



April 18, 2018

Tami Yellico
City and County of Broomfield
1 Descombes Drive
Broomfield, Colorado 80020

Dear Ms. Yellico,

I write this letter as a follow up to our discussion on April 18, 2018. Specifically, City staff has asked Extraction for additional information regarding the implementation of operational changes following the fire that occurred on one of Extraction's well sites in Windsor, Colorado on December 22, 2017 (the "Windsor Incident").

For the purpose of this communication, it is important to note that the fire that occurred on a small portion of our Windsor site was controlled within hours and throughout the incident, was contained at all times to the site.

City staff has requested that Extraction explain differences between its operations in Windsor and those that are planned for Broomfield under our Amended and Restated Operator Agreement (the "Operator Agreement") entered into between Extraction and the City on October 24, 2017.

While Extraction recognizes the State of Colorado as the preeminent authority on oil and gas regulation and though there is no state requirement to provide additional information about this operation, we recognize that this is a topic of question among some Broomfield residents and it is our desire to address some of the key differences between these operations.

It is important to begin by noting that the wells Extraction will drill within the City and County of Broomfield (the "Broomfield Wells") will be done in accordance with the Operator Agreement. As such, the operational design of the Broomfield Wells and associated production facilities are significantly different from those on the well pad associated with the Windsor Incident in a number of ways.

The Windsor Incident occurred during temporary flowback operations, which at the Windsor site in question consisted of flowback liquids from the well, made up mostly of water and some oil, being stored in a series of large, temporary tanks located at the well site. As you are aware, the Operator Agreement we have with the City requires that Extraction install and utilize pipelines for the transportation of oil, gas and produced water and that "the Operator will use pipelines for produced water to the maximum extent feasible."

Extraction does plan on having temporary tanks on location during early flowback for the containment of some of the produced water from the Broomfield wells, which carries proportionately small amounts of hydrocarbons as it flows back from the reservoir. However, unlike the well in Windsor where the flowback tanks were the *primary* destination for all produced water from the well, the flowback tanks for the Broomfield Wells will only be utilized as a *backup* destination to the extent that the capacity of the produced water pipeline is not sufficient to handle peak water volumes. We expect the duration and use of the temporary produced water tanks to be minimal and will only be utilized during peak flowback. Additionally, all oil will flow into pipelines.

All this is to say that many of the contributing factors at play in the Windsor Incident have been designed out of the plans for the Broomfield Wells by specific provisions in the Operator Agreement that require the use of pipelines and the elimination of permanent produced oil or water tanks.

With respect to the Windsor Incident, we have also identified probable gas and ignition sources that could have contributed to the incident. Because it is difficult to pinpoint the exact contributing gas or ignition source as the definitive cause of the incident, we have implemented corrective actions that address **all** of these possible sources in our operations going forward. Again, the principle is to address them ALL.

Comprehensive List of Corrective Actions:

All the following corrective actions have been implemented on all Extraction well pads. The list below encompasses all actions taken regardless of contributing factor:

1. Creation of a new department specifically for enhanced supervision of flowback operations, including a full-time Extraction flowback supervisor role.
2. Updated temporary flowback equipment layout specifications and guidelines.
3. Additional training required for flowback crew contractors.
4. Gas monitoring and detection equipment with flashing beacon installed on all flowback operations.
5. Pad-by-pad sound wall evaluation to increase air circulation.
6. Implementation of automated tank gauging on flowback operations, to avoid need for traditional “tank strapping” that requires the opening of the tanks.
7. Expanded internal Hot Work permitting requirements and additional gas monitoring during Hot Work.
8. Enhanced grounding requirements and inspections to mitigate for static electricity.
9. Comprehensive prestart-up review of flowback design.

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10. Engineered tank gas pipe header systems for temporary flowback.
11. Enhanced operations and maintenance of temporary tank gas lines.
12. Enhanced enforcement of 4-gas monitors worn by all personnel at all times.
13. Enhanced contractor training led by Extraction senior field leaders, with an emphasis on new or revised protocols.
14. In process of implementing remote-powered LED lighting system solutions, rather than diesel engine driven light plants, to eliminate that ignition source.

I would like to close by reiterating two key points: (i) we have addressed all probable contributing factors to the Windsor Incident across all our operations now and into the future and (ii) the scope, scale and duration of our temporary flowback operations in Broomfield are of a considerably smaller scale compared to those at the Windsor Incident. Our goal in Broomfield will be to eliminate temporary flowback entirely, even though we may require some temporary overflow water tankage as per the Operator Agreement.

Thank you in advance for your continued collaboration.

Sincerely,



Eric Jacobsen
Extraction Oil & Gas, Inc.