

Public Comments

The following comments were provided by members of the public and were considered during the technical review of this application.

No.	Comment	Comment Date
1	Keep your citizens safe! Please do not issue permits to Extraction until they can submit an approved comprehensive drilling plan? What's the hurry? Safety is more important than speed. Please represent the interest of the people you serve.	02/18/2018
2	The City of Broomfield has concluded that Extraction should be prohibited from submitting its Form 2 and 2A (drilling) permits to the State (COGCC), until Extraction submits to the City a complete Comprehensive Drilling Plan for all of the proposed wells in compliance with the Operator Agreement. The CDP submitted to the city is not approved by the city.	02/19/2018
3	<p>Over the Martin Luther King holiday weekend, I was one of the numerous Broomfield residents who reviewed thoroughly the 700-page "Comprehensive Drilling Plan" submitted by EXTRACTION Oil&Gas (XOG). We found the document to be non-compliant with the requirements as agreed to by XOG and the city of Broomfield. Furthermore, there are numerous unresolved issues that have been ignored by XOG. I know the city has its list of unresolved issues that will be forwarded to COGCC. I also know that other residents have given you the list of non-compliant details and unresolved issues.</p> <p>On this President's Day weekend, it will be appropriate for the COGCC to let the Oil & Gas Industry know that if it insists on drilling in highly populated residential areas, then the old way of doing things will not be accepted. With homes, schools and churches in close proximity, the cost is simply too high to be shoddy. If the Industry can't even take the time to submit proper documentation, it is also a harbinger of the kind of field work they will embark on. The COGCC cannot overlook this. It is time for the COGCC to take a tough stand.</p>	02/19/2018
4	<p>The published opinion in the recent Court of Appeals decision of Martinez v. COGCC states that "The plain meaning of the statutory language [of section 34-60-102(1)(a)(I)] indicates that fostering balanced, nonwasteful development is in the public interest when that development is completed subject to the protection of public health, safety, and welfare." This is contrary to the COGCC's stated interpretation, whereby oil and gas development would be "balanced" against public health, safety, welfare, and the environment. Per Rule 35e of the Colorado Appellate Rules (CAR), the published opinion MUST be upheld. The COGCC must NOT approve Extraction's drilling permits as they are NOT protective of public health, safety, and welfare based on the proximity, scale, and intensity of these proposed operations. The current setback of 500 feet was NOT based on health and safety data, as the COGCC has noted.</p> <p>The Interchange A & B Pads and wellbores are near the water wells of residents in Unincorporated Adams County. These residents rely on their water wells for personal use as well as watering livestock.</p> <p>The plan for monitoring the water wells for contamination is inadequate.</p>	02/20/2018
5	<p>Fracking is not safe. COGCC is not making it safe. Fracking and oil/gas production have no place in urban environments like this. It is your duty to abide by Broomfield's 301 and the Martinez decision. You are ignoring these just so that oil/gas companies can make a quick buck. This is shameful and wrong and you know it.</p> <p>http://kdvr.com/2018/02/19/oil-and-gas-spills-happen-nearly-12-times-a-week-in-colorado/</p>	02/20/2018
6	This site is very close to homes and also sits next to a main artery into Denver, and to the Airport from Boulder/Lafayette/ etc. It makes no sense to put this in such a densely populated area, or to rush this process. Please allow the appropriate people to review and analyze this proposal. And above all, please put the health of people before the profits of a few.	02/20/2018
7	Please put people's safety first! No permits should be issued without a comprehensive drilling plan and even then they just shouldn't be in urban, populated areas!!	02/20/2018

8	<p>I live in Wildgrass/Broomfield and I can't way for you to APPROVE these permits.</p> <p>Fracking IS SAFE and it saddens me to read some of the comments below. Please do what is right and approve these permits.</p>	02/21/2018
9	<p>The COGCC's job is to ensure public health and safety are upheld over oil and gas drilling permit approval. This application for the Livingston and Interchange A&B pads submitted by Extraction are wholly deficient in ensuring safety when drilling. Extraction has had catastrophic industrial accidents associated with other well pads, most recently the explosion in Windsor. The public and COGCC has NOT RECEIVED the results of the investigation into that accident, which in turn, does not allow extraction to address those deficiencies on the Livingston or Interchange A&B pads proposed in Broomfield. If the COGCC approves these permits, Extraction drills those wells, and an accident occurs, the COGCC will be directly liable to the citizens of Colorado for approving these permits to drill. Do Not approve these permits until the COGCC can ensure the public is safe from industrial accidents, that Extraction has the proper and necessary equipment and insurance to sufficiently address all these health and safety issues that plague this company, and that you can ensure the citizens of Broomfield that there will be absolutely NO accidents/incidents or otherwise, negative impact to our health and safety-You owe this to the citizens of Colorado.</p>	02/23/2018
10	<p>These permits can't be approved as they are do not meet the conditions of the Martinez ruling which states health and safety must be a condition met prior to permitting. These applications do not even meet the conditions of the original interpretation of the Colorado Oil and Gas Conservation Act. The CDPHE advised the state legislature in the 2016-2017 address that there is limited evidence that negative health effects are occurring to people living near oil and gas drilling. The recommended further study. Until this is proven or disproven, the COGCC should not be issuing any new permits as the precautionary measure to protect people until more studies are completed. Add onto this, the risk of explosions, spills, leaks, etc. Until these risk are mitigated, they do not belong near homes. We know our rights, and if these permits are approved, our rights are being violated. It is irresponsible to approve these permits putting hundreds, if not thousands of people at risk. We expect the state to deny these permits.</p>	02/23/2018
11	<p>Please deny the permits for this site until the following have been completed.</p> <ol style="list-style-type: none"> 1. Until the investigation of the Windsor explosion has been completed and the necessary steps have been taken by Extraction to keep this from happening again. My house would have been in the evacuation zone along with countless neighbors homes. How many people would have been hurt or killed had this happened at this site? There is no report as to why this happened and what steps are being taken to prevent this from happening again. 2.I'm not sure how a permit can be given when the ownership of the minerals is in question. You cant give a permit to a company who does not own the minerals. 3.Extraction Oil and Gas drilling plan has not been approved by Bloomfield. As per its MOU with the city this needs to be in place before drilling can begin. <p>Please do your job and protect the citizens of Colorado. Its the law.</p>	02/23/2018
12	<p>Extraction's Operator Agreement with the City and County of Broomfield, as referenced in the Spacing Applications approved by COGCC, requires Extraction to complete a Comprehensive Drilling Plan at least 30 days prior to submitting the 2 and 2A permit applications. This Drilling Plan is to include several items including a Risk Management section. Overall Extraction's Drilling Plan is woefully inadequate. A Risk Management Plan that barely addresses safety at all is completely unacceptable. This is in clear conflict with COGCC's mandate to regulate oil and gas development in a manner that is balanced and consistent with protection of Health, Safety, Welfare and the Environment.</p> <p>Extraction's plan should not be considered a serious or complete Comprehensive Drilling Plan. Since submittal of the 2 and 2A permit applications can only be done after the Drilling Plan process with the City, all of Extraction's current applications should be rejected.</p> <p>This comment refers to the "Risk Management" section in their drilling plan and the references are to the Drilling Plan sections.</p> <p>Proper Risk Management starts with company management instilling a culture of safety throughout their organization. The fact that Health and Safety are not mentioned at all in Extraction's Executive Summary, Risk Identification (2.1), Risk Response (2.4) or Risk Mitigation (2.5) Sections concerns us that there is no effort by Extraction management to develop such a culture of safety.</p> <p>Extraction is well aware of the risks inherent in their operations as they detail in their required SEC</p>	02/23/2018

	<p>filings: "Our exploration and production activities are subject to all of the operating risks associated with drilling for and producing oil and natural gas, including the risk of fire, explosions, blowouts, surface cratering, uncontrollable flows of natural gas, oil and formation water, pipe or pipeline failures, abnormally pressured formations, casing collapses and environmental hazards such as oil spills, natural gas leaks, ruptures or discharges of toxic gases." Our concern is that Extraction doesn't list or address any of the above risks in their Risk Management Plan. The plan is stated in general policy terms, not specifics for neighborhood drilling. While potential shareholders are warned of the risks in exploration and drilling, residents are not.</p> <p>In Section 2.1 Extraction states- "Some (risks) may be obvious and will be identified prior to project kickoff." Where have these risks been identified? What about risks that are not obvious? The residents must be informed of the possible risks; they have the right to make informed decisions based on the identified risks.</p> <p>For residents who live near the proposed projects, the risk responses "transference", "acceptance" and "deferred" have absolutely no positive effect on their safety and comfort level living close to a large scale industrial project. Only "avoidance" and "mitigation" can protect our residents' health and safety. Moving these projects farther away from homes is the best solution.</p> <p>The Risk Management Plan is inadequate; it does not properly address Health, Safety, and Welfare and potential Environment impacts in Broomfield. This section needs to be redone in a way that thoughtfully addresses any risks associated with this project. How do multiple wells on a pad compound risk? How are risks managed over the lifetime of wells? Extraction must provide a thorough Qualitative Risk Analysis before the Permits can be approved.</p> <p>Again, since submittal of Extraction's 2 and 2A permit applications can only be done after the Drilling Plan process with the City, all of Extraction's current applications should be rejected.</p>	
13	<p>We are concerned about the health and safety of the residents here in Broomfield, especially the children. We do not believe that the COGCC has rules in place which address large scale residential oil and gas development. Residential drilling should not occur until it is proven safe. It is too large and too close to our homes. Not only has the city not approved the permits, the citizens of Broomfield have voted for issue 301 to protect the health and safety of their community. We do so much as parents to protect our children. It is not right that these industrial sites could be forced upon us without us having a say. Please consider our requests and deny the permits.</p>	02/23/2018
14	<p>I live on the Adam county side of this debate, and my children go to school on the Broomfield side. This is my community that will be poisoned and I feel powerless and angry. These wells are too close to the urban core of Denver / Boulder and densely populated areas along the front range. I think the Martinez agreement is too lenient but urge you to at very least uphold it. I think the pollution in Denver recently from oil and gas is out of hand. I never seen it so bad in my 20 yrs of being a resident here. Its a big fog you enter when you come down from the mountains and you can see landing in a plane. I can smell it on bad days from Erie. I don't want this closer to my home. I don't want the drills shaking free radon and other gases below my feet in my home. Our communities cry for your assistance for regulation but yet nothing is done. Our children's blood will be on your hands in the form of premature / and low-birth rates, cancer clusters, asthma and more that scientist have proven come directly from these type of developments near homes and school. Shame on you for not standing up for the people you say you protect.</p>	02/23/2018
15	<p>Extraction intentionally broke up this pad to try to meet our task force setback/density matrix recommendations. It speaks to how they worked with us--trying to get their way no matter what the concerns of citizens were, including the concerns of Adams County citizens. While trying to look good, they would grumble and threaten law suits in the background and called oil and gas task force members liars and extremists when these members were telling the truth of matters. We don't trust that they really have our interests in mind.</p>	02/23/2018
16	<p>The city of Broomfield, and its citizens, haven't approved of Extraction's CDP because it is not compliant with our laws. It will be woefully unlawful to proceed.</p>	02/23/2018
17	<p>I. Request to disapprove Extraction Forms 2 and 2A</p> <p>Presently, there are unresolved issues, problems with the Extraction's plan to drill for oil and gas - detailed in their latest "Comprehensive Drilling Plan", dated January 26, 2018 within densely-populated neighborhoods in Broomfield, Colorado. This latest document does not address the</p>	02/23/2018

concerns, questions, problems identified by Broomfield citizens, city/county staffs per the "Broomfield City and County Manager" letter, dated January 22, 2018 to Mr. Chandler Newhall of Extraction Oil and Gas.

Additionally, there have been several serious accidents including that of the Windsor explosion in December 2017. We urge you, the COGCC to delay the approval of Extraction's Forms 2 and 2A for all well sites in Broomfield until these issues are resolved.

II. High Isoprene levels measured by CDPHE

The report from the Colorado Department of Public Health and Environment (CDPHE), dated May 26, 2017 titled "Health Risk Evaluations of VOCs in Ambient Air was in response to Health Concerns at Triple Creek Oil and Gas Site". The report was done in response to numerous and continuous odor complaints of citizens living near the wells. The report measurements and the current setback requirements at both the State and local Broomfield levels are cause for concern and are inadequate to protect the health and safety of the citizens.

The Triple Creek Oil and Gas VOC data from the above report were measured at 4900 feet from the well site. The measured level of isoprene exceeds many times the ambient air. Isoprene is an isotropic gas and extremely flammable. It is suspected to cause generic defects and cancer. It does have long lasting negative effects.

The annual average of isoprene in ambient air along the Front Range is 0.1ppb.

The reported air concentration of isoprene at the Triple Creek Oil and Gas well site was 2.8ppb or equal to 28 times the annual average.

a. At 1320', the distance ratio is $(4900/1320) = 3.71$. The exposure (to humans) at 1320' is $= (3.71)(3.71) * 28 = 385.6$ times the annual average exposure.

2. At 500', the distance ratio is $(4900/500) = 9.8$. The exposure (to humans) at 500' is $= (9.8)(9.8) * 28 = 2,689.1$ times the annual average exposure.

III. Review of Extraction "Comprehensive Drilling Plan"

1.0 Summary:

The "Comprehensive Drilling Plan" for the Broomfield Project" (CDP) submitted to the

City and County of Broomfield, dated January 26, 2018 is 942 pages long and is nearly identical to that of the December 15, 2017, 734 pages. It has the addition of the Forms 2 and 2A pages by Extraction Oil & Gas company.

2.0 Review comments of the original Dec 15, 2017 CDP.

a. Uneven detailed data reporting for different sections:

The Traffic reports are from page 151 to page 394 (243 pages) and contain many superfluous data spreadsheets. The report fails to recommend a traffic control light or stop sign at the corner of 160th and Sheridan.

b. The Noise reports have data sheets of the sound power meter used to measure ambient noise level but do not have explanations regarding the mathematical modeling of drilling engine noises (pp 96-98 of CDP).

c. The important air monitoring section is from page 398 to 410 (only 12 pages).

d. Incorrect or missing data: A number of data values in the Extraction CDP do not dovetail with requirements set out in the Broomfield Resolution 2017-186.

e. Page 15 of the CDP asserts that "...Extraction's operations shall remain under the COGCC Rule 802 ... which is 55dBA from 7:00am to 7:00pm, and 50dBA from 7:00pm to 7:00am." Data shown by Extraction in section "Background Ambient Survey Mitigated Sound Impact Report", page 99 of the CDP exceed these limits.

f. CDP refers to "EPA Natural Gas Star Program", page 400. Page 409 has a typo "... Start Program" instead of "... Star Program."

g. CDP page 401, 2.1.3 Completions: "Extraction will provide safety data sheets for all chemicals that are brought on site..." It is necessary to require the disclosure the quantity of these chemicals brought in and out of the site on each date.

h. CDP page 401, 2.1.3 Completions: "All gas encountered will be ... combusted with 98% destruction efficiency." CDP page 497 refers to >99%.

i. CDP page 402, 2.1.4 Production: "Oil not meeting pipeline specifications, may be stored on site in pressure vessels..." How long will they be stored there?

j. CDP page 403, 3.2 Air Pollution Emission Notices: "Extraction predicts fugitive emissions to be below permitting thresholds..." How will Extraction know that?

k. CDP page 405, 4.4.2 LDAR Program: "In addition to the quarterly FLIR inspection ... leaks will be monitored using equipment automation..." What is the accuracy and responsiveness of the detection system? Is the FLIR an "Infrared open-path gas detectors" used in petrochemical industries? Could a small but continuous leak escape detection?

l. CDP page 441, Table 3-1: The entire Livingston data is missing.

m. CDP pages 488-538, Emissions Inventory and Impact Analysis: The mathematical model was for the original two well pads, Sheridan and Lowell. The results of the Livingston well pad with 19 wells ought to be different. A new analysis is necessary.

n. The air quality section (pp 398-410) does not have information regarding the following:

- . What are the VOCs monitored? It should be noted that the CDPHE report "Screening Level Health Risk Evaluation from Inhalation of VOCs in Ambient Air...", dated May 26, 2017 lists 60 different VOCs being monitored. The isoprene level, a carcinogenic VOC exceeded EPA safe level. In addition, will the Hydrogen Sulfide (H2S) emission be monitored continuously?
- . How the VOCs are monitored?
- . What instruments and/or sensors are used? See CDP page 405.
- . Are the VOCs monitored continuously or sampled? How often?
- . What are the quantities of hazardous materials to be brought on site and removed?
- . How are instruments and/or sensors calibrated? How often?
- . Page 402. 2.1.4 Production: Last paragraph states the "... well pad monitoring will be conducted continuously... to monitor pressures, temperature, flow, and production information." Does it not monitor leaks? Why is this monitoring system not available during the other 2 phases (Drilling and Completions) of the energy development?

18 February 23, 2018

02/23/2018

Colorado Oil and Gas Commission:

RE: Extraction Oil and Gas, Inc. and the City and County of Broomfield in Violation of the federal Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)

We are residents of unincorporated Adams County and are currently being impacted by decisions made by the City and County of Broomfield which suddenly decided to approve over 65 fracking wells to abut the periphery of our established rural residential community. Due to political boundary reasons, Broomfield was not required to obtain any voice from my community during the over two years that the Broomfield community reviewed various site proposals by Extraction Oil and Gas, Inc. My community was only apprised of the situation less than two months before Broomfield set a vote to approve the new well locations. Additionally, had we not been contacted by Adams County Communities for Drilling Accountability Now (ACCDAN), a local watchdog group, we would STILL not be apprised of this situation.

Broomfield willfully and deliberately altered the original pad placement recommended by Extraction Oil and Gas Inc., and realigned the wells directly next to my community to reduce a potentially deleterious action within their local community by shifting it directly into our community knowing that we had no voice to alter these decisions. As non-residents we have been disenfranchised from the

process and in some cases denied a voice to speak at Broomfield meetings. Broomfield has clearly taken advantage of a state loophole that only requires that the local community of whose political jurisdiction is bound is involved in land use planning for fracking site designations rather than involving the "community-at-large" that would be most impacted regardless of political boundary.

At this point our only resolve appears to have an understanding of emergency preparedness. Our local fire department is the North Metro Fire District, this is a district that we fund as taxpayers through property taxes; they are also the district that serves Broomfield.

To date, neither I nor my community, the community most impacted by Broomfield's decisions, have been contacted about Emergency Preparedness Plans and this appears to be direct violation of Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), a federal act designed to protect communities against environmental chemical hazards.

Some required elements include:

- Identification of facilities and transportation routes of extremely hazardous substances
- Description of emergency response procedures, on and off site
- Designation of a community coordinator and facility emergency coordinator(s) to implement the plan
- Outline of emergency notification procedures
- Description of how to determine the probable affected area and population by releases
- Description of local emergency equipment and facilities and the persons responsible for them
- Outline of evacuation plans
- A training program for emergency responders (including schedules)
- Methods and schedules for exercising emergency response plans

The Act also requires:

Local Emergency Planning Committees (LEPCs) that must develop an emergency response plan, review the plan at least annually, and provide information about chemicals in the community to citizens. The LEPC membership must include (at a minimum):

- Elected state and local officials
- Police, fire, civil defense, and public health professionals
- Environment, transportation, and hospital officials
- Facility representatives
- Representatives from community groups and the media

We have a right to know:

- 1.How to become directly engaged and be heard about how our community, the community most directly impacted, will be addressed in the event of an environmental disaster.
- 2.How an evacuation will be conducted, particularly in an area where many people have livestock, where will they be housed, how will this evacuation work?
- 3.What community would receive priority for evacuation? Our community that is not represented by Broomfield, or the Broomfield community?
- 4.Information that would be useful for us such as having or own emergency response kits.
- 5.How will information be disseminated to us?
- 6.Will we be able to attend or will there be held any mock trials for emergency preparedness?

	<p>7.Liability insurance coverage for our community not Broomfield. How can Broomfield negotiate adequate liability insurance coverage without our community's involvement? Is our community even covered?</p> <p>Disasters do not know political boundaries and it is quite a shame that this is what has happened in the particular situation where one community can legally place another community in harm's way without representation. At no point has the City and County of Broomfield or Extraction Oil and Gas, Inc. contacted my community and discussed Emergency Preparedness Plans, a direct violation of EPCRA.</p> <p>We urge you to abstain any further developments of this operation until all regulatory matters have been addressed. That includes Emergency Preparedness under the EPCRA.</p> <p>Pam Wanek</p> <p>2251 W. 154th Place</p> <p>Broomfield, CO 80023</p> <p>Unincorporated Adams County</p> <p>C: Adams County Commissioners</p> <p>Governor Hickenlooper</p> <p>State House Representative Faith Winter</p> <p>State Senate Representative Beth Martinez Humenik</p>	
19	<p>My name is Sandra Arnold, and I and my husband reside at 15363 Quivas St, Broomfield, Co, Unincorporated Adams County.</p> <p>I am a victim of a buried 30 inch gas pipe explosion in San Bruno California on September 9th 2010. The pipe had been scheduled to be replaced after many reports of gas smells and failing pilot lights. It was buried in 1957 and through a series of false starts and pressure increases and "other projects taking priority" the pipe never was replaced and finally blew in my Mothers back yard, which killed my Mother and 7 others families and Children, destroyed 37 homes and injured many others.</p> <p>I myself was in St Francis Burn Unit in San Francisco for 6 and 1/2 months with burns over 70% of my body and more skin grafts than I can count. My Lungs were scraped and washed 7 times and I had to spend 4 months in Kaiser, Vallejo, Ca. Rehab learning to walk again. I would gladly return every dime that was paid to me by Pacific Gas and Electric, If they could just give me back the wonderful life I had before it was taken from me in the name of corporate profit.</p> <p>Please reconsider the danger you are placing on the safety of individuals, and the environment before you proceed with the moving of these oil fracking locations to these new sites and approval of the permits. I will happily testify before your committees and show the hundreds of documents regarding the damages I have endured. I beg of you to look in to the long term effects of what you are about to do. PLEASE Think this through thoroughly before any action is taken.</p> <p>Thank you for any and all considerations you may take under advisement before any actions take place,</p> <p>Sandra Arnold</p>	02/23/2018
20	<p>I live in Unincorporated Adams County, in close proximity to the proposed Interchange and Northwest Pads.</p> <p>I am representing myself and several of my neighbors.</p> <p>The original proposed locations of 3 of these well pads was north of the North West Parkway, further from residential communities. However, 2 locations were moved adjacent to the Adams County border & our neighborhood with no input from Adams County residents. As stated in the Operator Agreement signed in October 2017 between Extraction and the City and County of Broomfield, one of</p>	02/23/2018

the benefits of moving these pads into Broomfield open space up against the Adams County border was "Further from future development".

So the health and safety of my neighborhood, which has been here for decades, is being sacrificed for the prosperity of a developer's future development.

I have a neighbor, Sandra Arnold, who was the victim of corporate greed taking precedence over health and safety when a gas pipeline exploded in California in 2010. Eight people died, many more were severely injured. Defective welds in the pipeline, improper installation, lack of safety measures. In 2012, an independent audit from the State of California issued a report stating that PG&E had illegally diverted over \$100 million from a fund used for safety operations, and instead used it for executive compensation and bonuses.

We have similar concerns with O&G operations in Colorado where profit takes precedence over safety as noted in the Operator Agreement where siting of the pads is to benefit future development dollars.

Extraction has touted their safety record and stated that these "new" facilities (just like the one in Windsor that exploded Dec 22) are extremely safe with all of their redundant safety measures, backups & controls.

We do not yet even have a definitive answer as to what happened in Windsor or a plan for how to ensure such a critical safety breach will never happen again.

Mineral rights should not take precedence over the health and safety of surface owners. These industrial scale oil & gas projects should not be allowed near homes, schools, playgrounds, parks or open space purchased with tax payer dollars. The recent explosion in Quinton, OK where 5 workers died is another devastating consequence of the industry's inability to ensure safety.

Bottom line is there were alternative sites FURTHER from EXISTING neighborhoods and these were changed with no input from the people most impacted in order to ensure the future prosperity of a developer. That is wrong.

Thank you for your consideration.

Barbara Binder

Broomfield, CO (unincorporated Adams County)

21	<p>Concerning document 401514976, I respectfully request the COGCC deny the request of Extraction Oil & Gas, Inc (Extraction) for an exception to COGCC rules 318A.a and 318A.c. Their stated reason for the exception is "This is the best location for the wells since the wells are outside of the buffer zone". The buffer zone, the setback proposed, is 1000 feet.</p> <p>The proposed system is Extraction's new closed-loop system. An identical system was installed in Windsor, CO. On 22 December, 2017, the Windsor facility exploded and burned out of control for 16 hours. 2,500 feet away, over twice the proposed setback, Colorado 392 had to be closed.</p> <p>Here is video footage of this explosion from 3,500 feet away (three times the setback):</p> <p>http://www.coloradoan.com/videos/news/2017/12/23/footage-explosion-near-windsor/108867614/</p> <p>Video and photos of the disaster and emergency response:</p> <p>https://www.denverpost.com/2017/12/22/weld-county-oil-site-fire/</p> <p>http://www.ibtimes.com/weld-county-oil-explosion-fire-shown-pictures-videos-2632482</p> <p>Extraction has demonstrated that, even employing best practices, there exists failure modes for this equipment that will result in an explosion and uncontrolled fire.</p> <p>They have not determined the cause of the explosion. They have not determined if the nature of the failure is systemic to such closed-loop systems. They have not submitted their conclusions for independent review. Without independent review, we cannot conclude that the alleged cause demonstrates proper fail-safe or is merely a band-aid over an inherent and repeatable problem.</p> <p>Equipment fails. This equipment in particular has been demonstrated to fail, catastrophically so.</p> <p>There is an existing, fifty year old community exactly 1001 feet from the edge of this development. Considering the demonstrated danger of catastrophic failure of this equipment, no development of this nature should be permitted so close to residential neighborhoods.</p> <p>If COGCC is committed to a goal of sustainable oil and gas development while respecting the health and safety of citizens, it cannot allow this development to proceed. In particular, it should not grant an exception to Extraction that would permit it to put known faulty equipment so close to human lives.</p>	02/23/2018
22	<p>Please put our safety first. There are many missing pieces in the comprehensive drilling plan that need to be addressed by Extraction before drilling should start so close to homes and schools.</p>	02/23/2018
23	<p>The proposed facility by Extraction is unsafe. We know this. An identical facility, operated by Extraction, allegedly following Extraction's best practices, exploded on 22 December 2017 and burned out of control for 16 hours.</p> <p>We do not know why it exploded.</p> <p>We do not know how the fallout affected the nearby residents.</p> <p>We do not know what the long term impact of such a disaster is.</p> <p>We know that "best practices" are not sufficient to prevent a catastrophic explosion.</p> <p>We know that this facility design can fail and cause a catastrophic explosion.</p> <p>We know that such an explosion will affect people far, far beyond the one thousand foot buffer.</p> <p>Given this, it is unconscionable to allow another such facility to be installed a mere thousand feet from another longstanding community. We must know what failed and why. And we must have independent, third party verification of the asserted reasons. It is insufficient to trust Extraction to provide a justification. They have amply demonstrated that their "best practices" are insufficient to prevent an explosion and fire. They no longer have credibility on this issue.</p> <p>Until such time as a third party can verify that the proposed design will not again explode, burn out of control and shower the nearby neighborhoods with benzene, petrochemicals and carcinogens, this permit should be denied. Anything less is a violation of the COGCC's mandate of "protecting public health, safety, and welfare"</p>	02/23/2018
24	<p>I love my oil and gas just as much as the next American but the Extraction wells are too close for</p>	02/23/2018

health and safety. There was a series of explosions at the Extraction Windsor facility in December 2017. The explosions (not just fires) occurred because Extraction personnel were either not trained, insufficiently trained, or because training is perceived as optional by Extraction personnel. Most likely the explosions could have been prevented had there been adequate training in place.

THE EXPLOSIONS:

1. Extraction personnel were working on a very cold December day.
2. Personnel reported smelling odors which was the first warning sign. No personnel bothered to contact anyone at Extraction such as an Environmental Supervisor to initiate air monitoring at the site or anyone else in the company to report the odors since there should not be any odors. Personnel continued to work.
3. Operations should have been stopped or at least paused when odors were first detected. The human nose typically smells benzene (methane is odorless) in the ppm range or one part in a million.
4. Volatile flammable chemicals have to reach their LEL or lower explosive limit in order to explode or support combustion. This is typically in the percent range and for benzene at STP (standard temperature and pressure) the LEL is 1.3 or 1.4% depending on the reference. This is 1300 ppm which means people were smelling it very very much. And yet Extraction personnel are not trained to pause or stop operations in order to evaluate safety and air emissions for the residents that live close by.
5. Extraction clearly demonstrated a serious lack of training during the Windsor incident. It would appear that even the most basic safety training which is odor detection and the possibility of explosions as the chemical concentration increased to the LEL had not been instilled via training in the Extraction personnel.
6. Large industrial scale oil and gas operations in residential neighborhoods require a new and a significantly enhanced look at personnel

training and qualification to recognize and appropriately respond to production problems that can result in emergencies and/or evacuations. Personnel training needs to evolve from a highly questionable operator-provided to a formal written training program with a formal written and oral examination for operator qualification. New permits must NOT be issued until trained and qualified operators are available to work on drilling and fracking sites. Our homes are just too close.

EMERGENCY RESPONSE TO THE EXPLOSIONS AND FIRES:

7. When the call came in from the Windsor site it was reported as a fire rather than a series of explosions. Explosions are far more energetic than fires but the Extraction personnel lacked the training to know what they were reporting which has the potential to put emergency response personnel in peril.
8. The emergency response personnel were not able to take immediate action because they were not able to get close to the explosions and fires and there was no water.
9. The residents were not evacuated and yet they were in harms way. An air emission monitor in Boulder (90 miles away) detected the chemicals/benzene that were released by the explosions and fires. Has anything been done for the residents that were a lot closer than Boulder? Extraction should be performing blood and urine testing on the residents because they did have some significant acute exposure to the unhealthy chemicals of oil and gas (BTEX and methane). I am pretty sure there is a least one fetus in the population who mother should be tested. Extraction should have completed this in December immediately after the exposure and as a cost of doing business (Extraction pays for the tests for the residents).
10. There is nothing in the Extraction CDP for evacuation of I-25 and/or the Northwest Parkway. This needs to be addressed because the operations are very close. There is nothing in the Extraction CDP for explosions and this needs to be added before the permits are issued.
11. Was the fire-fighting foam handling correctly as a waste? Please be aware that Colorado Springs is currently having a significant problem due to contaminated water and soil with toxic perfluorinated chemicals at levels more than 1,000 times higher than a national health advisory limit from Peterson Air Force Base.

COMPROMISED HEALTH:

	<p>12. All Extraction and other oil and gas drilling, wells, tanks, fracking needs to be continuously monitored for leaks. If continuous monitoring is not in place months may elapse where residents are exposed to BTEX and methane. The CDP states that Extraction monitors it's operation for pressure, temperature, and other parameters that are important to production. Extraction can add leak detection and monitor for leaks. Extraction also states in the CDP that operations can be stopped remotely. Had there been a continuous leak detector at the Windsor site the explosions and subsequent fires could have been avoided. I understand this is expensive but the Extraction operations are far too close to our homes. I am still curious what happened to the cattle in the recent Oklahoma explosion that took the lives of five personnel. It would appear the cattle were overcome with toxic vapors.</p> <p>12. Continuous air emissions need to be added to the Extraction sites and the cost needs to be passed on to Extraction. Extraction provided Broomfield with \$20,000 per year but this is an order on magnitude too small.</p> <p>13. The COGCC must put a pause on issuing any new permits to Extraction until a formal, state-wide training and qualification by examination (ie performance based) is established. No untrained/poorly trained or unqualified personnel should ever be allowed to work on the oil and gas operation.</p> <p>Sincerely,</p> <p>Kathy Swan-Bogard</p>	
25	<p>Over the past year or so, we have watched human error result in explosions, leaking of carcinogens in to the air next to a school, innocent family homes going up in fireballs, to name a few. All of these human errors related to the development of oil and gas resources. If you're paying attention, you have figured out that human error in oil and gas development is the biggest risk, and it can have catastrophic consequences. As a resident of Broomfield, I find it insane to ask the residents of this community to shoulder the risk of this industry and welcome this industrial operation into our residential areas. There WILL be an accident (will be be poisoned, will our groundwater be contaminated, or will we just all explode in another human-error fueled fireball? It's anyone's guess.), and these proposed well pads will be closer to homes than ever. I recently purchased a home in Anthem-- my family's dream home. I should be excited about my daughter's upcoming Kindergarten graduation or my son's acceptance into the national honor society, but instead I spend my days imagining how the oil and gas industry will commit another human error, now only mere feet from my new home. Broomfield has spoken loudly by passing proposition 301, and the COGCC should heed that as a warning. These wells are not welcome, and the COGCC should take that into consideration as you deliberate on the risk you expect us to take. Where is the reward? In the pocket of the Oil and gas developers who ask residents to shoulder the risk of industrial developments where they DO NOT BELONG. Keep these dangerous operations out of neighborhoods. They are not welcome.</p>	02/23/2018
26	<p>Extraction has agreed to enter into an MOU to drill in BROOMFIELD and which the city has numerous issues amounting to pages and pages of concerns Extraction has been unwilling to address. They are not acting in good faith as it relates to the MOU. You are the only organization that can hold this producer in check as it relates to its obligations to the community. Please postpone the issuance of drilling until MOU issues are resolved.</p>	02/23/2018
27	<p>Broomfield residents have mandated our elected officials and staff to require oil and gas development to only occur in a manner that does not adversely impact the health, safety and welfare of Broomfield's residents and to safeguard the environment and wildlife resources. This requirement resembles the recent Court of Appeals decision of Martinez v. COGCC that states "The plain meaning of the statutory language [of section 34-60-102(1)(a)(I)] indicates that fostering balanced, non-wasteful development is in the public interest when that development is completed subject to the protection of public health, safety, and welfare." The people of Broomfield and the people of Colorado have indicated in the past and now, that we have rights to a safe and healthy community. Numerous studies indicate the risk of Oil and Gas Development, especially unconventional oil and gas development in close proximity to homes, workplaces, parks, schools, not to mention to risks to the environment. The current setback of 500 feet is not based on health and safety data, as Director Lepore stated at a February 2017 community event at the 1st Bank Center in Broomfield. COGCC and the operators bare the burden of proof for a safe operation and no adverse impact on the health, safety, and welfare of residents and to safeguard the environment and wildlife resources. The people of Broomfield and even Colorado are demanding this of OUR elected officials and the staff that reports to those elected officials. The residents won't accept anything less.</p> <p>There are many specific reasons for denial of Extraction Oil and Gas' permit. The investigation and understanding of the well pad explosion and fire on the Stromberger Pad in Windsor has not been</p>	02/23/2018

	<p>completed. This relatively new site was developed using best management practices. There were reports of increased toxic air pollutants following this incident recorded as far as Boulder Reservoir. With an unresolved incident and lacking information on the resulting effects to health of residents and effects on the environment, the permit should not be approved. Broomfield completed a chapter on Oil and Gas Development to our 2016 Comprehensive Plan. The committee representing environmentalist, health care workers, oil and gas industry, and participation by Extraction Oil and Gas representatives, agreed to compromised positions that under a perfectly executed development process, would allow for the development of minerals in Broomfield. Because the Oil and Gas Industry in Colorado and around the nation have proven time and time again there is not such thing as a perfectly executed development process, and because these positions were agreed to as consensus/compromise without the regard to ensuring no adverse impact of health, safety, and welfare of residents and to safeguard the environment and wildlife resources, the standards set in this Oil and Gas Chapter should be seen as minimum standards needing further study. Given this information, the standards set forth by Broomfield residents far surpass the standards by COGCC. Lastly, Extraction Oil and Gas has acted unethically toward the residents and leaders of Broomfield from the very beginning of this process for at least 2 years. Extraction representatives were not forthcoming with well numbers when a contract was signed in January 2017, even though they stated during a study session with the City Council the number of wells to be drilled would be 26, not the later stated count of 141. Most recently, a letter sent from Chandler Newhall to the City of Broomfield thanked the staff of Broomfield for approving their Drilling Plan, when the City did not approve a drilling plan that was found to be incomplete and inaccurate containing nearly 220 commented errors and needed correction.</p> <p>If these specific examples aren't enough, numerous scientists in various studies caution the development of new wells seeking more fossil fuels as to not exacerbate the threats of climate change. The residents of Broomfield cannot risk a less than perfect execution of the extraction of oil and gas. The environment cannot be subjected to the future burning of these extracted fuel sources. The people of Broomfield will not allow an operator to cause adverse effects on the health, safety, and welfare of Broomfield residents and to not safeguard the environment and wildlife resources. The burden of proof is on COGCC and the operator.</p>	
28	<p>We need protection. Since our city officials have given up their rights or more accurately our rights, we need protection from our state. Please protect our home values, our health, and the safety of this community.</p>	02/23/2018
29	<p>Prioritize the safety of Colorado citizens over corporate profits.</p>	02/23/2018
30	<p>Regarding the drilling permits, form 2A, for the Interchange A & B Pad in Broomfield, I urge you to not approve them. The City of Broomfield negotiated an MOU with Extraction in October 2017. Part of that MOU is that the city must approve Extraction's drilling plan prior to them submitting permit applications to the COGCC. The city has not approved the drilling plan due to many errors and omissions in the plan. Extraction submitted their permit applications anyway, in violation of the MOU. The COGCC spacing orders for this spacing unit indicated that any wells permitted for this spacing unit must comply with the MOU. Since Extraction is not complying with the MOU the COGCC must not approve any related drilling permits if you are following the direction of your own spacing orders.</p> <p>In addition, the COGCC will have no money in their budget very soon. How can a regulator with no funds to pay their costs effectively do their job? If you have no funding regulate current oil and gas developments, then you certainly should not be approving any new permits for drilling until you have the funding.</p>	02/23/2018

31	<p>Regarding the drilling permits, form 2 and 2A, for the Interchange A & B Pad in Broomfield, I urge you to not approve them. The City of Broomfield negotiated an MOU with Extraction in October 2017. Part of that MOU is that the city must approve Extraction's drilling plan prior to them submitting permit applications to the COGCC. The city has not approved the drilling plan due to many errors and omissions in the plan. Extraction submitted their permit applications anyway, in violation of the MOU. The COGCC spacing orders for this spacing unit indicated that any wells permitted for this spacing unit must comply with the MOU. Since Extraction is not complying with the MOU the COGCC must not approve any related drilling permits if you are following the direction of your own spacing orders.</p> <p>In addition, the COGCC is currently operating outside of the law based on the Martinez court decision. That decision states you must ensure health and safety first, before approving permits for drilling. Since you have taken no actions to determine if these drilling activities are safe in close proximity to homes, then no permits should be approved until they are proven safe.</p>	02/23/2018
32	<p>Regarding the drilling permits, form 2A, for the Interchange A & B Pad in Broomfield, I urge you to not approve them. The City of Broomfield negotiated an MOU with Extraction in October 2017. Part of that MOU is that the city must approve Extraction's drilling plan prior to them submitting permit applications to the COGCC. The city has not approved the drilling plan due to many errors and omissions in the plan. Extraction submitted their permit applications anyway, in violation of the MOU. The COGCC spacing orders for this spacing unit indicated that any wells permitted for this spacing unit must comply with the MOU. Since Extraction is not complying with the MOU the COGCC must not approve any related drilling permits if you are following the direction of your own spacing orders.</p> <p>In addition, the COGCC is currently operating outside of the law based on the Martinez court decision. That decision states you must ensure health and safety first, before approving permits for drilling. Since you have taken no actions to determine if these drilling activities are safe in close proximity to homes, then no permits should be approved until they are proven safe.</p>	02/23/2018
33	<p>Regarding the drilling permits, form 2A, for the Interchange A & B Pad in Broomfield, I urge you to not approve them. The City of Broomfield negotiated an MOU with Extraction in October 2017. Part of that MOU is that the city must approve Extraction's drilling plan prior to them submitting permit applications to the COGCC. The city has not approved the drilling plan due to many errors and omissions in the plan. Extraction submitted their permit applications anyway, in violation of the MOU. The COGCC spacing orders for this spacing unit indicated that any wells permitted for this spacing unit must comply with the MOU. Since Extraction is not complying with the MOU the COGCC must not approve any related drilling permits if you are following the direction of your own spacing orders.</p> <p>In addition, the COGCC is currently operating outside of the law based on the Martinez court decision. That decision states you must ensure health and safety first, before approving permits for drilling. Since you have taken no actions to determine if these drilling activities are safe in close proximity to homes, then no permits should be approved until they are proven safe.</p>	02/23/2018
34	<p>I live in Broomfield, Colorado. I am requesting that permits for all wells being drilled at the Livingston Pad (and all of Broomfield for that matter) not be heard until the COGCC meeting in April, at the earliest. Broomfield residents deserve a formal hearing for Extraction's drilling permits.</p> <p>In addition, Extraction has not fully complied with the agreement it signed with the City of Broomfield in October 2017. The COGCC spacing orders for these spacing units indicate that any permits for the wells within these spacing units must comply with the agreement. Specifically, while Extraction has submitted a drilling plan to the City, the plan has a lot of errors and gaps. Moreover, the City of Broomfield has not approved it, which is a requirement of the October 2017 agreement between Extraction and the City of Broomfield. These issues should be addressed before the COGCC approves permits in Broomfield.</p>	02/23/2018
35	<p>Extraction needs to abide by the agreement it signed with the City of Broomfield. The COGCC should not approve drilling permits in Broomfield until the City approves the drilling plan Extraction has submitted. As it stands now, the drilling plan contains a lot of errors and gaps. Extraction needs to fix these items. Please hold Extraction accountable. The City of Broomfield and its residents worked for months to get an agreement in place with Extraction. Extraction should not be allowed to just ignore it. Do not approve these permits until Extraction abides by the agreement. Further, hold a public hearing on the Broomfield permits.</p>	02/23/2018
36	<p>The Comprehensive Drilling Plan(CDP)for the permits submitted by Extraction on Dec 15, 2017 is not approved by the City of Broomfield, as required by the Oct. 24 MOU (Operator Agreement) between</p>	02/23/2018

Extraction and the City. The City and citizen groups submitted 140 pages of deficiencies to Extraction. On January 22, the City requested that Extraction voluntarily withdraw their 2 and 2A permit applications until the City approved the Extraction plan. Extraction responded with a letter that ignored the City's request, and Extraction subsequently submitted to the City a second 900 page drilling plan on Jan 26 that contained no corrections of the original errors that the City pointed out. On February 15, Extraction finally submitted a document that it claims addresses the Dec. 15 CDP deficiencies. Both the City and citizens need more than 14 days until the March 1 comment deadline to review the Feb. 15 Extraction document to see if it corrects the Dec. 15 CDP deficiencies.

As part of a citizen team that reviewed the Dec. 15 CDP, I reviewed Section P on Water Quality. This is of particular concern to residents of Adams County who have water wells and are near the Interchange A & B Pads. I am listing the deficiencies which the City of Broomfield sent to Extraction regarding Section P:

SECTION P - Water Quality Plan

156. Please add a subsection (possibly Section 2.2.2) for notification to the City and County of Broomfield. This subsection should indicate that the City will be notified in advance of all sampling dates to allow the City personnel to attend the sampling events, and if desired, collect split samples from the locations for separate laboratory analysis.

157. In Subsection 3.5, it states that additional water quality sampling and monitoring may be undertaken if issues or concerns are identified through landowner complaint or inquiry, or at the request of the COGCC. Please add that additional sampling and monitoring may also be undertaken at the request of the City.

158. In Subsection 6.2, please add that GPS shapefiles will be made available to the City upon request.

159. In Subsection 7.0, please add that the City will be notified in advance of the use of any analytical methods other than those specified in the Appendices.

160. In Subsection 8.1, please add that all field quality control sample results will be made available to the City upon request.

161. In Subsection 9.0, please add that all data quality reviews will be made available to the City upon request.

0. Please provide the City as a point of contact for the Water Quality Monitoring Program.

162. Attachments 6 & 7 are the COGCC parameters that Extraction is required to test and also there are Appendices of Local Sampling and Analysis Requirements. Please address the following comments in those sections:

163.1-Attachment 6 Groundwater Quality Analytical Parameters

Pages 589--591 list the parameters to be tested. This list does not include the polycyclic aromatic hydrocarbons as parameters tested in groundwater. Please include the polycyclic aromatic hydrocarbons as parameters tested in groundwater.

163.2 -Attachment 7 Surface Water Quality Analytical Parameters

Pages 593-594 list the parameters to be tested in surface water. Please include the polycyclic aromatic hydrocarbons.

163.3 Please test for aromatic hydrocarbons in surface water and in groundwater. These aromatic hydrocarbons are volatile and if they are present those would be in the groundwater with maybe only traces in surface water. Most would volatilize when they hit the atmosphere.

163.4 -Appendices of Local Sampling and Analysis Requirements

17

Pages 600-602 list the additional parameter please add the polycyclic aromatic hydrocarbons, Acrylamide and Naphthalene to groundwater testing in Attachment 6 for the reasons discussed

	above. 163.5 What analytical method will be used to sample for Hydrogen Sulfide?	
37	I do not support the approval of the current plan of the interchange a and b Pad in Broomfield . Any approval for this plan to move forward does not abide by current law of The Martinez Ruling. Health and safety is not considered in this plan. I hereby publicly state that I object to the sacrifice of the citizens health and safety and the violation of current Colorado law.	02/24/2018
38	The history of quality and safety from Extraction is first off very poor. They recently had an explosion at a nearby well. Wouldn't it make sense to thoroughly investigate this before going any further in the permit process? These wells endanger the health and safety of our Broomfield residents including thousands of children. Additionally these wells endanger the ability to provide safe drinking water to our residents. If these permits are granted it's only a matter of time before Extraction causes another accident which threatens the lives of our residents including thousands of children. Please do not allow these permits to be accepted and do the right thing to protect our citizens of Broomfield. Do not accept the permit applications for Extraction for the interchange a& b wells. Thanks	02/24/2018
39	Please do not approve this permit. There is no place for this in a densely populated area. It is obvious that the health and safety of the community is not being considered, but rather the dollars. My vote (and everyone else who I can inform) will follow the politicians who protect their constituents, not the ones who look out for their dollar.	02/25/2018
40	Please act responsibly in consideration of the health, safety, and welfare of your constituents and fellow citizens. Do not allow these permits to proceed without an approved comprehensive drilling plan.	02/26/2018
41	Please act responsibly in consideration of the health, safety, and welfare of your constituents and fellow citizens. Do not allow these permits to proceed without an approved comprehensive drilling plan.	02/26/2018
42	Please do not move forward on Interchange A & B pad. Please consider the health of people. This is very close to homes.	02/26/2018
43	I am glad that you are having a public hearing on this pad near Adams County and hope that you slow Extraction down substantially by doing a thorough review of their plan and its impact on the area in terms of traffic, proximity to residences, new health research, and water supplies. As our state regulatory agency along with CDPHE, it would be great if you took more care and oversight of these very complex and potentially dangerous operations. Unfortunately, you are limited by financial strictures--the oil and gas industry needs to bear more of the cost rather than tax payers. Also, we must keep in mind the bigger picture of limited water resources in Colorado, ozone non-compliance along the front range, and climate change.	02/26/2018
44	Please deny the Interchange A & B Pad Location permit (Form 2A) in Broomfield County, Colorado. Residential developments should not be targeted for oil and gas development. Since the Firestone oil and gas explosion in April took two lives, there have been more than a dozen additional fires and explosions at oil and gas locations throughout Colorado. Colorado should require greater setbacks than 500 feet – especially when there are multiple wells – especially when the wells are proposed near a neighborhood. Public health and safety should not be sacrificed for the oil and gas industry.	02/26/2018
45	I look at the proposed drilling maps and their proximity to houses and developments. I look at the document files and do not see a viable Environmental impact statement. After 40 years of conducting impact assessments, I cannot support actions that allow drilling and fracking on the specified areas.	02/27/2018
46	We have children growing up in these communities, schools in the area, homes in close proximity. People do not want this! Please do the right thing and deny these permits for the Interchange A & B Pads. There is no place for oil and gas in communities where people are trying to live. It is dangerous, toxic, and just plain ugly. Profits before people must end now! Extraction has a horrible track record when it comes to industrial accidents. There is no way you can allow this and think it will be safe. Put yourself in the position of the families living in this area. Imagine if it were you who has been trying to raise children, work your day job, and fight the oil and gas wells that threaten your neighborhood (since 2012). It is no way to live. This is not our job!	02/28/2018
47	1.The CDP does not address the risk or mitigation of private water wells if they test positive for the oil and gas chemicals after a clean baseline test. Extraction does not have any documentation in the CDP to indicate what would happen. To make matters worse the COGCC does not have any policy statements that address this. This leads me to believe that Extraction will point the finger of blame at another contractor or make the statement that contamination of aquifers in Colorado exists today and	02/28/2018

that they (Extraction) did not cause the problem. The CDP has to be appended to add exactly what Extraction will do if water wells test positive over the next five, ten, thirty, etc years. Better yet, the COGCC needs to publish a legally enforceable policy for well/aquifer contamination.

In fairness to Extraction, they may be 100% accurate that another contractor contaminated the aquifer because aquifers are now showing methane including thermogenic methane. Contaminate transport in the aquifers will continue to occur over years if not lifetimes until there is no concentration gradient of high to low for methane, benzene, hydrogen sulfide, and all the other chemical associated with oil and gas and the minerals than are mined. Please be aware that on January 29, 2018 Gary Ohlson testified before the COGCC on complaint number 200444693 because the private well(s) on his property are now showing up with benzene contamination. Gary uses his well water for his family, produce, and livestock.

2. The CDP does not state that Extraction will purchase bottled water for residents with contaminated water wells from a contaminated aquifer. However, it should be stated that the health effects from oil and gas chemical inhalation and absorption are worse than ingestion. The resident's morning shower provides an excellent entry path for both inhalation and absorption. Therefore residents would need more than just bottled water. This needs to be added to the CDP and frankly, I am surprised that the COGCC does not have a policy statement on their website. Now we know that the COGCC does not get enough money through the contractor bonding process nor do they have enough money to pay for all the abandoned or orphaned wells left behind by Tulex. What will the COGCC and/or Broomfield do for all of us if Extraction goes bankrupt or closes their doors? The current price of a barrel of oil in the USA is three times less than the baseline cost to produce a barrel of oil so this scenario is plausible.

3. Extraction will pierce the aquifer that the private wells pull water from over 60 times. The performance of the cement that encases the pipe is critical over a long period of time (lifetimes of time). I do not see anything in the CDP that states Extraction will document and procure to a formal cement procurement specification and that Extraction will only procure cement from USA companies. The cement is the layer that will prevent additional aquifer contamination and it is a

critical component. I am concerned that Extraction will inadvertently procure poor quality or even counterfeit cement. Even under the best of circumstances everyone knows cement cracks. This is a valid risk and needs to be added to the CDP.

4. The CDP does not state that thermogenic methane will be analyzed during baseline testing of the private wells. Thermogenic methane is the isotope of methane from oil and gas operations formed at higher temperature and pressure.

I love my oil and gas just as much as the next American but our aquifers that used for drinking water, crops, and livestock and need to be protected.

Thank you in advance,

Kathy Swan-Bogard

48		02/28/2018
	<p>At least 2 options exist for the surface location of these wells, as a means to extract the minerals in the approved spacing unit. One of these options was presented to the public – by Extraction – as the preferred site a year ago because it was furthest from homes and neighborhoods. Without ever providing an explanation or an alternative site analysis, Extraction abandoned the original location plan in favor of the Interchange Pads shortly before submitting their 2A application to the COGCC. Not only are the Interchange pads closer to homes, but the homeowners most impacted were never given the opportunity for input or dialogue with Extraction or Broomfield City/County. This appears to be a case of elevating future development interests above all other concerns. Maximizing profits for the operator or land developer should never be the sole determinant for choosing drilling locations in urban areas. The Interchange wellpads in this 2A application should not be approved until a very thorough alternative site analysis has been completed and presented to the public – all of the public - for review and input.</p> <p>Several irregularities exist with the wellpad design that indicate this is not the best location. The wellpads have been distributed across an unusually large area, rather than consolidated onto one pad. Presumably this is what led Extraction to turn an access road into something akin to a frontage road along the property lines of the nearby homeowners. Rather than provide a single point of access to the pad, Extraction has proposed a ‘frontage road’ that runs parallel to the south and west sides of the pad – the 2 sides flanked by homes - with 4 separate access points from the road on to the pad. This also results in 4 very large openings in the sound wall making it less like a wall and more like a fence. Extraction’s proposal puts 1000s of heavy diesel trucks right up next homes, with the same homes bearing the ingress and egress truck traffic problems of 24/7 diesel fumes, noise, lights, dust, spill potential and rollover potential. The access road should be located on the north and east sides of the pad, away from homes and next to the E-470/I-25 highway interchange.</p> <p>Of course, if Extraction were to run their trucks between the highways and the wellpad (the safer and less disruptive location), the wellpad would probably need to move closer to homes triggering a buffer zone and possibly a LUMA designation. Currently the nearest home is a mere two feet outside the buffer zone, marking one edge of a large neighborhood. The original location Extraction presented to the public, the Huron Pad (exact location of production equipment was not presented), had none of these designations as the few nearby homes were over 1500 feet away from the center of the proposed pad, and the edge of the nearest neighborhood was about half a mile away. Clearly there appear to be better locations for the extraction of these minerals. Require Extraction to complete a thorough alternative site analysis, complete with public input, before considering this 2A application.</p>	
49	<p>Extraction Oil & Gas is currently unable to explain the cause of the recent explosion at another of their fracking operations in Weld County. https://www.thedenverchannel.com/news/local-news/explosion-reported-on-highway-392-in-windsor</p> <p>This means they are unable to guarantee it cannot happen again at any of their other sites.</p> <p>Additionally, they are under expanding investigation for leaking VOCs at multiple sites.</p> <p>http://www.timescall.com/business/ci_31358502/extraction-oil-and-gas-under-investigation-by-state</p> <p>Additionally, I don't need to highlight to the COGCC the multiple other leak and spill incidents that have occurred under Extraction's operations within the state, that are documented in the COGCC's own oversight. To date, these have had minimal impact because they have been located far and away from population centers. This will not be the case with the Interchange A&B pad.</p> <p>The proposed pad is extremely close to high density and single family housing and commercial zones. If any of the above mistakes should occur at the Interchange A&B pad, the public health effects and damages will be catastrophic.</p> <p>The COGCC is charged with responsible exploitation of minerals. The Livingston pad is irresponsible, reckless endangerment of human life and environment. It is absurd to even consider the placement of heavy industrial activity in dense suburban residential and commercial zones, as evidenced by the overwhelming and unanimous public comments against it. The COGCC needs a sensible policy update that prioritizes public health before extraction. The reserves being targeted can be largely exploited outside of population centers; there is no need to allow these activities in the heart of them.</p> <p>Please deny this application.</p>	02/28/2018
50	Regarding Extraction's Explosion and Fire on the Stromberger 22-E Site near Windsor: Extraction has	03/01/2018

submitted their Form 22 Accident Report - Subsequent Notice of Accident. As noted in the report, "At the time of this report, the gas and ignition source are still being investigated." As they cause is still unknown, the report then lists some possible causes including:

- a. Potential Fuel Sources at the temporary tanks
 - i. Vessels temporarily depressurized to open top tanks (knockout)
 - ii. Green completion tank strapping (manual gauging)
 - iii. Open line or valve, or leak on flash gas management system
 - b. Potential Ignition Sources (spark potential)
 - i. Mobile equipment
 - ii. Static Electricity
 - iii. Unknown worker activities
4. Other Potential Contributing Factors
- i. Hazard recognition (hotwork permit failure)
 - ii. Temporary equipment spacing
 - iii. Sound wall (ventilation)
 - iv. Cold inversion, trapping gasses on location
 - v. Short Service Employees

That is an impressive list of possible causes - each of which must be eliminated from the proposal to drill on these new sites. Also, they still need to determine the actual cause so that they can eliminate that source as well.

Whether Extraction has realized it or not, they have proposed to drill wells next to our communities in close proximity to our homes - no longer out in the country. With that comes incredible responsibility. This explosion and fire that occurred would have a much more drastic affect when done in the midst of a community.

On December 22, 2017, the night of this explosion and fire on the Stromberger 22-E site, two chemicals (ethane and propane) were measured as record highs at a research facility that is set up at the Boulder Reservoir. Apparently, these two chemicals were traced back to this site. If measurements were that high 40 miles away, what was the level of these chemicals in Windsor? Unfortunately, the public does not have this information. Perhaps Extraction has already provided chemical measurements from the Stromberger 22-E site and surrounding areas just prior to the explosion.

Regardless, until Extraction has proven their technology and has established a track record proving that they can safely drill and complete wells which pose no adverse impacts to the health, safety, and welfare of the residents of Broomfield, this permit applation must be denied.

<p>51 The published opinion in the recent Court of Appeals decision of <i>Martinez v. COGCC</i> states that “The plain meaning of the statutory language [of section 34-60-102(1)(a)(I)] indicates that fostering balanced, nonwasteful development is in the public interest when that development is completed subject to the protection of public health, safety, and welfare.” This is contrary to the COGCC’s previously stated interpretation, whereby oil and gas development would be “balanced” against public health, safety, welfare, and the environment. Per Rule 35e of the Colorado Appellate Rules (CAR), the published opinion MUST be upheld. The COGCC must NOT approve Extraction’s drilling permits as they are NOT protective of public health, safety, and welfare based on the proximity, scale, and intensity of these proposed operations. The current setback distances are NOT based on health and safety data, as the COGCC has noted.</p> <p>The 2015 Governor’s Blue-Ribbon Task Force Minority Report left the door open for future rulemakings to address the scale, proximity, and intensity of operations. However, these rulemakings have not yet happened and communities are now facing the very situation of which these reports were referring to with large-scale operations encroaching on established neighborhoods as the technology has advanced. It is unfortunate that the oil and gas operators who had planned to access the shale deposits at a later date failed to acquire adequate surface lands such that they could provide a sufficient protective border around their proposed operations. This lack of foresight does not provide that thousands of people living in these established communities should therefore be subject to health, safety, and welfare risks to allow for such a corporation to financially benefit at their expense. (Broomfield does not need the financial benefits of oil and gas - they actually gave up all of their royalties to Extraction to reduce well count thereby placing the financial burden of monitoring and enforcement upon the tax payers of Broomfield.)</p> <p>Furthermore, the Broomfield Charter Language requires no adverse impacts. The residents of Broomfield have been actively engaged at the local and state level requesting their health, safety, and welfare be protected. As such, the residents of Broomfield successfully amended the Charter of the City and County of Broomfield to include language stating that oil and gas development shall “only occur in a manner that does not adversely impact the health, safety, and welfare of Broomfield’s residents in their workplaces, their homes, their schools, and public parks in order to protect the public’s health, safety, and welfare and to safeguard the environment and wildlife resources”.</p> <p>Despite the clear language of the Broomfield Charter, the City of Broomfield is apparently unable to uphold 301 because the COGCC Regulations are less stringent.</p> <p>The City and County of Broomfield repeatedly told the concerned residents of Broomfield that they wish they had more “tools” in their “toolbox”, but the City claimed that they lacked local control and they had to defer protection of health, safety, and welfare to the State. Our City made numerous concessions to the detriment of the protection of the health, safety, and welfare of the community stating that those decisions were up to the state and for the residents of Broomfield to take it to the state. Since the COGCC has not allowed our local governments to protect the communities, the COGCC must protect our health and safety and deny Extraction’s permits.</p> <p>The City and County of Broomfield signed an operator agreement with Extraction to provide the best possible protections for the community given the constraints by the state. This agreement falls short of upholding the current state law which states "subject to the protection of public health, safety, and welfare."</p> <p>Therefore, this permit application must be denied.</p>	<p>03/01/2018</p>
<p>52 I am an Adams County resident and live 1001 feet from the proposed Interchange pads. I am in favor of responsible development of Colorado’s gas and oil resources. However, this application is lacking in 3 significant ways. 1) Oil and gas facilities must be located as far from homes as possible to insure the public is safe from the known hazards of these industrial facilities; 2) Extraction must be required to specify evacuation routes for nearby residents, include Adams County in its emergency notification protocols, and have robust back up plans for potential failures in the remote shut-off systems; and 3) the COGCC must first require an alternative site analysis that includes the heavy truck traffic impacts and specifically addresses the local well water concerns.</p> <p>Rule 604c (1) (E) Multi-well pads states “Where technologically feasible and economically practicable, operators shall consolidate wells to create multi-well pads, including shared locations with other operators. Multi-well production facilities shall be located as far as possible from Building Units.” The current proposed plan does not accomplish this. Under a previously proposed plan, there were only four well pads proposed which was more consolidated than the current plan and the pads were more than 1000 feet away from residential buildings, on the opposite side of the Northwest Parkway from neighborhoods and out of the open space north of my home. According to Extraction’s website, these pads were between 1,300 and 1,800 feet from the nearest neighbor. However, under the current plan,</p>	<p>03/01/2018</p>

the proposed well pads have been split and moved closer to an existing Adams County neighborhood. The previous plan had all pads on the opposite side of the Northwest Parkway where there was much less impact to existing homes, but where a Broomfield developer is planning future development. The change in plan with movement of pads away from Broomfield and closer to Adams county and to residences was done with minimal notice to Adams County and its residents prior to signing the MOU between Broomfield and Extraction (only one month). Although Adams County will be more highly impacted, we have been afforded minimal voice in this process. The current plans resulted from a two-party negotiation between Broomfield and Extraction. The alternative site analysis did not include Adams County and, to date, no formal public comment hearing has been set for Adams County residents for the Interchange 2 and 2A permits.

Extraction's report on the recent fire on the Stromberger 22-E Well Pad in the Weld County Windsor area on, December 22, 2017, is concerning as it states "the gas and ignition source are still being investigated". Although, per its report, Extraction has taken some corrective actions, the fact they still do not know what caused the accident should give one approving a similar project pause to reconsider. From what I understand, the same BMPs and technologies (closed loop & automatic safety protective systems and surface safety valves) were in place that will be on the proposed operation in Broomfield. In addition, according to news reports, a road ½ mile from the site had to be closed due to the fire. There are numerous homes within ½ mile of the proposed Interchange Pads. How can residents feel safe with this project moving forward without the reassurance that what happened in Windsor is well understood and could be prevented in Broomfield? I understand that the incident in Weld County was not desired by Extraction and they would not want anything like this to happen in Broomfield. I don't believe Extraction would want anyone in the nearby residences to come to any harm if a similar incident were to occur in Broomfield. The best way to increase safety and mitigate risk is to increase distance from residences.

One specific concern regarding the position of my home in relation to the Interchange pad is my evacuation route. The only way off my property by vehicle is toward the pad. If there is a large event, my family would have to either drive toward danger to get out of our property or flee on foot over fences bordering our property and get transport assistance from a neighbor. I understand this is an unlikely scenario, but still a concerning possibility.

Extraction states they have remote shut-off systems they plan to use, however, how will these systems work in case of power failure or internet failure?

There are multiple references in the application about notifying the City of Broomfield about various events (accidental venting, explosions, fires and spills), but how will Adams County residents be notified of events? We are closer to the operations, but I do not see a notification system in place for Adams County.

Also, in reviewing the COGCC rules and the permit application, there is no mention of recourse if our drinking water wells are negatively impacted or if our property values decline due to these operations.

After reading the entire EPA Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources; Executive Summary June 2015, I have the following comments and questions pertaining to this application:

1)While the EPA report states likelihood of decreased water quantity from fracking-related water withdrawal are low, there are case reports of this occurring. What plan is in place if our water well productivities are impacted? Should we be testing flow of our wells in addition to having water quality testing done?

2)The EPA estimates the frequency of spills of hydraulic fracturing fluids, chemicals (typically stored and mixed on-site), and produced water is 1 spill per every 100 wells in Colorado. This is based on data and literature review the EPA performed and is from their 2015 report.

3)Extraction has stated they plan to have all the water piped in and out with "flat lines?". Where will these lines run and what is the quality of their integrity to prevent spills of produced water near our homes? Are the chemicals being brought in on the access road that runs near our homes? What protections are there if a spill occurs during transit? It would be preferable for a more robust pipeline rather than flat lines be used to transport produced water to mitigate risk.

Our only source of water on our property is our well, so you can see why there is significant concern over water contamination. When does Extraction plan to collect water samples from nearby wells? How do they plan to collect the water? To insure accuracy, water should be collected from the well, not at the tap. Is this planned? It is concerning samples are only to be taken prior to start of the project and then not again until 1 year after production begins. This means if contamination occurs

during drilling or flow back or a spill occurs that contaminates the ground water, the contamination may not be known and families could be bathing in and consuming dangerous contaminants. Additionally, there is only mention of re-testing and notification of contamination, but nothing in the application or in rule that discusses mitigation for those whose wells are contaminated. Will water be hauled in for drinking and bathing? Would those homes be hooked up to municipal water supply at the cost of the operator? If hauling were to occur, how long would they do this? Until the well tests return as safe? Would multiple tests be done to insure safety?

Traffic will be a major impact of this large-scale project. The potential health and safety impacts are heavily debated, but the disturbances to our neighborhood caused by traffic are an undeniable impact. According to the CDP, there will be an access road placed 300-350 feet through the entire length of the open space that lies on the northern border of my neighborhood. There is currently a dirt access road for two existing wells in the open space that is used for light truck traffic and occasional small tankers. This road currently sees less than one trip daily. In reviewing the numbers provided in the CDP, which I assume are low estimates, there will be over 50,000 total trips passing through what is now quiet designated open space over the life of this project. This open space was established as a buffer between this neighborhood and the NW Parkway when the NW Parkway was built. Extraction's CDP submitted to Broomfield lists this project starting in Q1 2018 and lasting through Q3 2020, if the project runs on schedule. Because there is nothing in the CDP that establishes a hard deadline when all wells must be in production, my neighborhood may have to endure many more than 3 years of daily interruption of heavy truck traffic through what we now enjoy as quiet open space. The completion phase, which includes hydraulic fracturing, has the highest traffic volumes. Per charts in Extraction's CDP, at the height of hydraulic fracturing, there will be three separate pads in this phase simultaneously. Per numbers in the CDP, this means at least 370 truck trips per day traveling within 300 - 350 feet of the homes on the north side of my neighborhood through open space. The CDP does not mention how much traffic is expected during the construction of the pipeline and access road. Instead of relying primarily on the existing road, 160th, north of the Northwest Parkway which does not pass through a residential area, the majority of the traffic is planned to go through the open space, leading to a significant increase in noise, dust and vehicle exhaust pollution for my neighborhood. I would ask that traffic routing be reconsidered and the majority of the traffic be routed to existing roads away from neighborhoods.

The roads in this area, particularly this section of Huron and 160th, are narrow and already in poor condition. The added heavy truck traffic will certainly result in a decline in condition of these roads. What are the plans for improvements to insure the roads are passable and safe during and after the project?

Of broader concern are the recent reports of COGCC's budget shortfalls and their admitted inability to pay staff to regulate the oil and gas industry if these are not corrected in the legislature. Will COGCC have the ability to provide the regulatory oversight for a large-scale project such as the one proposed here? Also, Tudex recently left Colorado with multiple orphaned wells the COGCC cannot afford to clean-up. What happens if Extraction also fails and goes bankrupt? If another operator did not take over the project, how long would our neighborhood and open space be forced to endure the orphaned wells?

Please reconsider the approval of the siting of the Interchange well pads and review with Extraction their original proposed sites for this project. The original sites would be more in line with the charge of the COGCC listed on your website, "fostering the responsible development of Colorado's oil and gas natural resources in a manner consistent with the protection of public health, safety, and welfare, including the environment and wildlife resources."

53 The residents of Broomfield have submitted a petition to the City of Broomfield regarding Extraction not having an approved CDP with Broomfield 30 days prior to submitting their forms 2/2A applications, the need to understand the root cause analysis of Extraction's Stromberger Explosion/Fire such that an incident will not occur in Broomfield as these pads are located next to high density neighborhoods and future public water source, that we are not "third parties" but rather we are the residents of Broomfield, and also requests to our City asking them to contact the COGCC regarding a request to deny issuing permits including the Livingston and Interchange A&B Pads based on these concerns. As such, this petition is relevant to this docket.

03/01/2018

This document also includes hundreds of individual resident comments regarding the above concerns.

As there is not an option to attach the PDF document with this comment, I have sent a PDF version to Mark Morton, the Local Government Liaison. This PDF document is the same as the plain text version

	I tried to submit online on Feb 25th for which it appears the formatting did transfer properly. Thank you!!!	
54	Please reconsider locations for these well sites. They are too close to our homes. We are all concerned about the safety of our families and neighbors.	03/01/2018
55	<p>Comments submitted on behalf of Adams County Communities for Drilling Accountability Now (ACCDAN)</p> <p>1)</p> <p>Having an industrial haul road for the construction of 49 wells (Interchange Pads, Northwest Pads) located between the Northwest Parkway and the backyards of homes constitutes an unreasonable and egregious impact on health, safety, environment, quality of life and property values.</p> <p>This is not a “short” access road to the well pad but rather the creation of a completely new transportation infrastructure that spans over 2 miles and its specific and sole use is for the oil and gas operations taking place at these pads. This road is situated between the well pads and the homes. The road could have been placed between the pads and the highway to minimize the significant health hazards of thousands of diesel truck trips. However, due to the movement of these pads from north of the Northwest Parkway to south of the Parkway to accommodate future development, the reasonable approach of putting the road further away from the residents would have resulted in the inability to squeeze these pads into the new location since they would not have met the recommended Buffer Matrix setbacks as negotiated between Broomfield and Extraction where 9-17 wells per pad requires a buffer zone of 1000 feet.</p> <p>Based on the COGCC’s definition COGCC 100-7 – “OIL AND GAS LOCATION shall mean a definable area where an operator has disturbed or intends to disturb the land surface in order to locate an oil and gas facility” , it is apparent that this industrial haul road should be considered part of the disturbed area as it will have a significant footprint in this area. The diesel fumes, dust, light and noise alone along this new transportation infrastructure, backing up to people’s homes, is not acceptable.</p> <p>We would urge you to carefully examine the regulations, include the industrial haul road in the disturbed area and reassess the buffer zone and LUMA designations based on an accurate representation of the disturbed zone.</p> <p>2)</p> <p>The original Extraction proposal shared at the February 2017 meeting at the Broomfield First Bank Center included the Huron pad located between Huron Street and I-25 and between 160th Ave and the Northwest Parkway. That proposal was eliminated and eventually resulted in the location of 16 and 17 wells respectively on the Interchange A and B pads.</p> <p>This flies in the face of COGCC guidance which encourages fewer consolidated pads located as far from neighborhoods as possible. The relocation of pads was driven by the influence of large developer McWhinney and Broomfield’s desire to protect future development in Broomfield over the rights of current residential communities in unincorporated Adams County. This is even called out in the Operator Agreement where it states that one of the benefits of these new locations is “Pads will not be next to future development”.</p> <p>3)</p> <p>The agreement entered into by Broomfield and Extraction has profound impacts on Adams County Residents. These well pads were pushed to the border of Adams County without regard for the impacts on the closest neighborhoods in Adams County and no understanding of the unique characteristics of these neighborhoods, including the fact that many residents in closest proximity are on water wells. Adams County residents have had no voice in this matter and continue to be excluded from critical updates, including emergency response and preparedness information. Agreements entered into by one local government should not be allowed to negatively impact a neighboring jurisdiction without representation from that jurisdiction early on in the process.</p> <p>4) With the recent release of Form 22 Accident Report for the Stromberger facility (22-E Pad), it is clear that Extraction is not capable of safely operating a facility with this technology. They are unable at this time to provide a definitive root cause and their list of potential contributing factors and the corrective actions implemented show that they are not well prepared. The items listed in their corrective actions should have been part of their BMPs originally. There is no excuse for lack of safety controls and obvious gaps in their understanding of the potential risks that need to be addressed.</p>	03/01/2018

	<p>In summary, large scale oil and gas development should not be placed close to existing neighborhoods, especially when there are other, alternative, undeveloped areas that are suitable.</p> <p>Respectfully,</p> <p>Jennifer Gamble</p> <p>President</p> <p>Adams County Communities for Drilling Accountability Now</p> <p>Barbara Binder</p> <p>Board Member</p> <p>Adams County Communities for Drilling Accountability Now</p>	
56	<p>I am asking the COGCC, in its capacity as a regulatory and oversight agency, to deny Extraction's location application at Interchange A & B due to insufficient corrective action at Extraction's Stormberger pad and Extraction's failure to provide a compelling response to existing alternate site analysis. Approving the application at this time is a choice by the COGCC to unnecessarily put the health and safety of the public at risk. As you should know, Broomfield's Oil & Gas task force conducted a detailed alternate site analysis that identified more desirable pad locations that are further from the families and children living in unincorporated Adams County near Interchange A & B. (It should be noted that the COGCC and Extraction have both abdicated their responsibilities to local citizens to perform the most basic due diligence on siting these large-scale and high-risk operations, which is shameful.) Further, both the COGCC and Extraction have ignored the availability of workable alternate sites in order to maximize profits at the expense of the health and safety of the public. These applications must be denied because the COGCC must follow the Martinez decision to prioritize health and safety over profits, and Extraction must be held to account for the December explosion at its Stormberger pad before it can claim that it can conduct these operations safely.</p>	03/01/2018
57	<p>I am asking the COGCC, in its capacity as a regulatory and oversight agency, to deny Extraction's location application at Interchange A & B due to insufficient corrective action at Extraction's Stormberger pad and Extraction's failure to provide a compelling response to existing alternate site analysis. Approving the application at this time is a choice by the COGCC to unnecessarily put the health and safety of the public at risk. As you should know, Broomfield's Oil & Gas task force conducted a detailed alternate site analysis that identified more desirable pad locations that are further from the families and children living in unincorporated Adams County near Interchange A & B. (It should be noted that the COGCC and Extraction have both abdicated their responsibilities to local citizens to perform the most basic due diligence on siting these large-scale and high-risk operations, which is shameful.) Further, both the COGCC and Extraction have ignored the availability of workable alternate sites in order to maximize profits at the expense of the health and safety of the public. These applications must be denied because the COGCC must follow the Martinez decision to prioritize health and safety over profits, and Extraction must be held to account for the December explosion at its Stormberger pad before it can claim that it can conduct these operations safely.</p>	03/01/2018
58	<p>I am requesting the COGCC to pause the approval or pause the initiation of the Extraction Interchange A and B wells in order to review the thousand plus research articles that conclude living within a half mile (Scientific American refers to the 0.5 mile radius as the threat radius in https://www.scientificamerican.com/article/health-effects-of-oil-and-gas-emissions-investigated-in-texas/) are unhealthy.</p> <p>The USA is not the only county that has oil and gas operations and fracking and fracking is not new. There are over a thousand articles on the internet from around the world that conclude living close to oil and gas is unhealthy (typically with 0.5 mile). The chemicals that are used to frack as well as the chemicals in the mined minerals are unhealthy and can cause cancer as well as non-cancerous deleterious health effects.</p> <p>Large industrial scale residential fracking within 0.5 mile of my home and the home of my neighbors is unhealthy for our families and has acute and chronic effects. Therefore, all oil and gas needs to be moved farther away from homes and schools in order to meet the 0.5 mile threat radius.</p> <p>Some of the research includes:</p>	03/01/2018

1. The Pennsylvania study of 1.1 million births from 2004 to 2013 that was released in December 2017 and concluded there were negative health effects related to living close to oil and gas wells. This study is entitled "Hydraulic Fracking and Infant Health: New Evidence from Pennsylvania." Dan Haley, President and CEO, COGA, stated that "This study makes bold claims while conducting no emission measurements ..." YES YES YES, please require that oil and gas companies have continuous leak detection and air emission. This is something we really want and our health requires as many of us live in the threat radius. Oil and gas could also wire the electronic signal from the leak detectors and air emission monitoring equipment into their software systems and remotely stop all activities if there were leaks or large air emissions. The Extraction CDP stated that pressure, temperature, and other production parameters important to profit are monitored and that Extraction can remotely cease operations. It is unclear why this was not done prior to the explosions at the Windsor plant. Air emission monitoring and leak detection needs to be continuous (24/7) and this will be expensive and oil and gas does not want to take on this expense. All of us that live within the threat radius have a right to life and good health. This is a cost of doing business and should be passed on to the operator not the tax payers of Broomfield.

2. Dr Lisa McKenzie's health studies which conclude that living within 0.5 mile of oil and gas has negative effects on health.

3. The CSU air canisters studies that demonstrate elevated levels of methane, BTEX, and other health-harming chemicals in the air emissions around oil and gas operations.

4. 700 + New York Consortium health effects studies.

5. Other studies from the UK, Scotland, and around the globe.

Some of my health and safety concerns include:

6. Dr John Hughes testing results of residents of Erie that found ethylbenzene in their blood when the norm is no detectable ethylbenzene. Dr Hughes' control group did not have ethylbenzene.

7. Aquifer contamination where 4.5 % of the water wells have thermogenic methane which is the isotope associated with methane formed at high temperature and high pressure (ie oil and gas methane). Joe Ryan, UC at Boulder: 44 wells have methane contamination; there are two new cases of well contamination per year; 4.5 % of the contaminated wells have thermogenic methane from oil and gas rather than biogenic methane. I am concerned I am purchasing local produce and local products of livestock and being exposed to even more health-harming chemicals than through air emissions. It has also been brought to my attention that the COGCC lacks the financial resources to deal with aquifer contamination due to current or past contractors and/or injection wells.

8. Windsor CO December 2017 explosions. Did Extraction do anything to test the residents of Windsor after the explosions? It would seem highly likely that there was at least one fetus and many young children. Did Extraction do any kind of testing of the sensitive population?

It does not appear there was any kind of leak detectors or air emission monitoring at the Windsor site and yet residents were exposed to much higher levels than the normal chronic level of methane, BTEX, hydrogen sulfide, etc. The COGCC needs to require continuous leak detection and air emissions for all residential fracking paid for by the operator. Everyone knows the residents were exposed to unhealthy, cancer-causing chemicals and yet Extraction monitored nothing, therefore they cannot report what chemicals the residents were exposed to and at what concentrations. Continuous monitoring needs to become state law for residential fracking.

9. What exactly is the COGCC and CDPHE looking for from the thousand plus research papers around the globe that demonstrate there are acute and chronic negative health effects including cancer associated with living close to oil and gas? Tell me exactly what you are looking for.

10. My undergraduate degree is in chemistry from CU and I have two M.S. from the Colorado School of Mines in Environmental Engineering and Metallurgical Engineering. I graduated each time Magna Cum Laude. The COGCC is under pressure and in a hurry to permit but there is a serious health problem here that is constantly dismissed without technical justification. The CDPHE needs to publish a white paper with its position and back it up with facts and discuss why the COGCC and the CDPHE are dismissive of recent research findings with technical justification and other research citations. The COGCC and CDPHE are fostering an atmosphere of fear. If in doubt shouldn't all decisions be on the side of caution since the chemicals used for fracking are mined by fracking are known to cause serious acute and chronic health effects which include cancer?

Sincerely,

	Kathy Swan-Bogard	
59	The COGCC needs to do its job and protect the health and safety of the residents of Colorado. Therefore, these permits should be denied. There have been over a dozen explosions and fires at oil and gas facilities in the past year and there are multiple leaks in Colorado each week. This heavy industry is way too dangerous to be in residential areas.	03/01/2018

Total: 59 comment(s)