



# Land Use

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**BOULDER COUNTY  
BOARD OF COUNTY COMMISSIONERS**

**June 12, 2014, 4:00 p.m.**

**Commissioners' Hearing Room, Third Floor  
Boulder County Courthouse  
Boulder, Colorado**

**Public Hearing to receive a status update from staff on the matters discussed in Resolution 2013-55 effective June 18, 2013, which extended the temporary moratorium on processing oil and gas development applications in the unincorporated county until January 1, 2015, and to consider whether to extend or otherwise amend the moratorium.**

*Coordinating Staff: Land Use Department, Boulder County Public Health*

**PACKET CONTENTS:**

**Item**

- Update on the Moratorium on Processing Applications for Oil & Gas Development
- Addendum 1 – Results of Scientific Studies
- Addendum 2 – Ongoing Studies
- Addendum 3 – Oil and Gas Legislation from 2014 Legislative Session

**AGENDA FOR JUNE 12<sup>TH</sup> PUBLIC HEARING**

- I. Opening remarks by the Board**
- II. County staff presentation: Status update related to the temporary Moratorium**
- III. Board discussion, action, or direction to staff**

**PUBLIC COMMENT**

All public comment received to date is available on the County's oil and gas website at:  
<http://www.bouldercounty.org/dept/landuse/pages/oilgas.aspx>

## **UPDATE ON THE TEMPORARY MORATORIUM ON PROCESSING APPLICATIONS FOR OIL AND GAS DEVELOPMENT**

A number of developments have occurred since the Board of County Commissioners held a public hearing on June 18, 2013 and provided direction to staff in Resolution 2013-55 (the “Resolution”) to provide certain updates regarding a number of topics related to oil and gas operations, and the follow-up public meeting on September 17, 2013 at which staff provided preliminary updates. A summary of subsequent updates is provided below.

Whether the existing county Development Plan Review (“DPR”) regulations addressing oil and gas development in unincorporated Boulder County (recently updated and adopted in December 2012 as a new Article 12 of the Boulder County Land Use Code) are sufficient to protect the public health, safety, and welfare, and whether these regulations should be amended is an open question. A number of events have occurred since the regulations were adopted by the Board in December 2012, as amended in May 2013, which the regulations either do not address or may not address adequately.

### **Flood of September 2013**

According to the Colorado Oil and Gas Conservation Commission (“COGCC”), the September 2013 flood event caused 2,658 wells statewide to be shut-in in anticipation of flooding. COGCC received approximately 50 reports statewide documenting flood-caused spills greater than COGCC’s reportable quantities, including 14 “notable” flood-caused spills of oil or condensate in amounts greater than 20 barrels. COGCC is tracking a total of 230 sites statewide (including the 50 reportable spill sites) where, according to COGCC sources, a spill potentially could have occurred. As of April 2014, COGCC records indicate a statewide total of 1,149 barrels of oil or condensate spilled during the flooding and a total of 1,035 barrels of produced water also spilled.

Boulder County commissioned its own third party assessment (by Terracon Consultants, Inc.) of oil and gas facilities within the county impacted by the floods, which did not reveal any major spills or releases within Boulder County but did identify some damaged facilities requiring cleanup or abandonment.

### ***Floodplain Mapping and Regulatory Updates***

Current DPR regulations addressing oil and gas development in unincorporated Boulder County allow for wells to be located in the floodplain. Staff would like to reevaluate this aspect of our regulations to ensure adequate protections are included, as well as revisiting well distances from water bodies, in light of the damage experienced by other flood-affected jurisdictions with oil and gas development like Weld County. In addition, the regulatory floodplain maps are likely to change as we learn more about the topological and hydrological changes caused by last year’s flood event.

Staff resources are stretched thin due to the work being done on flood recovery. Since the flood, the Board directed staff to prioritize flood recovery efforts over non-flood-related work. Specifically, staff were directed to use their best efforts to make use of limited staff resources in determining if an application can be accepted for processing by, first, prioritizing Hazard Mitigation Reviews and other Reviews where the outcome directly addresses flood impacts or provides resources to remedy the flooding and related impacts and, second, prioritizing applications for work unrelated to flood recovery filed on or after September 11<sup>th</sup> only as staffing (of both Land Use and referral agencies in other County departments) and other resources permit.

As a result, a number of planning projects remain on hold while staff works to address the flood’s devastating impacts on our residents. Examples include planning projects in several townsites and

identified, necessary Land Use Code amendments (except those that are flood related). Staff resources across many Departments are devoted to the recovery, and it is anticipated that will continue to be the case for the next several years. The County is spearheading master planning efforts across many of the drainages in the County which will provide technical information related to post-flood conditions on the land. This information will then need to be analyzed and programs developed and implemented including updated floodplain mapping.

***Moratorium Amendment to Allow Flood Recovery and Other Health & Safety Work to Proceed***

Oil and gas operators with existing facilities located in unincorporated Boulder County have recently contacted the County to request permission to relocate certain of those facilities further away from flood-prone areas to reduce the risks to public health, safety, welfare and the environment when future severe weather events occur. The proposed work is not allowed under the temporary moratorium currently in place because it involves more than a “minor modification to an existing permit.”

Staff is recommending that Section 5 of Resolution 2013-55 be amended to add a section (e), such that the entire Section 5 now reads:

5. “As before, the Temporary Moratorium does not apply to the following:
  - a. Any complete application for oil or gas exploration, development, or production currently being processed by the Land Use Department, which may continue to be processed and reviewed as provided in the Land Use Code.
  - b. Any application for oil or gas exploration, development, or production already approved by the Land Use Department prior to the effective date of this Resolution where such approval is validly maintained thereafter.
  - c. Development that possesses either a statutory or common law vested right.
  - d. Minor modifications to existing permits.
  - e. Work on existing oil and gas facilities which the Land Use Director in his sole discretion deems necessary to either (i) repair facilities impacted by acts of God such as, without limitation, the flooding and severe weather events of September 2013, or (ii) reconfigure or relocate facilities in a manner that better protects public health, safety, and welfare and the environment. For purposes of this Section, “oil and gas facilities” means the site and associated equipment used for the production, transportation, treatment, and/or storage of oil and gas and waste products; or an individual well pad built with one or more wells and operated to produce liquid petroleum and/or natural gas, including associated equipment required for such production; or gathering lines, and ancillary equipment including but not limited to drip stations, vent stations, pigging facilities, chemical injection stations and valve boxes; or any other oil and gas operation which may cause significant degradation.

Additionally, staff recommends that the following language be added to the moratorium:

If an oil and gas operator believes certain activity on an oil and gas facility is not subject to the temporary moratorium given the exceptions listed in Section 5, as amended by this Resolution, such operator must submit a request in writing to the Land Use Director. The request must include the location of the facilities; a description of the desired work; the reason(s) why the work is not subject to the moratorium including any benefit to public health, safety, and welfare and the environment; the time and dates when the work would occur; the duration of the work; any mitigating measures to reduce impacts to neighbors

and other affected parties; a list of all parties that will receive notice from the operator prior to commencement of work; and documentation of any required COGCC permits required for the work. Such work may only proceed upon written approval of the Land Use Director.

### **Impacts on Existing Well Pads**

When adopting the current set of oil and gas regulations in Article 12 of the Land Use Code, the Board allowed existing well pads to be eligible for Expedited Development Plan Review. Based on input from Industry, staff understood that most new wells would likely be planned on existing pads, of which there are over 200 in unincorporated Boulder County. Benefits of utilizing existing well pads were found to include: less new disturbance on the site (no new roads, well pad areas, etc.), shared use of infrastructure, and, where a new well is approved on an existing pad, the remaining infrastructure on the pad would be required to be updated to meet the current regulatory standards to the extent practicable. Additionally, opening up existing pads for new wells could create more opportunity for the County to gain the additional air and water quality protection measures that can only be obtained through the Expedited DPR process among other benefits. However, although staff initially thought that incenting the use of existing well pads would be beneficial, evidence from other drilling operations shows the actual impacts of using existing sites is greater than was envisioned. For example, new wells built on existing sites in neighboring Weld County have been found to disturb more acreage than previously understood.

In addition, the tall walls being constructed by some operators, while temporary and important to mitigate other impacts such as reducing noise, dust, and light pollution, create new visual and quality of life impacts. The equipment Industry is installing to improve air quality and noise issues have a strong negative impact on the County's rural character. The increased visual impacts further illustrate the incompatible nature of these industrial-like operations on residential and agricultural areas. Staff would like to explore whether new land use protections can be considered.

### **Inspections of Oil and Gas Operations**

In February 2014, Boulder County Public Health filled a County-funded (two-year) term position to conduct inspections of oil and gas operations. After completing the necessary training and creating a detailed inspection checklist covering air quality, water quality, and basic site characteristics, the inspector began conducting site inspections and has completed inspections at 51 of approximately 80 sites. Thirty-one of these were performed with an Optical Gas Imaging (Forward Looking Infrared) camera on loan from the Regional Air Quality Council. The inspector observed air releases at 20% of the inspections and stains indicative of a past release or active water releases at approximately 8% of the inspections. Some of the key issues that have been identified are discussed in the sections on Air Quality Issues and Water/Soil Contamination Issues below.

### **Air Quality Issues**

Boulder County has a significant number of smaller wells that are not required by state law to control air emissions. However, many small sources can add up to a large number. The Colorado Department of Public Health and Environment ("CDPHE") does not require well production facilities with less than 6 tons per year uncontrolled emissions to install air pollution controls. The recent updates to CDPHE's air quality regulations provide more specificity to operators in understanding what actions are necessary to control air emissions. There are also aspects of the new rule that the Local Government Coalition urged the Air Quality Control Commission to strengthen, including increasing Leak Detection and Repair (LDAR) frequency for smaller operators. Some examples of changes proposed to strengthen the regulation during the rulemaking include requiring LDAR to be conducted at least semi-annually for the smaller sources versus one time in the life of the operation.

In light of this new information, it makes sense to consider requiring greater monitoring frequency and controls for small operators based on proximity to home and schools.

### **Water/Soil Contamination Issues**

Current COGCC requirements for spill reporting are 42 gallons within a containment area and 210 gallons property wide. As indicated in one of the studies highlighted below, frequent smaller spills can impact shallow ground water. Since 2009, 24 spills have been reported in Boulder County according to the COGCC database. Nineteen of these spills were not contained and 13 spills impacted groundwater. In the event that a spill occurs, even at small amounts, soil clean up and confirmatory soil sampling documenting the cleanup can ensure that spills are being addressed. Operators are also reporting that they are lining the containment areas at newer well sites and using steel instead of earth containment. The Denver Post reported last month that while an average of 200 gallons is spilled onto soil per day statewide, no federal or state agency has assessed the impact of the Colorado oil and gas boom on soil, whether from a human health or crop science perspective.

### **Evolution of Drilling Technology**

The new regulations do not require operators to adopt new technology; however, new technology is rapidly becoming available that would lessen some of the various impacts of oil and gas development. For example, operators are reporting the use of natural gas or electric powered diesel rigs that significantly reduce air emissions and noise. Additionally, piping water to a site versus trucking it the site can significantly reduce associated emissions. Finally, new technology is allowing operators to increase horizontal drilling distances that reduce surface footprint and impacts to agricultural land.

### **Scientific Studies Discussing Impacts on Health and Safety**

Many of the studies discussed in Resolution 2013-55 have not yet been completed. However, a few results have returned. Most conclude oil and gas development may negatively affect health and safety. For example, a recent flyover study of the Front Range revealed that oil and gas operations leak as much as three times more methane and seven times more benzene as the predictions that regulators and policy makers use to evaluate air quality and climate impacts. A study of groundwater impacts of oil and gas drilling in Garfield County concluded a link over time to increased methane and chloride levels in water wells from oil and gas drilling. A number of other studies found various areas of concern related to the impacts of oil and gas development on groundwater. Finally, a study in Ohio found that sand and water injected into natural gas wells during the hydraulic fracturing likely led to at least 11 earthquakes in March, 2014. A more detailed survey of the results of these recent studies is included at Addendum 1.

Other studies are still underway. Notable among these is an air quality monitoring study overseen by Boulder County Public Health and implemented by the University of Colorado's Institute for Arctic and Alpine Research and Mechanical Engineering Department. Three different types of monitoring devices are collecting data at five sites throughout the County over the next several months to compare emissions within the city of Boulder to five sites near oil and gas operations. Other studies include an intensive study of the region's atmosphere conducted by the National Oceanic and Atmospheric Administration ("NOAA"); a study by the University of Colorado National Science Foundation Sustainability Research Network to research air and water quality as well as societal impacts of oil and gas development; and the Colorado State University and Garfield County Gas Emissions Study which will look at emissions from gas well development in the region of Garfield County. CDPHE will be conducting an oil and gas emissions study of the north Front Range. CDPHE, the University of Colorado ("CU"), Colorado State University ("CSU"), University of California Berkeley, and other university collaborators, local projects and agencies including local school

districts, NASA, NOAA, and the National Center for Atmospheric Research (“NCAR”) will be performing the Front Range Air Pollution and Photochemistry Experiment (“FRAPPE”) where air planes equipped with extensive and sophisticated air monitoring equipment as well as satellite data will gather the most robust data on atmospheric chemistry from all the pollutants that appear in the atmosphere over the Front Range during the summer months. In addition, CDPHE will continue its ongoing monitoring in Platteville to identify air quality issues and trends. Finally, the Environmental Protection Agency (“EPA”) will conduct a study of the impact of hydraulic fracturing on drinking water. Descriptions of the studies that are underway are included at Addendum 2.

### **Changes to the Regulatory Landscape**

The following changes have occurred at the federal, state, and local levels over the past year.

#### ***Federal***

##### **Environmental Protection Agency (“EPA”) Actions**

The EPA is creating a federal regulatory program that would require disclosure and reporting of the chemicals used in the hydraulic fracturing process. In May of 2014, the EPA released an Advanced Notice of Proposed Rulemaking under the Toxic Substances Control Act and is developing an approach to obtain information on chemical substances and mixtures used in hydraulic fracturing.

#### ***State***

##### **New Colorado Air Quality Rules Adopted by Colorado’s Air Quality Control Commission**

On February 23, 2014, Colorado’s Air Quality Control Commission (“Commission”) fully adopted EPA’s Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution found in 40 C.F.R. Part 60, Subpart OOOO (“NSPS OOOO”); adopted corresponding revisions to its emissions reporting and permitting framework; and adopted complementary oil and gas control measures. This rulemaking was the culmination of a year-long stakeholder process. These oil and gas control measures focus on identifying and repairing leaks in the oil and gas sector, and contain some recordkeeping and reporting requirements. This rulemaking received support from environmental groups and some companies within the oil and gas industry. In addition to extensive volatile organic compounds (“VOC”) reductions, the Regulation Number 7 revisions also regulate methane emissions from the oil and gas industry. These oil and gas control measures are estimated to reduce VOC emissions by approximately 93,500 tons per year and methane/ethane emissions by approximately 65,000 tons per year, at a cost of approximately \$42.5 million per year.

##### **Colorado General Assembly 2014 Session**

During the 2014 General Assembly’s session, no bills related to the local control of oil and gas passed. A bill which would have directed CDPHE to analyze human health and quality of life in areas of the Front Range including Boulder County to understand any possible effects of oil and gas operations on communities within these counties was postponed indefinitely. The General Assembly did pass a bill which increases fines for violations of the Oil and Gas Conservation Act. A full summary of each bill introduced and its disposition is attached as Addendum 3. The Governor has indicated he may call a special session sometime this summer if stakeholders can agree on a bill that would provide local governments more local control of oil and gas operations, but no such session has been scheduled as of the date this memo was drafted.

##### **Proposed Statewide Ballot Initiatives**

A number of ballot initiatives related to oil and gas have been proposed for the 2014 general election. Four of the initiatives establish mandatory statewide setbacks from occupied structures for new oil and gas wells requiring a state or local permit. Five give local governments the authority to regulate, limit and/or prohibit oil and gas development. One provides that any local government

that bans, puts in place a moratorium or effectively prohibits the production of oil and gas will not be eligible to receive oil and gas revenues administered by the state that are derived from those activities. Two initiatives provide that local governments may not enact local laws or regulations regulating oil and gas development that are more restrictive than state laws or regulations, with one of those two providing that local governments may however assess an oil and gas impact fee to mitigate direct costs associated with oil and gas development within their boundaries.

### ***Local***

Several lawsuits are pending involving Front Range home rule municipalities that adopted regulations through City Council or passed 2013 ballot measures that ban or limit fracking. These include suits by COGCC and the Colorado Oil and Gas Association (“COGA”) against Longmont, suits by COGA against Fort Collins and Lafayette, and a suit by Sovereign against Broomfield. Staff is not aware of any suit against a statutory county filed or ongoing since the last Boulder County moratorium hearing in June 2013. On June 24, 2014, Loveland voters will consider a two-year moratorium on fracking.

### **CONCLUSIONS**

The preceding developments have occurred since the Board of County Commissioners last held a public hearing on June 18, 2013 and a public meeting on September 17, 2013, at which staff provided preliminary updates. At this time, staff is requesting that the Board add language to the moratorium to exempt from the moratorium certain repair work related to natural disasters, such as the 2013 flood, and add details on the required process for oil and gas operators to submit an exemption request to the Land Use Director.

## **Addendum 1 Results of Recent Scientific Studies**

### Flyover Study of Colorado's Front Range – NOAA (2014)

An intensive two-day study of airborne measurements revealed that oil and gas operations leak nearly as much as three times more methane and seven times more benzene than predicted, based on inventory estimates. Inventory estimates are the primary tool that regulators use to evaluate air quality and climate impacts. The study confirmed findings from research performed from 2008 – 2010 on the magnitude of air pollutant emissions from oil and gas activities in northeastern Colorado. The earlier study determined that methane emissions were about twice the estimated amounts and that benzene levels were several times higher. Oil and gas activities are responsible for about 75 percent of the methane emissions and are a significant source of benzene emissions. The research also revealed that emissions for a subset of VOCs were almost double the predicted amount in northeastern Colorado. Oil and Gas activities are responsible for about half the VOC emissions in northeastern Colorado.

### Mamm Creek Groundwater Impact Conclusions – Garfield County, Colorado (2014)

This study was commissioned for Garfield County, performed by URS and S.S. Papadopoulos & Associates, and written by Dr. Geoffrey Thyne. The study concluded a link over time to increased methane and chloride levels in water wells from oil and gas drilling.

### The Energy-Water Nexus- Groundwater Quality Degradation Associated with Production of Shale Gas- Y.K. Kharaka, J.J. Thordsen, C.H. Conaway, & R.B. Thomas (2013)

This study reviewed the huge growth in production of unconventional sources of oil and natural gas and their potential impacts on groundwater. The study found that oil and gas sources associated with shale and tight sand formations have a higher potential for groundwater contamination, and called for greater attention to this issue.

### Geochemical and Isotopic Variations in Shallow Groundwater in Areas of the Fayetteville Shale Development, North-Central Arkansas- N.R.Warner, et al. (2013)

This study examined the changing landscape of energy development in the United States. As horizontal drilling and hydraulic fracturing have accelerated; so to have the concerns associated with environmental impacts of these practices. The authors investigated the possible degradation of water quality in shallow aquifers that overlay shale formations. The conclusions suggested the need for in-depth site specific investigations that take into account the basin formation and specific geology to avoid water quality impacts.

### An Evaluation of Water Quality in Private Drinking Water Wells Near Natural Gas Extraction Sites in the Barnett Shale Formation- The University of Texas at Arlington, B. Fontenot, et al. (2013)

This study presented an assessment of private drinking water wells in North Texas that overlie the Barnett Shale formation. Over 100 water samples were taken and assessed using analytical chemistry techniques. The study reported in 2013 identified some wells, which exceeded the EPA's Drinking Water Maximum Contaminant Level, but found that a variety of sources and oil and gas as well as industrial operations could all be sources of the contamination.

### Impacts of Shale Gas Wastewater Disposal on water Quality in Western Pennsylvania- N.Warner (2013)

A common issue that states are encountering is the proper disposal of wastewater associated with the production of oil and gas. In Pennsylvania, this water is sometimes treated in brine treatment facilities and then discharged into local streams. This study examined the water quality and isotopic composition of discharged effluents, stream sediment, and surface waters associated with a treatment facility in Western Pennsylvania. The study found that the treated water actually had the same composition of the produced waters from the Marcellus Shale formation prior to treatment.

Shale Gas Development Impacts on Surface Water Quality in Pennsylvania- S. Olmstead (2013)

This study is a large scale examination into the extent to which shale gas development activities affect surface water quality. Focusing on the Marcellus Shale formation, in Pennsylvania, this study finds the potential for surface water impacts from development of shale gas, and suggests further research and monitoring efforts.

Ohio Earthquake Study (2014)

Geologists with the Ohio Department of Natural Resources (ODNR) confirmed that sand and water injected into natural gas wells during the hydraulic fracturing process may have increased pressure on an unknown micro-fault in Ohio, likely leading to at least 11 minor earthquakes experienced in March, 2014. As a result, the ODNR announced new, stronger permit conditions for drilling.

## **Addendum 2 Ongoing Studies**

### Boulder County Public Health: Air Quality Monitoring Study (2014)

This study, funded by the Boulder County Commissioners, is being overseen by Boulder County Public Health (BCPH) and implemented by the University of Colorado's (CU) Institute for Arctic and Alpine Research and Mechanical Engineering Department. Three different types of monitoring devices are collecting data at five sites throughout the County from June through October of 2014.

The study is using traditional Summa canisters to collect ambient air samples. The study is also field testing Oil and Gas-Pod samplers which were created CU to collect continuous samples. The third technique is the use of adsorbent tubes which are smaller than Summa canisters and could be used to collect exposure data.

BCPH worked to identify and secure the locations for the monitoring to be conducted. The locations include a background level Site at Boulder County Public Health to compare emissions to four additional sites in the eastern county nearest oil and gas operations. BCPH is meeting with CU scientists monthly to discuss developments. Initial findings from the study will be delivered to the County Commissioners in December.

### NOAA Study of Sources of Atmospheric Pollutants (2014)

In the summer of 2014, atmospheric scientists from NASA, the National Center for Atmospheric Research, NOAA, CIRES and others will gather in the Front Range, to participate in an intensive study of the region's atmosphere. With research aircraft, balloon-borne measurements, mobile laboratories and other ground-based equipment, the scientists plan to further characterize the emissions of many possible sources, including motor vehicles, power plants, industrial activities, agriculture, wildfires and transported pollution. This will provide us the information necessary to understand key processes that contribute to air pollution in the Front Range.

### University of Colorado National Science Foundation Sustainability Research Network (2017)

The University of Colorado Boulder is the lead institution for a Sustainability Research Network (SRN) funded by the National Science Foundation. The Network will engage twenty-seven researchers at nine institutions to research air and water quality as well as societal impacts of oil and gas development. This is a five year study funded through a \$12 million grant from the National Science Foundation.

The Water Quality team is working to calculate the probability of groundwater contamination from natural gas extraction in areas of intensive energy development, such as the Denver Julesburg Basin. The team will investigate whether water quality has changed in shallow aquifer systems near natural gas wells in areas that have already been heavily drilled. Water quality sampling will measure pre-drilling (or "baseline") water quality in places that have not yet been drilled and sampling will be taken from water wells near proposed drilling sites.

Sampling began in 2013 with the gathering samples from 40 wells. Six of these wells are located in Boulder County. Sampling will continue in 2014, when an additional 80 samples will be collected. Analysis includes thermogenic methane (an oil and gas indicator) as well as total dissolved solids and benzene and sample size will grow to 120 wells. Sampling will continue into 2015 and 2016 with the potential to expand sample collection in targeted areas.

#### Colorado State University, Garfield County Gas Emissions Study (2016)

Colorado State University's Atmospheric Science Department is conducting a study of emissions from gas well development in the region of Garfield County. This three-year study, begun in 2013, is sponsored by Garfield County and local industry. It will quantify emissions of air toxics, ozone precursors, and methane from well drilling, hydraulic fracturing, and flowback. The study will also examine near-field dispersion of emissions and the ability of dispersion models to reproduce measured concentration fields. The study is being conducted on-site in partnership with industry to understand emissions from different types of oil and gas operations. Results may reflect a "best-case" scenario, as opposed to normal operating conditions.

#### CDPHE North Front Range Oil and Gas Emissions Study (2016)

The Air Pollution Control Division of the Colorado Department of Public Health and Environment has requested funding during the 2013 Legislative Session to partner with Colorado State University to conduct an emissions and dispersion study similar in concept to the Garfield County study. Sources and locations to be monitored will be determined by a technical panel, but may include development, production, and processing activities related to oil and gas. The study will commence in 2014 and conclude in 2-3 years. Results may reflect a "best-case" scenario, as opposed to normal operating conditions.

#### Front Range Air Pollution and Photochemistry Experiment (Data Collection Summer 2014)

The Front Range Air Pollution and Photochemistry Experiment (FRAPPÉ) field campaign will take place in summer 2014. This is a collaborative effort between the Colorado Department of Public Health and the Environment, the University of Colorado and Colorado State University, UC Berkeley, and other university collaborators, local projects and agencies including local school districts, NASA, NOAA, and NCAR. It's an unprecedented effort only available to four communities across the country. Air planes equipped with extensive and sophisticated air monitoring equipment as well as satellite data will gather the most robust data on atmospheric chemistry from all the pollutants that appear in the atmosphere over the Front Range during the summer months and prevent the metro area from meeting federal air quality standards.

#### CDPHE's Ongoing Monitoring in Platteville

CDPHE conducts air quality sampling and analysis from a network of 60 monitoring sites across the state to identify air quality issues and trends. The monitoring site in Platteville provides a representation of emissions from oil and gas activities. Since 2003, monitoring of air toxics associated with oil and gas has shown a significant reduction. Benzene, for example, was tested at 4 parts per billion in 2003 and 0.6 parts per billion in 2012. Sampling in 2012 was conducted during winter versus summer months. Additional data is necessary, captured under like conditions, to confirm this result.

#### EPA Study of the Impact of Hydraulic Fracturing on Drinking Water

At the request of Congress, the EPA is conducting an ongoing study of the impact of fracking on drinking water resources. The site touts EPA's work with states and other key stakeholders to help ensure that natural gas extraction does not come at the expense of public health and the environment. It has examples of the agency's focus and obligations under the law to provide oversight, guidance and, where appropriate, rulemaking that achieve the best possible protections for the air, water and land. It includes examples where the EPA is investing in improving our scientific understanding of hydraulic fracturing, providing regulatory clarity with respect to existing laws, and using existing authorities where appropriate to enhance health and environmental safeguards. A draft report of the study, mentioned in Resolution 2013-55, is expected to be released for public comment and peer review in 2014.

**Addendum 3**  
**Oil and Gas Legislation Introduced in the 2014 State Legislative Session**

<b>Bill #</b>	<b>Sponsors</b>	<b>Short Title</b>	<b>Bill Summary</b>	<b>Status History</b>
<a href="#">HB14-1064</a>	SONNENBERG / BROPHY	Sev Tax Distribution To Local Gov Limits Oil & Gas	<p>Moneys in the local government severance tax fund are primarily used for 2 purposes:</p> <p>* For the executive director of the department of local affairs to provide grants and loans to political subdivisions impacted by development, processing, or energy conversion of minerals and mineral fuels; and</p> <p>* For direct distributions to counties and municipalities based on factors related to oil and gas production. The bill prohibits any local government that has a moratorium or a permanent prohibition on the extraction of oil and gas from receiving more direct distributions or grants and loans than the local government received in the fiscal year during which the moratorium or permanent prohibition was enacted.</p>	01/22/2014 House Committee on Local Government Postpone Indefinitely
<a href="#">HB14-1077</a>	GEROU / HODGE	Raise Cap Oil Gas Conservation & Env Response Fund	The bill increases the statutory cap on the 2-year average of the unobligated portion of the oil and gas conservation and environmental response fund from \$4 million to \$6 million.	03/27/2014 Governor Signed
<a href="#">HB14-1297</a>	GINAL / AGUILAR	Analyze Health Data Regarding Front Range Oil Gas	<p>The bill directs the department of public health and environment to conduct an analysis of human health and quality of life within the counties of Larimer, Weld, Boulder, and Adams with the intent of understanding any possible effects of oil and gas operations on communities within these counties. The department must consult with a newly created scientific oversight committee regarding the design and conduct of the analysis and preparation of interim and final reports on the analysis. The analysis will be conducted in 2 stages. Stage 1 will:</p> <p>* Include a review of existing medical literature from peer-reviewed scientific publications on the effects of oil and gas operations on human health and quality of life;</p> <p>* Identify conditions of interest that</p>	04/29/2014 Senate Committee on Appropriations Postpone Indefinitely

			<p>existing medical literature indicates might be related to oil and gas operations; and</p> <ul style="list-style-type: none"> <li>* Culminate in a written report due December 1, 2014, and presented orally to committees of the general assembly by January 30, 2015. Stage 2 will include institutional review board (IRB) approval, surveys, and case studies as follows:</li> <li>* Tier 1 will include IRB approval by December 31, 2014; mailed and on-line surveys with individuals in the identified communities; and an interim report due January 1, 2016, and orally presented to committees of the general assembly by January 30, 2016; and</li> <li>* Tier 2 will include IRB approval by February 1, 2016; case-control studies on at least 2 relevant conditions of interest identified in tier 1; and a final report due January 1, 2017, and presented orally to committees of the general assembly by January 30, 2017.</li> </ul>	
<a href="#">HB14-1334</a>	HAMNER / JAHN	Petroleum Cleanup & Redevelopment Fund	The bill specifies that revenues in the petroleum cleanup and redevelopment fund are exempt from the generally applicable limit on cash funds' uncommitted reserves and are continuously appropriated to the division of oil and public safety.	05/14/2014 Signed by the President of the Senate 05/14/2014 Sent to the Governor
<a href="#">HB14-1356</a>	FOOTE / JONES	Strengthen Penalty Authority Oil & Gas Commn	<p>Current law specifies that a violation of the "Oil and Gas Conservation Act" is punishable by a maximum daily penalty of \$1,000, subject to a penalty schedule promulgated by the oil and gas conservation commission that considers aggravating and mitigating circumstances. The maximum total penalty is capped at \$10,000 for violations that do not result in significant waste of oil and gas resources, do not damage correlative rights, and do not result in a significant adverse impact on public health, safety, or welfare. The bill:</p> <ul style="list-style-type: none"> <li>* Increases the maximum daily penalty to \$15,000;</li> <li>* Directs the commission to:</li> <li>* Adopt rules that specify a process for determining the dates on which a violation begins and ends; and</li> </ul>	05/14/2014 Sent to the Governor 05/14/2014 Signed by the Speaker of the House 05/14/2014 Signed by the President of the Senate

			<p>* Publish a quarterly report on its web site that specifies certain information about each penalty assessed in the previous quarter and discuss these reports at the department of natural resources' SMART Act hearings; and</p> <p>* Repeals the cap on the maximum total penalty. The commission must hold a hearing if an operator is responsible for gross negligence or knowing and willful misconduct that results in an egregious violation or a pattern of violations. The commission may issue an order that prohibits the issuance of any new permits to the operator, suspends any or all of the operator's certificates of clearance, or both. The commission may vacate the order after the operator has come back into compliance and paid all penalties.</p>	
<a href="#">HB14-1371</a>	YOUNG / GRANTHAM	Wellhead Point Of Property Valuation & Taxation	The bill specifies that for property tax purposes, the wellhead is the point of valuation and taxation for oil and gas leaseholds and lands.	05/14/2014 Sent to the Governor
<a href="#">SB14-009</a>	HODGE / MORENO	Disclose Separate Ownership Mineral Estate	The bill requires a seller to disclose in the sale of real property that a separate mineral estate may subject the property to oil, gas, or mineral extraction. This requirement does not include a duty to investigate.	03/27/2014 Governor Signed
<a href="#">SB14-093</a>	JAHN / MAY	Pipeline Right-of-Way	Article 5 of title 38, Colorado Revised Statutes, governs rights-of-way for transmission companies and grants the right of eminent domain to any domestic or foreign electric light power, gas, or pipeline company authorized to do business in Colorado for the purpose of obtaining rights-of-way for wires, pipes, regulator stations, substations, and systems needed to conduct its business. The bill specifies that, subject to state constitutional and statutory provisions that require payment of just compensation and otherwise govern the exercise of the power of eminent domain, companies that operate pipelines that convey oil, gasoline, or other petroleum or hydrocarbon products are pipeline companies granted the right of eminent domain. A pipeline company must also	04/02/2014 House Second Reading Special Order - Laid Over to 05/09/2014 - No Amendments

			comply with all applicable laws and regulations including, but not limited to, federal pipeline safety regulations.	
<a href="#">SB14-198</a>	HODGE	Mineral Extraction Study Group	<p>The bill creates the mineral extraction study group (study group) to research and study matters relating to the imposition and allocation of, and credits available against, the severance tax and the distribution of federal mineral leasing revenues. The study group consists of members of the general assembly and stakeholder members of the public. To carry out its duties, the study group, at a minimum, is required to:</p> <ul style="list-style-type: none"> <li>* Evaluate the severance tax structure on oil and gas;</li> <li>* Evaluate credits against the severance tax on oil and gas in current law;</li> <li>* Compare severance tax rates and revenue on oil and gas from regional states;</li> <li>* Evaluate trends by commodity based on such things as geography, timing, and net state revenues;</li> <li>* Evaluate the distribution model for the severance tax on oil and gas;</li> <li>* Evaluate whether the general assembly's legislative intent expressed when the severance tax was enacted in 1977 that a portion of the revenues derived from the severance tax be used by the state for public purposes, that a portion be held by the state in a perpetual trust fund, and that a portion be made available to local governments to offset the impact created by nonrenewable resource development is being met;</li> <li>* Evaluate the distribution model for federal mineral lease revenues, including direct distribution and impact grants and contributions to the impact fund;</li> <li>* Evaluate how increased revenue to the state could benefit water infrastructure projects, education, or other opportunities; and</li> <li>* Review findings and make legislative recommendations each year.</li> </ul>	04/23/2014 Senate Committee on Agriculture, Natural Resources, & Energy Postpone Indefinitely