



CITY COUNCIL STUDY SESSION MEMORANDUM

To: Mayor and City Council
 From: Charles Ozaki, City and County Manager
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Meeting Date	Agenda Item #
August 6, 2013	1
Agenda Title	
Oil and Gas Development Issues – Sovereign Operating Company, LLC – DRAFT Agreement and DRAFT Oil and Gas Regulations	
Summary	
<ul style="list-style-type: none"> • Sovereign Operating Company, LLC (“Sovereign”) currently has four applications pending before City Council for use by special review permits to accommodate oil and gas well facilities. • Attachment A is a draft Agreement with Sovereign that would put in place best management practices for new wells associated with those pending applications and six other well pads Sovereign is currently operating in Broomfield. • The Agreement provides more protections than the City requires under the current oil and gas regulations. In many instances the best management practices exceed stated regulatory requirements in areas such as air quality, water quality, emergency planning, inspections, and chemical disclosure. The proposed requirements also exceed those required by Broomfield’s Municipal Code. • The purpose of the study session is to review the best management practices set forth in the draft Agreement and to address City Council’s questions concerning the proposed agreement. Experts Jennifer Meskimins (Petroleum Engineer), Mike Matheson (Geologist), and Tom Bloomfield (Environmental Attorney) will be available at the study session to answer City Council’s questions. • Attachment B is a draft of proposed new Oil and Gas Regulations, which incorporate a process for attaining the best management practices that are included in the draft Sovereign Agreement. These draft regulations leave the City’s current Use by Special Review Permit <i>process</i> for oil and gas wells in place, including hearings before the Planning and Zoning Commission and the City Council. • The draft regulations also provide an alternate path for an operator similar to that being used for the Sovereign agreement. The alternate process, an Administrative Approval by Memorandum of Understanding, contains some best management practices that the City might not otherwise have the legal authority to require, but if an operator voluntarily agrees to these best management practices through a Memorandum of Understanding (MOU) process, a more streamlined and certain outcome is available. 	
Prior Council Action	
<ul style="list-style-type: none"> • April 16, 2013–City Council study session on Oil and Gas Issues including presentations from representatives of the Colorado Oil and Gas Conservation Commission, the Colorado Department of Health and Environment, the Colorado Municipal League, and the Boulder County Attorney’s Office. • April 30, 2013–City Council study session regarding Town Hall meeting and direction to staff. • May 22, 2013–Town Hall Meeting to provide citizens an opportunity to speak about Oil and Gas Issues. • June 4, 2013–Council study session discussion as to next steps in its consideration of oil and gas issues. • June 25, 2013–Council study session to review potential measures to attain health and safety best management practices. • July 23, 2013 and July 30, 2013–Council executive sessions regarding negotiations. 	
Next Steps	
<ul style="list-style-type: none"> • Receive direction from City Council on next steps as described in the Next Steps section of this memo. 	

BACKGROUND

Sovereign currently has four applications for Use by Special Review Permits pending before City Council. Those applications include 21 new proposed wells. These have been recommended for approval by the Planning and Zoning Commission (“P&Z”) under the City’s current code requirements (“Pending Applications”). The locations of the well pads associated with the Pending Applications are depicted on the map below.



A summary of the number of wells per Use by Special Review Permit for the Pending Applications is as follows:

- The Brozovich MA 8-2 well, Use by Special Review approved on October 12, 1993 by Resolution 134-93; P&Z recommended approval of the four new wells at this well site on April 8, 2013, and any new wells at this well pad;
- Memorial 22-3, which is a new well pad for which the City’s Planning and Zoning Commission, on May 13, 2013, has recommended approval of six new wells, and any new wells at this well pad;

- The Nordstrom 2-4, which well was drilled as of November 12, 1986, prior to the 1988 annexation of the property into the City. The City's Planning and Zoning Commission, on May 13, 2013, has recommended approval of six new wells, and any new wells at this well pad; and
- The Nordstrom 5-4 which well was drilled as of September 12, 1991, and for which the City's Planning and Zoning Commission, on May 13, 2013, has recommended approval of five new wells.

Sovereign has additional oil and gas leasehold interests in Broomfield at well pads that have previously been approved. Sovereign has requested that 6 additional well pads and associated new wells be subject to the draft Agreement. Two of the well sites received Use by Special Review approval from the City, on the Webber H Unit I Pad as approved by the City per Resolution No. 2013-22, and the Hulstrom G Unit I Pad as approved by the City per Resolution No. 2013-23. Those additional well pads are depicted on the map below. If these additional well sites below are included, notice will be given to the surrounding property owners of City Council's consideration of the Agreement.

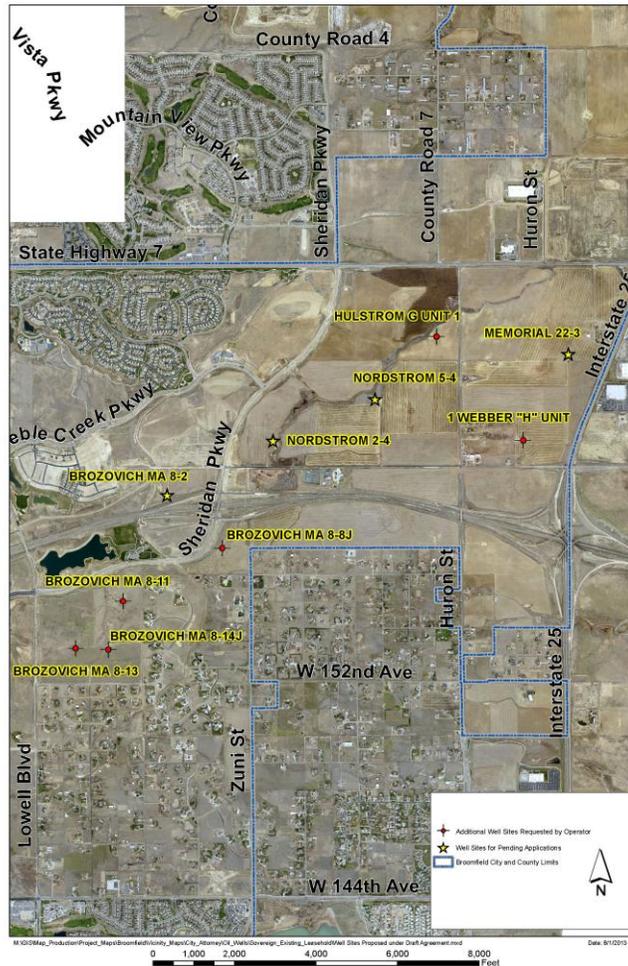
Additional Well Sites Requested by Operator



PROPOSED DRAFT AGREEMENT WITH SOVEREIGN

The ten well sites (“Well Sites”) proposed to be governed by the proposed Agreement are depicted below.

All Well Sites Proposed under Draft Agreement



The proposed draft agreement (“Agreement”) with Sovereign that is Attachment A contains many Best Management Practices (BMPs) that have been recommended to staff by technical experts and would apply to all the new and refiled wells drilled at the Well Sites in the next five years. Staff focused its efforts in this agreement on those areas where there may be gaps in current state regulations and in those areas most important to City Council and most frequently commented on by citizens who participated in the Town Hall Meeting. Those areas of concern are air quality, water quality, emergency planning, chemical disclosure, and inspections.

These BMPs go well beyond Broomfield’s current code requirements in an effort to put in place the highest possible public safety standards for oil and gas drilling on these sites. These BMPs also exceed current state regulatory requirements in areas such as air quality, water quality, inspections, and emergency management planning.

There are at least thirty-five requirements in the draft Agreement that exceed current state regulations in the following areas. Many of these requirements are discussed in greater detail later in this memorandum.

- Operator to submit 10 year Comprehensive Development Plan
- Operator is obligated to defend and indemnify the City from claims relating to or arising out of the well sites
- Operator shall provide notice to all owners within 2,640 feet of applications for drilling operations
- Operator shall inspect berms and containment devices at each site on a daily basis
- Operator shall employ closed looped drilling in every circumstance- (Wells drilled, completed and operated using closed loop pitless systems for containment and recycling of drilling, flowback and produced fluids.)
- Operator shall anchor all well site equipment
- Operator shall disclose chemicals to City before brought on site
- Operator shall ensure no visible dust emissions from access roads to extent practical and avoid dust suppression within 300 feet of water
- Operator shall submit safety data sheets for dust suppressants used by operator on roads
- Operator has a duty to minimize emissions from operations including consolidation of facilities, monitoring systems, and gathering and water delivery systems
- Operator shall capture all vapors and route to a control device with at least a 98% vapor capture efficiency and operate such equipment in accordance with manufacturer specifications.
- Operator shall employ plunger lifts or other similar technology to control emissions from well blowdowns on new wells. (Over time, liquids build up in the well and reduce and eventually eliminate the production of gas so operators need to clear the liquids out of the well to maintain production. A blowdown occurs when the operator opens the top of the well casing and lets the gas vent to the atmosphere and the liquids blow out of the well. This leads to lots of emissions during well maintenance. If an operator is onsite, the duration of the blowdown can be shortened since the operator can monitor the progress and close the well as soon as the liquids are out of the well. If the operator comes back when he feels like it, extra venting will occur. A plunger lift is a device that allows the operator to clear the liquids from the well without opening it to the atmosphere so the venting of gas and the associated emissions do not occur. A plunger installed in the well is used to lift the fluids out of the well so that the liquids can be cleaned out with little or no venting.)
- Operator shall be present onsite during all manual blowdowns.
- Operator shall employ no bleed pneumatic controllers- (Controllers are equipment used to regulate gas flow and pressure; no bleed pneumatic controllers are a type that do not bleed natural gas into the atmosphere by design.)
- If flaring of gas is allowed under state regulation, flare shall be designed so no visible emissions; Operator shall employ an automatic pilot to ensure flare is operating
- Operator to develop Leak Detection and Repair Plan that requires quarterly inspections of all components on well sites and prompt repair of leaking components, with reporting to City. (Reduce leaks by requiring a Leak Detection and Repair Plan (LDAR) to detect and repair leaking pumps, flanges, seals, connectors, etc., at well sites.)
- Operator to fund ambient air sampling
- Operator to respond to air quality action days and emission reduction where feasible
- Operator to certify annually that it is in compliance with all air quality provisions of the Agreement

- Operator shall utilize green completions for all wells, consistent with future federal rules. (Green completions require gas to be captured at the well head during and immediately after well completion instead of releasing it into the atmosphere or flaring it.)
- Operator to perform water quality monitoring under COGCC Rule 609, which otherwise does not apply in the City. (Rule 609 requires initial baseline samples and subsequent monitoring samples from all available water sources up to a maximum of four within ½ mile of the proposed well, with testing to be conducted between 6 and 12 months and between 60 and 72 months of completion of well. The MOU also requires an additional test at 3 years.)
- Operator to comply with more stringent requirements for flammable material
- Operator to comply with floodplain requirements under municipal code
- Operator to implement landscaping requirements consistent with a City approved plan
- Operator to implement lighting plan that goes beyond state rules
- Operator shall not engage in routine maintenance of machinery within 300 feet of a water body
- Operator will ensure flowlines are at least 50 feet away from buildings if feasible
- Operator shall record all flowlines and submit to City
- Operator shall remove equipment within 30 days from completion
- Operator shall fund soil gas monitoring
- Operator shall not discharge fluids at well site
- Operator shall not use produced and flowback water for dust suppression
- Operator shall disclose to the City water sources used by the Operator and water disposal methods
- Operator shall provide information to the City regarding plugged and abandoned wells
- Operator to identify City as additional insured on policy; insurance policy limits increased above State minimum
- Operator shall participate in Natural Gas STAR program to encourage innovation in pollution controls at drill sites

Air Quality Requirements

Sources of emissions from an oil and gas well site include equipment and processes used in drilling, completion, and production activities that are primarily located at or near well sites in active oil and gas fields. Emissions can result from a variety of operational elements (e.g., volatile organic compounds (VOCs) that escape from the wellhead and associated equipment during the drilling and production operations, large stationary power generators, increased truck traffic, etc.); these emissions can negatively impact air quality. The types of emissions include smog-forming VOCs and oxides of nitrogen, diesel particulates, silica dust, benzene, methane, and carbon dioxide.

COGCC requires green completions for all oil and gas wells except low pressure wells, exploratory wells, wells not near a sales line, or where green completion practices are not otherwise technically and economically feasible. Colorado Air Quality Control Commission (AQCC) and/or COGCC rules require that control emissions from certain oil and gas equipment, i.e., certain condensate tanks, glycol dehydrators, pneumatic controllers, and certain engines be controlled. The required controls vary depending on the size, type and location of equipment. For example, vapors from condensate tank batteries with actual emission in excess of 20 tons per year require that emissions be controlled by 95%. These rules allow for the use of devices to capture and return vapor

to the process stream or route the vapors to a combustion device. Certain other types of equipment are subject to other controls, such as certain glycol dehydrators, which are subject to a 90% control requirement. Smaller tanks may not be subject to any controls.

The CDPHE is currently engaged in a process that could lead to a modification of the state air quality control regulations for oil and gas operations. A rulemaking may occur in the fall of this year or early in 2014, which rules could provide for additional controls at oil and gas facilities in the state. Under the Clean Air Act, the Environmental Protection Agency (EPA) has the authority to regulate emissions from oil and gas activities. The EPA enacted rules in 2012 which apply to new sources, some of which took effect last year while others take effect on a delayed implementation timeframe. Part of the recent federal rules is also being further evaluated and could be modified. Currently, federal rules require operators to combust emissions during the completion of all hydraulically fractured gas wells and reduce leaks from seals used on certain compressors, with certain exceptions. Beginning in January 2015, operators will need to capture, rather than combust, completion emissions from most gas wells. As of October of this year, operators also must install low-bleed pneumatic controllers, but this requirement already applies under state law to operators in the City. It is anticipated that the EPA will finalize additional requirements for storage vessels later this summer.

The draft Agreement contains air quality requirements that address emissions from drilling operations, leaks from equipment, and periodic air quality testing at the well sites. Examples of where air quality requirements in the draft Agreement exceed State regulatory requirements are summarized in the chart below.

Air Quality - State Requirement (COGCC OR AQCC)	Proposed Broomfield Requirement
No requirement on use of electric equipment to minimize emissions at well sites	Operator to take all reasonable efforts to use electric powered engines for motors, compressors, and drilling and production equipment, but if not economically feasible or practical may use propane or natural gas, but not diesel.
Minimize dust emissions on roads; no use of flowback water for dust suppression	Minimize dust emissions so there are not visible dust emissions from access roads or site to the extent practical given wind conditions; no untreated or produced water or other fluids may be used in dust suppression; operator to avoid dust suppression activities within 300 feet of high water mark of waterbody; operator to submit safety data sheet for chemical based dust suppressant prior to use
No duty to submit plan for approval that requires operator to minimize emissions	General duty to minimize emissions through the development of a plan approved by the city concerning operations, procedures, and field design features including: consolidation of product treatment and storage facilities; centralization of compression facilities; liquid gathering and water delivery systems; and telemetric control and monitoring systems.

<p>Capture vapors from condensate tanks route to device with 95% control or destruction efficiency; certain glycol dehydrators required to control emissions by 90%</p>	<p>Capture and route all vapor to device with at least a 98% control or destruction efficiency and operate such equipment in accordance with manufacturer specifications.</p>
<p>No requirement to use plunger lifts; no requirement to be onsite for manual blowdowns</p>	<p>Requirement to use plunger lift or other similar technology to control emissions from the motor control valves; for manual blowdowns, requires operator to be onsite</p>
<p>Operator to install low or no - bleed pneumatic controllers where pneumatic controls in use at drill sites</p>	<p>Operator to employ only no-bleed pneumatic controllers(pneumatic controllers are equipment used to regulate gas flow and pressure; no bleed are a type that does not bleed natural gas into the atmosphere by design)</p>
<p>Venting is allowed if notice given to COGCC, but COGCC could require flaring in some cases</p>	<p>No venting of gas is allowed</p>
<p>No specific requirement for flares, but CDPHE permit could require controls on some flares in some cases</p>	<p>Where flaring is allowed, it must be conducted so flare unit operates at 98% or higher vapor destruction efficiency; flare unit to be operated so no visible emissions consistent with federal regulations; flare unit to be operated with flame present at all times when emissions to be vented; automatic pilot and continuous ignition system required</p>
<p>No requirement for Leak Detection and Repair Plan, except in limited circumstances, and in those cases, requirements for program are limited to liquid leaks, are not well defined or subject to approval</p>	<p>Leak Detection and Repair Program requires sampling on quarterly basis; operator to submit plan to be approved by City</p>
<p>No requirement for Air Sampling Program</p>	<p>Air Sampling Program funded, in part, by Operator, including baseline sampling prior to drilling, sampling during drilling and ongoing monitoring;</p>
<p>CDPHE issues recommendations on air quality action days, not binding on operators i.e. tanks above certain size in non-attainment area</p>	<p>Annual certification by operator of compliance with air quality requirements of the Agreement</p>
<p>Green Completions required for gas to be captured at the well head during and immediately after well completion instead of releasing it into the atmosphere or flaring it, but may be exceptions</p>	<p>Green completions required and venting is prohibited; temporary flowback flaring and oxidizing equipment is required; operator to comply with more stringent federal requirements now, even though those rules are not effective until 2015</p>

Water Quality Issues

During the drilling/development phase, water is required by oil and gas operators for dust control, making concrete, and in the stimulation of wells. For well sites in Broomfield, water is trucked in from off-site or transported through temporary pipelines, but none of the water used is sold or provided to operators from Broomfield. A well must be completed properly such that subsurface formations are sealed off by the well casing and cement to avoid impact to aquifers.

Soils compacted on existing roads, new access roads, and well pads may generate more stormwater runoff than undisturbed sites. The increased stormwater runoff could lead to higher peak storm flows into streams, potentially increasing erosion of the channel banks.

Primary waste during production is produced water, which can comprise 98% of material brought to the surface during the drilling operations. Such water can be disposed of or recycled by operators.

COGCC regulates most aspects of underground drilling operations, including well bore construction requirements, to protect surface and groundwater during drilling and operations and soil gas monitoring to assess well casing integrity. Water quality testing and monitoring is governed by different COGCC rules for the Greater Wattenberg Area (GWA) than the remainder of the State. The northeast part of Broomfield is situated in the GWA. The GWA has been called Colorado's most productive oil and gas field and currently is under intense development. COGCC Rule 609 is the most stringent rule on water quality monitoring and requires initial baseline samples and subsequent monitoring samples from all available water sources up to a maximum of four within ½ mile of the proposed well, with testing to be conducted between 6 and 12 months and between 60 and 72 months of completion of well. Rule 609 does not apply in the GWA. Instead, the COGCC requires only one test well and it need only be tested once and suite of chemicals to be tested for is narrower than the suite under Rule 609. The draft MOU requires Rule 609 be applied to these sites.

State Water Quality Requirements	Proposed Broomfield Water Quality Requirements
Compliance with COGCC Rule 318 which requires fewer water sources to be tested and less frequent testing	Compliance with COGCC Rule 609 is required with initial baseline samples and subsequent monitoring samples from all available water sources up to a maximum of four within ½ mile of the proposed well, with testing to be conducted between 6 and 12 months and between 60 and 72 months of completion of well. An additional test at 3 years is required.
No soil gas monitoring requirement	Provides for soil gas monitoring funded, in part, by the operator

Inspections

City personnel have the right to enter upon private property after reasonable notification to the operator, which provides the operator an opportunity to be present. The City may use the information collected on the inspections to enforce the requirements of the regulations or the MOU. The City may also report this information to appropriate state officials, including, but not limited to, information regarding violations of State rules. There are many technical reporting requirements and field inspections that are inherent with the Agreement and the proposed regulations. It is anticipated that the City will work with other Front Range communities, if timing permits, to hire an inspector for these purposes or the City may hire its own inspector.

Other Agreement Requirements

Other notable requirements of the operator under the Agreement include:

- While current COGCC setback requirements from an occupied building are 1,000 feet and from a building unit are 500 feet, unless certain additional measures are implemented for wells closer to the building, all of the well sites covered by this agreement exceed that requirement. The Agreement requires that all new wells drilled on the ten well sites covered by the agreement are at least 1,000 feet from high occupancy buildings or building units, as defined by the COGCC, that exist on the effective date of the agreement, with a 10% administrative variance available. The agreement does not permit wells within that distance, even if mitigation measures by the COGCC rules are employed.
- The operator has to provide a 10 year plan for proposed drilling operations in Broomfield and the City may comment on that plan, including the location of new well pads.
- The operator must provide a bond to cover potential public road damage from operator's use.
- The operator must identify the source of all water used in drilling operations, the number of vehicles, and the disposal method.
- The operator must have landscaping and fencing plans approved by the city and face all lighting at well sites downward and shielded.
- Appendix B to the Agreement includes a comprehensive list of plans that are subject to City approval.
- All of the BMPs set forth in the Agreement are to be made a part of the COGCC permits for new or refilled wells at the Well Sites, so that the City can pursue enforceability through the COGCC as well as its own inspectors.
- In certain sections of the Agreement, requirements are conditioned upon the action being technically or commercially feasible by the operator. It is anticipated that City staff will consult with an expert in making these determinations.
- Operator shall be subject to future City Ordinances that have general applicability to oil and gas operators, including but not limited to future rules on impact fees.
- The term of the agreement is for 5 years and would cover all new wells drilled within that time frame. The agreement can be renewed by mutual written agreement.
- For all new wells at any of the proposed ten well pads for which a Use by Special Review Permit had not been previously granted by the City, the Operator will is required to give notice to all owners within ½ mile of the site of the new well and conduct a neighborhood meeting, with comments from the neighborhood meeting that may be provided to COGCC.

In addition, notice will be given of the public hearing regarding this agreement to owners in the vicinity of the 6 well pads proposed to be added to this agreement by the operator.

DRAFT OIL AND GAS REGULATIONS

The oil and gas regulations in Broomfield's Municipal Code were last updated in 1993. These existing regulations are in the nature of approving a use by special review permit for each new well, which requires notice and a public hearing before the Planning & Zoning Commission and a public hearing before City Council. The permit granted generally includes requirements in the areas of landscaping and fencing, noise, dust, and light mitigation, traffic circulation plans, and emergency response plans.

Since Broomfield adopted its oil and gas regulations in 1993, the state and federal regulations concerning oil and gas activities have increased and the technology associated with drilling operations and techniques has changed. Because of the proliferation of state and federal regulations and changes in technology since Broomfield last adopted oil and gas regulations in 1993, any update of Broomfield's regulations necessarily requires consideration of the state of drilling and control technology as well as the regulatory framework that is in place.

As was discussed in some detail in a memorandum of the City and County Attorney to City Council at a previous study session, local government's authority to regulate oil and gas operations is limited. Local government can regulate oil and gas operations through land use powers, addressing issues such as site plans, surface owner notification, land use coordination, and transportation issues including road impacts. Local governments also have some authority to regulate oil and gas operations in areas where the state shares authority, such as air quality, emergency preparedness, and drainage and erosion control. Where local governments have some authority to regulate, local governments may not adopt regulations that are in "operational conflict" with state regulations. However, case law in Colorado does not provide a bright line to rely upon when determining if an operational conflict exists. As a result, some local governments rely on voluntary agreements through an expedited permit process or memorandums of understanding in setting local well site requirements that go beyond current state or federal regulations.

The draft regulations set forth in Attachment B include two paths for approval of drilling operations. The first is the City's standard Use by Special Review process which includes some enhanced BMPs. The draft regulations set forth in Attachment B to this Memo leave the City's current Use by Special Review Permit process for oil and gas wells in place. In other words, the process of a hearing before the Planning and Zoning Commission and the City Council would still be required if the operator chooses to go through the Use by Special Review Permit process.

An alternative to the Use by Special Review Permit process is available for the operator under these draft regulations. It is called an Administrative Approval by Memorandum of Understanding. The Administrative Approval by Memorandum of Understanding process is at section 17-54-180 in the attached ordinance, which includes all of the BMPs discussed above in Appendices A and B of the draft Sovereign Agreement. The

Administrative Approval by Memorandum of Understanding process allows for an MOU that includes all the BMPs determined necessary by the City to be administratively approved and signed by the operator and the City & County Manager. There is a variance provision at section 17-54-220 of that attached draft ordinance. Finally, it is important to note that notice and a neighborhood meeting is required for the Administrative Approval by Memorandum of Understanding process and that notice and meeting requirement is described at section 17-54-180(B)(2) of the attached draft ordinance.

NEXT STEPS

Public comment is tentatively scheduled for both the Draft Sovereign Agreement and the Draft Regulations at City Council's August 13, 2013 meeting. Both documents are on the City's website at the Oil and Gas Issues link. Staff will forward the Draft Regulations to the COGCC, the Colorado Oil and Gas Association, and operators who have operating wells in Broomfield for comment.

Once staff has the concurrence of the Operator on the final form of the Agreement, it is anticipated that the Agreement will be brought to City Council for final consideration on August 27, 2013, the date of the continued hearing for the pending Sovereign applications. If the form of the draft regulations is finalized in August, first reading of the regulations could be tentatively scheduled on August 27, 2013, with second reading and the public hearing to be tentatively scheduled for September 24, 2013.