

These are the responses to all questions received by May 7, 2013. If we have missed your question or you would like additional clarification on a question we've responded to, please do not hesitate to contact us. For more information, please contact Dan Weinheimer at 970.416.2253 or via email at dweinheimer@fcgov.com.

- 1. Following the recent spill – how is the equipment used to clean up the spill itself cleaned? Is it sprayed off with water? If so, where does that residue go? Is it left on the land, washed into our streams, etc? How much “residue” is left? Who accounts for that?**

As staff understands what happened, no residue was allowed to remain on site and there are clean up measures required. This spill was contained in a small area and removed without any leakage “residue” into the ground.

- 2. How many spills have occurred? How much residue has been produced in these spills and where is that residue?**

There have been 5 spills since 2009, the details of which are available on the Colorado Oil and Gas Conservation website. <http://cogcc.state.co.us/>

- 3. Prospect Energy has stated in their written document that 100% of everything spilled was cleaned up. Who inspected that to ensure that the proper actions were taken?**

That is the responsibility of the Colorado Oil and Gas Conservation Commission.

- 4. Prospect Energy stated that they were in the process of installing new equipment to prevent future spills. When was that new equipment installed? Has it been tested?**

On March 11, records indicate a Murphy switch was installed and that the company was installing similar switches on other piping as a prevention method. This switch is one that has been tested and recommended for use by our technical staff.

- 5. Did Prospect Energy notify the City about the spill?**

Prospect Energy had a spill at a well located within the Hearthfire subdivision in northeast Fort Collins on March 1, 2013. Prospect Energy reported the spill to both the COGCC and to the City's Local Government Designee, as required by state rules.

- 6. When was City Council notified about the spill?**

City staff was notified on March 1, 2013 and immediately notified the City Manager who, in turn, notified the City Council of the spill on the same day. Staff further researched all the spills associated with Prospect Energy and reviewed how they had been handled by the company.

Our internal review was that Prospect Energy responded quickly and properly to the spills that had occurred.

- 7. Was the well line ever inspected after the incident and by whom?**

Based on the report from the COGCC, it appears the agency did not conduct a follow-up inspection after the spill. Staff inquired about the inspections for all Prospect Energy wells and, to date, none have occurred in 2013.

8. Did Prospect Energy complete installing pressure safety valves and was it inspected?

The COGCC report indicates that Prospect was in the process of installing Murphy switches.

9. How many safety violations or leaks occurred with this operator(s)?

According to the COGCC database, Prospect Energy has three (3) safety or COGCC rule violations – one in July 2010, August 2011, and August 2012. The company has five (5) spills on record. The spills are all the result of equipment failure and occurred in June 2010, February 2011, July 2012, February and March 2013. Of these spills, the March 2013 is the only one within City limits.

10. Can you provide a timeline of the oil and gas discussion?

Oil and gas discussion in Fort Collins began with Council consideration of a temporary 6 month moratorium to allow staff time to develop local regulations. This item was considered May 15, 2012 (approved 6-0 on first reading) and ultimately failed on a 3-3 vote on June 5, 2012 (second reading).

Staff presented in a work session on June 12, 2012 to frame the development of local regulations.

Three options were developed and brought for Council consideration on December 4, 2012 - these included a dual track development review process and a temporary moratorium. Council adopted a moratorium on first reading December 4th and sustained the moratorium on second reading on December 18th. The moratorium adopted a 7-month timeout on permit acceptance which will last until July 31, 2013.

On February 19, 2013 staff returned to present a ban on hydraulic fracturing and the storage of related materials and waste from hydraulic fracturing. The ban was approved on first reading and sustained on second reading on March 5.

March 19 staff returned to Council with an Operator Agreement with Prospect Energy. This agreement was negotiated by staff with Prospect Energy and according to the moratorium and ban, having an approved operator agreement would exempt Prospect Energy from both moratorium and ban. This agreement was approved as a resolution on March 19 (no second reading needed) and at this meeting Council also approved on first reading the lifting of the moratorium and fracturing ban on Prospect.

Prospect Energy has a lease for the subsurface rights to the undeveloped acreage (UDA) adjacent to the Anheuser Busch (AB) brewery. The lease, between Prospect Energy and AB, concerns an approximately 2 square mile parcel for exploration and potential production.

Staff returned on April 16 to discuss the second reading of the ordinance to lift the moratorium and ban on Prospect Energy. That item was continued to an April 23 work session and April 23

continued meeting for action. At the April 23 continued meeting the City Council considered community feedback and decided to continue the item to May 21.

The moratorium was adopted for several reasons:

- to provide time for more study of local regulatory options
- to allow time to consider changes brought by the impending General Assembly session
- to allow the City to participate in COGCC rulemaking on setbacks and groundwater monitoring and incorporate these rule changes

The moratorium was approved for seven (7) months (until July 31, 2013) and temporarily stops the City from considering and approving local permit applications. During this temporary stoppage staff was directed to develop local regulations. That work is ongoing.

The ban prevents the use of hydraulic fracturing treatment within the City of Fort Collins. It also bans the storage of hydraulic fracturing chemicals and waste within the City limits. The ban was adopted without a time limit, unlike the moratorium. This conceivably means that an operator would be able to drill and extract oil and gas within Fort Collins so long as they agree not to use hydraulic fracturing to stimulate the well, unless an approved Operator Agreement was in place.

Throughout the discussion of both the moratorium and ban, staff was asked to by Council to develop an Operator Agreement (or MOU, as it is referred to in questions below) to exempt Prospect Energy. The company has negotiated an Operator Agreement with the City and the terms of that agreement exclude Prospect Energy's future operations from the moratorium and ban so long as they comply with the terms of the Operator Agreement. The Operator Agreement holds Prospect Energy to standards above existing state of Colorado rules and above some federal rules.

11. I would like to hear more details on water and soil monitoring such as, baseline testing and frequencies. What is our oversight role if any on agriculture/ crops? Will they start drilling while crops are growing or wait until after harvest?

As per the Operator Agreement (OA), Paragraph #39 Appendix A - The Soil Gas Monitoring: The City, at its discretion, may conduct soil gas monitoring to assess well casing integrity. This shall be typically completed within ninety (90) days of New Well completion. The City shall notify the Company prior to entering the site for soil gas monitoring. We intend to utilize this provision as an early detection method for any methane gas leaks.

As per the OA, Paragraph #27 Appendix A - Water Quality Monitoring Plan:

The Company shall comply with COGCC Rule 609. In summary, this requires pre- and post-drilling testing. The rules require oil and gas operators to sample all "Available Water Sources" (owner has given consent for sampling and testing and has consented to having the sample data obtained made available to the public), with a cap of four (4) water sources, within one-half

(1/2) mile radius of a proposed well, multi-well site, or dedicated injection well. Water sources include registered water wells, permitted or adjudicated springs, and certain monitoring wells.

The Company agrees to the following requirements above and beyond the COGCC requirements: analyzing for dissolved metals as indicated in the Land Use Code and sampling intervals to be baseline (before drilling), post-drilling at one, three, and six years. Analytical results shall be shared with the COGCC, the City, and the landowner. All spills, for new and existing wells, shall be managed in accordance with COGCC regulations.

Prospect Energy has indicated that Anheuser Busch is the surface owner in the UDA and that they would work with the tenant farmer and Anheuser Busch to place well pads that will not materially affect farming.

12. I see on page # 9 Best Management Practices about Neighborhood Meetings / Notification. Define a neighborhood in this context and how many feet from drill site will residents get notification?

As per the Operator Agreement, paragraph #4 Appendix A – Mailed Notice:

- To the surface owners of the parcels of land on which the oil and gas operation is proposed to be located;
- To the surface owners of the parcels of land within five hundred (500) feet of a proposed gathering line;
- To the surface owners of the parcels of land within two thousand, six hundred forty (2,640) feet of the parcel on which the oil and gas operation is proposed to be located; and
- To persons registered in writing with the City as representing bona fide neighborhood groups and organizations and homeowners' associations within the area of notification.

Further, the City has created a subscription service where citizens or any interested party may get notice of information being published to that notification website (available at <http://www.fcgov.com/developmentreview/weekreview.php>).

13. On page # 11 of Best Management Practices about Dust Suppression, how does weather play as a factor? Does weather play a role and should wind speed monitoring help with decision to proceed with drilling activities vs. just by a personal point of view?

The operator is expected to control dust emissions from access roads and the site during all phases of construction and operation. This can be accomplished through a variety of mechanisms including watering, application of chemical dust suppressants, and minimizing vehicle speeds. Although wind speed can affect the amount of dust blowing off of an unvegetated site, there is no requirement for monitoring wind speed. Wind speed data and forecasts can be obtained from local meteorological stations and agencies such as the National Oceanic and Atmospheric Administration (NOAA). An operator could use this information to modify daily operations at a site to ensure no visible dust emissions are transported from the site.

14. On Page #15 item g, Leak Detection and Repair.

What's the method or process if FLIR Camera is unavailable?

EPA Method 21 allows for the use of several different types of detection systems to be used for leak detection including photoionization detectors, flame ionization detectors, infrared absorption detectors, and catalytic oxidation detectors. Alternative screening procedures including applying soap bubbles to equipment connections are also allowed. The use of a FLIR camera was approved as an alternative work practice for this method in 2006. . An employee of Prospect Energy, Ms. Mary Griggs went thru 3 days of FLIR Camera testing thru the Colorado's Air Quality Division (CDPHE) and has already used the equipment in the Fort Collins Field with one of our employees observing the results.

15. Please research this outdoor air quality monitor (AQM 60) and see if it would be worth deploying into the field at a strategic location: <http://www.aeroqual.com/aqm-60>

The AQM-60 air monitoring system is a stationary monitor that is useful for long term continuous monitoring in a single location. The monitor can be equipped with a variety of modules for measuring several different pollutants and meteorological parameters. Total VOCs can be measured (the sum) but the monitor cannot provide the data quantified (or measured) by each separate chemical. . This monitor requires a permanent location with minor infrastructure including electricity. The City of Fort Collins could consider this type of monitoring system for determining long term trends in air quality within the city limits or at sensitive receptors such as a school or hospital. The initial capital cost for this equipment is estimated to be \$5,000 to \$15,000 depending on the number of pollutants to be measured. Additional annual costs for calibration equipment, maintenance, and analysis could range from \$5,000 to \$10,000.

The air monitoring requirement included in the proposed Operator Agreement specifies short term sampling for three purposes; 1) to determine background concentrations of volatile organic compounds (VOCs) and relevant hazardous air pollutants, 2) to determine concentrations near a drilling site during completion activities, and 3) in response to emergencies, spills, or odor complaints. The suggested methodology is intended to provide a "snapshot" of air quality conditions during a specific episode. The equipment is portable, requires no infrastructure, can be deployed quickly, and is relatively inexpensive. The 5-7 day sampling period specified in the Operator Agreement is estimated to cost between \$5,000 - \$8,000 including laboratory analysis.

16. Why is the minimum setback standard proposed 500 feet? Are there additional mitigation measures being taken?

Staff analysis is limited to the COGCC's set-back requirements; however, there are additional mitigation measures proposed in draft Land Use Codes to further mitigate impacts related to light, noise and dust concerns. The Operator Agreement stipulates a 1000' setback from existing homes bordering the undeveloped acreage (UDA) near the Anheuser Busch property.

17. I've read that drillers can apply for and receive exemptions allowing them to drill within the 500 foot buffer required within "high density" population areas such as Fort Collins. Please explain.

Staff is aware of this provision and our current understanding is that it applies to existing well pads or with the permission of the landowner, however added mitigation requirements are imposed in these situations. We are also considering set-back requirements in City regulations so those may reduce these potential situations.

18. How can drillers re-open old, completed wells and drill them without regard for their location i.e. such wells exempt from setback requirements?

The information we have been provided is that while it is possible for a permit to be applied for through the COGCC, abandoned well sites are subject to existing state and City regulations as though they were brand new wells. Also, there are added mitigation measures required by the COGCC if the setback is less than rules, e.g., the operator is required to address resident concerns about noise, odor, light and traffic.

19. Why did the City make the decision to ban fracking?

Like many Front Range communities, Fort Collins is taking action on this issue to address the concerns of residents about the proximity of drilling to their homes, to protect our quality of life, and to protect the health of the environment. The City Council is trying to proactively balance those concerns with information and involvement in policymaking. The City Council was clear in their approval of a local hydraulic fracturing ban that they wished:

1. To permit the current operator to be excluded,
2. To gain local control over oil and gas operations, and
3. To encourage additional study of the human and environmental health impacts of hydraulic fracturing and oil and gas development.

City Council actions were taken after extensive public comment and nearly a year of work by City staff, involvement in the Colorado Oil and Gas Conservation Commission's rulemaking hearings on both water sampling and setbacks, involvement in new rulemaking hearings on air emissions managed by the Air Pollution Control Division of the Colorado Department of Public Health and Environment, and extensive discussions with both regulators and members of the industry.

20. How much authority does a local planning and zoning board have and can they deny permits to drill?

At this time, Planning and Zoning cannot prohibit drilling activity in a particular zone rather they can influence the impact of that activity in areas of the Land Use Code that we have local control over, typically appearance, transportation, etc.

21. Has there been any indication from industry regarding where the fracked natural gas in the area will be used?

The City does not know where natural gas extracted from local hydraulic fracturing would be used.

22. Two abandoned oil and gas wells have been discovered that are beneath Fort Collins homes--one is across the street from an Elementary school. Please explain.

There may be although if you are relying on the COGCC maps for that determination they may not accurately locate older wells. In speaking with COGCC staff we were told that for pre-1950s era locations the well site was typically only mapped as precisely as to which quarter section it was located in. Then they put it in the COGCC database/map in the center of that quarter section for lack of a precise location. City staff is working with COGCC staff to see if an exact location is known.

23. Does Prospect Energy currently have any horizontal wells in the Fort Collins Field?

According to Scott Hall, the Prospect Energy Operator, he reports there are no horizontal wells in the Fort Collins Field. There are directional wells that are more S shaped and that may be what you are seeing looking at the map.

Mr. Hall described the process as follows: "to drill multi wells from one well pad, to reduce surface disturbance, at a greater cost to the operator, all the pad wells start in nearly the same surface hole location. As an operator we want the bottom hole locations spread out. So we drill down, over and then down (vertical) again making an S shape to spread out the bottom hole locations. Looking at a map this may appear horizontal to some people. Additionally there was a horizontal permit, on the north side of the field. This was applied for by my predecessor, DJ Resources, never drilled, and the permit expired."

24. What does the City know about the number of homes within City limits that are built on top of abandoned wells?

Staff has been working with the local operator to determine whether there are any plugged and abandoned (P&A) wells within the field as described. There are some, however, the operator does not have title to those wells since they were abandoned prior to Prospect Energy purchasing the field. Staff agrees that building over or near abandoned wells is not suggested and, as such, we included language in the draft ordinances to require new developments to have similar set-backs if they develop after well development occurs, including plugged and abandoned wells. More specifically, concerning those properties mentioned, the Jennifer & Todd (069-06201) and the Roy Dean (069-05088) do not appear to be in the City limits. The bottom three wells are within the Fort Collins Field, however, Prospect Energy does not have title. The third well has no COGCC P&A record. In all cases, the housing was constructed after the wells were plugged and abandoned.

There was a home under construction that exploded, injuring three workers on April 7, 2007.

The home was being built near Trinidad Colorado and apparently on top of a plugged and abandoned well. The well was on minerals leased by the City of Trinidad; the well was drilled under a grant from the U.S. Department of Energy for the development of unconventional (Coal Bed Methane) resources. The contractor supervising the Plugging was Gustavson Associates, Inc. The city of Trinidad is listed as "Operator" of the well called the Trinidad MGP #1 Well.

25. We would like to have information on Larimer County, Ft. Collins, and Loveland--how they are going to deal with the state on issues that come up, if local governments are talking with the COGCC, how many wells have been drilled in the county or have permission to do so at this time, whether the city is involved in any way with Longmont in its legal fight, etc.

Fort Collins has been working to develop a multi-faceted oversight program for new oil and gas activity. The direction that staff has received is to engage in the state's Local Government Designee (LGD) program - this person receives information related to permits and represents the City to oil and gas operators and the state. We also are exploring an Intergovernmental Agreement with the Colorado Oil and Gas Conservation Commission (COGCC) that would authorize the City to conduct site inspections for state rules. Another option we are looking in to might include designating parks and other outdoor gathering places as Designated Outside Activity Areas - a process allowed under state rules.

Staff is developing a proposal for Land Use Code changes to address specific oil and gas impacts and working with other cities and the COGCC staff to do this. Those options are not yet fully developed and so cannot yet be shared. Fort Collins has active wells in the NE part of the City that were annexed into the City. These are the only active sites, and no new permit activity has occurred; it is not yet clear the extent that oil and gas development might occur in town.

26. Are there any new drilling permits for the Hearthfire area?

Currently there are no permits for Hearthfire active with the Colorado Oil and Gas Conservation Commission (COGCC), which is the state entity responsible for permitting oil and gas activity. The COGCC encourages municipalities to avail themselves of the Local Government Designee (LGD) process to be made aware of and to comment on proposed permits. Fort Collins has an LGD and is also working closely with the Larimer County LGD to share information about proposals outside the City's borders but near Fort Collins.

As staff begins the process of drafting regulations for City Council to consider, a robust engagement program is being deployed. Part of that program is to gather the feedback and concerns from the Hearthfire community through a meeting (or series of meetings) and to maintain open dialogue with the community about oil and gas activity there. Additionally, staff will be developing a relationship with the oil and gas operator, currently Prospect Energy/Black Diamond Minerals LLC. The hope is that, through a strong working relationship with the operator, staff will be able to inform residents of proposed activity in a timely fashion so that concerns and comments can be shared with the operator.

Ultimately, since the state issues permits for oil and gas activity, there is much uncertainty about the impact that the City of Fort Collins can have on operations. That said, staff is doing its best to

ensure that Fort Collins residents are protected to the fullest extent possible and that information is shared transparently between oil and gas operators and the community.

27. Given the MOU with Prospect Energy, can they now drill anywhere in the "Fort Collins Field" or only on their current drill pads?

The MOU, also called an Operator Agreement, governs specific areas of Fort Collins where Prospect Energy either owns mineral rights or has obtained a lease for those mineral rights. The agreement limits Prospect to drilling new wells on existing well pads in the Fort Collins Field and limits the company's development of new well pads in the undeveloped acreage (UDA).

28. How many acres is the Fort Collins Field?

The Fort Collins Field consists of mineral rights held by Prospect Energy both inside the incorporated boundaries of Fort Collins and north towards Wellington. The Fort Collins Field is 2,582 acres.

29. How many acres is the "Undeveloped Acreage?"

The undeveloped acreage (UDA) is a term that the City has assigned to the area of mineral rights that Prospect Energy has obtained adjacent to the Anheuser Busch brewery. The area of the UDA is 1,253 acres.

30. What is the enforceability of the MOU?

Because the memorandum of understanding or Operator Agreement is agreed to between the City of Fort Collins and Prospect Energy and entered into by the City Council, it is then enforceable as a contract.

31. Who enforces the MOU?

The City of Fort Collins is able to enforce its memorandum of understanding or Operator Agreement. The commitment to the Best Management Practices, outlined in Appendix A, will also be attached to all Applications for a Permit to Drill (COGCC form) and thus, also enforceable by the State.

32. Regarding the MOU, what are the consequences, financial and otherwise, for Prospect Energy if, because of their oil and gas/fracking operations in Fort Collins, spills continue occurring, a blowout occurs, a leak of toxic waste material happens again and requires significant remediation?

All state and federal regulations concerning Corrective Action for spills and releases and site remediation are enforceable at the state level, whether by the Colorado Department of Public Health for hazardous chemicals (Resource Conservation and Recovery Act (RCRA), Subtitle C) or

solid waste disposal (RCRA, Subtitle D) or by the COGCC for exploration and production (E&P) wastes (COGCC Rule 900 series). Federal and state laws related to hazardous and E&P wastes are intended to ensure proper management and disposal of hazardous waste to protect human health and the environment. EPA maintains a level of oversight with reporting requirements for inspections, compliance status, violations, informal or formal enforcement actions, and any penalties assessed. Enforcement actions encompass a wide range of required remediation activities with state and/or federal oversight, as well as possible civil and criminal penalties.

33. Are these consequences, as stated in the Memorandum of Understanding (MOU) (*Operator Agreement*), more severe if Prospect's operations lead to the degradation of the human or environmental health of Fort Collins residents--the illness and/or death of a Fort Collins resident?

Nothing in the Operator Agreement addresses this question. In general, if the Operator was negligent, as any outcome suggested by the question would likely be, then the injured parties could possibly have a claim against the Operator. For example, a lawsuit from the injured party could be brought, or the State could enforce any violations within its jurisdiction.

34. What is the required procedure for notifying residents of a spill currently, and will that change with the MOU as written?

Through Colorado Oil and Gas Conservation Commission rules, spills or releases that impact human health or create an emergency situation require immediate notice to Poudre Fire Authority and the City Office of Emergency Management. The MOU changes when the operator must notify the local authority. When it is determined that the spill endangers life and/or property, residents would receive an emergency notification. In the case of serious threats to safety notification occurs using existing mechanisms - reverse 911 notification to residents and immediate action of appropriate safety resources.

If spills occur within Fort Collins of greater than 5 barrels of fluid, Prospect Energy is mandated by the Colorado Oil and Gas Conservation Commission to notify the Fort Collins Local Government Designee (LGD). The City maintains www.fcgov.com/oilandgas and the LGD will post related spill, permitting, and other activity notice on this site as an information source. Citizens may subscribe to receive automatic notice of updates to this page.

A condition of the Operator Agreement is that the Emergency Preparedness Plan engages neighboring residents to educate them to risks of on-site operations and to establish a process for surrounding neighbors to communicate with the operator.

35. Why aren't existing wells being held to Best Management Practices?

Approved development activity is not typically subject to newly adopted development standards. Existing operations will be subject to the Operator Agreement rules with maintenance of equipment or adding new wells to a well pad.

36. Chemicals used are to be disclosed to the City. Why aren't they reportable to the public?

The state requires that the operators now disclose chemical information on a national chemical registry located at: www.fracfocus.org and Prospect Energy will be doing so with all new wells and has already done so with existing wells. Also, information received to the City will be posted electronically on a City-maintained website for residents to peruse.

Fort Collins staff is aware that there are some reported flaws with the quality of data reported on FracFocus.

a. According to the recently released EPA preliminary results on hydraulic fracturing impacts on water resources¹, although FracFocus is the largest single source of publicly disclosed data for fracking chemicals (e.g., contains data for nearly 19,000 wells including well locations and depths), because it is a voluntary program with no regulatory oversight there are some issues with data quality including data gaps, data variability, and difficulty with extracting data for systematic analysis. The EPA deliberately designed their study to collect data from multiple sources to ensure a more complete and representative data set.

b. Prospect Energy directly provided City staff with copies of all Material Safety Data Sheets (MSDSs) for all chemicals used in their operations for fracking fluids, drilling muds, and well cementing materials which appears to constitute full chemical disclosure. A small proportion of these chemicals are stored on site as indicated by their recent quarterly chemical inventories (also recently provided to City staff).

37. Green completions should be required on any new wells.

Green completions will be performed at any location which produces commercial quantities of natural gas.

38. Why don't the Vapor Recovery Units take care of hydrogen sulfide (H₂S)? What is meant by "periodic" sampling for H₂S?

Vapor recovery units are designed to capture and remove high concentration of vapors from tanks and other production equipment for reuse or sale. Vapor recovery systems can be used to remove hydrogen sulfide, however, the effectiveness of a vapor recovery unit in removing a gas is dependent on the gas characteristics (i.e. water content, concentration, pressure). Low gas volumes with low concentrations of hydrogen sulfide can be more effectively controlled by combusting vapors in a flare.

¹ EPA, 2012, Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources, Progress Report, EPA 601/R-12/011, Office of Research and Development.

In section 21.j of the Operator Agreement, periodic monitoring is defined as annual inspection until such time as odors are no longer detected. In section 21.k, the City may require additional monitoring in response to odor complaints or emergency events.

39. Under green completions described in Appendix A, section 22 of the MOU with Prospect Energy, what is meant by "The flowback combustion device shall be equipped with a reliable continuous ignition source over the duration of flowback, except in conditions that may result in a fire hazard or explosion."?

This statement is referring to the flare or other combustion device used to control emissions during well completion (drilling). The flare must have a mechanism that will keep the flare ignited at all times, unless there is a situation such as a gas leak that could result in an explosion or fire. This provision is a public safety measure.

40. How will neighborhoods and/or businesses be made aware of the mitigation protocol in case of hazardous spills or well blowout?

COGCC Rule 906 describes the different reporting requirements for different types of spills and impacts (e.g., must report within 24 hours if threaten waters of the state, residence or occupied structure, livestock, or public byway, etc.). The initial responses can be an emergency response (if public health is threatened) or spill response (if water sources or other resources are threatened). The term applied to a cleanup of a hazardous spill is remediation. A public participation process is typically required if there are public health or environmental impacts (e.g., cleanup plans made available for public comment, neighborhood outreach meetings). The LGD should be made aware of all actions taken as a result of any hazardous spill or well blowout.

A condition of the Operator Agreement is that the Emergency Preparedness Plan engages neighboring residents to educate them to risks of on-site operations and to establish a process for surrounding neighbors to communicate with the operator.

41. Does the Surface User Agreement in Water's Edge, Hearthfire, and Richard's Lake subdivisions supersede a ban?

Surface Use Agreements are a contract between two parties. The local hydraulic fracturing ban has been enacted into law by the City Council. Law has precedence over contractual arrangements.

42. How exactly does this (agreement) impinge upon COGCC setback rules?

State setback rules have precedence over locally-enacted regulations. This has been litigated in the Colorado Supreme Court in several cases where local government has attempted to ban oil and gas operations, to set setback limits and to enact operational limitations on oil and gas operations. In 2013 the Colorado Oil and Gas Conservation Commission (COGCC) adopted new uniform statewide setback distances for new wells – 500 feet from occupied buildings. The

COGCC further limits new oil and gas operations from being within 1,000 feet of high occupancy buildings like schools, hospitals, nursing homes, or jails.

43. What are the requirements for checking emissions from tanker trucks collecting VOCs to be taken off-site, both during well drilling and regular operation?

Emissions from the tanker trucks themselves are regulated under state and federal vehicle emissions standards. Emissions of VOCs can be released when delivery trucks are filled with product from storage tanks. Prospect Energy's existing truck loading operations at the main tank battery include a vapor recovery system. Captured vapors are then routed through the tanks to the thermal oxidizer emissions control system. There are no requirements in the operator agreement for monitoring emissions from truck loading operations.

44. What is the mitigation plan for soil contaminated from spilled fracking fluids? Where exactly would this soil be taken?

Site cleanup plans are specific to each unique spill of chemical substance. While some cleanups include removing and properly disposing of contaminated soils, this is not the most common method to remediate soils. Most remediations are completed on the site and often use biological, physical, or chemical means to destroy contaminants. If contaminated soils are removed and disposed of at a licensed facility, a detailed process called "waste characterization" is required under several state and federal regulations to determine what type of waste it is (e.g., hazardous waste, toxic waste, solid waste, or E&P waste) and proper handling, storage, transportation, and method of disposal.

Prospect Energy sends waste soil to the Resource Conservation and Recovery Act (RCRA) Subtitle D licensed Waste Management facility in Ault for disposal and it must undergo a waste characterization.

45. Does the MOU violate our State Constitution, article 5, section 25, by granting a virtual monopoly to a single operator?

No. The Operator Agreement (MOU) does not violate the state constitution as it does not grant a virtual monopoly to an operator. The operator either owns or leases mineral rights and those rights are guaranteed by the Colorado

46. Are we willing to sacrifice our "green label" as an up-and-coming sustainable city, a reputation Fort Collins has already earned?

Fort Collins is proud of its reputation and is keen to protect the community brand. The City is attempting to impose the strictest controls that are allowable under state and federal laws on the oil and gas industry.

**47. Why is water quality sampled only 3 times after a well is drilled - at one, three, and six years?
This is presumably over-and-above testing requirements by the COGCC, and yet this seems drastically insufficient.**

Water sampling is recommended at these intervals so that water contamination can be identified at different stages of oil and gas development over time and be remediated expeditiously. Groundwater moves relatively slowly through the subsurface soil and in aquifers and the rate of flow is called hydraulic conductivity. The measurements vary, but generally are in the range of inches per day. No water quality monitoring program attempts to sample in all locations or at all times. A monitoring plan is designed to use specific site information to sample the groundwater as it moves down-gradient from the oil and gas site and to find the contamination before it impacts public health or the environment. If groundwater contamination is found or suspected (e.g., a spill or equipment leak), the COGCC is immediately notified and assumes responsibility for public notification and site cleanup. Additional groundwater sampling would be a requirement of a site cleanup plan, and can include putting in several groundwater monitoring wells for routine monitoring (e.g., quarterly).

48. Are wells beholden to the federal Clean Air Act and Safe Drinking Water Act?

Safe Drinking Water Act: While SDWA regulations do not apply to the process of injecting fluids during hydraulic fracturing operations, SDWA regulations do apply to the underground injection of produced water from oil and gas operations.

Clean Water Act: The CWA generally exempts oil and gas facilities from the requirement to obtain a permit for discharges of stormwater runoff from oil and gas facilities; however the State of Colorado requires that these facilities obtain state stormwater permits

Toxic Substance and Control Act: While the oil and gas industry is largely exempt from reporting requirements under the Toxic Substances Control Act, the EPA has initiated a stakeholder process to discuss TSCA requirements for reporting chemical information by the oil and gas industry. The intent of the stakeholder process is to seek public input on the information needs and potential requirements. The EPA plans to publish an Advance Notice of Proposed Rulemaking in February 2014.

Resource Conservation and Recovery Act: Congress exempted certain oil and gas exploration and production (E&P) wastes believed to be of lower toxicity from Subtitle C of RCRA in 1988. Although they are relieved from regulation as hazardous wastes, the exemption does not mean these wastes could not present a hazard to human health and the environment if improperly managed, so they are still subject to regulation under Subtitle D of RCRA and other state and federal laws. For a detailed description of which wastes are exempted, please refer to the EPA document at: <http://www.epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>.

49. What is “produced water”?

Produced water is any water that has been located in subsurface geologic formations in contact with oil and gas that is brought to the surface as a result of exploration and production. The produced water always contains either liquid or gaseous hydrocarbons, and may contain dissolved or suspended solids and any additives that were placed in the formation as a result of oil and gas activities. Because some additives can change the pH of the water, heavy metals are sometimes altered chemically and become a contaminant of concern.

50. I would ask that staff prepare and present publicly the potential negative impacts that could affect residents, our environment and wildlife that would occur if various spills and accidental releases related to fracking were to occur. To make an informed decision on this issues, it’s important, and only fair, that the public and council members fully appreciate the potential negative consequences of allowing fracking. We’ll all heard how horrible being sued would be. Now, let’s hear how horrible it would be if our water, soil, air and public health are seriously compromised.

The potential negative impacts to humans and the environment from oil and gas development and specifically from hydraulic fracturing are subject to strenuous debate in Colorado and throughout the United States.

There are many studies underway on air, water, and health impacts related to the industry. A summary of these studies can be found in the packet submitted to Council during the February 19, 2013 Council meeting (available here: http://citydocs.fcgov.com/?cmd=show_related&vid=72&dt=SUMMARY+AGENDA&rid=February+19%2C+2013). Please click on the PDF document next to Item #26 (Items Relating to a Ban of Hydraulic Fracturing and Certain Storage of Waste within the City) to obtain the various memos.

51. City staff stated that all chemicals in the fracking process would be disclosed. How do we know that the solution actually being pumped into the ground is the same as the ingredients given to the city by Prospect Energy? I would like an independent tester to physically test fracking fluids on a regular basis, every two months as an example – to be paid for by Prospect Energy. These results would be reported to the city and posted for the public to review.

The Colorado Oil and Gas Conservation Commission Rule 205A requires disclosure of hydraulic fracturing chemicals. The Commission staff maintains oversight of the chemicals used in fracturing throughout Colorado through inspections and quarterly chemical inventories that are mandatory.

52. The COGCC was willing to blatantly come before City Council and lie about the number of signatures on their petition. Oil and gas companies, in general, do not have a good track record in the realm of being honest and forthcoming with information about their operations.

The petition referenced was submitted by the Colorado Oil and Gas Association (COGA) which is an industry lobbying group. The Colorado Oil and Gas Conservation Commission is a state agency housed in the Department of Natural Resources (DNR) that was delegated the responsibility for oversight of the oil and gas industry by the General Assembly.

53. Conceptual Review – There is a list of requirements listed that staff and applicant could do – NOTHING IS LISTED AS REQUIRED AND THEREFORE THIS SECTION MEANS NOTHING.

Conceptual review does have a number of obligations for a developer at submittal, these are listed in Appendix B. This process is used by the City for all manner of development activity and allows a developer to present their plans and receive direct feedback from staff experts before moving through the development process. There are specific requirements attached to conceptual review and these submittal requirements are part of Exhibit B of the Operator Agreement.

The following items are required to be submitted at the time of conceptual review:

- a) A preliminary summary of planned operations, including identified access points and operational timeline for posting to a local community information web-page;
- b) A preliminary site plan for site preparation, mobilization and demobilization;
- c) A preliminary plan for interim reclamation and revegetation of the well pad and final reclamation of the well pad;
- d) A preliminary plan for noise, light and dust mitigation;
- e) A preliminary traffic management plan;
- f) A preliminary Visual Mitigation Plan, including but not limited to, a list of the proposed colors for the operations' equipment, proposed fencing and screening in accordance with Appendix A.
- g) A preliminary list of permits that shall be submitted in conjunction with the APD and any exceptions proposed to be requested.
- h) A draft air quality mitigation plan in accordance with Appendix A.
- i) A draft emergency response preparedness plan in accordance with Appendix A.
- j) Preliminary list of chemicals proposed to be disclosed through the "Frac Focus" uploading mechanism and regulated through the COGCC Rule 205.
- k) Proposed sampling locations in accordance with the water quality monitoring plan outlined in Appendix A.

- 54. As far as I know, there is no way to guarantee that fracking operations are safe. Therefore I would strike language stating “WHEREAS, the Amended Agreement...adequately protects the public health, safety and welfare...” I see nothing that would guarantee that the public health, safety and welfare is adequately protected.**

This question seems rhetorical.

- 55. I would strike language that states “the Amended Agreement between the City and Prospect is in the best interests of the City.” I certainly don’t see how allowing an operator to frack, bringing up significant quantities of “produced water” and potentially putting residents and our environment at risk, is in the best interests of the City.**

This language refers to the amended agreement, specifically the inclusion of state’s amended rules on setbacks starting on May 1 instead of August 1 and the requirement that Prospect Energy cannot re-enter any plugged and abandoned wells. It is staff’s opinion that amending the Operator Agreement to include this language is in the best interest of the City and the amendments were proposed as requested by citizens.

- 56. Exhibit A – page two states that “Equipment...will capture and destroy at least 98% of any methane and volatile organic compounds.” What are these VOC’s?**

VOCs refers to Volatile Organic Compounds that may come from the hydrocarbons, the produced water or other materials coming from the producing rock formation, the wellsite or from equipment at the wellsite.

Volatile Organic Compounds (VOCs) are a group of chemical compounds that contain carbon and readily evaporate at standard room temperature and pressure. This group of compounds is regulated by the EPA and most state environmental agencies because of their contribution to the formation of ozone. Although this group comprises hundreds of compounds, there is a subset of this group that is typically associated with oil and gas operations. This subset typically includes major components of natural gas such as ethane, propane, and butane. It can also include lesser concentrations of compounds such as benzene, toluene, and xylene.

In order to know the exact composition of gases emitted from drilling or production operations or the products of incomplete combustion from the control device, air emission testing would need to be conducted.

- 57. While it’s nice to know that 98% of these toxic compounds are destroyed, what remaining negative impacts can the remaining two percent have on residents and the environment?**

A risk assessment of potential impacts to human health due to future air emissions has not been conducted at this time. Information on a proposed project including its location, expected production, quantified air emissions, and receptor population would be needed to complete an evaluation of potential risk to human health.

58. Exhibit A – page 3 - #1. Who determines whether the Company’s operations are conducted in accordance with this agreement?

The agreement is enforceable by the City and the provisions of the agreement will be added to the state-issued permit as part of the Colorado Oil and Gas Conservation Commission process. If the conditions of the Operator Agreement are added to the state permit then state inspectors would provide enhanced inspections to local wells.

59. How will the Company’s operations be determined to be or not to be in accordance?

The agreement will be enforced both by the City and state.

60. Can residents challenge the Company’s operations?

Residents may report operational complaints or concerns to the Colorado Oil and Gas Conservation Commission, which maintains inspection authority statewide. This is done through submission of a Complaint Form (Form 18) to the Commission. Comments on operations may also be made to the Local Government Designee or directly to the operator.

61. Exhibit A – page 3 - #2. What is the potential high number of wells that could be drilled?

The operator has indicated that they may drill 6-8 new wells in the Fort Collins Field using existing well pads. They have indicated that they may drill up to four (4) new well pads on the undeveloped acreage (UDA) adjacent to the Anheuser Busch brewery.

62. What is the potential high volume of “produced water” that could be produced from fracking given the highest number of potential wells or any operation – horizontal drilling for example – that might be produced given the highest possible production in all fields operated by Prospect Energy?

Staff is not able to estimate the volume of produced water.

63. Exhibit A – page 3 -#3. Why is the Company not required to obtain project development plan or final plan approval to conduct any new work?

The Operator Agreement requires the operator to agree to specific terms and best management practices (BMPs) governing their activities.

-The Operator Agreement specifies that the City and the Operator agree to largely utilize the Local Government Designee (LGD) process. In addition to the LGD process, the City has also stipulated that a conceptual review be held at least 30 days prior to submitting a Colorado Oil and Gas Conservation Commission Application for Permit to Drill (APD) and that a neighborhood meeting in accordance with City standards (not the state’s standards) be held.

- 64. The wording states that the Company shall "...meet with City to review the proposed oil and gas operation to ensure compliance with this Agreement..." Who is the "City" and how will the "City" ensure compliance. As a resident I want to know that any such meeting is publicly attended and the strict guidelines are not only presented but reviewed and then evaluated. To just sit down at a meeting and agree to do the right thing is unacceptable.**

"City" refers largely to the Local Government Designee and the Planning Director but also may include other city staff, utilizing best practices and professional expertise. There is also a clause in the contract that outlines a procedure if either party is in default of the agreement.

- 65. Following along this same item, what does "...minimize potential adverse impacts to public health, safety and welfare." Mean? Who decides what "adverse impacts" are and who decides what "minimizes" means?**

The imposition of local regulation on the operator is meant to minimize risk and reflects areas where staff research has identified the greatest community hazard. When a potential adverse impacts to the public health, safety and welfare is identified through hazard identification, vulnerability assessments and pre-planning of the facility or site, BMP (best management practice) are put into place to minimize the impact.

- 66. Exhibit A – page 4 - #4. Don't (*know*) what to say about this section except it's totally unacceptable. First, the Company is deemed to be a "prudent operator" whatever that is, the Company isn't subject to BMP's (why not?) and as written the Company can pretty much do what they want, when they want and not be subject to much oversight at all. Who wrote this section?**

The language in this section allows the operator to conduct routine maintenance, make repairs and operate the field as they deem prudent and necessary. The section also agrees to conduct its operations prudently in accordance with State of Colorado and federal rules.

- 67. Exhibit A – page 4 - #6. Force Majeure. As I read this, no one is responsible is there is a major spill or catastrophe as long as almost anything happens.**

This section is a standard legal clause for agreements of this nature. "Force majeure" is a common clause in contracts that essentially frees both parties from liability or obligation when an extraordinary event or circumstance beyond the control of the parties prevents one or both parties from fulfilling their obligations under the contract. In practice, most force majeure clauses do not excuse a party's non-performance entirely, but only suspends it for the duration of the circumstances preventing compliance.

- 68. Exhibit A – page 4 - #9. What does this mean? Does this mean that no resident, if harmed in any way, can take action against the Company? How does this impact the Company, and residents, if there is harm to people, the environment or property?**

This section simply means that aside from the Colorado Oil and Gas Conservation Commission's regulatory role in inspecting wells the agreement does not obligate any other parties to enforcement or to rights of claims other than Prospect Energy and the City of Fort Collins.

- 69. Page 9 - #4 – Public Notice. It is not enough to notify only those adjacent or close to the wells. The impacts of these operations affect all residents in Ft Collins. Notice must be given to the entire city. Note recent scientific studies showing how far pollutants from fracking wells can extend beyond well pads.**

Information received by the Local Government Designee with respect to state permitting or other activities on wells in Fort Collins will be published on a website (www.fcgov.com/oilandgas) for community consumption. Further, the City has created a subscription service where citizens or any interested party may get notice of information being published to that notification website (available at <http://www.fcgov.com/developmentreview/weekreview.php>).

- 70. Page 10 - #6 – Neighborhood Meetings – same issue. Neighborhood in this agreement needs to mean the entire City of Fort Collins.**

Neighborhood meetings will be held with those living adjacent to the proposed well. These meetings will be public and a record will be maintained and included in the Local Government Designee comments on the state permit.

- 71. Page 10 - #8 – Inspections. The City should have the right to do inspections at any time – and not give notice to the Company. Requiring 24-hour advance notice is like telling the Fox that you're grabbing your gun and will soon be there.**

The City has neither the staff expertise nor does it have authority to conduct well site inspections. The Colorado Oil and Gas Conservation Commission (COGCC) maintains a staff of field inspectors who are empowered to enter a well site without prior notice and cite operators for violations of the state's rules. City inspections would be limited to terms of the Operator Agreement.

- 72. Page 10 - # 9. Containment Berms. Wording states that "All berms and containment devices shall be inspected at regular intervals and maintained in good condition." Who will inspect? How often will the inspections occur? What is "good condition."**

The Colorado Oil and Gas Conservation Commission (COGCC) maintains a staff of field inspectors. These individuals are trained to identify operational failures of containment systems. "Good condition" refers to no holes in liners or berm structures and no corrosion on steel

containment rings. The Operator will also be responsible for maintaining secondary containment systems in working order and ensuring public safety.

International Fire Code (IFC) as regulated and enforced by Poudre Fire Authority (PFA) examines these items prior to construction, during construction, and after construction for compliance. PFA also does periodic inspections of such facilities to ensure compliance.

73. Relating to containment berms being made of steel rings and installed to prevent leakage and resist... what standards will be used to determine all of this?

There are construction standards maintained by the federal government for fabrication of these pieces of equipment and ensuring the proper installation of these berms is the responsibility of the operator and inspected by the Colorado Oil and Gas Conservation Commission. Cathodic protection is a requirement for steel rings to prevent corrosion.

74. As it relates to secondary containment – synthetic or engineered liners – again – according to what standards? Have there ever been problems with these kind of lines in the past? Who will monitor and inspect these and how often?

COGCC Rule series 900 specifies liner requirements for pits. These same requirements will apply to secondary containment system liners.

75. Page 10 - # 10 – Closed Loop – has there been instances anywhere where these closed loop systems have leaked? If so, why, what were the impacts and what's to ensure that this closed loop system is fool proof?

During drilling operations, "closed-loop" drilling systems can greatly reduce or eliminate the discharge of toxic drilling wastes on site. These systems negate the need for drilling reserve pits. Pits were historically used to store materials brought from the ground and were a major source of dangerous air emissions.

Staff is not aware of occasions where closed loop systems have leaked. These systems are subject to inspection and regulatory oversight from the Colorado Oil and Gas Conservation Commission (COGCC).

76. Page 11 - # 11 – Anchoring. What does "...to the extent necessary..." mean? Who decides what's necessary? Engineers? City staff? Recently hired employees? Outside contractors?

Anchoring may be required as a mechanism to protect public safety and prevent catastrophic well failure.

- 77. Page 11 - #14. Chemical disclosure and storage. It states that the Company "...shall not permanently store hydraulic fracturing chemicals, flowback from hydraulic fracturing, or produced water in the City limits." What does "permanently" mean. How far outside City limits is it okay to store these wastes and what are the safety requirement if stored on the boundary of the City and other lands?**

The International Fire Code (IFC) regulates storage, use, handling, etc of chemicals. PFA regulates and enforces the IFC as adopted within the entire PFA jurisdiction. Disclosure is regulated by local, state and federal laws. The City and PFA only have regulatory authority within their jurisdictions.

Produced water or production water disposal depends on the specific production company. Options include but are not limited to re-cycle for additional fracturing, reinjection, enhanced recovery, stock-crop watering, and treating for reuse in arid and drought prone areas. This is all dependent on chemical levels in the production water.

- 78. A recent article in the Denver Post stated that drilling in Colorado produces 15 billion gallons of a salty, toxic liquid waste – "produced water" every year. What happens to all of this waste?**

Produced water, the toxic byproduct of oil and gas operations, is disposed in Class II Underground Injection Control Disposal Wells. These wells are regulated by the state of Colorado under the authority of the federal Environmental Protection Agency (EPA).

- 79. WHY ARE WE OKAY ALLOWING OUR WATER TO BE POLLUTED WITH TOXICS AND THEN NOT TREATED TO BRING IT BACK TO DRINKING STANDARDS? IF WATER CANNOT BE BROUGHT BACK TO DRINKING WATER STANDARDS – THIS ALONE – IS ENOUGH TO HALT ANY FRACKING IN OUR CITY. JUST BECAUSE WE REQUIRE "STRICT" OPERATING STANDARDS DOES NOT MAKE IT RIGHT OR PRUDENT TO POLLUTE FRESH WATER WITH TOXIC WASTES – PERIOD!**

This question seems rhetorical.

- 80. Page 11 - #18 – Dust Suppression. What dust suppression methods are permissible? I would write language that all dust suppression must be done with water soluble, non-toxic solutions that would be agreed upon in advance by the City – with public input prior to any dust suppression activities – and that no runoff from such activities ever find its way into any body of water.**

Typical dust suppression methods include: speed limits below 25 mph, constructing gravel or paved surfaces, reducing vehicle weights and trips, or wetting dirt roads with water or other chemical dust suppressants. BMP #18 states that no produced water or other process fluids can be used and that the use of any chemical dust suppressants must be approved by the city. The use of dust suppressants is to be avoided within 300 feet of the high water mark of any water body. The use and approval of dust suppressants is a function of the city in other areas such as

road construction, site development for large residential or commercial projects, and material handling (sand and gravel) operations.

Page 12 - # 20 (c) I want to see the detailed information addressing each “...reasonable potential emergency that may be associated with the operation.” In advance of any vote on this agreement. IN ADDITION, HAS THE COMPANY SHOW THIS “LIST” TO COUNCIL MEMBERS OR CITY STAFF? DO COUNCIL MEMBERS EVEN KNOW WHAT POTENTIAL EMERGENCIES MIGHT OCCUR? This information should be made public at the City Council meeting on April 23, 2013.

This plan is required at submittal of a drilling permit and would be developed in cooperation with Poudre Fire Authority and with the City’s emergency manager. The plan would conform to best management practices and be part of the overall development proposal that residents could comment on in public hearings.

Emergency Preparedness Plans are developed after a hazard analysis is performed; site assessment, vulnerability assessment and hazard mitigation issues are addressed. These are done in conjunction with examining historical perspectives of local incidents, state incidents and national incidents for facilities of this nature. The City of Fort Collins Office of Emergency Management in conjunction with Poudre Fire Authority and additional City Regulatory Staff will work with the Operator to be sure that the plan is comprehensive and detailed prior to approval. Plans are developed and approved following standards that include reference to the International Fire Code, FEMA Comprehensive Planning Guide 101, OSHA Standards, Pipeline and Hazardous Materials Safety Administration, Environmental Protection Agency, Chemical Manufacturers Association, National Fire Protection Association Standards, and the National Incident Management System.

81. Same with (h) notifying surrounding neighbors - or in this case I would rewrite to say entire City of Ft. Collins.

Surrounding neighbors would experience a greater impact from traffic, noise and light associated with drilling operations and so are afforded a greater opportunity to comment both by the Colorado Oil and Gas Conservation Commission and the City’s permit. The entire community would be able to comment on the permit and also be able to communicate concerns with the operator.

82. Page 13 - #21 Air Quality – what does “to the maximum extent feasible that minimize air pollutant emissions..” mean?

This general requirement is included to inform the operator that there is an expectation that the design of future projects will include minimizing air emissions even if specific emission control measures or standards have not been spelled out. It is not possible to anticipate all future air emission scenarios, so general statements such as this help to capture the intent and expectation that reductions of air emissions should be maximized taking into account the state of technology and project specifics at the time of new development.

- 83. Page 14 - # 21 (b) –HLP and VRU – “Company may remove the VRU at such time it determines that the VRU system is no longer necessary.” It is not okay that the Company gets to determine when emission recoveries are no longer necessary. This should be done by independent assessment.**

As a well production declines, there is a point in time at which the air emissions caused by the operation of the air pollution control equipment can exceed the emissions being controlled from the well. The operator will be required to be in compliance with COGCC rules and with any APENs (Air Pollutant Emission Notice) or air permits issued by Colorado Department of Public Health and Environment. It is likely that these requirements will include submission of annual emissions data and/or additional data and documentation for a permit modification. Removal of air pollution control equipment is overseen by CDPHE.

- 84. Page 14 - #21 (c) Who can explain what this section says or means? How can the public know or City Council know?**

The use of a plunger lift is one of many ways to remove accumulated liquids from a natural gas well. This method of purging the well can result in increased production and decreased gas emissions. This method is only applicable to natural gas wells and is not used in crude oil wells such as those in operation within the Fort Collins Field. The Fort Collins Field produces very low levels of natural gas. This Agreement provision says is that if a newly drilled well does produce salable quantities of gas then the company is required to control and capture that gas.

- 85. Page 14 - #21 (d) If gas vapors can be released at a level of 2% - what is the impact of a continual 2% release of gas vapors? What studies have been done? How far do these gas vapors travel from the well pads? If there are a number of well pads together, all releasing 2% of vapors, is there a cumulative effect and impact?**

The city did not quantify the potential impact of the 2% level. Estimates of future emissions, location of development, and factors about future populations are not known at this time. The emissions control equipment committed to by the operator will exceed state and federal standards by 3%.

There are several studies that have been conducted regarding air emissions from oil and gas operations and some include information on dispersion of emissions from well pads. Studies have demonstrated that there can be a cumulative effect of air emissions from oil and gas operations on ozone concentrations and increases in ambient concentrations of other regulated air pollutants.

The U.S. Department of Energy recently announced it will soon initiate a collaborative research study related to airborne emissions at natural gas drilling sites entitled; The Interagency Collaboration to Address Environmental Impacts of Shale Gas Drilling
<http://www.fossil.energy.gov/news/techlines/2013/13017->

NETL_and_NIOSH_Sign_Shale_Gas_Agre.html. The commenter is also referred to the following list of references which is not intended to be exhaustive on this subject:

Colorado Department of Public Health and Environment, Public Health Implications of Ambient Air Exposures as Measured in Rural and Urban Oil & Gas Development Areas – an Analysis of 2008 Air Sampling Data, Garfield County, Colorado (August 26, 2010). Available at: <http://www.atsdr.cdc.gov/HAC/pha/GarfieldCountyColorado2010/GarfieldCountyColoradoHCO8262010.pdf>.

Colborn T, Schultz K, Herrick L, and Kwiatkowski C. An Exploratory Study of Air Quality Near Natural Gas Operations. 2012 (in press). Hum Ecol Risk Assess. Available at: <http://www.endocrinedisruption.com/files/HERA12-137NGAirQualityManuscriptforwebwithfigures.pdf>.

Gidney, B.; Pena, S. Upstream Oil and Gas Storage Tank Project Flash Emissions Models Evaluations; Final Report; Texas Commission on Environmental Quality, (July 16, 2009). Available at <http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/20090716-ergi-UpstreamOilGasTankEIModels.pdf>

Gilman JB, Lerner B, Kuster WC, de Gouw J, Source Signature of Volatile Organic Compounds (VOCs) from Oil and Natural Gas Operations in Northeastern Colorado. (Jan 14, 2013). Environ. Sci. Technol. DOI: 10.1021/es304119a . Available at: <http://pubs.acs.org/doi/abs/10.1021/es304119a>

McKenzie LM, et al. Human Health Risk Assessment of Air emissions from Development of Unconventional Natural Gas Resources. (Feb. 2012). Sci Total Environ. DOI:10.1016/j.scitotenv.2012.02.018

<http://cogcc.state.co.us/library/setbackstakeholdergroup/Presentations/Health%20Risk%20Assessment%20of%20Air%20Emissions%20From%20Unconventional%20Natural%20Gas%20-%20HMcKenzie2012.pdf>

NOAA, State of Utah, EPA, BLM, Western Energy Alliance. 2012 Uintah Basin Winter Ozone and Air Quality Study - Summary of Interim Findings, Ongoing Analyses, and Additional Recommended Research. (Aug. 7, 2012). Available at: <http://www.deq.utah.gov/locations/uintahbasin/docs/2012/Aug/UBOSWinter2012InterimFindingsMitigation%20.PDF>

Pétron G, Frost G, Miller BR, et al. Estimation of Emissions from Oil and Natural Gas Operations in Northeastern Colorado. (2012) Earth System Research Laboratory, National Oceanic & Atmospheric Administration, Boulder, CO. Available at: <http://www.epa.gov/ttnchie1/conference/ei20/session6/gpetron.pdf>

Pétron G, Frost G, Miller BR, et al. Hydrocarbon Emissions Characterization in the Colorado Front Range: A Pilot Study, (Feb. 2012). J. Geophys. Res., 117, D04304, doi:10.1029/2011JD016360. More information available at: <http://researchmatters.noaa.gov/news/Pages/COoilgas.aspx>

Skone TJ, Littlefield J, and Marriott J. Life Cycle Greenhouse Gas Inventory of Natural Gas Extraction, Delivery and Electricity Production. (2011). DOE/NETL-2011/1522.: US Department of Energy, National Energy Technology Laboratory, Pittsburgh, PA, USA. Available at: <http://www.netl.doe.gov/energyanalyses/pubs/NG-GHG-LCI.pdf>

Sublette County, Wyoming Department of Environmental Quality, Wyoming Department of Health. Screening Health Risk Assessment, Sublette County, Wyoming. (Jan 2011) Available at: <http://www.sublettewyo.com/DocumentCenter/Home/View/438>

Texas Commission on Environmental Quality. Condensate Tank Oil and Gas Activities: Final Report, prepared by Eastern Research Group. (October 10, 2012). Available at: http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5821199776FY1211-20121031-ergi-condensate_tank.pdf

Texas Commission on Environmental Quality. Characterization of Oil and Gas Production Equipment and Develop a Methodology to Estimate Statewide Emissions: Final Report, prepared by Eastern Research Group. (Nov. 24, 2010). Available at: <http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784003FY1026-20101124-ergi-oilGasEmissionsInventory.pdf>

Tollefson J. Air Sampling Reveals High Emissions from Gas Field. (Feb. 2012). Nature.com. Available at: <http://www.nature.com/news/air-sampling-reveals-high-emissions-from-gas-field-1.9982>

U.S. Environmental Protection Agency. Integrated Science Assessment for O₃ and Related Photochemical Oxidants: Third External Review Draft. (June 2012). U.S. Environmental Protection Agency, Research Triangle Park, NC. Available at: <http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=242490>

U.S. Environmental Protection Agency. Regulatory Impact Analysis: Proposed New Source Performance Standards and Amendments to the National Emissions Standards for Hazardous Air Pollutants for the Oil and Natural Gas Industry. (July 2011). Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC. Available at: <http://www.epa.gov/ttnecas1/regdata/RIAs/oilnaturalgasfinalria.pdf>

U.S. Environmental Protection Agency. Draft Residual Risk Assessment for the Oil and Gas Production and Natural Gas Transmission and Storage Source Categories. (July 2011). Office of Air and Radiation, Office of Air Quality Planning and Standards. Available at: <http://epa.gov/airquality/oilandgas/pdfs/20110728risk.pdf>

Western Energy Alliance, Western Governors' Association, Environ. A Comprehensive Emissions Inventory of Upstream Oil and Gas Activities in the Rocky Mountain States. Presented at EPA Conference (April 2012). Available at:
<http://www.epa.gov/ttnchie1/conference/ei20/session6/abarilan.pdf>

Wyoming Department of Environmental Quality. Final Report 2012 Upper Green River Ozone Study (Oct. 2012). Available at:
http://deq.state.wy.us/aqd/downloads/AirMonitor/Final%20Report_UGWOS%202012_October%202012.pdf

86. Page 14 - #21 (e) Flaring - Natural gas is a valuable natural resource. NO FLARING SHOULD BE ALLOWED. Why would we take a valuable natural resource it, produce toxic waste in extracting the natural gas and then burn it producing more pollutants? If the Company cannot capture all natural gas and use it safely and efficiently, they should not drill.

The current operations and the expected future operations produce crude oil. Exploratory operations and geologic data to date have indicated that commercially viable quantities of natural gas in the geologic strata under the Fort Collins filed and the UDA are not likely.

A small amount of gas is produced from current operations and can flash or volatilize in storage tanks or other equipment. Most of this gas is captured and controlled in the thermal oxidizer system. Some of this gas is used to run equipment at well pads in the northern part of the field. There is no gas sales pipeline in or near the existing field. It is anticipated that future development will yield primarily oil with little gas.

This requirement was included to establish minimum operating requirements in the event that a flare would ever be used in future development. It is important to note that other requirements such as 21 (a)(5), 21(d), COGCC Rule 805, CDPHE Regulation 6 Part A, and EPA 40 CFR Part 60 Subpart OOOO would place additional capture and control requirements on operations of natural gas wells.

87. Page 15 - #21 – (g) Leak Detection and Repair – why would we not check on potential leaks more than once a year? If a leak detection is done on April 25, for example, and leaks started on April 27, leaks could go unnoticed for almost a year?

This requirement meets the requirements of EPA 40 CFR Part 60 Subpart Vva and COGCC Rule 604.c.(2).f

88. Page 15 - #21 – (h) One Time Baseline Air Quality Monitoring – why should the City split the cost of this? The Company claims they're losing millions of dollars. Use some of those millions to do the testing.

Staff recommended a cost sharing arrangement so that the City has control of the baseline data. The section calls for not just a cost share but a mutually agreed upon third party to conduct the

testing, This compromise allows for the development of air quality data to then compare against through the life of the field.

The purpose of baseline air monitoring is to establish ambient air conditions prior to new development. The city may choose to use background air monitoring data from other studies that meet established air monitoring protocols and may not incur any cost to obtain this data. In the event that representative background air monitoring data is not available, the operator is willing to incur half of the costs to conduct this monitoring.

89. The (4) locations required for this testing seem arbitrary and hardly sufficient. Upwind of Tank Battery? How far? On a windy day? How fast should the wind be blowing to assure a reading that makes any sense? If done on a day when the winds are 15 mph and the test is done 100 yards from the Tank Battery – would that be meaningful?

The actual locations for air emissions monitoring will be determined based on information submitted in a permit application and will depend on proposed development location and proximity to residences, schools, or other sensitive receptors. Sampling will be conducted in accordance with EPA approved sampling methods. Conducting sampling in the general manner recommended in the Operator Agreement is meant to secure air emission results that reflect oil and gas operations' impacts on the community.

The requirement is not intended to be an air monitoring plan. As written, the requirement is intended to provide the general boundaries and criteria for background air sampling. Prior to any monitoring being conducted, the operator must submit an air monitoring plan as part of the air quality mitigation plan that will include the specific methodologies and sampling locations.

90. Why only one time air sampling? Do we assume that everything is hunky dory after that one sampling?

The required sampling during one well completion within city limits will provide data that is representative of the estimated 6-8 additional wells to be drilled in the Fort Collins field.

91. Also – what does the wording mean when it states “during well completion” When during well completion? Does the wording mean that only one well needs to be tested even if the Company has ten wells?

Well completion refers to a particular phase during the construction of a well and may include perforating the well casing and stimulating the formation for production. If a well is to be hydraulically fractured, the “fracking” occurs during this phase. Typical well completion activities, for the Fort Collins field occur 24 hours a day for a period of 5-10 days. The 5 day sampling period requirement was selected to capture representative emissions over the duration of a typical well completion.

92. Page 16 - #21 – (j) What does “periodic air monitoring” mean?

The requirement states annually or until such time as odors are not detected.

93. Page 16 - #21 (k) If there is an emergency event the City should REQUIRE additional air monitoring. (k) (1) this should be changed to read “...the company WILL BE REQUIRED to conduct air sampling in accordance...”

94. (k) (2) same thing – sampling should be REQUIRED

The intended wording gives the city flexibility in evaluating if an event requires action by the city or if another agency (i.e. PFA, Larimer County, CDPHE) with more expertise will implement or require air monitoring.

95. Page 16 - # 22 (a) – What the heck does this section mean? I have no idea, but it should be spelled out in detail so the public and council will have some inkling of what it all means!

“Green completions” refers to a process for separating the liquids from the gases in materials that flow out of a well during the well completion phase. The gases are routed to a pipeline rather than emitted to the air. The Colorado Oil and Gas Conservation Commission is requiring the use of green completions by operators generating commercially salable quantities of gas.

96. Page 17 - #22 – (c) (4) What does this section mean? What does “general duty” mean? What does “safely” mean? What does “...minimize releases to the atmosphere...” mean?

The language is very similar to COGCC Rules 604 and 805. The intent of (4) is to emphasize the general requirement to reduce air emissions and capture the gas resource even where specific requirements, controls, or emission standards are not specified.

97. Page 17 - # 25 – How does the Company keep the area “...free of dry weeds, grass or rubbish, etc.? No toxic chemicals or pesticides should be used. Anything used should be non-toxic and not be allowed to flow into any water source.

Weed control and the removal of combustible materials will be performed in compliance with existing City protocols. Prospect Energy will use only approved weed control chemicals and City inspectors will enforce this provision. Like other businesses and the City itself, Prospect is required to comply with existing stormwater management permitting conditions.

97. Page 17 - #27 – Water Quality Monitoring Plan. Does this mean that drilling operations might contaminate a water source – and the Company would not have to test if the land owner would not agree to the testing? So, if another oil company owned the land in question, or if that land were owned by a relative of the Company, they could refuse to have the water in question tested?

The Colorado Oil and Gas Conservation Commission conducted rulemaking in early 2013 that included the enactment of water quality sampling and monitoring. The City has negotiated stricter water sampling and monitoring for Fort Collins wells. The water quality monitoring plan submitted as part of a permit application will identify specific wells and the sampling timing that Prospect Energy will apply in its operations. As water wells are private property, an adjacent property owner would have the right to refuse to have their water well sampled as part of this plan.

The Water Quality Monitoring Plan requires the operator to identify up to four water sources within a ½ mile radius of the proposed well and to conduct baseline and periodic sampling of those wells. The orientation of these sampling locations is selected to monitor water in aquifers that are used for domestic purposes. This requirement is intended to ensure that drinking water sources are adequately monitored in a timely manner for signs of contamination. The owner of a water source may prohibit sampling; however the operator is required to sample all available sources up to a maximum of four sources.

98. If there are 15 water sources within the listed ½ mile radius of a proposed well, etc., why would the Company only be required to test (4) of those sources? Why wouldn't they be required to test all water sources?

The requirement to test up to four water sources is a method of collecting a representative sample of the groundwater that aligns with COGCC Rule 609 governing water quality monitoring. Through an extensive stakeholder process, it was determined that four samples is a valid number of samples to adequately detect contamination from oil and gas operations.

99. And why would testing only be required at one, three and six year intervals? Theoretically, contamination could occur immediately after the one year testing and go unnoticed for two years. Why is that acceptable?

Groundwater moves extremely slowly as it needs to flow through dense rock formations.

100. Page 19 - # 36 – What does “...significant degradation” mean? Who defines that? Also, it goes on to use the words “...compliance with this standard...”. What “standard is being referred to?

This is referring to the following section of the Operator Agreement:

Recreational Activity Standards. The installation and operation of any oil and gas operation shall not cause significant degradation to the quality and quantity of

recreational activities in the City. Methods to achieve compliance with this standard include, but are not limited to locating operations away from trails and from property used for recreational purposes, or by using existing Well Pads.

While significant degradation is not prescriptively defined, the intent of the standard is that our City's recreational trails and parks (whether publicly or privately owned) shall not be degraded by oil and gas operations. While there are existing locations within the City that private parks have been constructed adjacent to oil and gas operations, this standard would require that any new oil and gas operation could not degrade either the quality or quantity of City recreational activities, e.g., the planned Northeast Community Park.

Compliance with this standard is referring to this same section of the Operator Agreement. In other words, the standard cites ways to not cause significant degradation, including utilizing existing well pads or by citing operations away from trails and parks.

101. **Page 21 - #46. Water Supply. The Company should state in advance how much water is going to be needed and used. – not annually. We have the right to know in advance what kind of water is going to be required to frack and drill any and all existing or potential wells. If we're being asked to evaluate whether this operation is indeed in the "best interests of the City" we should know how much water is going to be required and where it's going to come from. In addition, the Company should be REQUIRED to state how much "produced water" is going to be produced each year from each well and/or site.**

The Operator is required to state in the site plan the source of the water and report annually the amounts of water used.

Prospect Energy reuses the water in its field through reinjection – this process is called a waterflood. The water is injected using non-disposal injection wells and used to push the oil towards producing wells. The Colorado Oil and Gas Conservation Commission permits and inspects the waterflood. Water for hydraulic fracturing is only used when a treatment occurs and there is not a hydraulic fracture more than once per year on an individual well.