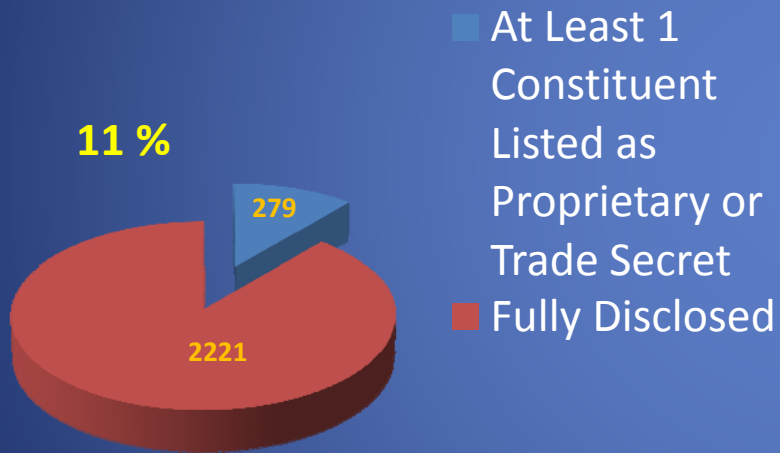
Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator				100.00%	81.92628%	Density = 8.330
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	0.93396%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	14.93836%	
CRC SAND	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.26411%	
			Hexamethylenetetramine	1009-7-0	2.00%	0.02526%	
			Phenol / formaldehyde resin	900303-35-4	5.00%	0.04321%	
WICON NF BREAKER	Halliburton	Breaker	Chlorous acid, sodium salt	7738-19-2	10.00%	0.02896%	
			Sodium chloride	7647-14-5	30.00%	0.08657%	
Claytek 3	Halliburton	Misc Additive	Sodium chloride	7647-14-5	30.00%	0.0474%	
GasPerm 1100	Halliburton	Non-ionic Surfactant	Ethanol	64-17-5	60.00%	0.09220%	
			Terpenes and Terpenoids, sweet orange-oil	88647-72-3	5.00%	0.0076%	
BA-40L BUFFERING AGENT	Halliburton	Buffer	Potassium carbonate	584-08-7	60.00%	0.04552%	
CL-37 CROSSLINKER	Halliburton	Crosslinker	Glycerine	56-81-5	30.00%	0.00764%	
			Propanol	71-23-6	30.00%	0.00764%	
			Tetrahydroamine zirconate	101033-44-7	100.00%	0.02546%	
CL 23 CROSSLINKER	Halliburton	Crosslinker	Ammonium chloride	12125-02-9	27.00%	0.00104%	
			Zirconium, acetate lactate oxo ammonium complexes	69090-34-2	60.00%	0.00232%	
CAT-3 ACTIVATOR	Halliburton	Activator	EDTA/Copper chelate	Confidential Business Information	30.00%	0.00726%	
CAT-4	Halliburton	Activator	Diethylenetriamine	111-40-0	60.00%	0.0029%	
FR-06	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.00871%	
BE-3 BACTERICIDE	Halliburton	Biocide	2,2-Dibromo-3-nitropropanamide	10222-01-2	30.00%	0.00468%	
			Proprietary component	Confidential Business Information	30.00%	0.00468%	
WS-18 GELLING AGENT	Halliburton	Gelling Agent	Guar gum derivative	Confidential Business Information	100.00%	0.15142%	

Factual Issues

- October 20, 2011 – EPA announcement regarding the development of categorical pretreatment standards for hydraulic fracturing fluids and produced waters. [Exhibit B]
- November 03, 2011– EPA announcement of scope of congressionally mandated comprehensive study of hydraulic fracturing. [Exhibit C]
- May 2011 Water Research Foundation Workshop Report. [Exhibit D]
- April 2011, House of Representatives, Energy and Commerce Committee Report. [Exhibit E]
- March 17, 2011 – EPA Memo from James Hanlon, Office of Wastewater Management to Water Division Directors pertaining to Regulating Natural Gas Drilling in the Marcellus Shale under the NPDES Program. [Exhibit F]

HR Committee on Energy & Commerce 2005 -2009 Data from 14 Leading Service Companies April 2011 [Exhibit D]

2500 Products



750 different constituents
 29 known or possible human carcinogens
 67 products contained at least 1 of 8 SDWA regulated chemicals
 11.7 million gallons contained at least 1 SDWA regulated chemical

780 Million Gallons



Excluding water added during mixing at well

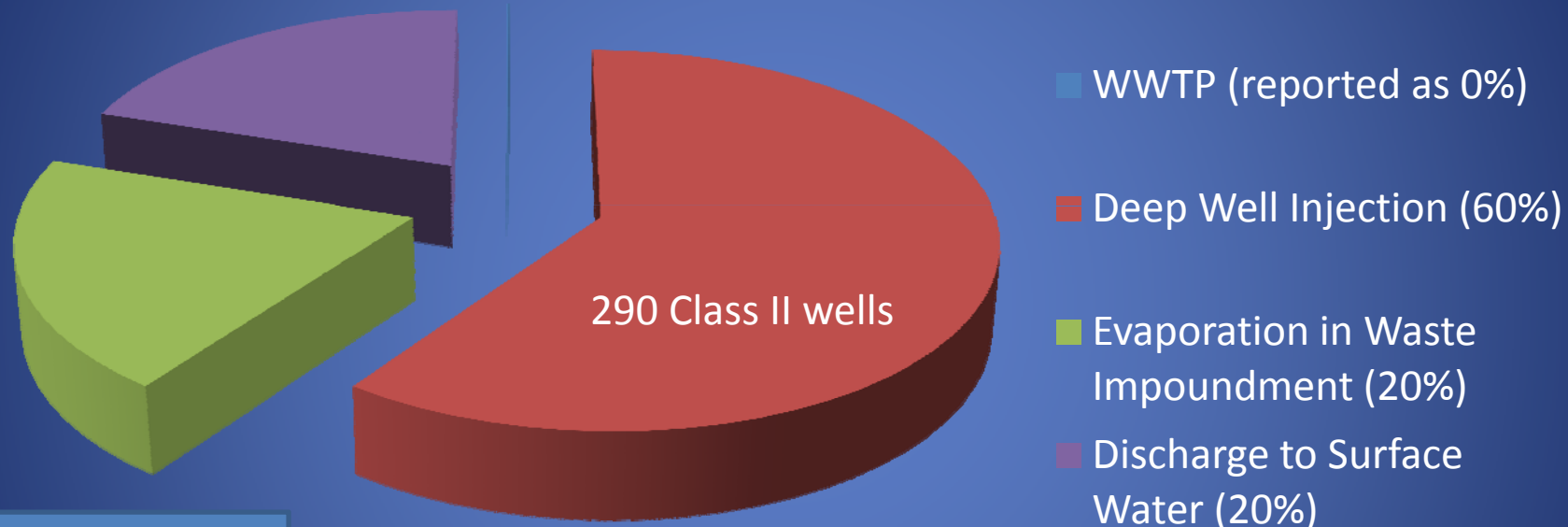
BLM Colorado Statistics

[Source: BLM info posted on COGCC website]

- 95% of new wells are fractured.
- 60 year-old practice.
- Majority of fluids are recycled.
- “Fluids...sent to WWTP have caused water quality concerns in the eastern U.S.”
- BLM has signaled that a revision to best management practices and disclosure rules are planned. (Mid-November?)

BLM - Colorado Statistics

Hydraulic Fracturing Fluid Disposal



Data represents past practice.

- Revisions to waste impoundment regulations
 - Revisions to disclosure regulations
- Implementation of new categorical pretreatment standards
 - Implementation of local land use regulations
 - Increase in activity or well density

Eastern U.S. Insight

- Expecting greater industry activity and well density and not knowing:
 - whether we have adequate Class II injection capacity?
 - how operators will manage new waste impoundment regulations?
 - what local land use regs will prohibit or promote?
 - what agencies like BLM will do?



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 17 2011

MEMORANDUM

SUBJECT: Regulating Natural Gas Drilling in the Marcellus Shale under the NPDES Program

FROM: James A. Hanlon, Director
Office of Wastewater Management

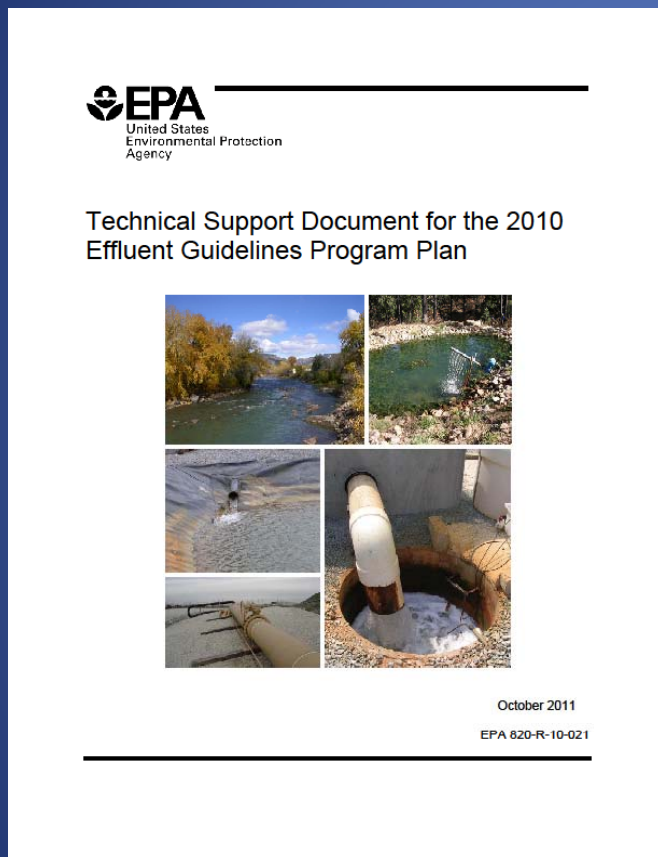
TO: Water Division Directors, Regions 1 - 10

The purpose of this memorandum, and the attached frequently asked questions (FAQs), is to provide you with information to assist in outreach concerning wastewater issues resulting from shale gas extraction. Disposal of Hydraulic fracturing flowback water (HFFW) from shale gas extraction has become a challenging issue that has resulted in uncertainty about disposal options and potential water quality impairments. Underground injection is used for disposal of HFFW in much of the country; however, there have been an increased number of requests to discharge the wastewater under NPDES permits in areas where few disposal wells exist. Development of NPDES permit conditions to address HFFW is challenging for State and Regional permitting authorities. The wastewater contains high concentrations of total dissolved solids that are difficult to treat and are not well addressed by current Effluent Limitations Guidelines or Water Quality Standards.

The attached FAQ document describes shale gas production, current discharge

“Disposal of Hydraulic fracturing flowback water (HFFW) has become a challenging issue that has resulted in uncertainty about the disposal options and potential water quality impairments.” [Exhibit F]

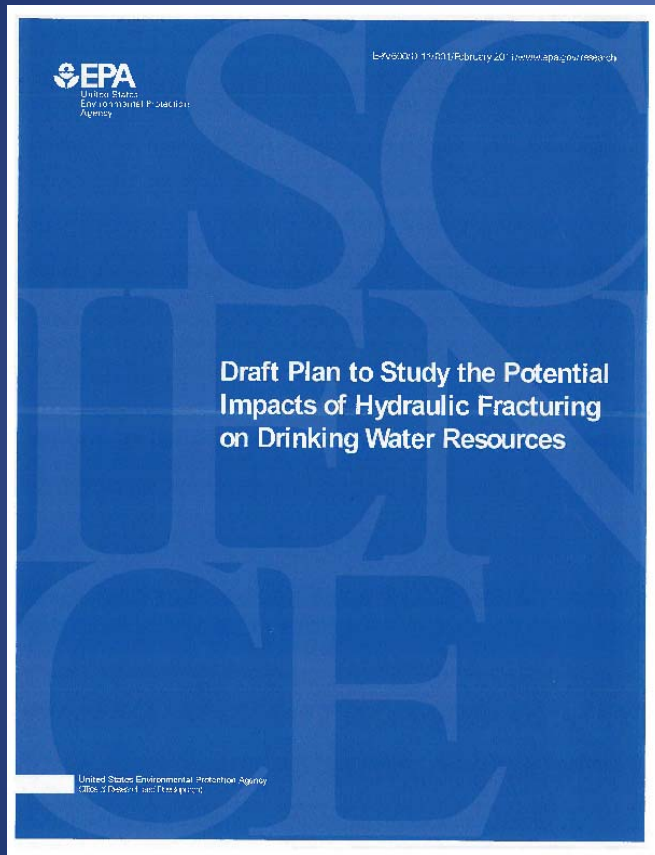
EPA— Categorical Pre-Treatment Standards



- [Exhibit B]

- Development of Effluent Limitation Guidelines has recently commenced.
 - Coalbed methane extraction.
 - Shale gas extraction.
- Relevant to the disposal of hydraulic fracturing fluids and produced waters via WWTPs, or via surface discharge.
- WWTPs typically require disclosure to evaluate acceptance and to preserve environmental compliance.
- Development of one, or more:
 - BPT – Best Practical Control Technology
 - BAT – Best Available Control Technology
 - BCT – Best Conventional Technology
 - NSPS – New Source Performance Standards
 - PSES – Pretreatment Standards for Existing Sources
 - PSNS – Pretreatment Standards for New Sources

EPA—Comprehensive Review

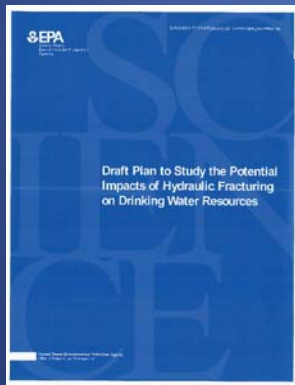


- [Exhibit C]

- Congressionally mandated in response to public concern.
- Plan recently finalized – Nov. 2011
- Scope includes full life cycle of water:
 - Water Acquisition
 - Mixing of Chemicals
 - Post-Fracturing
 - Management of Flowback and Produced Water
 - Ultimate Treatment and Disposal
- Conclusions and recommendations by 2014; Interim results by 2012.
- **Could impact requirements for disclosure.**

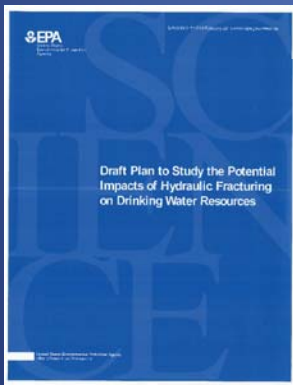
EPA—Comprehensive Review

- Study Plan Components.
 - Retrospective case studies.
 - Prospective case studies.
 - Examination of the composition and variability of flowback and produced waters.
 - Examination of the toxicity of hydraulic fracturing fluid wastewaters.
 - Development of analytical methods for potential chemicals of concern **including fracturing fluid additives.**



EPA—Comprehensive Review

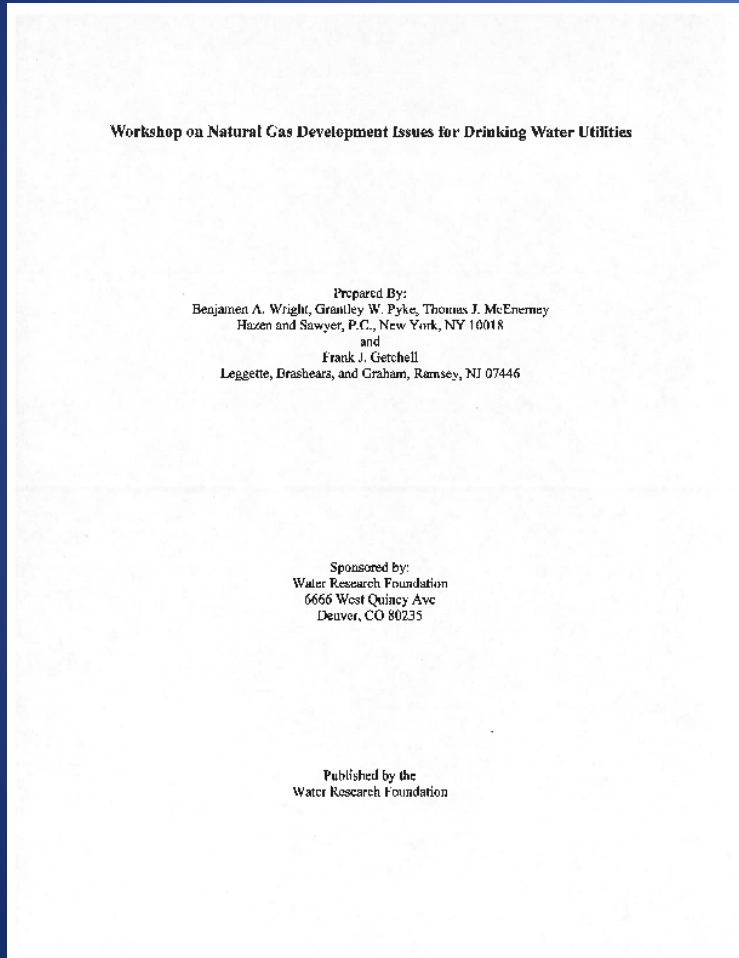
- Wastewater treatment and waste disposal.



- *“Many commercial industrial treatment facilities are designed to treat for known constituents in flowback or produced water.”*
- *“POTWs, however, are not designed to treat hydraulic fracturing wastewaters.”*
- *“Pennsylvania – Disposal of production waters is limited to less than 1% of the POTW’s average daily flow.”*

Water Research Foundation Report

“Workshop on Natural Gas Development Issues for Drinking Water Utilities”



- October 2010 Workshop/May 2011 Report
 - **Water Utilities**
 - NYCDEP, Philadelphia WD, Arlington TX,
 - Pennsylvania American Water
 - **Universities**
 - Colorado School of Mines
 - John Hopkins University
 - University of Texas-Austin
 - **Industry Representatives/Consultants**
 - Chesapeake Energy
 - ALL Consulting
 - Pinnacle Technologies
 - **Research Groups (Public and Private)**
 - Gas Technology Institute
 - USGS
 - USEPA Office of Research and Development
 - Water Research Foundation
 - **Environmental Organizations/NGO**
 - Environmental Defense Fund, Clean Water Action
 - Red River Watershed Management Institute
 - **Regulatory Agencies/Commissions**
 - Oklahoma Corporation Commission
 - Pennsylvania Dept. of Environmental Protection
 - USEPA

Water Research Foundation Report

- Evaluated and prioritized the **key concerns of water utilities** towards hydraulic fracturing.
 - 1) Generation of significant quantities of industrial wastewater.
 - 2) Use of toxic chemicals, risks of spills, source water contamination.
 - 3) Potential risk to critical water supply infrastructure.
 - 4) Increased level of industrial activity, heavy truck traffic, land clearing for roads, drill pads, and pipelines.
 - 5) Water quality impacts associated with withdrawal of large volumes of surface and/or groundwater.

Water Research Foundation Report

- Identified research needed for management and protection of water supplies. **The top 4 of 14 proposed research topics:**
 - 1) *Project #2 – Improved Methods for Predicting Chemical Characteristics of Flowback Water and Produced Water (Brine).*
 - 2) *Project #4 – Water Supply Monitoring Protocols/Methods and Best Management Practices*
 - 3) *Project #8 – Perception and Communication of Hydraulic Fracturing Risks.*
 - 4) *Project # 10 – Identification of Subsurface Risks, Risk Mitigation Measures, and Appropriate Areas of Concern for Utilities.*

Water Research Foundation Report

“Water utilities are customer driven organizations, and utilities must be able to appropriately respond to customer concerns.”

“Do regulations include requirements for an effective communications protocol between oil and gas operators and water utilities for water withdrawals, chemical disclosure, and emergency response?”

Water Research Foundation Report

*“Fracturing fluids are commonly reported to consist of 98 to 99.5% water and sand with the remaining 0.5 to 2.0% consisting of an array of chemical additives used to control fluid properties during the various stages of the fracturing process. **Though the proportion of chemicals in fracturing fluids is low relative to the large amount of water required, meaningful assessment of potential water quality impacts requires that chemical additives be expressed on a mass basis.** For a 4 million gallon frac mix comprised of 1 to 2 percent chemicals, the mass of chemical additives would be approximately 167 to 334 tons.”*

Water utilities: ppb and ppt.

Wastewater utilities: ppm and ppb and perhaps lesser for toxicity reduction.

Endocrine Disruptors: ppb and ppt.

Water Research Foundation Report

“The use of fracturing fluid additives containing known or suspected carcinogens, endocrine disrupting compounds (EDCs), or other contaminants that may cause human health impacts from long term or chronic exposure at very low doses is of particular concern for water suppliers.

Potential health risks may result from introducing hundreds of tons of fracturing chemicals into a watershed on a regular basis over a period of several decades that increases the gradual penetration of low levels of contaminants into the environment.”

Water Research Foundation Report

“The oil and gas industry is continuing to develop new chemicals to improve hydraulic fracturing and there is increasing pressure to develop less toxic alternatives. The USEPA study is anticipated to include an assessment of chemical lifestyles and may provide additional insight into potential risks and available alternatives.”

Comparison to Industries that Add Chemicals Directly to Water or the Environment

- Water and Wastewater Utilities:
 - Add chemicals directly to water/environment.
 - Manage chemicals that could leach contaminants or contribute contamination.
 - Reaction products may be generated as a result of adding chemicals to water.
 - Manage chemical dosages to control toxicity to acceptable levels.

Water and Wastewater Utilities

- Water and wastewater utilities have found a way to add chemicals to water while maintaining the public trust.
- Water and wastewater utilities have found ways to coordinate the disposal of water treatment plant wastes and waste management issues.
- Unlike hydraulic fracturing, water and wastewater utilities have found ways to maintain the public trust.
- Public trust was accomplished through the use of standards and certified products.



Water Sector Tools that Maintain Public Trust

- National Sanitation Foundation (NSF) Certifications of Drinking Water Additives
- AWWA Standards (Materials and Chemicals)
- Product QA/QC (Water and Wastewater)
- Disclosure to WQCD (Drinking Water Design Reviews and Wastewater Permit Applications)
- Whole effluent toxicity (WET) testing of effluents (Wastewater)
- Similar tools and techniques are perceived not to be applied by entities conducting hydraulic fracturing or formulating hydraulic fracturing fluids.
- Similar tools and techniques are needed with regard to hydraulic fracturing.

Drilling Spills Rise in Colorado, But Fines are Rare

(Denver Post, September 13, 2011)

- Spills during gas and oil drilling occur at a rate of seven every 5 days.
- More than 1000 spills between August 2009 and September 2011 (343 spills Jan. –Sept. 2011)
- Colorado groundwater was contaminated in 58 spills in 2011. Streams were contaminated 18 times.
- About 2.1 million gallons was released in 2011 of “produced water” extracted during drilling, along with gas and fracking fluids, diesel fuel, oil, and other chemicals.

Methanol – Black Gore Creek near Vail
Truck Accident on I-70, October 30, 2011
44,000 lbs on truck, spillage approx. 100 gals?



Message on the Website of the Eagle River Water and Sanitation District

- **Vail Pass HazMat spill did not affect drinking water [Headline]**
- Vail tap water is, and always was, safe to drink and use as normal. An October 30 truck crash on Vail Pass spilled hazardous material heading towards Black Gore Creek, but the hazardous substance never affected the public water system.
- Eagle River Water & Sanitation District shut down its river intakes in Vail upon being notified of the spill, per its standard operating procedures pertaining to potential spills in local waterways. These precautions help to ensure the safety of the Vail public water system even while responders worked to determine whether any hazardous material reached local waterways.
- Due to a miscommunication, a public message was sent via the incident response team on site that incorrectly advised people to “not use tap water at this time.” The message was reportedly meant to focus on the affect to local waterways.
- “When people received that alert, they were rightly alarmed,” said Water Division Manager Todd Fessenden. “Unfortunately, the information was incorrect. Public health and the safety of our water supply is our primary concern. The safety of Vail’s tap water was never in question.”
- Eagle River Water & Sanitation District was not involved in the warning message, but quickly acted to correct it, and a second alert was sent to clarify the circumstance. There is no cause for public concern about the status of Vail’s drinking water.
- It is unsure whether any of the hazardous material made it to local creeks, but the District will continue to operate as though it did. Samples from Black Gore Creek and Gore Creek will be tested until it is verified that no contamination is present.

Where we Need to Go as a Society

- An independent certification process for hydraulic fracturing fluid formulations and constituents would serve the oil and gas industry well.
 - Allows compromise on trade secrets/disclosure.
 - Can be referenced and recognized by local jurisdictions, waste management entities, and emergency responders.
 - Protects water supplies.
 - Promotes proper waste management.
 - Improves public trust.

Policy Questions

- How does disclosure as proposed in the revised regulations achieve multiple and /or mutual purpose(s) of stakeholders and affected parties?
- Does disclosure as proposed in the revised regulations achieve the highest possible stewardship of the environment?
- Why is the COGCC's proposed disclosure regulations less strict than the Secretary of Energy's Advisory Board's Shale Gas Production Subcommittee's recommendation that regulatory agencies immediately develop rules to require disclosure of all chemicals used in hydraulic fracturing fluids on both public and private lands?
- Why is the COGCC's proposed disclosure regulations less strict than the Secretary of Energy's Advisory Board's Shale Gas Production Subcommittee's statement that it should be a routine industry practice to measure the composition of all stored return (flowback and produced) waters and to publicly report the composition?

Policy Questions

- Has COGCC requested or received advice from CDPHE-WQCD or CDPHE-HMWMD regarding the need for full disclosure, or the challenges that regulated facilities would face if chemical constituents are not disclosed, or inappropriately managed? If COGCC and CDPHE have not conversed on disclosure, consider this a request to do so and to report the conversation in the SBP.
- Has CDPHE refused to opine regarding the degree of disclosure or information needed for proper waste management? If so, consider this a request to describe the response in the SBP.
- In the context of revised disclosure rules, do COGCC and CDPHE have a coordinated and comprehensive plan for managing hydraulic fracturing fluid disposal? Will MOA's in place between COGCC and CDPHE [Exhibit G and H] be revised to implement the adopted disclosure rules?

Proposed Policy Goal

- The form of disclosure that would achieve the highest possible level of stewardship for water suppliers and the environment is the pre-registration of independently certified formulations and constituents, disclosure prior to commencement of hydraulic fracturing, and documentation after completion. Flowback and produced waters would be fully characterized for the additives remaining and the constituents picked-up from the sub-surface.

Policy Issues

- **Water suppliers would be best served in an approach to disclosure that achieves the highest level of stewardship:**
 - Pre-registration of independently certified formulations and constituents is required.
 - Disclosure prior to commencement of hydraulic fracturing is required.
 - Full documentation of formulations, additives, constituents, and concentrations used after completion activities.
 - Full characterization of flowback and produced waters for the additives remaining and the constituents picked-up from the sub-surface.

Policy Issues (continued)

- Water suppliers would be best served if disclosure rules were:
 - **Subject to periodic review and revision.**
 - Development of categorical pretreatment standards have commenced.
 - EPA's comprehensive review is on the horizon.
 - DOI/BLM is signaling revised disclosure regulations.
 - **Longer retention of records.**
 - 5 years is much too short for timeframes associated with water supply or contaminant transport.
 - 40 to 50 years is realistic for water supply reservoir sites.
 - Mining impacts have taken multiple decades for water quality impacts to show up.
 - Pavillion, WY – Contamination observed 40 plus years after start of production and 10 plus years after a significant increase in well activity in the late 1990's.

Requested Modifications

- Please address the following omissions in the Statement of Basis and Purpose (SBP)
 - Water utilities were not part of the “conservation community” referenced in the SBP as having been consulted or a participant in the development of the SBP or the proposed rules.
 - The SBP does not describe why the IOGCC or the Ground Water Protection Council is a suitable independent entity to entrust with repository duties for archiving disclosure data for future generations.
 - The SBP does not describe why an agency of Colorado government is not appropriate or capable of being the repository for archiving disclosure data.
 - SBP language does not provide or document a rationale for why 5 years of data retention is adequate.

Requested Modifications

- Please consider the following conceptual revisions to the proposed regulations:
 - Rule 205A.B.(2): Add requirements for disclosure of all chemicals, inclusive of additives, constituents, and concentrations, proposed for use in hydraulic fracturing prior to commencement of hydraulic fracturing. (Pre-disclosure, Full-disclosure)
 - Rule 205A.B.(2): Add requirements that limit use of chemicals and formulations to only those pre-certified for use by an independent organization. (Pre-certification)
 - Rule 205A.B.(2): Add requirements for full chemical characterization of flowback and produced waters.
 - Add a new subpart F to Rule 205: to specifically describe retention requirements for hydraulic fracturing fluids, additives, constituents and concentrations and increase the retention of hydraulic fracturing disclosure records to a minimum of 40 years.
 - Rule 205 A.B.(3)(A): Require full review and, if warranted, revision of all disclosure related rules in 2015 for purpose of intra agency coordination and determining effectiveness of these proposed rules.
 - Rule 205A.B. (5): Add disclosure to water and wastewater professionals for 1) source water protection planning, 2) in the event of suspected water contamination, 3) spills, or 4) concurrent with seeking approval to discharge to a wastewater management entity.



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Association

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F 202.628.2849

Headquarters Office
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www.awwa.org

AWWA Water Utility Council Policy on Hydraulic Fracturing for Energy Production

In order to protect sources of drinking water, AWWA supports legislative or regulatory provisions which:

- 1) Ensure that hydraulic fracturing is fully subject to the provisions of the Safe Drinking Water Act and its underground injection control provisions. In the absence of federal application such Safe Drinking Water Act regulations to hydraulic fracturing, states should adopt measures consistent with the federal Underground Injection Control program.
- 2) Ensure that EPA and the states have adequate resources to administer the Underground Injection Control Program.
- 3) Require the disclosure of chemicals used in a hydraulic fracturing operation to local emergency responders and relevant medical professionals.
- 4) Provide for the monitoring of underground plumes of chemicals used in hydraulic fracturing if required by the regulating entity.
- 5) Ensure that all wastewaters from oil and gas production are either 1) reinjected underground subject to regulation under the Underground Injection Control Program or 2) fully and properly treated as required by the Clean Water Act before disposal at the surface.
- 6) Federal policy should require the use of best available technologies for recycling of flowback and produced waters where hydraulic fracturing is used to extract energy supplies in the interest of protecting drinking water supplies.

###

AWWA Water Utility Council Policy on Hydraulic Fracturing for Energy Production

(National Policy as of 11/17/2011)

1. Ensure that hydraulic fracturing is fully subject to the provisions of the Safe Drinking Water Act (SDWA) and its underground control (UIC) provisions. In the absence of federal application of such SDWA regulations to hydraulic fracturing, states should adopt measures consistent with federal UIC program.
2. Ensure that EPA and the states have adequate resources to administer the UIC Program.
3. Require the disclosure of chemicals used in hydraulic operation to emergency responders and relevant medical professionals.
4. Provide for monitoring of underground plumes of chemicals used in hydraulic fracturing if required by the regulating entity.
5. Ensure that all wastewaters from oil and gas production are either: 1) re-injected underground subject to regulation by the UIC Program, or 2) fully and properly treated as required by the Clean Water Act (CWA) before disposal at the surface.
6. Federal policy should require the use of best available technologies for recycling of flowback and produced waters where hydraulic fracturing is used to extract energy supplies in the interest of protecting drinking water supplies.

AWWA Water Utility Council Policy on Hydraulic Fracturing for Energy Production

(National Policy-Colorado Proposal)

1. Ensure that hydraulic fracturing is fully subject to the provisions of the Safe Drinking Water Act (SDWA) and its underground control (UIC) provisions. In the absence of federal application of such SDWA regulations to hydraulic fracturing, states should adopt measures consistent with federal UIC program.
2. *Pre-registered and pre-disclosed hydraulic fracturing fluids that are relatively benign by independent certification should be exempt from specific provisions of the SDWA and UIC Program.*
3. Ensure that EPA and the states have adequate resources to administer the UIC Program.
4. Require the disclosure of chemicals used in hydraulic operation to *waste management entities*, emergency responders, and relevant medical professionals.
5. Provide for monitoring of underground plumes of chemicals used in hydraulic fracturing if required by the regulating entity.
6. Ensure that all wastewaters from oil and gas production are either: 1)re-injected underground subject to regulation by the UIC Program, or 2) fully and properly treated as required by the Clean Water Act (CWA) before disposal at the surface.
7. Federal policy should require the use of best available technologies for recycling of flowback and produced waters where hydraulic fracturing is used to extract energy supplies in the interest of protecting drinking water supplies