This Oil and Gas Location Assessment is to be submitted to the COGCC for approval prior to any ground disturbance activity associated with oil and gas operations. Approval of this Oil and Gas Location Assessment will allow for the construction of the below specified Location; however, it does not supersede any land use rules applied by the local land use authority. Please see the COGCC website at http://cogcc.state.co.us/ for all accompanying information pertinent this Oil and Gas Location Assessment.

This location assessment is included as part of a permit application.

CONSULTATION

- This location is included in a Comprehensive Drilling Plan. CDP #
- This location is in a sensitive wildlife habitat area.
- This location is in a wildlife restricted surface occupancy area.
- This location includes a Rule 306.d.(1)A.ii. variance request.

Operator

Operator Number: 10459
Name: EXTRACTION OIL & GAS INC
Address: 370 17TH STREET SUITE 5300
City: DENVER State: CO Zip: 80202

Contact Information

Name: Alyssa Andrews
Phone: (720) 481-2379
Fax: ( )
email: aandrews@extractionog.com

RECLAMATION FINANCIAL ASSURANCE

- Plugging and Abandonment Bond Surety ID: 20130028
- Gas Facility Surety ID:
- Waste Management Surety ID:

LOCATION IDENTIFICATION

Name: Livingston Pad
Number: 
County: BROOMFIELD
QuarterQuarter: NWSE Section: 7 Township: 1S Range: 68W Meridian: 6 Ground Elevation: 5315

Define a single point as a location reference for the facility location. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 2332 feet FSL from North or South section line
1528 feet FEL from East or West section line
Latitude: 39.978564 Longitude: -105.040122
PDOP Reading: 1.2 Date of Measurement: 11/10/2017
Instrument Operator's Name: T. WINNICKI
**RELATED REMOTE LOCATIONS**

(Enter as many Related Locations as necessary. Enter the Form 2A document # only if there is no established COGCC Location ID#)

This proposed Oil and Gas Location is:  

<table>
<thead>
<tr>
<th>LOCATION ID #</th>
<th>FORM 2A DOC #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FACILITIES**

Indicate the number of each type of oil and gas facility planned on location

<table>
<thead>
<tr>
<th>Wells</th>
<th>Oil Tanks*</th>
<th>Condensate Tanks*</th>
<th>Water Tanks*</th>
<th>Buried Produced Water Vaults*</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drilling Pits</th>
<th>Production Pits*</th>
<th>Special Purpose Pits</th>
<th>Multi-Well Pits*</th>
<th>Modular Large Volume Tanks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pump Jacks</th>
<th>Separators*</th>
<th>Injection Pumps*</th>
<th>Cavity Pumps*</th>
<th>Gas Compressors*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas or Diesel Motors*</th>
<th>Electric Motors</th>
<th>Electric Generators*</th>
<th>Fuel Tanks*</th>
<th>LACT Unit*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dehydrator Units*</th>
<th>Vapor Recovery Unit*</th>
<th>VOC Combustor*</th>
<th>Flare*</th>
<th>Pigging Station*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER FACILITIES*</th>
</tr>
</thead>
</table>

**Facility Type** | **Number**
--- | ---
Transformer | 1
Maintenance Vessel | 1
Emission Control Device | 1
Produced Water Surge Drum | 1
Gas Lift Metering Building | 2
Piperack Modules | 9
Compressor Drain Tank | 1
Oil Surge Drum | 1
Air Compressor | 1
Fuel Gas Scrubber | 1
Sales Gas Meter | 1
Gas Lift Suction Scrubber | 1
Electrical Switchrack | 2

*Those facilities indicated by an asterisk (*) shall be used to determine the distance from the Production Facility to the nearest cultural feature on the Cultural Setbacks Tab.

Per Rule 303.b.(3)C, description of all oil, gas, and/or water pipelines:

Extraction will trench flowlines in one piping corridor that runs between the drill pad and the separator pad and be placed at 12” centers. These lines will most likely be 2” or 3” fusion bonded SCH160 steel pipe and have proper cathodic protection throughout the run. Extraction will then sweep up with a long radius that will tie off each line to the appropriate separator. All welds on these are 100% x-ray and hydro tested to the API and Manufactures specs for a class 1500 series flange. Also meets ASME code B31.4.
CONSTRUCTION
Date planned to commence construction: 06/01/2018  Size of disturbed area during construction in acres: 19.77
Estimated date that interim reclamation will begin: 09/01/2018  Size of location after interim reclamation in acres: 19.77
Estimated post-construction ground elevation: 5315

DRILLING PROGRAM
Will a closed loop system be used for drilling fluids: Yes
Is H₂S anticipated? No
Will salt sections be encountered during drilling: No
Will salt based mud (>15,000 ppm Cl) be used? No
Will oil based drilling fluids be used? Yes

DRILLING WASTE MANAGEMENT PROGRAM
Drilling Fluids Disposal: OFFSITE  Drilling Fluids Disposal Method: Commercial Disposal
Cutting Disposal: OFFSITE  Cuttings Disposal Method: Commercial Disposal
Other Disposal Description: beneficial reuse or land application plan submitted?

SURFACE & MINERALS & RIGHT TO CONSTRUCT
Name: CITY&COUNTY OF BROOMFIELD  Phone: ______________
Address: ONE DESCOMBES DR  Fax: ______________
City: BROOMFIELD  State: CO  Zip: 80020  Email: ______________
Surface Owner: Fee  State  Federal  Indian
Check all that apply. The Surface Owner:  is the mineral owner
  is committed to an oil and Gas Lease
  has signed the Oil and Gas Lease
  is the applicant

The Mineral Owner beneath this Oil and Gas Location is: Fee  State  Federal  Indian
The Minerals beneath this Oil and Gas Location will be developed from or produced to this Oil and Gas Location: Yes
The right to construct this Oil and Gas Location is granted by: Surface Use Agreement
Surface damage assurance if no agreement is in place: ______________  Surface Surety ID: ______________
Date of Rule 306 surface owner consultation ______________

CURRENT AND FUTURE LAND USE
Current Land Use (Check all that apply):
  Crop Land:     Irrigated     Dry land     Improved Pasture     Hay Meadow     CRP
  Non-Crop Land: Rangeland     Timber     Recreational     Other (describe): ______________
  Subdivided:     Industrial     Commercial     Residential
Future Land Use (Check all that apply):

Crop Land: Irrigated  Dry land  Improved Pasture  Hay Meadow  CRP
Non-Crop Land: Rangeland  Timber  Recreational  Other (describe): 
Subdivided: Industrial  Commercial  Residential

CULTURAL DISTANCE INFORMATION

Provide the distance to the nearest cultural feature as measured from Wells or Production Facilities onsite.

<table>
<thead>
<tr>
<th>From WELL</th>
<th>From PRODUCTION FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building: 824 Feet</td>
<td>1004 Feet</td>
</tr>
<tr>
<td>Building Unit: 1308 Feet</td>
<td>1486 Feet</td>
</tr>
<tr>
<td>High Occupancy Building Unit: 5280 Feet</td>
<td>5280 Feet</td>
</tr>
<tr>
<td>Designated Outside Activity Area: 5280 Feet</td>
<td>5280 Feet</td>
</tr>
<tr>
<td>Public Road: 447 Feet</td>
<td>205 Feet</td>
</tr>
<tr>
<td>Above Ground Utility: 1237 Feet</td>
<td>1426 Feet</td>
</tr>
<tr>
<td>Railroad: 5280 Feet</td>
<td>5280 Feet</td>
</tr>
<tr>
<td>Property Line: 282 Feet</td>
<td>172 Feet</td>
</tr>
</tbody>
</table>

INSTRUCTIONS:
- All measurements shall be provided from center of nearest Well or edge of nearest Production Facility to nearest of each cultural feature as described in Rule 303.b.(3)A.
- Enter 5280 for distance greater than 1 mile.
- Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.
- Building Unit, High Occupancy Building Unit, and Designated Outside Activity Area - as defined in 100-Series Rules.
- For measurement purposes only, Production Facilities should only include those items with an asterisk(*) on the Facilities Tab.

DESIGNATED SETBACK LOCATION INFORMATION

Check all that apply. This location is within a:

- Buffer Zone
- Exception Zone
- Urban Mitigation Area

Pre-application Notifications (required if location is within 1,000 feet of a building unit):

Date of Rule 305.a.(1) Urban Mitigation Area Notification to Local Government: 

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: 

FOR MULTI-WELL PADS AND PRODUCTION FACILITIES WITHIN DESIGNATED SETBACK LOCATIONS ONLY:

- Buffer Zone - as described in Rule 604.a.(2), within 1,000’ of a Building Unit.
- Exception Zone - as described in Rule 604.a.(1), within 500’ of a Building Unit.
- Urban Mitigation Area - as defined in 100-Series Rules.
- Large UMA Facility – as defined in 100-Series Rules.

Check this box if this Oil and Gas Location has or will have Production Facilities that serve multiple wells (onsite or offshore) and the Production Facilities are proposed to be located less than 1,000 feet from a Building Unit. (Pursuant to Rule 604.c.(2)E.i., the operator must evaluate alternative locations for the Production Facilities that are farther from the Building Unit, and determine whether those alternative locations were technically feasible and economically practicable for the same proposed development.)

By checking this box, I certify that no alternative placements for the Production Facilities, farther from the nearest Building Unit, were available based on the analysis conducted pursuant to Rule 604.c.(2)E.i.

In the space below, explain rationale for siting the multi-well Production Facility(ies) that supports your Rule 604.c.(2)E.i determination. Attach documentation that supports your determination to this Form 2A.

SOIL

List all soil map units that occur within the proposed location. Attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to be used when segregating topsoil.
The required information can be obtained from the NRCS web site at http://soildatamart.nrcs.usda.org/ or from the COGCC web site GIS Online map page found at http://colorado.gov/cogcc. Instructions are provided within the COGCC web site help section.

<table>
<thead>
<tr>
<th>NRCS Map Unit Name:</th>
<th>ShF—Samsil-Shingle complex, 3 to 35 percent slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRCS Map Unit Name:</td>
<td>ReD—Renohill loam, 3 to 9 percent slopes</td>
</tr>
<tr>
<td>NRCS Map Unit Name:</td>
<td>UIC—Ulm loam, 3 to 5 percent slopes</td>
</tr>
</tbody>
</table>

**PLANT COMMUNITY:**
Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

- Are noxious weeds present: Yes [ ] No [x]  
- Plant species from: [x] NRCS or, [ ] field observation  
- Date of observation: ______________________

List individual species:

Check all plant communities that exist in the disturbed area.

- Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
- Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
- Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
- Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
- Mountain Riparian (Cottonwood, Willow, Blue Spruce)
- Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
- Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
- Alpine (above timberline)
- Other (describe): __________________________
WATER RESOURCES

Is this a sensitive area:  ☒ No  ☐ Yes

Distance to nearest
downgradient surface water feature: ______ 0 Feet
water well: ______ 3450 Feet

Estimated depth to ground water at Oil and Gas Location ______ 630 Feet

Basis for depth to groundwater and sensitive area determination:

Nearest surface water feature: Ditch 0’ SW
Nearest water well: Permit 169501- -, 3450’ NW, no depth to ground water provided
Depth to ground water: 630’ provided by water well with permit # 43543-F -R, 13,400’ SE (In SE4-10-1S-68W)

Is the location in a riparian area:  ☒ No  ☐ Yes

Was an Army Corps of Engineers Section 404 permit filed  ☒ No  ☐ Yes  If yes attach permit.

Is the location within a Rule 317B Surface Water Supply Area buffer zone:  ☒ No  ☐ Yes

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified:

Is the Location within a Floodplain?  ☒ No  ☐ Yes

Floodplain Data Sources Reviewed (check all that apply)

☐ Federal (FEMA)
☒ State
☐ County
☐ Local
☐ Other

GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule ______ 318A

WILDLIFE

☐ This location is included in a Wildlife Mitigation Plan
☐ This location was subject to a pre-consultation meeting with CPW held on ____________

Operator Proposed Wildlife BMPs

No BMP

CPW Proposed Wildlife BMPs

No BMP

DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

☐ Rule 604.a.(1)A. Exception Zone (within 500’ of a Building Unit) and is in an Urban Mitigation Area
☐ Rule 604.b.(1)A. Exception Location (existing or approved Oil & Gas Location now within a Designated Setback as a result of Rule 604.a.)
☒ Rule 604.b.(1)B. Exception Location (existing or approved Oil & Gas Location is within a Designated Setback due to Building Unit construction after Location approval)
1. Well Sites. The Operator agrees that the maximum number of New Wells to be drilled at the Livingston site to be as follows:

Livingston Pad – 19 New Wells

2. Regulations. The Operator shall comply with all applicable state, and federal regulations and agreements in place with the local government.

3. Inspections. Operator will allow inspections of the wellsite with reasonable notice by the city to the operator. The Operator shall provide a safety escort to accompany the Inspector. If the Inspector notifies the Operator of any conditions that the Inspector believes are out of compliance, Operator shall promptly address such conditions.

4. Discharge Valves. Open-ended discharge valves on all storage tanks, pipelines and other containers within the Well Site shall be secured and shall not be accessible to the general public. Open-ended discharge valves within the Well Site shall be placed within the interior of the secondary containment area.

5. Emergency Preparedness Plan. The Operator is required to complete a detailed Emergency Plan, and Operator shall pay for any reasonably necessary training and equipment of emergency response personnel specifically required due to the operations, including any inventory of Aqueous Film Forming Foam (AFFF) required to be purchased from time to time so that sufficient quantities are on-hand to respond to emergencies at the Well Sites. Extraction will have an Emergency Plan approved by North Metro Fire Rescue District before the Drilling Phase commences. The Emergency Plan will be filed with the City of Broomfield and the North Metro Fire
Rescue District and updated on an annual basis or as conditions change (responsible field personnel change, ownership changes, etc.). The Emergency Plan shall include a notification system for potentially affected citizens and occupied buildings and an evacuation plan. The Emergency Plan will have the following information:

A. Name, address and phone number, including twenty-four (24)-hour emergency numbers for at least two persons responsible for emergency field operations as well as the contact information for any subcontractor of Operator engaged for well-control emergencies.

An as-built facilities map in a format suitable for input into the City's GIS system depicting the locations and type of above and below ground facilities, including sizes and depths below grade of all oil and gas flow lines and associated equipment, isolation valves, surface operations and their functions, as well as transportation routes to and from exploration and development sites, for emergency response and management purposes.

B. Detailed information addressing each reasonable potential emergency that may be associated with the operation. This may include any or all of the following: explosions, fires, gas, oil or water pipeline leaks or ruptures, hydrogen sulfide or other toxic gas emissions, or hazardous material vehicle accidents or spills. A provision that any spill outside of the containment area, that has the potential to leave the facility or to threaten waters of the state, or as required by the City-approved Emergency Plan shall be reported to the local emergency dispatch and the COGCC Director in accordance with COGCC regulations.

C. Detailed information identifying access or evacuation routes, and health care facilities anticipated to be used.

D. A project-specific plan for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.

E. A statement and detailed information indicating that the Operator has adequate personnel, supplies, and training to implement the Emergency Plan immediately at all times during construction and operations.

F. The Operator will have current Material Safety Data Sheets (MSDS) for all chemicals used or stored on a site. The MSDS sheets shall be provided immediately upon request to City officials, a public safety officer, or a health professional as required by COGCC Rule 205.

G. The Emergency Plan shall include a provision establishing a process by which the Operator notifies surrounding neighbors to inform them about the on-site operations and provide sufficient contact information for surrounding neighbors to communicate with the Operator.

H. All training associated with the Emergency Plan shall be coordinated with the City and the North Metro Fire Rescue District.

I. A provision obligating the Operator to reimburse the appropriate emergency agencies for their expenses resulting from the Operator’s operations, to the extent required by Colorado State Statutes.

J. Operator will provide the City with its emergency shutdown protocols and promptly notify the City of any emergency shut downs that would have an impact to any area beyond the confines of the Well Site.
Planning

Fencing. Permanent perimeter fencing shall be installed around production equipment and shall be secured. The main purpose of the fencing is to deter entrance by unauthorized people and a Well Site shall be properly secured prior to the commencement of drilling at the Well Site. The Operator shall use visually interesting fencing, when feasible, but the parties recognize that there is a need for air circulation, and for the field personnel who regularly inspect the facilities to be able to identify visual operational deficiencies when driving by. Landscaping may be used for screening. If a chain link fence is required to achieve safety requirements set by the COGCC, then landscaping and other screening mechanisms shall be required that comply with the City’s Land Use Code regulations and the Operator’s safety requirements.

Planning

Flammable Material. All ground within twenty-five (25) feet of any tank, or other structure containing flammable or combustible materials, shall be kept free of dry weeds, grass or rubbish, and shall conform to COGCC 600 Series Safety Regulations and the applicable Fire Code.

Planning

Water Quality Monitoring Plan. Oil and gas operations will, to the extent practicable, avoid causing degradation to surface or ground waters within the City and to wetlands within the City. The following standards set forth are consistent with the COGCC rules and regulations:

Using records of the Colorado Division of Water Resources, Operator must implement a water quality monitoring and well testing plan that includes the following:

A. Operator will obtain initial baseline samples and subsequent monitoring samples from all available water sources within a one-half (1/2) mile radius of the Well Sites. Water sources include registered water wells or permitted or adjudicated springs.

B. Operator will collect initial testing of baseline samples from available water sources prior to the commencement of drilling a well, or prior to the re-stimulation of an existing well for which no samples were collected and tested during the previous 6-12 months.

C. Post-stimulation samples of available water sources shall be collected and tested pursuant to the following time frame:

1. One sample approximately one (1) year after commencement of the Production Phase;
2. One sample approximately three (3) years after commencement of the Production Phase; and
3. One sample approximately six (6) years after commencement of the Production Phase.

D. Operator will collect a sample from at least one upgradient and two down-gradient water sources within a one-half (1/2) mile radius of a Well Site. If no such water sources are available, Operator shall collect samples from additional water sources within a radius of up to one (1) mile from the Well Site until samples from a total of at least one upgradient and two down-gradient water sources are collected. Operator should give priority to the selection of water sources closest to the Well Site.

E. Operator may rely on existing groundwater sampling data from any water source within the radii described above that was collected in accordance with accepted standards, provided the data was collected within the 12 months preceding the commencement of Drilling Phase for such Well Site, the data includes measurement of all of the constituents measured in Table 1 below and there has been no significant oil and gas activity within a one-mile radius in the time period between the original sampling and the commencement of the Drilling Phase for such Well Site.

F. Operator shall make reasonable efforts to obtain the consent of the owner of the water source.

G. Testing for the analytes listed in Table 1 below, and subsequent testing as necessary or appropriate.

H. Operator must follow standard industry procedures in collecting samples, consistent with the COGCC model Sampling and Analysis Plan.
I. Operator must report the location of the water source using a GPS with submeter resolution.

J. Operator must report results of field observations including reporting on damaged or unsanitary well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.

K. Operator must provide copies of all test results described above to the City, the COGCC, and the water source owners within 30 days after receiving the samples.

L. Subsequent sampling. If sampling shows water contamination, additional measures may be required including:

1. If free gas or a dissolved methane concentration level greater than one (1) milligram per liter (mg/l) is detected in a water source, determination of the gas type using gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen).

2. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas.

3. Immediate notification to the City, the COGCC, and the owner of the water well if the methane concentration increases by more than five (5) mg/l between sampling periods, or increases to more than ten (10) mg/l.

4. Immediate notification to the City, the COGCC and the owner of the water well if BTEX and/or TPH are detected as a result of testing. Such detections may result in required subsequent sampling for additional analytes.

5. Further water well sampling in response to complaints from water source owners.

6. Timely production and distribution of test results in electronic deliverable format to the City, the COGCC and the water source owners.

7. Qualified Independent Professional Consultant. All water source testing must be conducted by the Operator or, if requested by a surface owner, by a qualified independent professional consultant.

If sampling of water testing program reveals water contamination, the Operator shall work with the City and the COGCC to help identify the source of the contamination.

<p>| TABLE 1 |
| GENERAL WATER QUALITY |
| Alkalinity, Conductivity &amp; TDS, pH, Dissolved Organic Carbon (or Total Organic Carbon), Bacteria, and Hydrogen Sulphide |
| MAJOR IONS |
| Bromide, Chloride, Fluoride, Magnesium, Potassium, Sodium, Sulfate, and Nitrate + Nitrite as N |
| METALS |
| Arsenic, Barium, Boron, Chromium, Copper, Iron, Lead, Manganese, Selenium, Strontium, Mercury, Uranium, and Radium |
| DISSOLVED GASES and VOLATILE ORGANIC COMPOUNDS |
| Methane, Ethane, Propane, BTEX as Benzene, Toluene, Ethylbenzene and Xylenes, Total Petroleum, and Hydrocarbons (TPH) |
| OTHER |</p>
<table>
<thead>
<tr>
<th>9</th>
<th>Planning</th>
<th>Water Level, Stable isotopes of water (Oxygen, Hydrogen, Carbon), Phosphorus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Planning</td>
<td>Landscaping. Operator shall implement the Visual Mitigation Plan for a Well Site approved during the application process for such Well Site.</td>
</tr>
<tr>
<td>10</td>
<td>Planning</td>
<td>Operator to take appropriate steps in order to achieve this. All permanent lighting or lighting higher than a perimeter wall must be downward facing. All bulbs must be fully shielded to prevent light emissions above a horizontal plane drawn from the bottom of the fixture. The lighting plan shall indicate the location of all outdoor lighting on the site and any structures, and include cut sheets (manufacturer’s specifications with picture or diagram) of all proposed fixtures. During the Drilling and Completion Phases, consistent with applicable law, Operator will construct a minimum 32 foot wall around as much of the perimeter of the well pads as operations allow to reduce light escaping from the site, unless shorter walls are mutually agreed to by City and Operator on a site-specific basis.</td>
</tr>
<tr>
<td>11</td>
<td>Planning</td>
<td>Maintenance of Machinery. Routine field maintenance of vehicles or mobile machinery shall not be performed within three hundred (300) feet of any water body. All fueling must occur over impervious material.</td>
</tr>
<tr>
<td>12</td>
<td>Planning</td>
<td>Mud Tracking. The Operator shall take all practicable measures to ensure that vehicles do not track mud or debris onto City streets. If mud or debris is nonetheless deposited on City streets, in excess of de minimus levels, the streets shall be cleaned immediately by the Operator. If for some reason this cannot be done, or needs to be postponed, the City shall be notified of the Operator’s plan for mud removal.</td>
</tr>
<tr>
<td>13</td>
<td>Planning</td>
<td>Temporary Access Roads. Temporary access roads associated with oil and gas operations at the Well Sites shall be reclaimed and revegetated to the original state within a reasonable amount of time, taking into account planting seasons, or as directed by the landowner in a Surface Use Agreement and subject to applicable COGCC variances. Operator must control erosion while access roads are in use.</td>
</tr>
<tr>
<td>14</td>
<td>Planning</td>
<td>Trailers. A construction trailer(s) is permitted as an accessory use during active drilling and well completion or workover operations only. No permanent residential trailers shall be permitted at the Well Sites; provided, however, that until ninety (90) days following the end of the Completion Phase on a Well Site, temporary residential and/or security trailers are permitted, as needed for on-site operations, for exclusive use by the Operator’s personnel and the personnel of its subcontractors on a temporary basis.</td>
</tr>
<tr>
<td>15</td>
<td>Planning</td>
<td>Wastewater and Waste Management. Operator will submit a waste management plan to the City that complies with the following: All fluids shall be contained and there shall be no discharge of fluids. Waste shall be stored in tanks, transported by tanker trucks and/or pipelines, and disposed of at licensed disposal or recycling sites. The plan shall incorporate secondary containment and stormwater measures. No land treatment of oil impacted or contaminated drill cuttings are permitted. A copy of the Operator’s Spill Prevention, Control, and Countermeasure Plan (SPCC) will be given to the City, which describes spill prevention and mitigation practices. The Operator shall not dispose of any wastewater within the City. All other waste shall be disposed of in accordance with state regulations.</td>
</tr>
<tr>
<td>16</td>
<td>Planning</td>
<td>Noxious Weed Control. The Operator shall be responsible for ongoing noxious weed (as defined under State law) control at the Well Sites and along access roads.</td>
</tr>
<tr>
<td>17</td>
<td>Planning</td>
<td>Insurance. The Operator agrees to provide liability and insurance.</td>
</tr>
<tr>
<td>18</td>
<td>Planning</td>
<td>Injection Wells. The Operator shall drill no injection wells in Broomfield.</td>
</tr>
<tr>
<td>19</td>
<td>Planning</td>
<td>Alternative Site Analysis. Operator has consulted with the City over a period of two years, to the City’s satisfaction, in order to identify alternative sites based upon factors determined by the City. The Well Sites were mutually selected by the Operator and the City as the final sites following this consultation.</td>
</tr>
</tbody>
</table>
| 20 Planning | Fires and Explosions. Any accident or natural event involving a fire, explosion or detonation shall be reported to the City within 24 hours. This report shall include such specifics, to the extent available:
A. Fuel source
B. Location
C. Proximity to residences and other occupied buildings
D. Cause
E. Duration
F. Intensity
G. Volume
H. Specifics and degree of damage to properties, if any beyond the Well Site
I. Injuries to person(s)
J. Emergency management response; and
K. Remedial and preventive measures to be taken within a specified amount of time
The Operator shall provide the City with an additional report containing the information above after the conclusion of the accident or natural event if lasting more than 24 hours. |
| 21 Planning | Risk Assessment. Operator has a risk management plan in place, which will include the identification of potential risks, methods of risk avoidance and controls that implement techniques to prevent accidents and losses and reduce the impact or cost after the occurrence of identified potential events. |
| 22 Planning | Automatic Safety Protective Systems and Surface Safety Valve. An automated safety system, governed by safety devices and a programmable logic computer, will be installed at the Well Sites. The automated safety system shall include the installation, monitoring and remote control of a Surface Safety Valve (“SSV”) among many other engineered measures and devices that are implemented to greatly reduce or eliminate the potential for a well event. All New Wells will have a SSV installed prior to the commencement of the Production Phase connected to the production tubing at the surface. The SSV will be equipped to operate remotely via the automated safety protective system, which monitors multiple flowing pressures and rates which have predetermined maximum and/or minimum threshold values programmed and will remotely shut the well in should certain upset conditions be detected. Additionally, the automated safety system provides the ability to remotely shut-in wells on demand through operator remote intervention. The SSV will have documented quarterly testing to ensure functionality. The practice of utilizing automated safety protective systems, including SSV’s, exceeds the current State regulations and requirements for wells operated within Colorado. |
| 23 Community Outreach and Notification | Notification to the City Regarding Commencement of Operations. Operator shall provide written notice to the City no less than thirty (30) days prior to the commencement of any of the following: Construction Phase (unless the Construction Phase commences within 45 days of the approval of the applicable Form 2 or Form 2A), Drilling Phase, Completion Phase, or any recompletion, re-drilling or plugging and abandonment of a New Well. Any notification provided by Operator to City pursuant to this Agreement may be used by the City for public notification. |
| 24 | Traffic control | Transportation and Circulation. The Operator will comply with all Transportation and Circulation requirements as contained in the City Land Use Code as may be reasonably required by the City’s Traffic Engineer and will comply with all applicable hazardous material regulations. The Operator will submit a traffic plan to the City that includes detailed descriptions of all proposed access routes for equipment, water, sand, waste fluids, waste solids, mixed waste, and all other material to be hauled on the public streets and roads of the City. The Operator will obtain necessary access permits. The traffic plan shall include the following:

A. estimated weights of vehicles when loaded, a description of the vehicles, including the number of wheels and axles of such vehicles and trips per day.

B. Detail of access locations for each well site including sight distance, turning radius of vehicles and a template indicating this is feasible, sight distance, turning volumes in and out of each site for an average day and what to expect during the peak hour.

C. Truck traffic volumes converted to equivalent single axle loads and compared with existing volumes. Trucks anticipated on roadways that are being accessed to equivalent single axle loads using existing volumes and proposed with extraction activities.

D. Core drilled samples of City roads to be used and determined the adequacy of the existing roadway structure and determined that the roadway section is adequate for extraction activities.

E. Truck routing map and truck turning radius templates with a listing of required and determined that certain improvements are necessary at intersections along the route.

F. Complete traffic report, determining operational changes and geometric modifications necessary as a result of extraction activities.

G. Identification of need for any additional traffic lanes, which would be subject to the final approval of the City’s engineer.

H. Restriction of non-essential traffic to and from Well Sites to periods outside of peak am and pm traffic periods and during school hours (generally 7-9am and 3-6pm).

| 25 | General Housekeeping | Burning. No open burning shall occur on the site of any oil and gas operation.

| 26 | General Housekeeping | Chains. Traction chains from heavy equipment shall be removed before entering a City street.

| 27 | General Housekeeping | Color. Permanent facilities shall be painted in a uniform, non-contrasting, non-reflective color, to blend with the surrounding landscape and, with colors that match the land rather than the sky, consistent with COGCC regulations. If the City desires a specific color or colors, it shall notify Operator of such color or colors prior to the Pad Construction of a Well Site and Operator shall utilize such color or colors.

| 28 | General Housekeeping | Cultural and Historical Resource Protection. The Operator has completed a site assessment and is not currently aware of any historical or cultural sites on the Well Sites. However, if a significant surface or sub-surface archaeological site is discovered during construction, the Operator shall be responsible for reporting of the discovery. If any disturbance of a site deemed by the State Historic Preservation Office to be a historical or cultural resource occurs, the Operator shall be responsible for mitigating the disturbance to the cultural or historical property through a data recovery plan in consultation with the City’s Historic Landmark Board and the State Historic Preservation Office, with copy to the City.

<p>| 29 | General Housekeeping | Removal of Debris. All construction-related debris shall be removed from the site for proper disposal in a timely manner. The site shall be maintained free of debris and excess materials at all times during operation. Operator shall not burn or bury debris at any time on the Well Sites. |
| 30 | General Housekeeping | Removal of Equipment. All equipment used for drilling, re-completion and maintenance of the facility shall be removed from the site within thirty (30) days of completion of the work, weather condition permitting, unless otherwise agreed to by the surface owner. Permanent storage of removable equipment on Well Sites shall not be allowed. |
| 31 | General Housekeeping | General Maintenance. Operator shall operate and maintain all equipment pursuant to manufacturer specifications consistent with technological limitations and reasonable and customary maintenance practices. |
| 32 | Storm Water/Erosion Control | Stormwater Control Plan. All oil and gas operations at the Well Sites shall comply and conform with the City’s stormwater control regulations, including the submission of an Erosion Control Report and Plan. |
| 33 | Material Handling and Spill Prevention | Chemical Disclosure and Storage. All fracturing chemicals must be disclosed to the City pursuant to the process set forth below before bringing on site. Prior to the bringing of such chemicals onto the property, the Operator shall make available to the City, in table format, the name, Chemical Abstracts Service (CAS) number, storage, containment and disposal method for such chemicals to be used on the Well Sites, which the City may make available to the public as public records. Fracturing chemicals shall be uploaded onto the Frac Focus website within sixty days of the completion of fracturing operations. The Operator shall not permanently store fracturing chemicals, flowback from hydraulic fracturing, or produced water in the City limits. Operator shall remove all hydraulic fracturing chemicals at a Well Site within thirty (30) days following the completing of hydraulic fracturing at that Well Site. In addition to any substances that not permitted to be used in accordance with state or federal rules or regulations in place from time to time, the following chemicals shall not be utilized in hydraulic fracturing fluid at the Well Sites: |
| | | Ingredient Name CAS # |
| | | Benzene 71-43-2 |
| | | Lead 7439-92-1 |
| | | Mercury 7439-97-6 |
| | | Arsenic 740-38-2 |
| | | Cadmium 7440-43-9 |
| | | Chromium 7440-47-3 |
| | | Ethylbenzene 100-41-4 |
| | | Xylenes 1330-20-7 |
| | | 1,3,5-trimethylbenzene 108-67-8 |
| | | 1,4-dioxane 123-91-1 |
| | | 1-butanol 71-36-3 |
| | | 2-butoxyethanol 111-76-2 |
| | | N,N-dimethylformamide 68-12-2 |
| | | 2-ethylhexanol 104-76-7 |
| | | 2-mercaptoethanol 60-24-2 |
| | | benzene, 1,1'-oxybis-, tetrapropylene derivatives, sulfonated, sodium salts (BOTS) 119345-04-9 |
| | | butyl glycidyl ether 8/6/2426 |
| | | polysorbate 80 9005-65-6 |
| | | quaternary ammonium compounds, dicoco alkyldimethyl, chlorides (QAC) 61789-77-3 |
| | | bis hexamethylene trimine penta methylene phosphonic acid (BMPA) 35657-77-3 |
| | | diethylenetriamine penta (methylene-phosphonic acid)(DMPA) 15827-60-8 |
| | | FD&amp;C blue no. 1 3844-45-9 |
| | | Tetrakis(triethanolaminato) zirconium(IV) (TTZ) 101033-44-7 |
| 34 | Material Handling and Spill Prevention | Flowlines. Any newly constructed or substantially modified flowlines on the Well Sites shall be constructed and operated under the provisions of the COGCC 1100 Series Flowline regulations, any future COGCC flowline regulations, and any applicable surface use agreements with the surface owners. Operator shall pressure test all flowlines following their construction, including those rated at less than 15 PSI. Operator will provide to the City all records required to be submitted to State agencies related to inspections, pressure testing, accidents and other safety incidents related to flowlines at the Well Sites and, upon specific request by the City, Operator will provide to the City any other records submitted to State agencies related to flowlines at the Well Sites. |</p>
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<td>35</td>
<td>Material Handling and Spill Prevention</td>
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<td>36</td>
<td>Material Handling and Spill Prevention</td>
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<td>37</td>
<td>Dust control</td>
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<td>38</td>
<td>Construction</td>
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<td>39</td>
<td>Construction</td>
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<td>Noise mitigation</td>
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<td>Noise mitigation</td>
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<td><strong>42</strong> Noise mitigation</td>
<td>Noise Mitigation. Noise mitigation measures shall be constructed along any edge of any Well Site if such edge is in proximity to existing residential development. The noise mitigation measures shall use the most current equipment to minimize noise impact during the Drilling and Completion Phases. Operator shall comply with the sound limitation regulations set forth in COGCC 800 Series Aesthetic and Noise Control Regulations. The Operator shall not unload pipe between 8:00 p.m. and 7:00 a.m. The Operator will complete a baseline noise mitigation study at each Well Site that demonstrates that noise is expected to be mitigated to the extent practicable and a copy will be provided to the City. A noise mitigation study has been completed that demonstrated that noise is expected to be mitigated to the extent practicable and to levels acceptable to the City. The Operator shall address C scale noise/vibration through bermsing and other associated BMPs. During the Drilling and Completion Phases, the operator shall construct a perimeter wall and/or use hay bales to mitigate noise as appropriate on a case-by-case or modeled basis. If Operator uses any engines that are not electrically operated, Operator shall use quiet design mufflers (also referred to as hospital grade or dual dissipative) or equivalent and shall use acoustically insulated housing or covers to enclose the engines. The Operator shall comply with all provisions of COGCC Rule 802 on Noise Abatement with respect to the Well Sites; provided, however, that the Operator and City agree that the maximum permissible noise levels to be applied under Rule 802 shall be, other than during pad construction at the Well Sites, the greater of (i) the levels set forth for the land use type of “Residential/Agricultural/Rural” under Rule 802 if measurements are taken at 1,000 feet from the sound walls at the Well Site and (ii) 4 dB(A) higher than baseline ambient sound measured at 1,000 feet from the sound walls at the Well Site. During pad construction at the Well Sites, the Operator agrees that noise levels shall not exceed those produced by the construction of a typical residential or commercial development. All measurements considered for compliance with this BMP shall be taken by a third party contractor using industry standard equipment and practices. Both the City and the Operator have conducted an Ambient noise survey for each Well Site at baseline and will place noise meters near Well Sites to monitor ongoing noise levels until the commencement of the Production Phase.</td>
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<td><strong>43</strong> Noise mitigation</td>
<td>Possible Berms, Bales or Sound Walls. Operator shall utilize the additional mitigation measures of berms, bales, and/or sound walls. The particular measure(s) employed at any such location shall be as determined by mutual agreement between the City and the Operator.</td>
</tr>
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<td><strong>44</strong> Emissions mitigation</td>
<td>Air Modeling Study. The Operator has completed an air modeling study that meets the standards requested by the City and such study has been conducted and indicates that emissions from the equipment proposed on the Well Sites meets EPA standards.</td>
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Air Quality. In order to minimize degradation to air quality, Operator agrees to the provisions set forth in this Section. Operator must eliminate, capture, or minimize all potentially harmful emissions and minimize dust associated with onsite activities and traffic on access roads. Operator shall comply with all applicable state and federal regulations including regulations promulgated by CDPHE, COGCC and US EPA.

Minimization of Emissions.
To protect air quality, the following will be required:

1. The use of electric equipment and line power
2. The use of Tier 2 and liquefied natural gas dual fuel hydraulic fracturing pumps. If Tier 4 fracturing pumps become commonly available, Operator will begin using Tier 4 fracturing pumps.
3. Operator will comply with the limitations on truck traffic to and from the site.
4. Operator will utilize pipelines
5. Manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or better.
6. The use of no-bleed continuous and intermittent pneumatic devices. This requirement can be met by replacing natural gas with electricity or instrument air, or routing the discharge emissions to a closed loop-system or process.
7. Any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement shall be installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating manuals.
8. No use of glycol dehydrators.
9. No use of desiccant gas processing dehydrators.
10. Year-round application of odor requirements pursuant to COGCC and CDPHE regulations.
11. Reduction or elimination of emissions of associated gas from hybrid gas-oil wells (i.e. gas that is co-produced from a well that primarily produces oil), including prohibition of uncontrolled venting.
12. Best management practices during liquids unloading (i.e. maintenance activities to remove liquids from existing wells that are inhibiting production), including at least 90% emissions reduction when utilizing combustion and the installation of artificial lift or unloading through the separator where feasible.
13. Reduction or elimination of emissions from oil and gas pipeline maintenance activities such as pigging or blowdowns. If any maintenance activity will involve the intentional venting of gas from a well tank, compressor or pipeline, beyond routine pipeline maintenance activity and pigging, the operator will provide forty eight (48) hour advance written notice to the City of such proposed venting. Such notice shall identify the duration and nature of the venting event, a description as to why venting is necessary, a description of what vapors will likely be vented, what steps will be taken to limit the duration of venting, and what steps the operator proposes to undertake to minimize similar events in the future. If emergency venting is required, or if accidental venting occurs, the operator shall provide such notice to the City of such event as soon as possible, but in no event longer than 24 hours from the time of the event, with the information listed above and with an explanation as to the cause and how the event will be avoided in the future.
14. Dust suppression techniques
15. Consolidation of product treatment and storage facilities within a Well Site.
16. Centralization of compression facilities within a Well Site.
17. Telemetric control and monitoring systems, including surveillance monitors to detect when pilot lights on control devices are extinguished.
18. Operator will comply with all CDPHE air permits, if any, and will comply with all OSHA work practice requirements with respect to benzene.
19. Flaring shall be eliminated or minimized to the maximum extent practicable.
20. Exhaust from all engines, motors, coolers, and all other equipment must be vented up and away from nearest residences.
21. Operator agrees to participate in Natural Gas STAR program or other voluntary programs to encourage innovation in pollution control at well sites.
22. Use of a pressure-suitable separator and vapor recovery unit (VRU) where applicable.
23. Pipeline infrastructure will be constructed prior to the Production Phase.
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| **Emissions mitigation** | Reduced Emission Completions (Commonly known as Green Completions). At Well Sites Operator shall employ reduced emission completions, also commonly known as green completions, which comply with federal and state requirements. In addition, Operator shall comply with the following:  
A. Gas gathering lines, separators, and sand traps capable of supporting green completions as described in COGCC Rule 805 shall be installed per the provisions of COGCC Rule 805.  
B. Operator shall comply with 40 CFR 60.5375(a)(1), (2) for green completions.  
C. Uncontrolled venting is prohibited other than where necessary for safety.  
D. Temporary flowback flaring and oxidizing equipment where allowed shall include the following:  
   1. Adequately sized equipment to handle 1.5 times the largest flowback volume of gas from a vertical/directional and/or horizontally completed well respectively as reported to the COGCC in a ten mile radius;  
   2. Valves and porting available to divert gas to flaring and oxidizing equipment; pursuant to the above Rules 40 CFR 60.5375 & COGCC Rule 805;  
   3. Auxiliary fueled with sufficient supply and heat to combust or oxidize non-combustible gases in order to control odors and hazardous gases. The flowback combustion device shall be equipped with a reliable continuous ignition source over the duration of flowback, except in conditions that may result in a fire hazard or explosion; and  
   4. The Operator has a general duty to safely maximize resource recovery and minimize releases to the atmosphere during flowback and subsequent recovery/operation. |
| **Emissions mitigation** | Exhaust. The exhaust from all engines, motors, coolers and other mechanized equipment shall be vented up or in a direction away from the nearest occupied building. |
| **Emissions mitigation** | Flares and Combustion Devices. To the extent flares, thermal oxidizers, or combustion devices are utilized, all such flares shall be designed and operated as follows:  
A. The flare must be fired with natural gas and designed to operate with a 98% of higher hydrocarbon destruction efficiency.  
B. The flare must be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions means observations of smoke for any period or periods of duration greater than or equal to one (1) minute in any fifteen (15) minute period during normal operation, pursuant to EPA Method 22. Visible emissions do not include radiant energy or water vapor.  
C. The flare must be operated with a flame present at all times when emissions may be vented to it, or other mechanism that does not allow uncontrolled emissions.  
D. All combustion devices must be equipped with an operating auto-igniter. |
<p>| <strong>Emissions mitigation</strong> | Leak Detection and Repair. Operator shall develop and maintain an acceptable leak detection and repair (&quot;LDAR&quot;) program as required by CDPHE using modern leak detection technologies such as infra-red cameras for equipment used on the Well Sites. For the five (5) year period beginning with the start of the Drilling Phase at the first Well Site, Operator shall conduct quarterly IR camera monitoring of all equipment at the Well Sites. When an IR camera is used, Operator must retain an infrared image or video of all leaking components before and after repair. Such records must be maintained for two years and must be made available to the COGCC and local government upon request. Except when an emergency circumstance would necessitate an immediate repair, Operator must repair leaks as quickly as practicable. If more than 48-hours repair time is needed after a leak is discovered, an explanation of why more time is required will be submitted to the City. Operator shall conduct continuous pressure monitoring to detect leaks. At least once per year, the Operator shall notify the City five (5) business days prior to an LDAR inspection of its facilities to provide the City the opportunity to observe the inspection. |</p>
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<td>50</td>
<td>Emissions mitigation</td>
<td>Ambient Air Sampling. The Operator shall conduct a specific ambient air quality test that includes: 1. Pre-construction baseline air quality testing shall be completed within 500 feet of the Well Sites by a consultant approved by the City and paid for by the Operator. 2. Operator has agreed to provide the City with an annual payment towards air quality sampling. 3. In addition, the City may require the Operator to conduct additional air monitoring as needed to respond to emergency events such as spill, process upsets, or accidental releases. 4. Operator shall provide access to the Well Sites to the City’s designated inspector to allow air sampling to occur. An air modeling and emissions inventory based upon the proposed development and equipment have been completed by a third-party consultant.</td>
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<td>51</td>
<td>Emissions mitigation</td>
<td>Air Quality Action Days. The Operator shall respond to air quality Action Day advisories posted by the Colorado Department of Public Health and Environment for the Front Range Area by implementing their suggested air emission reduction measures as feasible. Emission reduction measures shall be implemented for the duration of an air quality Action Day advisory and may include measures such as: 1. Minimize vehicle and engine idling; 2. Reduce truck traffic and worker traffic; 3. Delay vehicle refueling; 4. Suspend or delay use of fossil fuel powered ancillary equipment; and 5. Postpone construction activities, if feasible. 6. Within 30 days following the conclusion of each annual Air Quality Action Day season, Operator must submit a report to the City that details which measures it implemented during any Action Day advisories.</td>
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<tr>
<td>52</td>
<td>Emissions mitigation</td>
<td>Compliance. The Operator will submit annual reports to the City certifying (a) compliance with these air quality requirements and documenting any periods of material non-compliance, including the date and duration of each such deviation and a compliance plan and schedule to achieve compliance, (b) that the equipment at the Well Sites continues to operate within its design parameters, and if not, what steps will be taken to modify the equipment to enable the equipment to operate within its design parameters. The annual report must contain a certification as to the truth, accuracy and completeness of the reports, signed by a responsible corporate official. The Operator may satisfy this reporting obligation in whole or in part by submitting its AQCC Regulations No. 7 annual reports for the prior calendar year to the City, and supplementing them as needed to meet these reporting requirements for covered facilities within the City. The Operator will also provide the City with a copy of any self-reporting submissions that Operator provides to the CDPHE due to any incidence of non-compliance with any CDPHE air quality rules or regulations at the Well Sites.</td>
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<td>53</td>
<td>Odor mitigation</td>
<td>Odor. Odor emitting from Well Sites must be controlled. Operator to prevent odors from oil and gas operations by proactively addressing and, to the extent possible, resolving complaints filed by impacted members of the community, in coordination with City public health staff. Operator must use a filtration system or additives to the drilling and fracturing fluids to minimize odors. Operator is prohibited from masking odors from any oil and gas facility site by using masking fragrances.</td>
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<td>54</td>
<td>Drilling/Completion Operations</td>
<td>Use of Pipelines. The Operator agrees to build pipelines for the transport of oil, gas, and produced water from the Well Sites and to utilize such pipelines at the Well Sites before the Production Phase commences. During the Completion Phase, the Operator will use pipelines for produced water for flowback to the maximum extent feasible. All fresh water shall be transported to the Well Sites by means other than by truck. The Operator’s obligation to build and utilize such pipelines is subject to the City granting Operator all necessary right-of-way and the City issuing Operator the necessary Public/Private Improvement Permits. Operator shall be permitted to utilize temporary tanks during drilling, flowback, workover, completion, hydraulic fracturing and maintenance operations. If requested by the City, Operator will conduct a risk analysis to identify potential risks associated with pipelines and the measures implemented that are intended to mitigate such risks.</td>
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<td>55</td>
<td>Drilling/Completion Operations</td>
<td>Closed-Loop Pitless Systems for the Containment and/or Recycling of Drilling Fluids. Wells shall be drilled, completed and operated using closed-loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids. Operator shall recycle fluids to the maximum extent practicable, with the understanding that Operator is limited in its ability to recycle all fluids, as doing so would necessitate the use of permanent tanks, which is otherwise prohibited by the terms of the Agreement, and result in the potential for additional emissions. Other than for irrigating landscape material, Operator shall not use City water for any of its oil and gas operations. Operator shall not store waste onsite for periods longer than 30 days.</td>
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<td>56</td>
<td>Drilling/Completion Operations</td>
<td>Plugged and Decommissioned Well Testing. Prior to and following the fracturing of any New Well, Operator shall assess the integrity of plugged and decommissioned wells or removed from use and dry, or removed from use (“Previously Abandoned Wells”), within one-quarter (¼) mile of the projected track of the borehole of the proposed New Well. This shall include: 1. Based upon examination of COGCC and other publicly available records, identification of all Previously Abandoned Wells located within one-quarter (¼) mile of the projected track of the borehole of a proposed well. 2. Risk assessment of leaking gas or water to the ground surface or into subsurface water resources, taking into account plugging and cementing procedures described in any recompletion or plugged and abandoned report filed with the COGCC. 3. Notification of the City and COGCC of the results of the assessment of the plugging and cementing procedures. 4. Permission from each surface owner with a Previously Abandoned Well on their property to access the property to test the soil within a 10’ radius of the Previously Abandoned Well. If a surface owner has not provided permission to access and test after thirty (30) days from receiving notice, the Operator shall not be required to test the Previously Abandoned Well. Notice to the surface owner will be sent by Certified US Mail, return receipt requested, to assure that the surface owner receives proper notice. 5. For each Previously Abandoned Well for which access and permission to test is granted, a soil gas survey to test the soil within a 10’ radius of the Previously Abandoned Well shall be completed prior to production from the proposed New Well and again one (1) year after production has commenced on the New Well. 6. Notification of the results of the soil gas survey to the City and the COGCC within three (3) months of conducting the survey or advise the City that access to the Previously Abandoned Wells could not be obtained from the surface owner.</td>
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<td>57</td>
<td>Drilling/Completion Operations</td>
<td>Water Supply. The Operator agrees to comply with applicable State of Colorado, Department of Natural Resources and other applicable State regulations concerning the source(s) of water used in the Drilling Phase and Completions Phase. The Operator shall notify the City, upon its request, of the source(s) of water to be used at Well Sites during the Drilling Phase and Completion Phase and will provide the City with an estimate of the volumes of water to be utilized, with such estimates subject to change. All water volumes actually used by Operator shall be reported by the Operator to the State of Colorado in accordance with its regulations.</td>
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<td>58</td>
<td>Drilling/Completion Operations</td>
<td>Well Integrity. Operator must equip the bradenhead access to the annulus between the production and the surface casing, as well as any intermediate casing, with a fitting to allow safe and convenient determinations of pressure and fluid flow. Valves used for annular pressure monitoring shall remain exposed and not buried to allow for visual inspection. The Operator shall take bradenhead pressure readings as required by the COGCC.</td>
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<td>59</td>
<td>Drilling/Completion Operations</td>
<td>Bradenhead Monitoring. Operator will conduct bradenhead monitoring on the New Wells in accordance with COGCC Rules.</td>
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<td>60</td>
<td>Final Reclamation</td>
<td>Reclamation. Operator must submit an oil and gas site reclamation plan and reclaim a Well Site not later than six (6) months after plugging and abandoning the last New Well at such Well Site, weather and planting season permitting.</td>
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Total: 60 comment(s)
Agency

Comment submitted by Tami Yellico, Broomfield LGD

Extraction shall implement the following actions to its Emergency Plan for all Broomfield wellsites:

a. Develop enhanced hotwork planning and setback procedures

b. Expand training and enforcement of hotwork permit implementation and management, re-issued STEPS alert to employees and vendors for hazard recognition and proper PPE.

c. Add additional field management levels for specific flowback activities

d. Implement stationary LEL monitoring grid with alarms on all flowback operations

e. Evaluate and retrofitting sound wall placements or technologies to enhance ventilation

f. Develop and implementing automated tank gauging on flowback operations

g. Revise prestart-up safety review (PSSR) of Green Completion flowback setups, including, but not limited to:

i. Site layout

ii. Grounding requirements

iii. Vessel depressurizing procedures

h. Hold meetings with vendors regarding all corrective actions listed above and have scheduled ongoing meetings to continually discuss the process.

i. Extraction shall provide a third party report of any incident as requested by Broomfield

03/02/2018
By way of an update to the COGCC, on October 24, 2017, Extraction and
Broomfield entered into an Amended and Restated Operator Agreement
(Agreement). Section 9 of the Agreement provides that Extraction must submit a
“Comprehensive Drilling Plan and Application” to Broomfield for such new wells or
well sites (Plan). Per the Agreement, that Plan is subject to the review and approval
by the City.

Broomfield has not approved the Plan as required by the Agreement. Broomfield
has been working diligently with Extraction on the Plan, through weekly meetings
and timely and reasonable communications with Extraction. The COGCC spacing
orders for these spacing units, dated as of October 31, 2017, indicate that any
Permits for the wells within these spacing units must “comport with” the Agreement.

As stated above, Section 9 of the Agreement provides that Extraction must submit a
Comprehensive Drilling Plan for all of the well sites that is subject to Broomfield’s
approval. On December 15, 2017, Extraction submitted a draft Plan for the
Livingston and Interchange B well pads. On January 22, 2018, Broomfield submitted
220 comments on that draft Plan, which included the comment that the Agreement
requires the Plan to be for all of the well sites (Comments). On January 26, 2018,
Extraction submitted a draft Plan for the Northwest A & B, United, and Interchange
A & B Pads. On February 15, 2018, Extraction responded to Broomfield’s
comments, which relate to the Livingston and Interchange B portion of the Plan.
Broomfield is in the process of reviewing Extraction’s February 15th comments and
providing comments on the second Plan submitted by Extraction on January 26,
2018.

In both citizens’ and staff comments we have identified areas where Broomfield is
requesting additional information and where we believe the Plan is not complete.
Broomfield believes that Extraction has an obligation to correct or update any
deficient statements in the Plan. The issues that remain outstanding in the Plan
include the following:

At meetings with Extraction on February 7, 2018, and February
14, 2018, Broomfield identified engineering issues that need to be resolved before
permitting of the pipeline for all the well sites could go forward.

At a meeting on February 16, 2018, Broomfield outlined
deficiencies in Extraction’s proposed Traffic Plan that need to be corrected.

As of the date of these comments, Broomfield is still working
with Extraction on required updates to its Emergency Response Plan and Risk
Analysis Plan before those can be approved. Extraction has only provided a broad
Risk Analysis Plan despite the requirement that risks and responses be identified.

Extraction has not identified each type of hazard for each
location and specific responses by phases, including referencing Broomfield’s

It is Broomfield’s understanding that Extraction has yet to talk
with all Broomfield and Adams County residents to determine their desired
mitigation measures for the well sites and truck roads to the north, even though
Extraction committed to such individual communications.

Extraction has not committed in writing to any necessary
specific mitigation measures between residents and well sites to the north and east
of residents in Adams County and Broomfield.

Extraction has not yet committed in writing to necessary road
improvements, stemming from increased truck traffic related to the Extraction
operations.

Extraction has yet to identify all traffic signage or committed to
install such signage on its traffic plans.

Extraction has yet to agree in the Plan that all class 7 and
above vehicles are not allowed to operate on Public Roadways during the peak hours of 7-9 a.m. and 3-6 p.m. for Extraction activities.

Extraction has not submitted a final pavement design report for approval by the City and County Engineer.

Extraction has yet to agree in the Plan to ensure the safety of emergency response teams, construction workers and the general public. Extraction has yet to agree in the Plan that Buffers shall be created as required on site to shield dust, noise, and light from residents.

Extraction has yet to provide a complete stormwater management plan.

Extraction has failed to provide a more detailed GANTT chart on timing for all well sites.

Extraction has not provided a long term reclamation plan.

Extraction has not included practices it will use to address weeds at the sites.

Extraction has not provided a complete explanation of its noise modeling approach.

Extraction has not detailed the noise reduction levels it can achieve.

Extraction has not provided written detail on the process of ‘Conduct Recovery Operations’ including involvement of Broomfield’s Public Health Division.

Despite the fact that many Broomfield and Adams County residents to the south of the well sites are on well water, Extraction has not included 12 additional requested requirements in its Water Quality Plan.

Extraction has not complied with 2 requirements for the Wetlands Plan.

Extraction has given only general responses to specific environmental site review requests.

Extraction has not provided details of planning and installation of electrical infrastructure at the well sites as required for the Electrification Plan and Extraction has indicated that they will be updating the plan.

Extraction has not provided a detailed visual mitigation plan for the well sites, service road, or pig launcher station.

Broomfield is requesting that the phrase “The meteorological data that was used are ‘regional’ and could be applied to a range of sites in the area. If the proposed development is similar and has the same or fewer wells, then the results could be extended to further characterizations” be added to the Plan concerning air modeling.

Broomfield is requesting that the tank be removed from Figure 3 of the Plan since this tank will NOT be present. The diagram should correctly reflect what will be on site.

Extraction has not provided a list of the hazardous materials that will be used on-site.

Other Comments concerning Form 2 and 2A include:

Livingston Form 2A Comments and Questions
The FACILITIES section indicates there are 2 gas compressors planned for the location. Extraction should provide information associated with the purpose of the compressors and how will they be fueled.

The CONSTRUCTION section indicates that the size of the location after interim reclamation will be the same as the disturbed area during construction. Why will the location size remain the same after interim reclamation?

In the BEST MANAGEMENT PRACTICES section, Item 46 - Emissions mitigation 20. D. #4, #5 and #6 are not included

The waste management plan only addresses E&P Waste. It does not discuss secondary containment and stormwater measures as required by Item 41 in the Best Management Practices of the Operator Agreement.

Broomfield requests that the COGCC take a close look at the offset well evaluations provided by Extraction Oil and Gas to verify the estimates of offset distances of existing wells (including plugged and abandoned wells) from the new proposed horizontal wells. Broomfield was unable to confirm many of the distances indicated in the OPERATOR COMMENTS AND SUBMITTAL section of the Form 2s based on the OFFSET WELL EVALUATIONS spreadsheet or from the ANTI-COLLISION reports provided.

According to the OFFSET WELL EVALUATIONS spreadsheet provided in the Form 2s, there are many plugged and abandoned wells and several producing wells that have horizontal offsets of less than 150 feet from the proposed new horizontal wells and it is indicated that No Remediation Is Required for these wells. Broomfield is very concerned about the short offset distance for some of these wells, for example new well Livingston S19-25-4N has an offset distance of only 19 feet from plugged and abandoned well McClintock MA 19-3J (API# 05-014-09137). Therefore, Broomfield requests that the COGCC take a close look to verify the proposed mitigation measures indicated by Extraction Oil and Gas are appropriate as defined by the DJ Basin Horizontal Offset Policy.

For the Livingston S19-25-10N Form 2: In the SPACING AND UNIT INFORMATION section, the Distance from Completed Portion of Wellbore to Nearest Unit Boundary is blank.

Broomfield requests that COGCC take a close look at the offset well evaluations provided by Extraction Oil and Gas to verify the estimates of offset distances of existing wells (including plugged and abandoned wells) from the new proposed horizontal wells. Broomfield was unable to confirm many of the distances indicated in the OPERATOR COMMENTS AND SUBMITTAL section of the Form 2s based on the OFFSET WELL EVALUATIONS spreadsheet or from the ANTI-COLLISION reports provided.
According to the OFFSET WELL EVALUATIONS spreadsheet provided in the Form 2s, there are many plugged and abandoned wells and several producing wells that have horizontal offsets of less than 150 feet from the proposed new horizontal wells and it is indicated that No Remediation Is Required for these wells. Broomfield is very concerned about the short offset distance for some of these wells; therefore, Broomfield requests that COGCC take a close look to verify the proposed mitigation measures indicated by Extraction Oil and Gas are appropriate as defined by the DJ Basin Horizontal Offset Policy.

Broomfield asks that COGCC leave the comment period on the Permits open until all issues are resolved regarding the Plan. Broomfield will continue to work diligently with Extraction on the Plan.

| OGLA | In accordance with Rule 305.d.(3), the Director has extended the comment period by five days; therefore, the new deadline for public comment on this Oil and Gas Location Assessment Permit is THURSDAY, MARCH 1, 11:00am. | 02/23/2018 |
| OGLA | OGLA review: need more description on piping, interim reclamation is the same size as the construction area. Water resources sensitive with surface water within the disturbed area - distance to water well and depth to water needs to be corrected. BMPs from agreement with City of Broomfield. | 02/21/2018 |
| Permit | Per Rule 305.d.(1)A., the comment period has been extended from 20 days to 30 days at the request of the Broomfield County LGD; the comment period will end February 24, 2018. | 01/26/2018 |
| Permit | Passed Completeness. | 01/25/2018 |

Total: 6 comment(s)
<table>
<thead>
<tr>
<th>No.</th>
<th>Comment</th>
<th>Comment Date</th>
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<tbody>
<tr>
<td>1</td>
<td>It is outrageous that the COGCC has accepted Extractions permits when the city rejected the comprehensive drilling plan. Moreover, 301 passed, and it is essential that this be taken into consideration. The comprehensive drilling plan is a testament to Extractions sloppy nature, and gives us no faith that our health and safety will be protected.</td>
<td>02/14/2018</td>
</tr>
<tr>
<td>2</td>
<td>Put our safety first! Let's be sure that Extraction's plan address our safety and security, is complete and comprehensive before any permits are issued.</td>
<td>02/18/2018</td>
</tr>
<tr>
<td>3</td>
<td>The COGCC needs to support Broomfield in its efforts to protect its residents from any adverse impacts from oil and gas development. Do not approve Extraction's Forms 2 and 2A. The Comprehensive Drilling Plan submitted by Extraction was incorrect and incomplete. We citizens submitted many concerns to the City regarding the CDP. Part of your mission is to protect our health and safety. How can we trust an operator to do business in a fashion that will not adversely impact us when they can't even handle the paperwork correctly?</td>
<td>02/18/2018</td>
</tr>
<tr>
<td>4</td>
<td>As taken from the Boulder Daily Camera on Monday 2/19/18: &quot;working together to regulate oil and gas operations&quot; is unlikely to appease a growing number of citizens who have called for the full activation of the “Climate Bill of Rights and Protections” — an effective ban on all oil and gas development — and who see any attempts at regulation as doing business with the industry.&quot; I totally agree with this assessment of fracking in populated areas. Once we’re down to discussing the number of birds killed, the number of decibels in noise calculations, the amount of odor created, the number of trucks blocking traffic, etc., we’ve already “bailed out&quot; to the Big Oil &amp; fracking industry. Opposition needs to happen at the top level, i.e., total bans. Fracking in housing and associated areas really flies in the face of fundamental fairness and Risks and Rewards. The fracking industry has few risks with a lengthy list of rewards – huge investor dollar returns and million dollar salaries. Risks are just dropping everything, filing bankruptcy and leaving behind eyesores, miles of piping under housing areas with the risk of explosions, water contamination, ground movement, etc. within the cities and housing areas. Developed and developing housing projects have been allowed within surrounding counties such as Boulder, Broomfield, Weld, etc. Those allowing such developments need to share in the responsibility of ensuring the quality of life within these areas without the smells, noise, traffic, eyesores, pollution, etc. associated with fracking. Please help me make a list of the rewards for homeowners, schools, shopping areas, etc. that come with fracking?</td>
<td>02/19/2018</td>
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<tr>
<td>5</td>
<td>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.</td>
<td>02/19/2018</td>
</tr>
<tr>
<td>6</td>
<td>Over the Martin Luther King holiday weekend, I was one of the numerous Broomfield residents who reviewed thoroughly the 700-page &quot;Comprehensive Drilling Plan&quot; submitted by EXTRACTION Oil&amp;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. On this President's Day weekend, it will be appropriate for the COGCC to let the Oil &amp; 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.</td>
<td>02/19/2018</td>
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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.

7 This proposed operation is too large and dangerous for a residential neighborhood. It will expose thousands of residents to potentially deadly levels of gas and chemicals.

8 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)(l)] 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.

The investigation of the Well Pad Fire and Explosion on Extraction’s Stromberger Pad has NOT been completed. This site is a new 19 well site under development using Extraction’s best management practices (BMPs). If a similar industrial accident were to occur next to our residential communities, the results would be much more severe including not only human harm, but also contamination of the Broomfield Drinking Water Reservoir. In 2012, Broomfield paid Noble $550,000 to remove 11 drilling locations from the Hoopes Property to allow for construction of the Broomfield Drinking Water Reservoir. The current Livingston Pad sits atop a removed drilling location.

9 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.

http://kdvr.com/2018/02/19/oil-and-gas-spills-happen-nearly-12-times-a-week-in-colorado/

10 Responsibility of COGCC to Protect Public Health, Safety, and Welfare 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)(l)] 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. 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 are 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”. Despite the clear language of the Broomfield Charter, the City of Broomfield states that they are unable to uphold 301 because the COGCC Regulations are less stringent. Lack of Local Control The City and County of Broomfield repeatedly told the concerned residents of Broomfield that the 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.

Root Cause Analysis of Extraction’s Recent Well Pad Fire and Explosion

The investigation of the Well Pad Fire and Explosion on Extraction’s Stromberger Pad has NOT been Completed. This site is a new 19 well site under development using Extraction’s best management practices (BMPs). If a similar industrial accident were to occur next to our residential communities, the results would be much more severe including not only human harm, but also contamination of the Broomfield Drinking Water Reservoir. In 2012, Broomfield paid Noble $550,000 to remove 11 drilling locations from the Hoopes Property to allow for construction of the Broomfield Drinking Water Reservoir. The current Livingston Pad sits atop a removed drilling location. Proximity to Future Drinking Water Reservoir

Extraction is proposing 19 wells UPHILL from Broomfield’s Future Drinking Water Reservoir. Despite Best Management Practices and Secondary containment measures, contamination of the drinking water reservoir still can occur through component failures, explosions, well blowouts, human error, and other unfortunate events. The location of the Livingston Pad is NOT acceptable. Extraction has NOT Been Acting Ethically

Extraction has been continuously dismissing the concerns of Broomfield residents. The letter sent from Chandler Newhall to the City of Broomfield thanking Broomfield for Approving their Drilling Plan on Feb XX, when the City has in Fact NOT Approved their Plan was deceptive at best. Submitting for Form 2/2A Permits WITHOUT Having an Approved (or Even Approvable) Comprehensive Drilling Plan (CDP) was disingenuous. The original information posted on Front Range News by Extraction stated that they would be drilling from miles away – not 750 feet from homes. Water Wells in Adams County 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. The plan for monitoring the water wells for contamination is inadequate. The 2015 Governor’s Blue-Ribbon Task Force

The minority report from the task force 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 they referring with large-scale operations encroaching on established neighborhoods as the technology has advanced.

11 Please do not allow this pad to go in so close to homes or our source of water. This puts all residents and any who rely on the water in danger. We moved our family to Colorado to find a better quality of life and were hopeful we found it. We don't want to have to move again, but our health comes first!

02/20/2018

12 So many have worked tirelessly to bring awareness that the proximity to densely populated neighborhoods is not worth the risk of going forward with the installation of these wells. Please listen! Please, please do not allow these wells to be placed in these neighborhoods!

02/20/2018

13 Please, please don't allow this to happen in our back yard, next to our kids sports field, which is next to our kids school. How with good conscious could you allow this to happen next to such a densely populated area AND our drinking water (a reservoir just across the street!).

02/21/2018

14 Please reconsider the approval of a permit to Extraction Oil & Gas to drill near our homes and neighborhood.

Being safe and not worrying about a oil and gas mishap in our neighborhood is important to the residents, and the many children

who live in the area.

Do we really need this drilling in the area?

Thanks you.

02/21/2018

15 I live in Wildgrass/Broomfield and i can't way for you to APPROVE these permits.

Fracking IS SAFE and it saddens me to read some of the comments below. Please do what is right and aprove these permits.

02/21/2018

16 Fracking and oil/gas production have no place in urban environments like this. This is an established family home, school and recreational area with city drinking water reservoirs nearby. It is the duty of COGCC to abide by Broomfield's 301 and the Martinez decision. Refusing to do so will be a dereliction of duty to the public and to the taxpayers that pay your salaries. You do not work for the Oil and Gas companies and their lobbyists.

From your own mission statement: “The Colorado Oil and Gas Conservation Commission (COGCC)
is charged with 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. Our agency seeks to serve, solicit participation from, and maintain working relationships with all those having an interest in Colorado's oil and gas natural resources."

You have a responsibility first to ensure the public health and SAFETY of the public. http://kdvr.com/2018/02/19/oil-and-gas-spills-happen-nearly-12-times-a-week-in-colorado/

17 I do not support any drilling on the Livingston and Interchange Pads. These pads are too close to homes and schools 02/22/2018

18 I. Request to disapprove Extraction Forms 2 and 2A 02/23/2018

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 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 0.1 ppb. The reported air concentration of isoprene at the Triple Creek Oil and Gas well site was 2.8 ppb 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 dove-tail 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 of 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 are the VOCs 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?

The COGCC can not approve any further drilling or pads in any location for applications submitted by Extraction for many reasons including but not limited to the following:

- The public or city does not have information explaining the reasons or cause of the fire and explosion in Windsor on an Extraction owned and operated gas well drilling site on December 22nd, 2017.

- It was shown that cities do not have sufficient or adequate response measures to fires and explosions. The fire in Windsor required a response from multiple cities and revealed that each city does not have any or an adequate supply of foam retardant that is necessary in these responses due to costs and the short expiration date of this material. Had this fire or explosion been in an area with surrounding homes in a similar distance that homes will be from the proposed drilling at the Livingston Pad to the hundreds/thousands of homes near this proposed site -what would happen?

- The Livingston pad is too close to the proposed water drinking reservoir for Broomfield. This reservoir has been planned for development for many years, prior to the proposed development of drilling in this area. Broomfield citizens have a right to clean air and water and installing a large scale fracking pad in this location, within measured feet of a reservoir is stripping us of our rights to basic living of clean water. Publications have shown time and time again, that there is never a confirmation of safety or protection of clean air, water, public health safety to citizens or to the workerss of the oil and gas companies when fracking is involved.

- Large scale industrial fracking in suburban neighborhoods is not safe. Given the small set back laws in place in this state, that the Director of the COGCC has time and time again stated was an arbitrary number, is proof that there are not sufficient space safeguards in place to protect the people of this neighborhood in Wildgrass, Anthem, Anthem Ranch and frankly, all neighborhoods within a 4 miles radius of this location.

- This location is just a few short blocks from Sienna Park, where designated sports practice occurs for children not only in Broomfield, but all of the teams that are playing in this location, from ages as young as preschool through high school. Children's sports including flag football, soccer, high school cross country meets, lacrosse and other sports, not to mention the local jogging paths and biking trails that members of these communities use daily for exercise and enjoyment of the outdoors.

- Extraction submitted comprehensive drilling plans that are filled with errors, do not designate the correct drilling information or surrounding area information and are vague and not complying with the guidelines set in place by the Citizen Broomfield Task Force. The citizens of this task force, spent thousands of hours of their own free time to examine peer reviewed journal articles, oil and gas responses from other states and countries and contributed to safer guidelines for our city to utilize. All of the recommendations have not been met by Extraction in their plan for this location.

- There is not ONE peer reviewed journal article outlining and proving that fracking is safe, let alone, residential fracking. There is not one article, even self published by oil and gas showing that residential fracking is safe. NOT ONE! Please take this information and utilize it to make your decisions regarding this application.

- The citizens of Broomfield do not pay taxes on our designated open space areas to allow private corporations to drill surrounding our parks and trails or near our future water source. This can not be done safely.

- Broomfield citizens legally voted for and passed the 301 ordinance. The public health and safety must come before the profits of oil and gas corporations. We have the right to protect our water, air,
environment and health and safety of our children, adults and the large neighborhood of 55+ aged citizens living in the Anthem Ranch neighborhood.

-This proposed site is within a short distance from the new K-8th grade school opening in the Fall of 2018. Should an explosion occur (likely not if but when), what evacuation plan and safety measures and money allotted will Extraction prove to have in place before drilling to ensure no people, no children, no animals will be harmed? It is impossible to ensure safety of children this close to not only the Livingston pad, but the other Broomfield proposed sites as well.

-Extraction has proven that they are deceptive, do not keep their word on promises made. Extraction proved their deception by changing the number of proposed pads and drilling operations, admittedly by a project manager under their employment during the paper work and presentations made to the Broomfield City Council. Extraction has made promises to agree to the task force recommendations, but not all of the recommended proposals were accepted and put into the comprehensive plan. Extraction has shown over the past two years, constant errors in the pad location and drilling notice process, notifying incorrect people, incorrect addresses, leaving others out of notices and not returns emails to citizens. I live in the proposed spacing application and have never received any notices from Extraction.

-The Martinez court case is the acting law currently in place. The COGCC must follow this law. The protection of the health and safety of residents must come before the rights of the oil and gas companies.

-Due to the enormous amount of gaps of accurate information missing in the Extraction plan, this can not possibly be approved.

There are many other reasons why this pad location should not approved, as both a pad location as well as a drilling location. But the bottom line is that there is no way to guarantee our safety or health with a drilling operation this close to our future drinking reservoir and this close to homes, schools and parks. Please make a decision of not approving the 2 and 2A applications for reasons of the health and safety for the citizen of Broomfield and for the future of our children.

Thank you,

Kristi Covalciuc

20 The proposed project does not meet the standards of the Martinez Appeal Ruling, stating that safety is a condition that needs to be met before permitting. This project doesn't even meet the interpretation prior to the Martinez case, where safety was balanced with development. The CDHPE posted in their address to the state legislature that there was limited evidence that negative health effects are happening to people living near oil and gas activity and that future study is needed. This project presents risks of spills, leaks, and like we saw at the Extraction Site in Windsor, explosions. Should an accident occur at this site, so close to a large density of homes, schools, and parks, hundreds if not thousands of people could be adversely impacted. If you approve these permits, ignoring the noted health and safety risks are noted on public record, it is an irresponsible action. We know our rights and approving these permits is a direct violation of these rights. We fully expect for the COGCC deny these permits based on the fact that Extraction has failed to meet the requirements of meeting the standards of mitigating risks for health and safety.

02/23/2018

21 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 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 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.

02/23/2018

22 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

02/23/2018
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.

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.

This comment refers to the “Risk Management” section in their drilling plan and the references are to the Drilling Plan sections.

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.

Extraction is well aware of the risks inherent in their operations as they detail in their required SEC 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.

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.

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.

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.

23 Please deny the permits for this site until the following have been completed.

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.

Please do your job and protect the citizens of Colorado. Its the law.

24 Please deny the permits for this site until the following have been completed.

02/23/2018
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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.

Please do your job and protect the citizens of Colorado. Its the law.

25 Per the MOU between the parties, the City of Broomfield rejected the Comprehensive Drilling Plan submitted by Extraction. The COGCC should uphold the agreement between the city and Extraction. Literally hundreds of mineral rights owners and thousands of area home owners are being forced to sacrifice their home values and and the health and safety of their families as a result of these proposed projects. There has been absolutely no consideration of the health and safety of the people in Broomfield and neighboring cities in the process. Please consider the Martinez decision and request more information before permitting.

02/23/2018

26 We residents, who reviewed the CDP submitted by Extraction, found it to be seriously lacking detail, especially in the Risk Management section.

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.

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27 Per 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)(l)] 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.” The COGCC must NOT approve Extraction's drilling permits as they are NOT determined that they can be 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. 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”. Despite this our City has 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. Extensive research needs to be completed on the Livingston pad due to its proximity to houses AND the Broomfield Drinking Water Reservoir. In 2012, Broomfield paid Noble $550,000 to remove 11 drilling locations from the Hoopes Property to allow for construction of the Broomfield Drinking Water Reservoir. The current Livingston Pad sits atop a removed drilling location. Proximity to Future Drinking Water Reservoir Extraction is proposing 19 wells UPHILL from Broomfield’s Future Drinking Water Reservoir. The location of the Livingston Pad is NOT acceptable. Extraction has NOT Been Acting Ethically Extraction has been continuously dismissing the concerns of Broomfield residents and changing their statements at every City Council meeting which leave Broomfield residents unable to hold them to any agreement on number of wells, proximity, testing, etc. The letter sent from Chandler Newhall to the City of Broomfield thanking Broomfield for Approving their Drilling Plan, when the City has in Fact NOT Approved their Plan was deceptive at best. Submitting for Form 2/2A Permits WITHOUT Having an Approved (or Even Approvable) Comprehensive Drilling Plan (CDP) was disingenuous. The original information posted on Front Range News by Extraction stated that they would be drilling from miles away – not 750 feet from homes. Extraction cannot keep track of their own lies. I am under no illusions that COGCC actual cares about anything but the interests of oil & gas, however, you have stated yourselves that you are under a microscope and must act better going forward. This is no longer about placating the masses. Oil & Gas operations have been killing Coloradans (and oil & gas workers) at a rather alarming rate the past 2 years. When will COGCC stop being a rubber stamp on drilling and bad practices? Time to become a body that actually governs this industry. If you do not, you will be replaced. Your days of letting any project go through are over. Coloradans are watching and acting to defend ourselves.

28 We are residents of Broomfield and would like our opinion heard regarding the future of oil and gas development in and near Broomfield county. As parents of two children, we are strongly against Extraction's plan for oil and gas development in our neighborhood. We moved to Broomfield four years ago and chose this wonderful city and community for its open spaces, excellent schools, residential feel, and beautiful views. It was a community that had a ban on fracking. 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 residential areas. 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. We are parents who love our children and our community. Please consider our requests and deny the permits.

29 I am opposed to any fracking activity close to residential area. Why risk public health and safety? There has been studies conducted and issue reported on this fracking impacting the community. Check this out:

- https://www.theguardian.com/environment/2014/jul/03/oklahoma-earthquakes-fracking-waste-water-wells


The evidence is everywhere. STOP FRACKING practices especially in residential area.

30 As a concerned citizen of Broomfield County, I respectfully request that the comment period remain open past the date of February 24th and until the date of the April COGCC meeting for all Extraction permits currently in process or those considered to be complete. Section 9 of the Amended and Restated Operator Agreement between Extraction and Broomfield states that the Comprehensive Drilling Plan and Application is subject to the review and approval of the city. An extension is required to satisfy this requirement.

31 Fracking is not safe and the recent explosions and oil spills prove this fact. It is your duty to abide by Broomfield's 301 and the Martinez decision. There is no reason to have fracking within neighborhoods particularly in cities where we have twice voted to either ban fracking or create a law were we can all but eliminate fracking. The oil companies do not take safety seriously and only respond to problems
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<td>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 close to the urban core of Denver / Boulder and densely populated areas along the front range. I think the Martinez agreement is too lenient. I think the pollution in Denver recently from oil and gas is out of hand. I've never seen it so bad in my 20 yrs of being a resident here. It's 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.</td>
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<td>I work in the oil and gas industry. I am not opposed to drilling/fracking in general. However, there must be more common sense applied in special circumstances. Extraction's plan for this well pad is woefully inadequate knowing that the planned Broomfield public water supply reservoir is so close. The city of Broomfield has pointed this out to Extraction, but Extraction must prove they will take adequate precautionary measures to ensure the safety of the community. We all obviously hope that none of the 20 wells on the pad have any accidents or spills during the life of the wells. But, for an industry that insists they are good stewards of the environment and value health and safety for their workers and the community, they should be more than willing to put a better mitigation system in place in addition to accident prevention. As much as we try to prevent accidents, we know they happen. Extraction has records of spills and accidents. In a dense suburban community the stakes are significantly higher than they are in a less populated rural area. Extraction must not be allowed to move forward with their plan as it stands. Their current plan makes it seem as if they've forgotten about the reservoir. A company that forgets something as necessary to a community as water is not a company that should be allowed to drill in a suburban area - particularly this location. Extraction should work to correct all issues (including the water/reservoir issue) in the CDP as outlined by the city of Broomfield before submitting for permits to the COGCC.</td>
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<td>I concur with the position of Broomfield Council. Please extend the COGCC comment period beyond the current Feb. 24 deadline for the Form 2 and 2A permits for the Livingston and Interchange Pads. Also please postpone any COGCC hearings on these pads until the April COGCC hearings. Based on Extraction's submission date of the permits, any hearings could occur at the March public meetings.</td>
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<td>Responsibility of COGCC to Protect Public Health, Safety, and Welfare</td>
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<td>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)(l)] 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.</td>
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<td>Broomfield Charter Language Requires No Adverse Impacts</td>
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The residents of Broomfield have been actively engaged at the local and state level requesting their health, safety, and welfare are 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”.

Despite the clear language of the Broomfield Charter, the City of Broomfield states that they are unable to uphold 301 because the COGCC Regulations are less stringent.

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<th>Proximity to Future Drinking Water Reservoir</th>
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<td>Extraction is proposing 19 wells UPHILL from Broomfield’s Future Drinking Water Reservoir. Despite Best Management Practices and Secondary containment measures, contamination of the drinking water reservoir still can occur through component failures, explosions, well blowouts, human error, and other unfortunate events. The location of the Livingston Pad is NOT acceptable.</td>
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<th>38</th>
<th>Extraction has NOT Been Acting Ethically</th>
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<td>Extraction has been continuously dismissing the concerns of Broomfield residents. The letter sent from Chandler Newhall to the City of Broomfield thanking Broomfield for Approving their Drilling Plan on Feb XX, when the City has in Fact NOT Approved their Plan was deceptive at best. Submitting for Form 2/2A Permits WITHOUT Having an Approved (or Even Approvable) Comprehensive Drilling Plan (CDP) was disingenuous. The original information posted on Front Range News by Extraction stated that they would be drilling from miles away – not 750 feet from homes.</td>
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| 39 | Please slow Extraction down. Their drilling plan is poorly put together and inaccurate. This is surprising and alarming given all their "so-called" cooperation with the city and oil and gas task force. You would think that they would present a thoughtful and thorough plan for state review based on their agreements with the city. Their rush may signify that they believe that you will approve anything that they submit, even over the city's objections and expressed concerns. We need more state and local oversight and control of these operations to assure performance-based standards that will indeed protect health and safety adequately. Operators' record of death, injuries, spills, and evacuations this past year highlight that not enough safety measures are being implemented. They also indicate that operators are not to be trusted--profit probably is their bottom line as they tend to fight anything that could cut into their profit margin. We don't trust Extraction given their dealings with us. The Livingston pad itself is too close to residences to be truly safe given some of the major accidents this past year. |

| 40 | A large scale fracking site just a stones throw from our new drinking water reservoir is ridiculous. Please use your heads when deciding if this is even remotely legal or ethical to do. Do not allow this | 02/23/2018 |
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**41** A large scale fracking site just a stones throw from our new drinking water reservoir is ridiculous. Please use your heads when deciding if this is even remotely legal or ethical to do. Do not allow this to happen in our neighborhood.

**42** How does the COGCC think this acceptable in any capacity? The unmitigated risk to the public's health and safety present in this plan is completely Unacceptable on any level. Significantly more research needs be done before anything like this is even considered. Please stop propagating the shale myth and trying to pass off completely wasteful and economically tragic businesses as being good for the State of CO. Dangerous to the public and economically unviable, double NO!

**43** The COGCC is without lawful right to approve the drilling permits on the Livingston Pad. The city has not approved the CDP from Extraction because it isn't woefully incomplete and we are well within our rights as a city to halt any drilling due to our city law. No adverse effects is written in our law and the COGCC cannot approve any drilling from Extraction because they haven't proven that their drilling hasn't caused any adverse effects.

**44** Putting a huge industrial operation right next to the future Broomfield Drinking Water Reservoir is terrible. This needs to be examined in much greater detail in order to make a decision. Delay the vote, there is plenty of time to get it right.

**45** Please deny the drilling permits by Extraction Oil and Gas. The numerous wells are way to close to houses and parks. Cogcc is granting way too many unsafe permits and jeopardizing the health and well being of Colorado residents. Thank you.

**46** The number of proposed wells is too high and the location is too close to people's homes. Please, do not allow this and protect people's lives and health. There is plenty of oil in alternative locations that will not have the same negative impact.

Ignoring all the danger to the public in order to cut costs and use residential infrastructure (roads) shows that Extraction is a company that conducts a business in unethical manner. It is responsibility of COGCC to stop this - please do!

**47** Please take the time to properly investigate the safety and necessity of these wells. Moreover, please ensure the proper plans are in place for accidents which are all too common in this field. There is large downsides to these wells and very little public support.

**48** Please take the time to properly investigate the safety and necessity of these wells. Moreover, please ensure the proper plans are in place for accidents which are all too common in this field. There is large downsides to these wells and very little public support. Please don't allow them to short circuit the proper checks along the way and ensure they follow all proposed safety mechanisms.

**49** Please do NOT approve the applications to permit fracking in Broomfield. These pads are located far too close to residential neighborhoods for comfort. There is significant evidence that at the very least suggests, if not completely proves, that fracking can cause earthquakes with occurrences in Texas and Oklahoma. Additionally, the risk of accidents and disasters such as the explosion in Firestone, CO cannot be ignored. The oil and gas companies treat spills / leaks as a normal part of their operations, but the city of Broomfield cannot afford a spill when these these fracking pads are close to water reservoirs and to neighborhoods. The safety of Broomfield’s citizens is at stake here, and the Council must honor their duty to protect and preserve this safety. The potential impacts to human life and the damage to the ecosystem in Broomfield MUST be prioritized over the need for Extraction Oil and Gas to undertake fracking operations for monetary benefit. The citizens of multiple neighborhoods in and around Broomfield have voiced their concerns in unison for months now, and these concerns must addressed.

**50** Dear Commissioners, There are so many reasons for me to ask you to delay approval of Extraction's permits, I don't know where to begin, but I'll try: 1. It is the responsibility of the COGCC to protect the public's health, safety and welfare, not equal to oil and gas, but above it, per the Martinez ruling. 2. The Broomfield Charter language shows that Broomfield should see no adverse impacts from the oil and gas industry. We have not yet heard how Extraction plans to keep Broomfield safe, free from explosions, fires, leaks, blowouts etc. 3. Broomfield's Council has repeatedly told concerned residents that they needed more “tools” in their “toolbox”, but the City claimed they lacked local control and they had to defer protection of health, safety, and welfare to the State. Our City made numerous concessions which have failed to protect resident's health, safety, and welfare. Broomfield said these decisions are up to the state. Since the
COGCC has not allowed our local governments to protect communities, the COGCC must step up since others have not, to protect our health and safety. Therefore: Extraction’s permits should be denied. 4. Broomfield has not yet learned the cause of Extraction's explosion and fire near Windsor. Broomfield needs to know the cause so we can try to prevent similar events. 5. As Director Lapore has stated, the proposed drinking water reservoir will be just a few hundred feet from the proposed Livingston pad. Extraction's other locations are close to parks, an existing reservoir and homes. 6. Extraction has not been acting ethically. Their first CDP was a cut and paste job with many errors, typos, incorrect statements. When asked to make changes, the request was ignored, and the second attempt was too minimal to address Broomfield's concerns. One of Extraction's employees wrote a letter to Broomfield thanking the City for approving the CDP, when in fact this had not been done. Submitting for forms 2/2A prior to approval from Broomfield ignored Broomfield's position that the CDP was not approved. 8. Extraction plans to drill 750' from homes with water wells in unincorporated Adams County. 9. Broomfield is still trying to implement a ballot measure to protect citizen’s health and safety. It was known this was coming but Extraction is also ignoring this and forging ahead as if there are no issues to resolve. In fact, there are many. Please do not approve Extraction's forms 2 and 2A. Broomfield needs more time to sort out a wide variety of citizen and internal concerns.

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51 Extraction has applied for State Permits despite NOT having an approved Comprehensive Drilling Plan (CDP) with the City per their amended operator agreement. I have found the tactics by extraction to be deceptive and disingenuous. This includes extraction holding public hearings meetings on the Western Slope 4 hours away from the residents of Broomfield and well as filing for the application without a CPD. Our safety and security needs must be addressed before any permits are issued. The residents of Broomfield need plans from extraction detailing our concerns over noise, spills, and potential water quality concerns.

52 It has now been two full months since Extraction’s large explosion in Windsor, and there has still been no public explanation as to why this happened and what can be done to prevent something similar in the future. Is the explosion so mystifying that the COGCC and Extraction still don’t know what happened, or is the reason known but hasn’t been explained to the public because it’s very likely to happen again?

It’s lucky that this site wasn’t particularly close to homes, or the outcome could have been a lot worse. That said, Extraction is hoping to drill similar-sized or larger well pads only 1000 feet from homes in Broomfield. I’m sure you’ve seen video of the Windsor explosion, can you imagine how much damage would have been done if that were 1000 feet from a neighborhood? It would seem incredibly irresponsible to approve any such plans now, until Extraction has made 100% sure something like this won’t happen again at one of their sites. Extraction has claimed ad nauseum in the past year at meetings in Broomfield that it’s safer than other operators, but that myth is gone now – it’s likely they had fewer accidents than other companies just because they haven’t been operating very long.

Many O&G companies have used older technology as an excuse for explosions or large leaks in the past, but the site in Windsor appears to be a large, newer well pad using Extraction’s “best in class” practices. If "best in class" means humongous fireballs that shake houses and can be seen for miles away, then Extraction needs to be kicked out of class and sent to detention.

I noticed in the values section of the COGCC web page: “We are as committed to protecting public health and the environment as we are to fostering the responsible development of Colorado’s oil and gas resources”. I hope that this value can be upheld in dealing with Extraction and their plans to bring large well pads within unprecedented range of neighborhoods.

53 Laws, regulations and rules are designed for specific reasons and our system are designed to be altered as times and needs change. Extraction hasn’t followed many of the required rules since the beginning of this process. Times have changed in Colorado with gas exploration and drilling but simply put, it’s not appropriate to drill in areas that jeopardize health and safety.

54 The Livingstone pad site location has come about as a result of a series of errors of judgment over the years. Do not make the last in that series of errors by approving this as a satisfactory or “safe” drill site. It is not, for a number of reasons. It is dangerously close to the new Broomfield drinking water reservoir. If drought conditions in the future require additional water storage capacity for this growing community, it will be impossible to expand the reservoir to meet the needs of the public. There are alternative drill sites that could be utilized to access the resources in this spacing unit that would not impair the Broomfield reservoir. Some of these alternative sites are current, active well locations operated by Extraction. Why approve the least logical pad site when better alternatives exist? There is no need to rush to extract oil and gas from that location. The Lowell pad site was further from the Broomfield reservoir, but Extraction moved to this Livingstone pad site, even closer to the reservoir.
Better yet, a location operated by Extraction north of NW Parkway would present much less exposure to the reservoir, and give Broomfield the potential to expand the reservoir in the future if drought conditions demand.

There is a large community of senior citizens who live just north of and in a valley a short distance from the Livingston pad site. During weather inversions that are common in the Front Range, contaminated air from this pad site will be trapped over the homes of these residents. Do not allow this health risk to move forward. We are not aware of any location in Colorado so near to this many wells and this many senior citizens.

| 55 | I respectfully request the COGCC not administratively approve Extraction O&G's Form 2 and 2A permits for drilling at the Livingston Pad in Broomfield and/or delay any approval of them until after scheduled COGCC meetings in April 2018. This request is based on the reasoning below (among several other issues which resulted in Broomfield's City Council not approving these same permits):

Extraction's permits include horizontal wellbores that extend southward under Broomfield's Wildgrass subdivision. However, Extraction does not currently own or lease the mineral rights of most homesteads there. I question the legality of COGCC approving these permits, which imply drilling under property not yet owned or leased by Extraction.

The Fifth Amendment of the U.S. Constitution states that no person shall be deprived of property without due process of law; nor shall private property be taken for public use without just compensation. This Amendment overrides Colorado statutes. Residents of Wildgrass (in good faith) have retained legal counsel to negotiate fair compensation with Extraction; however, repeated attempts by our legal counsel in contacting Extraction have gone unanswered. I understand under Colorado Law that Extraction can later petition the courts to "force pool" residents and therefore take their property rights without fair compensation.

I remind the COGCC that Extraction's efforts to bypass negotiation with residents' legal counsel is a clear violation of our Fifth Amendment rights to due process. Therefore, I deem any COGCC approval of the Livingston Pad permits (that include horizontal wellbores under Wildgrass) as an action with no firm legal footing (until such time that "fair and just compensation" negotiations have taken place between Extraction and Wildgrass counsel, or after such a time that Extraction obtains the right to these mineral rights). The COGCC should not assume the outcome of any Forced Pooling action/appeal.

Respectfully Submitted,

Ron

Ronald P. Lowther, PhD, Col (USAF Retired)
14813 Snowcrest Drive
Broomfield, CO 80023 USA
Email: rplowther@gmail.com

| 56 | Concerning the Extraction Oil & Gas, Inc (Extraction) request for an exception to rules rules 318A.a and 318A.c, I respectfully request the COGCC deny this request. Extraction's 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.

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

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hours. 2,500 feet away, over twice the proposed setback, Colorado 392 had to be closed.

Here is video footage of this explosion from 3,500 feet away (three times the setback):

Video and photos of the disaster and emergency response:
https://www.denverpost.com/2017/12/22/weld-county-oil-site-fire/
http://www.ibtimes.com/weld-county-oil-explosion-fire-shown-pictures-videos-2632482

Extraction has demonstrated that, even employing best practices, there exists failure modes for this equipment that will result in an explosion and uncontrolled fire.

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.

Equipment fails. This equipment in particular has been demonstrated to fail, catastrophically so.

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.

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.

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.

We do not know why it exploded.
We do not know how the fallout affected the nearby residents.
We do not know what the long term impact of such a disaster is.

We know that "best practices" are not sufficient to prevent a catastrophic explosion.
We know that this facility design can fail and cause a catastrophic explosion.
We know that such an explosion will affect people far, far beyond the one thousand foot buffer.

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.

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 benzine, petrochemicals and carcinogens, this permit should be denied. Anything less is a violation of the COGCC's mandate of "protecting public
<table>
<thead>
<tr>
<th>Number</th>
<th>Text</th>
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<tbody>
<tr>
<td>58</td>
<td>This seems very rushed to me--especially considering some of the problems they have had in Erie and Lafayette. I am especially concerned about impact on local water and general unsightly appearance. It's unfortunate that the state politicians have sold us out on this issue for campaign contributions.</td>
</tr>
<tr>
<td>59</td>
<td>Extraction's drilling plan is fraught with errors and omissions! There should be no oil and gas activities at the proposed Livingston site, because it is too close to Anthem Ranch homes and immediately upstream from Broomfield's proposed drinking water reservoir. We don't want Windsor-style explosions in our neighborhood!</td>
</tr>
<tr>
<td>60</td>
<td>Please add my name to the growing list of citizens against residential drilling and fracking. From your own mission statement: &quot;The Colorado Oil and Gas Conservation Commission (COGCC) is charged with 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. Please do not permit drilling that could endanger the health and welfare of the citizens you are charged to protect.</td>
</tr>
<tr>
<td>61</td>
<td>Please consider the safety of residences first. There is not enough evidence that it is safe to to frack in highly populated residential neighborhoods, not to mention the many oil and gas accidents have happened near us in the past year. We moved to this community to enjoy the beautiful views and open space, turning our area into an industrial zone hurts all of our home values. Nothing about doing this so close to homes and schools make sense beyond lining the pockets of oil and gas executives.</td>
</tr>
<tr>
<td>62</td>
<td>Do not grant permission to drill or frack in our neighborhood! This is where we are raising our children!!!</td>
</tr>
<tr>
<td>63</td>
<td>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.</td>
</tr>
<tr>
<td>64</td>
<td>Please protect our community. The Livingston Pad is too close to our community and future reservoir. We do not want to see our neighborhood lose value and are concerned about the residents safety.</td>
</tr>
<tr>
<td>65</td>
<td>The COGCC should not approve form 2 and 2A drilling permits submitted by Extraction since the city of Broomfield has rejected Extraction's CDP for various reasons. Allowing Edtraction to drill in this urban environment is a mockery of the COGCC's stated purpose to protect the health, safety and welfare of the citizens of Colorado. Extraction is not complying, and has indicated they have no intentions of complying with their agreement with the City to uphold the tenets of the Comprehensive Oil and Gas Plan appproved by the city.</td>
</tr>
<tr>
<td>66</td>
<td>Please do not give extraction permits on the Livingston pads. We live in Wildgrass and are afraid of the repercussions of doing extraction so closely to neighborhoods. My friend and colleague is Erin Martinez and what happened to her and to the many other people in our state and surrounding states is not acceptable. Please do not move forward with these permits!!</td>
</tr>
<tr>
<td>67</td>
<td>I understand that fracking is going to happen - We are simply asking for you to be the independent regulatory agency of oil &amp; gas and protect the health and safety of Broomfield residents. the question is will you allow the time for the permits to be reviewed properly. It is interesting when we bring up the health and safety with Extraction, they want to bully us, and threaten lawsuits if we dare interfere - yet</td>
</tr>
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</table>
to the public they say that health and safety is a priority - well which is it - you cannot have it both ways - why then the rush to get these permits approved? if safety is a priority then give us some time to review the permits. We hear the commercials that Colorado is one of more regulated states in the US for oil & gas - again simply asking you to be independent and not afraid to regulate oil and gas. How many people have died in other counties as the result of extraction? The pad is going to be almost on top of the drinking reservoir for Broomfield. Again, I know that fracking is going to happen but again why is extraction trying to force these permits onto Broomfield. I guess this is the test if I can truly trust the COGCC, but if you approve them without the proper review, then you are just an extension of the extraction company and we have no hope for health and safety of Broomfield. Please enforce the ruling of Martinez, and also help us govern locally and take the amended charter for Broomfield seriously. Why not let these permits go through the regular process - or is it that extraction knows it is unsafe and trying to push them through you - again are you a regulatory body or just an extension of extraction - and doing business the way are?

Per 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.”

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”.

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**68** We understand fracking is important to Colorado, however the health and well being of the citizens of Colorado should be the highest priority. Fracking should never be allowed within residential zones. Fracking is a huge industrial operation that is prone to accidents. That may not impact anything out in the rural areas of Colorado, but when you try to squeeze fracking sites so close to homes and schools, those accidents can have serious if not deadly effects. Our home values will decrease and large companies like Amazon will not want to move to an area where their employees are at risk. We all love living here and anyone who says fracking in our backyard is ok, they either don't live close to the fracking operation or they have vested monetary interests.  

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**70** I am appalled by the unconscionable acts of drilling and fracking in highly populated communities. Never in a million years did I expect anything like this to ever occur. The greed of oil and gas industry is astounding! How much money is enough for them? How many wells do we need. How much is enough! These companies have absolutely no regard for the people whose lives and livelihoods they put at risk. I can safely say that none of these energy tycoons have oil wells near THEIR HOMES! They have no cause for worry about their health, environment, property values. The oil and gas corporations, land developers, construction development companies have destroyed the once pristine beauty of Colorado. They have clogged our highways with their trucks and construction equipment; increased our population dramatically; priced out most home buying to exclude all but the affluent buyer; crowded our mountains and parks. Something needs to be done to stop the destruction. The public is not being told the truth. There were recent oil spills in Erie that the public was not told about.

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74 Comments on Extraction’s Amended and Restated Contract dated Oct 24, 2017

Exhibit E (Pipeline map page 48).

Why is there a pipeline west of Livingston pad?

The Gathering pipe distance from structures is dependent on the pressure and size of the pipe.

If additional gas is coming from the West and combining with Livingston.

This will affect the size and pipe pressure and thus the hazard distance from the pipeline.

What will be the pipe size, and pressure of the pipeline leaving Livingston?

Broomfield’s Oil and Gas Comprehensive Plan states

Operator shall mail … to property owners within 500 feet from all pipelines leaving the well site or oil and gas facility and within the City. Operator shall certify to the City a list of persons or entities to whom written notice was provided.

Have they done this?

W152nd Ave & Lowell Boulevard homes 200 feet

Mountain View Circle and Hillside Court homes 100 to 200 feet

Extraction states Pdf page 46-47 Operation and Maintenance

5. all lines 150 feet from buildings

What risk assessment are they using to declare 150 feet?

I recommend GRI-00/0189 formula: http://pstrust.org/docs/C-FerCircle.pdf Figure 2.8 at a minimum.
And that can be expected to exceed 150 feet.

The Mountain View Circle and Hillside Court homes are already less than 150 feet from the proposed pipeline.

The Open Space Trail Easement Agreement is not signed. -- Pdf page 110-114

The location of the Trail Easement is missing in Exhibit B discussed on pdf page 110 B.

Extraction needs to declare where they are heading with this Gathering Pipe.

Are they transferring toward Dacono? (I believe it is the nearest processing plant.)

And they should clearly state all pads connected and any other Gathering pipes connected between Livingston pad and Dacono.

With open ended design, Extraction could add more pads, add a processing plant in our back yard, and/or affect the pipe pressure and flows downstream.

When there were individual wells the gathering pipelines meandered through the neighborhood.

Now with horizontal drilling, and multiple wells per pad, gathering pipelines are high pressure and volume.

They don’t belong in the neighborhood.

Extraction’s Gathering pipe should start at Livingston pad follow I-270 and then I-25 and maintain GRI-00/0189 hazard distance.

Thank you for accepting comments.

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.

Please . . . no residential fracking in Broomfield!!!! There are too many unknowns . . . and too close to homes, schools, and parks.

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.

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 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

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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.

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.

78 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. 02/23/2018

79 Please do not approve the permits for any gas and oil pads!!! We live in wildgrass and are 100% not in favor of this at all!!! 02/23/2018

80 No more permits please. Including the Livingston pad. There are enough of these risky eyesores in our community 02/23/2018

81 As recent local and national event have shown, and independent research confirms, hydraulic fracturing this close to occupied dwellings is unsafe. There are known short and long term health risks associated with catastrophic failure of well equipment, human error resulting in blowout, as well as non-catastrophic failure of various equipment. Evacuations may be required for more than a mile from the well if a blowout occurs, as has been shown recently and in the past. Extraction (XOG) had a recent failure of a well, a well which will be using the same technology as the Livingston pad wells. I ask you to consider all the available evidence and to confirm your duty to protect the safety of the residents of Colorado. The image of the COGCC as the O&G Industry lap dog can be turned around to one that reflects integrity, even handedness and a commitment to Colorado citizens. 02/23/2018

82 Regarding the drilling permits, form 2 and 2A, for the Livingston 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.

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.

83 Regarding the drilling permits, form 2A, for the Livingston 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.

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.

84 This is invading our neighborhoods and it is NOT doing it safely. I worry about the quality of our drinking water and the impacts on our lives and our health. PLEASE do not put us in danger. 02/23/2018

85 Regarding the drilling permits, form 2A, for the Livingston 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.

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86 Regarding the drilling permits, form 2, for the Livingston 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.

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Finally, 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.

87 The COGCC must not approve Extraction's Form 2/2A permits for the Livingston Pad until the environmental water issues raised by the City of Broomfield are satisfactory addressed and approved by the City. If Extraction won't provide Broomfield with satisfactory information now, how can the COGCC approve these permits and assume Extraction will do so in the future?

The Livingston Pad is adjacent to and uphill from Broomfield's planned drinking water reservoir. This future reservoir is critical to the future needs of the entire City, especially since Broomfield no longer draws drinking water from its Great Western Reservoir due to contamination from Rocky Flats. The future Broomfield reservoir site should be protected against any possible contamination source; therefore, the COGCC should not put itself in a position to approve these permits and thus overrule the City's current objections.

As an example of just one issue: In their permit request, Extraction states drainage from the Livingston Pad flows into a topographical depression that the pad sits on with direct flows around the site to a retention pond they will build. A portion of this depression was previously planned as a part of Broomfield's reservoir, but the City graciously agreed to reduce the reservoir's size to accommodate Extraction's needs. Extraction claims the Livingston pad is in an area of minimal flood hazard;
therefore, they chose a 5-year storm event to determine the storage volume needed for the retention pond. What they fail to consider is that statistically a 1 in 5-year event is real and does indeed occur; just like 1 in 10, 1 in 100, … year events. Extraction then implies an emergency overflow spillway cannot be utilized at the site due to topographical issues.

The bottom line is: Broomfield cannot afford to sacrifice the security of its drinking water supplies and the COGCC should not force the City to do so by approving these permits at this time.

88 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.

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.

89 To: State COGCC

As a registered voter in Colorado, I am extremely concerned with the Extraction Gas and Oil Drilling Plan and the impact this could have on Broomfield’s health, environment, emotional well being, and quality of life.

After meeting with Josh Olhava, AICP, Senior Planner with the City and County of Broomfield, today, I have significant concerns regarding the amount of seismographic data he has available for the above proposed project. He is now in the process of gathering this information for us. Have you reviewed this material?

I feel that more time is necessary to properly review the documents that the city of Broomfield has on file for its applicability.

Please address my concerns as soon as possible.

Sincerely,

Joanna M. Juras

5129 Pasadena Way

Broomfield, CO 80023

303-437-1001

90 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.

91 With all the land in Colorado why pick a residential area with a new school being built extremely close to the site.

It doubtless will have a tremendous impact on me and my neighbors. They are still having earthquakes in Texas five years after they stopped fracking according to NPR. The environment will suffer. The Water table will
doubtless suffer
to say nothing of getting ride of the polluted water. Having retired here three years ago, this surely will not
help housing values. It is a bad idea period. Sally W. Kaplan

92 The pictures included are very deceiving. There are house within 750 feet of these pads. The pictures make it look like the houses are much farther away.

Plus, these pads were split into two pads so they could be closer to homes, but all of the negative affects will still be there for those residents.

93 The pictures included are very deceiving. There are house within 1,320 feet of these pads. The pictures make it look like the houses are much farther away.

The Wildgrass neighborhood is directly to the south of this pad and Anthem Ranch is directly to the north, bordering the Northwest Parkway.

Extraction tries to make everything seem ok with these projects when they have done an insufficient and inaccurate job when completing their Comprehensive Drilling Plans. The residents have much to be afraid of while living near large industrial drilling pads.

94 In light of recently reported hazards (spills), it is painfully obvious that strict safeguards must be put in place before any such drilling is permitted this close to residential neighborhoods. Safety of our environment, our citizens/taxpayers must be prioritized over profits that will go elsewhere with little to no benefit to the community. All risk and no reward, that's a bad deal all around and it's inconceivable that, as a community, we would be so naïve as to allow ourselves to be pacified and silenced by a paltry bribe of $100-$200 for most of us who live on relatively standard-sized lots. The shock and awe certified mail campaign with carefully crafted scare tactic language put together by an army of lawyers, followed up by a second wave of follow up "sign here and then shut up" mail serves as stark proof that there's an overwhelming amount of money behind this campaign. It's worth a lot to them. Our safety is not their primary concern if it's a concern at all.

95 Extraction Oil and Gas is attempting to proceed with the Livingston Pad without adhering to the terms expressed in the Operator Agreement with the City and County of Broomfield (CCOB). Recently, Extraction Oil and Gas stated, “As discussed in our February 7, 2018 meeting, we agree with Broomfield’s assertion that the Comprehensive Drill Plan (CDP) submittal was complete and satisfactorily prepared in accordance with the provisions laid out in or Operator Agreement”. This is patently false. In correspondence with me on February 23, 2018, Council member, Kim Groom, stated, “We are very far away from CDP approvals. Prior to drilling all sections of the CDP will be reviewed and approved by experts, then reviewed by the Council”. The CCOB, in good faith, entered into an Agreement with Extraction Oil and Gas. This Company is summarily flaunting the terms of that Agreement. Please, do not allow Extraction to move forward on the Livingston Pad.

96 I do not support the approval of the current plan of The Livingston Pad. 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.

97 Broomfield has the obligation to protect the health and safety of its residents and by allowing Extraction to drill in this area is a blatant disregard for human lives. Not only is this pad too close to homes it is also dangerously located next to the Broomfield drinking water reservoir. Extraction does not have a good reputation for instituting quality and safety controls and with a pad this close to homes and drinking water it’s only a matter of when NOT IF there will be a catastrophic event. Don’t we look at the most recent explosion from an Extraction pad? Has there ever been a study analyzing the impact of fracking under homes like Extraction is planning? Has there been any studies analyzing the impact on wells this close to a reservoir providing drinking water? Maybe the governor should stop accepting oil and gas money and let the individual municipalities finally make their own decisions on whether they want oil and gas in their neighborhoods. Also there are several schools and parks in the area of the Livingston pad. The City and county of Broomfield should do what is right to protect its children and not allow this drilling pad to be permitted.

Thanks
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<thead>
<tr>
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<tbody>
<tr>
<td>98</td>
<td>I am a Broomfield resident. I'm extremely concerned about fracking in our residential neighborhoods, the lack of openly shared planning on the part of Extraction, and the fact that the Broomfield City Council seems to have signed away our/rights to protest. 02/25/2018</td>
</tr>
<tr>
<td>99</td>
<td>This area is too close to residential development, schools, playgrounds, etc. to drill for gas and oil - especially a project of this scale located THIS close to a large residential development. It feels like we here in Wildgrass: a) are being invaded and b) are serving as guinea pigs for Extraction's plan to drill right under our homes. And, there are over 100 more wells planned within a few miles. There are many documented health and safety risks associated with fracking known to especially affect seniors (like my wife and me) and very young children. But, these studies have only been based on circumstances involving a small number wells close to homes. Now you are considering allowing 40 at the Livingston pad? 02/25/2018</td>
</tr>
<tr>
<td>100</td>
<td>Extraction allegedly supported Broomfield's efforts to draft a long-term plan for oil &amp; gas development. They said they wanted to &quot;collaborate&quot; with us. But, they went right ahead and submitted forms 02 and 02A to the COGCC without first submitting a complete Comprehensive Drilling Plan as required by the Operator Agreement for all of the proposed wells. This is not the first time they have failed to keep their &quot;word.&quot; Initially, they said they wanted to drill 12 wells on the Livingston pad. Then, without discussion or acknowledgment of any change, they started speaking as if their plan all along was to drill more than three times that number. I don't trust them and neither should the COGCC. 02/25/2018</td>
</tr>
<tr>
<td>101</td>
<td>Please do not approve these permits! We do not need the minerals. We are using minerals to ship them out of the country, perpetuating the padding of the pockets and I am disgusted with ALL politicians from local to state to federal government who have put dollars before citizens. Before children. Before health and safety. This is unacceptable. My vote will show my feelings about who is protecting and who is sacrificing its constituents. And I will get in front of as many people as possible to make sure their votes reflect the same. Please make a decision based on duty to the community. Not the dollar. 02/25/2018</td>
</tr>
<tr>
<td>102</td>
<td>Please do not approve this permit to drill next to our homes, schools, and planned drinking water site. Large-scale commercial drilling in such close proximity to neighborhoods is an experiment with the health and safety of real people. As residents of Broomfield, this is our backyard, not an industrial area. 02/26/2018</td>
</tr>
<tr>
<td>103</td>
<td>“Fossil fuels production has emerged as the main source of volatile organic compounds, VOCs, and nitrogen oxides pollution that bakes in sunlight to form ozone smog, which causes respiratory problems. Ozone levels in Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer and Weld counties exceed the 2008 federal limit of 75 parts per billion, let alone the current 70 ppb limit.” <a href="https://www.denverpost.com/2017/10/20/colorado-air-quality-control-tougher-rule-for-oil-gas-facilities-to-cut-smog/">https://www.denverpost.com/2017/10/20/colorado-air-quality-control-tougher-rule-for-oil-gas-facilities-to-cut-smog/</a> 02/26/2018</td>
</tr>
<tr>
<td>104</td>
<td>Furthermore, Extraction does not have a proven safety record to be operating this close to residential neighborhoods as evidenced by multiple problems and mistakes including the recent Windsor explosion and fire. <a href="http://kdvr.com/2017/12/23/photos-fighting-the-oil-site-fire-near-windsor/">http://kdvr.com/2017/12/23/photos-fighting-the-oil-site-fire-near-windsor/</a> 02/26/2018</td>
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<tr>
<td>105</td>
<td>There are many reasons to believe that this industrial activity should not be located in/near residential neighborhoods. 02/26/2018</td>
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<td>106</td>
<td>We decided to put our daughter to the new elementary school in anthem next year, but this school is located within 1 mile distance to the oil site. That is incredibly closed and bring risk to all the kids who will go to the new school!! 02/26/2018</td>
</tr>
<tr>
<td>107</td>
<td>I am a citizen of Broomfield. I work in the oil and gas industry. My first comment is nowhere to be found, thus I must submit again. Please use common sense and do not approve of this particular location. Extraction's CDP does not show nearly enough concern for the future Broomfield reservoir located downhill from the proposed pad site. This pad size is on the large size for the industry and Extraction has not shown they can adequately manage or respond to the risk associated with the close proximity to the water we drink. 02/26/2018</td>
</tr>
</tbody>
</table>
During the life of a well, there can be spills or other incidents. While I applaud the industry as a whole at taking a strong stance in safety, we all know that accidents still happen. When accidents occur in sensitive areas like the proposed Livingston Pad, this is actually bad for the oil and gas industry as it will create more bad will in the community. Extraction doesn't seem to care about the big picture. But COGCC should.

Please use common sense. Please protect the people who live and work here.

<table>
<thead>
<tr>
<th>Date</th>
<th>Comment</th>
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<tbody>
<tr>
<td>02/26/2018</td>
<td>Please do not approve the permits for any gas and oil pads in such a proximity to out home and children. The health risks from fracking are not limited to our drinking water — the oil and gas operations are also poisoning the air we breathe.</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>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.</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>Please do not grant permits in highly populated area for gas and oil wells.</td>
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<tr>
<td>02/26/2018</td>
<td>Please do not approve the permits for any gas and oil pads.</td>
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<tr>
<td>02/26/2018</td>
<td>Please keep oil and gas activities away from our water, our homes and our community! Do not approve!</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>Extraction has applied for a drilling permit despite not having an approved Comprehensive Drilling Plan (CDP) with the City of Broomfield. The City of Broomfield has worked with the community and stakeholders to reduce the impact of Extraction’s drilling plans in a dense residential setting. Extraction has disregarded this work and is attempting to bypass the MOU they negotiated with Broomfield and its residents. I urge you to not approve Extraction’s drilling permit for the Livingston Pad. I also urge you to place the highest premium on homeowner safety and well being when considering any permit applications.</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>The fracking that is proposed under the homes in The Broadlands from the Livingston Pad is a serious health and well-fare problem that needs to be stopped. Safety can't be guaranteed and property values will decrease and for what- more profits for Extraction Oil and Gas. Please stop this from happening!</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>I've submitted comments twice--first on the 18th and then again on the 23rd--neither comment was posted on the PDF so I'm unsure if they were received and are being considered. This speaks to how COGCC is not equipped to deal with issues very well. It doesn't increase our trust in you as a regulatory body that will indeed carry out your mandate to protect public health, safety, environment, and wildlife resources. We also don't trust Extraction given the lack of care and thought that they put into their drilling plan and how they were grumbling behind the scenes when our task force came up with recommendations that could cost them more. They also have not been honest brokers in communicating with us and our neighbors.</td>
</tr>
<tr>
<td>02/26/2018</td>
<td>Please deny the Livingston 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.</td>
</tr>
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<td>02/26/2018</td>
<td>I am extremely concerned about the personal health and environmental quality issues still concerning the Livingston pad (as well as other Extraction Oil Pads). They say publicly that they agree with the Comprehensive Plan, but their actions indicate that they are not serious about satisfying the requirements set forth I. The plan. They will need an enormous amount of oversight. I hope COGCC will apply the manpower necessary to oversee the details of this project in order to ensure that human health and safety is treated as the primary responsibility. THANK YOU for any help you can provide here.</td>
</tr>
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<td>02/26/2018</td>
<td>Extraction agreed to negotiate with Broomfield. Broomfield has worked hard and many citizens have</td>
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<table>
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<tbody>
<tr>
<td>5 participated and supported their effort. Extraction is ignoring everything and moving forward like this was not a community. Broomfield City Council is being ignored. This needs to be stopped. COGCC needs to stop rubber stamping Extraction filings and hold them to their commitment to work in good faith or not let them drill anywhere.</td>
<td>02/26/2018</td>
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<tr>
<td>11 &quot;Extraction applied for State permits for large scale oil and gas development in Broomfield despite NOT having an approved Comprehensive Drilling Plan (CDP) with the City.&quot; Why not follow the required process and obtain approval of your PDP from Broomfield? Is this another example of a corporation skirting the required and proper procedure?</td>
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<tr>
<td>11 PLEASE DO NOT APPROVE THE PERMITS FOR ANY GAS AND OIL PADS! WE LINE IN WILDFRASS AND ARE 100% NOT IN FAVOR OF THIS</td>
<td>02/27/2018</td>
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</tr>
<tr>
<td>11 As a resident of Broomfield, I am surprised that this gas and oil activity is still going on. 301 passed in Broomfield and is now law. That law is to put the health and safety of Broomfield residence first! I am expecting the Broomfield city council and state representatives to do their jobs and decline any applications for residential drilling.</td>
<td>02/27/2018</td>
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<tr>
<td>It has been proven time and time again with spills, blowouts, health related instances, etc. that drilling is not in the best interest of our community. This is our home. We expect our leaders to protect us from outside interests who are coming here to ruin our area so they can make more money. This is unacceptable! Have you learned nothing from Flint, MI, Earie or Windsor, CO?</td>
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<td>Common sense also tells you not to put wells up stream from a reservoir. Does this seriously need to be pointed out? And... no... the topography explanation does not fly.</td>
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<tr>
<td>I ask you do decline any residential fracking / drilling activity until it can be done safely without harm to residents.</td>
<td></td>
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<tr>
<td>11 This comment is to raise my concern as a Broomfield, CO resident regarding the operator application for vertical drilling permit in what is called the Livingston Pad in Broomfield. There is no current reason that the state of Colorado should allow this type of drilling under a densely populated residential neighborhood. 114 wells creates an absurd risk to citizens of the state and should simply not be allowed. I understand the commission has NEVER denied an drilling permit in Colorado, this particular pad is to be located directly adjacent to Broomfield's planned new reservoir. Approving this application may be in direct violation of provisions of the federal Clean Air and Water act. Thus exposing the state to potential fines and penalties. Please consider this application with all due diligence and compliance with local and federal law.</td>
<td>02/27/2018</td>
<td></td>
</tr>
<tr>
<td>12 NOTE: I submitted this comment on February 24, but received a message from Yahoo Mail that it may not have been received. This is my second attempt to successfully submit a comment on the Livingston Pad. Extraction Oil and Gas is attempting to proceed with the Livingston Pad without adhering to the terms expressed in the Operator Agreement with the City and County of Broomfield (CCOB). Please, do not allow Extraction Oil and Gas to go forward with their plans until they are in full compliance with the Agreement. Recently, Extraction Oil and Gas stated, &quot;As discussed in our February 7, 2018 meeting, we agree with Broomfield assertion that the Comprehensive Drill Plan (CDP) submittal was complete and satisfactorily prepared in accordance with the provisions laid out in or Operator Agreement&quot;. This is patently false.</td>
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<td>In correspondence with me on February 23, 2018, Council member, Kim Groom, stated, “We are very far away from CDP approvals. Prior to drilling all sections of the CDP will be reviewed and approved by experts, then reviewed by the Council”. The CCOB, in good faith, entered into an Agreement with Extraction Oil and Gas. This Company is summarily flaunting the terms of that Agreement. Please, do not allow Extraction Oil and Gas to proceed with their CDP until they have worked truthfully and cooperatively with the CCOB.</td>
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<tr>
<td>12 I urge you to delay or deny Extraction's Form 2A Drilling permit for the Livingston Pad. The COGCC has stated that it will enforce MOU provisions that are not in violation of COGCC law. Extraction is not</td>
<td>02/27/2018</td>
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in compliance with the MOU, nor has their CDP been accepted by the City of Broomfield. All we are
asking is that Extraction adheres to the legal document that they signed and that the COGCC, as the
regulatory agency, enforces this. One of the biggest concerns is that of emergency preparedness.
Extraction has given no answer as to the cause of the explosion at their Windsor site. We have no
idea that they have mitigated the issue that caused the explosion. If an incident similar to Windsor
happened at the Livingston Pad, we would be evacuating over 3,000 people, yet nothing is in place to
oversee any kind of evacuation. The emergency preparedness section of the CDP is inadequate for
what they agreed to and in this high density residential area, in the middle of six neighborhoods, two
schools, several parks, and less than 1,000 feet from a future drinking reservoir. Thank you for your
time.

We have been told it is unknown if there be a hearing for the Livingston Pad. I ask that you please
grant a hearing on this pad. This is a 19 well pad in the middle of six neighborhoods, two schools,
several parks, and less than 1,000 feet from a future drinking reservoir. Thank you

I am continually amazed that the COGCC continues to consider, much less approve any further
fracking, drilling and other associated activities without first adjusting its behavior and rules to coincide
with its Mission Statement. Examples? How responsible is it to have no idea where hundreds of
orphaned and otherwise unregulated pipe lines are located? How responsible is it to wave a 500 foot
set-back from residents as being representative of the COGCC's "technical excellence", protecting
public health etc. when the Windsor, Colorado had detrimental consequences miles away? Too many
embarrassing examples to list, but no need - people read newspapers and watch the news. Just stop
and think, please?

I urge you to delay or deny Extraction’s Form 2A Drilling permit for the Livingston Pad. The COGCC
has stated that it will enforce MOU provisions that are not in violation of COGCC law. Extraction is not
in compliance with the MOU, nor has their CDP been accepted by the City of Broomfield. All we are
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what they agreed to and in this high density residential area, in the middle of six neighborhoods, two
schools, several parks, and less than 1,000 feet from a future drinking reservoir. Thank you for your
time.

I am writing to ask you not to approve permits for the Livingston Pad. The community has been
fighting gas wells in their neighborhoods for far too long. It is your job to protect communities and the
people living in them from gas and oil dangers. This well pad will present a dangerous atmosphere for
all. It is too close to communities, and our future reservoir. We are worried about explosions, toxic
chemicals, loss in property value, and the complete eye sore that this will be. People over profit!!

Dear Mr. Lepore and Members of the COGCC,

I live approximately 1/2 mile from the proposed Livingston Pad in Broomfield. I am very concerned

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about the unknown impacts to our health and safety regarding this project. I feel a large scale operation such as this does not belong so close to homes and subdivisions. I am most definitely not opposed to oil and gas drilling and development because it does serve a useful and viable purpose in our modern day lives. I repeatedly asked our City Council members why negotiations with Extraction did not locate the pad further away. I know other alternative sites were explored, but no one from the City could ever give me a straight answer about this. Is locating the pad further away from homes something the COGCC could discuss with Extraction? I attended the Town Hall that Mr. Lepore spoke at and I remember him saying he had concerns about the well pad being located so close to our new Broomfield Reservoir. I hope this concern will also be taken into consideration. I ask that the permits do not get approved at this point until a more viable solution can be found. Thank you for your time.

12 As a new Broomfield resident, I feel concerned about the proximity and extent of oil and gas development within sight and walking distance of my home. I learned that extensive, detailed, and SCIENTIFICALLY based recommendations became foundational to the current contract with Extraction Oil and Gas.

I strongly urge the COGCC to monitor and enforce these provisions in order to preserve and enhance the SAFETY of our larger community, the physical and emotional HEALTH of individual residents, and the WELFARE of all. I further urge COGCC to incorporate and extend effective provisions to all citizens of Colorado who live near sites of fossil fuel mining.

Thank you.

12 For anyone making decisions regarding drilling operations near residences, I would remind them of the Golden Rule. Would you make the same decision if you and your family lived about 500 feet from a drilling operation? Consider the health threat to your children, the constant noise and obnoxious odors. Please remember the people you’re supposed to be representing.

I can't understand how anyone could place a higher priority of drilling for oil or gas over the threat to human life.

13 Please do not support the Livingston pad. Where I understand the need for drilling, this is getting out of hand when the sites are being placed in the middle of neighborhoods and surrounding schools. I ask you consider your role as you determine the health and safety concerns of those with in the community that will be greatly impacted by these pads. As a father with three children, this simply should not be going on so close to my home and within my community. Please do the right thing.

13 I urge the COGCC not administratively approve the pending drilling permits for this Pad that Extraction O&G has submitted. The COGCC should not override the Broomfield City Council’s objection that they are incomplete and inadequate.

13 My fellow Wildgrass neighbors worked long and hard with Extraction to come up with a comprehensive plan that would protect us and our environment. However Extraction has not provided a CDP with the City.

I request that COGCC not approve any drilling permits until a extraction lives up to its promises.

13 As a mineral owner in Wildgrass, please do not approve the Livingston Pad at the point in time until the previous Extraction Oil fire has been determined and the location has been deemed safe. The location in the middle of residential neighborhoods, and the close proximity to the proposed Broomfield Reservoir makes this proposed site location suspect at best. Greater attention to detail in this matter is needed. Thank you.

13 Please do not approve the livingstone pad...it's location, operation and effect on the environment is in opposition to the healthy living we are trying to promote in Broomfield and Colorado as a whole. As a Broadlands community member, with our neighbors in Wildgrass are 100% against this development. Please consider this decision carefully.

13 Please do not approve the Livingston pad or any pads in this area. We are very concerned about the proximity to our homes, schools and future reservoir.

13 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

This means they are unable to guarantee it cannot happen again at any of their other sites.
Additionally, they are under expanding investigation for leaking VOCs at multiple sites.


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 Livingston pad.

The Livingston pad is smack dab in the middle of 3 major subdivisions of housing with thousands of single/multi family units, not to mention uphill from Broomfield's major plans for a drinking water reservoir. If any of the above mistakes should occur at the Livingston pad, the public health effects and damages to thousands of citizens will be catastrophic, not to mention literally millions of dollars of damages to property values locally (an effect already observable in real estate with just the potential placement of these pads).

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.

Please deny this application.

13 Despite Extraction submitting a report to the COGCC, no complete explanation has been provided as to the cause of the explosion and subsequent fire at Extraction's Stromberger site in Windsor that seriously injured a worker. Until we can thoroughly understand the cause of this explosion and work with Extraction to mitigate the cause, no further permitting should move forward on the Livingston Pad. This pad is in the middle of six neighborhoods, two schools, and several parks and trails. An explosion such as what happened in Windsor could be devastating. Please consider this, and consider waiting for the third party investigation and OSHA report before any further permitting, as well as call for a hearing on the Livingston Pad. This is too large of a pad in too dense of an area to ignore.

02/28/2018

13 Despite Extraction submitting a report to the COGCC, no complete explanation has been provided as to the cause of the explosion and subsequent fire at Extraction's Stromberger site in Windsor that seriously injured a worker. Until we can thoroughly understand the cause of this explosion and work with Extraction to mitigate the cause, no further permitting should move forward on the Livingston Pad. This pad is in the middle of six neighborhoods, two schools, and several parks and trails. An explosion such as what happened in Windsor could be devastating. Please consider this, and consider waiting for the third party investigation and OSHA report before any further permitting, as well as call for a hearing on the Livingston Pad. This is too large of a pad in too dense of an area to ignore.

02/28/2018

13 I can not believe that we are even discussing the drilling and fracking in our community. The oil and gas industry is out of control. The majority of oil bring produced is being shipped overseas. The industry is all about making money and no care is given to the health of Broomfield residents and environment that we as a community cherish. As someone who has personally been affected by fracking explosion due to negligence I am sick at the thought of the industry continuing to frack.

02/28/2018

To Whom It May Concern -

I strongly urge you to reject Extraction's permits for the Livingston pad in Broomfield. If Extraction cannot submit a proper Drilling Plan to the city of Broomfield, and refuses to correct and update that plan with information as requested by the city, how can we expect them to properly and safely run this operation? Given Extraction's refusal to do even this, the size of this operation and its proximity to residents and schools, I adamantly feel that this operation should not be allowed to go forward.

02/28/2018
Thank you for your consideration.

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 Extraction and the City. I was involved with citizen groups, along with the City, who 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.

On Feb. 23, Extraction just submitted their accident report on the Stromberger Well Pad in the Weld County Windsor area to the COGCC. The Extraction report acknowledges that there is still “an active ongoing investigation” and that “the gas and ignition sources are still being investigated.” The report then lists potential contributing factors but comes to no conclusion. The Livingston Pad should not be given permit approval by the COGCC until the cause of the fire is known and Extraction can correct the problems in its Broomfield CDP. Otherwise, the COGCC is allowing an operator to put a huge number of nearby Broomfield residents at risk of death and major destruction of property, due to the density of the neighborhoods surrounding the Livingston Pad.

I am asking the COGCC, in its capacity as an oversight and regulatory body, to deny Extraction's application to drill 19 wells next to and uphill from the future Broomfield drinking water reservoir. Recent events make clear that neither the COGCC nor Extraction can adequately protect the drinking water reservoir from contamination due to adverse events. Specifically, neither the COGCC nor Extraction can protect the reservoir from an event similar to: (1) the as-yet unexplained well pad fire and explosion at Extraction's Stormberger Pad on 12/22/17, (2) Anadarko's 1/23/17 release of over 11,600 gallons of oil and 69,200 gallons of produced water in Weld County that reached 2,000 ft from the well pad.

Further, the COGCC must fulfill its mandate via the Martinez decision to protect the health and safety of the public - thus protecting an entire city's water source must be one of the most basic obligations of the Commission. The COGCC cannot approve this project as it has every other application in the past. We know that the status-quo processes failed to prevent, deter, or adequately punish after the fact multiple catastrophic and completely unacceptable events, including (1) the Firestone explosion, (2) the uncontrolled venting of VOCs onto a school playground at Crestone’s Vessels Minerals site in the fall of 2017, or (3) Anadarko’s contamination of 200 barrels of ground water with 900 times the allowable levels of benzene in Dacono in December 2017.

In this case, the COGCC must acknowledge the undeniable risks that exist at the Livingston pad, and then deny Extraction the use of this site. Failure to do so is an abdication of the Commission’s basic responsibilities, at the expense of all 65,000 Broomfield residents.

I have a five year old daughter, and we live close to the proposed pad. I worry that daily exposure poses a health and safety risk to her. I have read conducted fracking studies and the long term effects aren’t fully understood yet. There is evidence that it is both safe and harmful and compelling arguments can be made for both sides. Cheaper oil and gas, more jobs, and more money in the economy are all benefits of fracking in lucrative and populated areas, but at an unknown price. As a parent, the risk to my daughter’s developing body is not worth it, and an intelligent and caring society should first protect the health and safety of its children.

Regarding Extraction's Explosion and Fire on the Stromberger 22-E Site near Windsor: Extraction has 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 application must be denied.

14 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 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.

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.)

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”.

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.

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.

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."

Therefore, this permit application must be denied.

14 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.

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!!!

14 Please reconsider on the location of this well site. We live in beautiful Mustang Acres and there isn't
much country living in the city of Colorado anymore. Well sites are coming up left and right. Poisoned
drinking water, polluted air, mysterious animal deaths, industrial disasters and explosions is what I
have read/researched on what has occurred with these fracking sites.

14 Extraction proposes to horizontally drill and hydraulically fracture 19 wells on Broomfield property.
They propose this large scale industrial activity (including “hazardous, risky drilling operations”) would
be conducted on approximately 20 acres of surface property owned by the City and County of

Broomfield. This 335 acre property, known as the "Hoopes Property - Parcel 1" was purchased by Broomfield for the primary purpose of constructing "a reservoir on the Property as a public water source with associated educational and recreational facilities". In November 2012, Broomfield paid $550,000 as part of a settlement to Extraction's predecessor Noble to removed several drilling pockets and hard rock mineral claims. The allowed area for drilling on this 335 acre parcel was thereby limited to two small parcels of land - neither of which is the current proposed location. (Although the allowed locations are no more suitable for this type of development.) The Livingston site as proposed would be adjacent to the east side of, and UPHILL from, the future Broomfield drinking water reservoir. The 19 wells and associated facilities are proposed just south of the Anthem Ranch subdivision (1000+ home retirement community) and Southwest of the Anthem Highlands subdivision (1000+ home subdivision). Facilities would be just 205 feet from Sheridan Blvd. Despite credible concerns about this location (and its former location which had been called the Lowell Pad), this process just keeps moving forward. Please deny the application for the Livingston permit.

14 I am asking the COGCC, in its capacity as an oversight and regulatory body, to deny Extraction's application to drill 19 wells next to and uphill from the future Broomfield drinking water reservoir. Recent events make clear that neither the COGCC nor Extraction can adequately protect the drinking water reservoir from contamination due to adverse events. Specifically, neither the COGCC nor Extraction can protect the reservoir from an event similar to: (1) the as-yet unexplained well pad fire and explosion at Extraction’s Stormberger Pad on 12/22/17, (2) Anadarko's 1/23/17 release of over 11,600 gallons of oil and 69,200 gallons of produced water in Weld County that reached 2,000 ft from the well pad.

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15 Dear Mr. Lepore and Members of the COGCC, I live approximately 1/2 mile from the proposed Livingston Pad in Broomfield. I am very concerned about the unknown impacts to our health and safety regarding this project. I feel a large scale operation such as this does not belong so close to homes and subdivisions. I am most definitely not opposed to oil and gas drilling and development because it does serve a useful and viable purpose in our modern day lives. I repeatedly asked our City Council members why negotiations with Extraction did not the locate the pad further away. I know other alternative sites were explored, but no one from the City could ever give me a straight answer about this. Is locating the pad further away from homes something the COGCC could discuss with Extraction? I attended the Town Hall that Mr. Lepore spoke at and I remember him saying he had concerns about the well pad being located so close to our new Broomfield Reservoir. I also hope this concern will also be taken into consideration. I ask that the permits do not get approved at this point until a more viable solution can be found. Thank you for your time.

The recent report on the Windsor explosion, which list several possible reasons for the explosion, goes to show how radically unsafe Extraction's operations currently are. Until all of these factors can be eliminated, drilling permits should not be approved. Add to this other problems like methane leaks and the potential to pollute our reservoir, and there should be no way that these permits should be approved.

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be eliminated, drilling permits should not be approved. Add to this other problems like methane leaks and the potential to pollute our reservoir, and there should be no way that these permits should be approved.

| The Livingston Pad is too close to neighborhoods and water sources. There have been 14 explosions and fires at oil and gas facilities since the one in Firestone that killed Mark Martinez in Joey Irwin in April 2017. There are multiple leaks of oil and gas facilities in Colorado each week. This is unacceptable. Oil and gas extraction is dangerous and deadly and should not be near residential areas. | 03/01/2018 |

Total: 153 comment(s)