

## Public Comments

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

### No. Comment

### Comment Date

1

12/08/2016

This is a public comment, submitted on behalf of Gutttersen Ranches, LLC ("Gutttersen"), to the Form 2s (Applications for Permits-to-Drill) and Form 2As (Oil and Gas Location Assessments) submitted by Expedition Water Solutions Colorado LLC ("Expedition") for the proposed EWS 4 injection well in Township 2 North, Range 63 West, Section 18 (NW/4SE/4) and the proposed EWS 4A injection well in Township 2 North, Range 63 West, Section 17 (NE/4NW/4).

Gutttersen is a surface and mineral owner within one-quarter mile of both proposed injection well locations. Gutttersen objects to the proposed EWS 4 and EWS 4A injection well locations for the following reasons:

1.Substantial questions concerning potential impacts to the environment, public health, safety, and welfare

The third in a sequence of earthquakes occurred last month in Weld County, and was felt by residents of Greeley, Evans, and LaSalle, according to local news sources. The first two earthquakes occurred in the summer of 2014, and have been directly linked to injection wells in the area. While a direct link has not been confirmed for the latest earthquake, it is generally suspected that it was also caused by the density of injection wells in the area. The earthquakes constitute a trend in Weld County that follows the same trend seen in adjacent oil and gas producing states, such as Oklahoma, which experienced a magnitude 5.0 earthquake last month due to nearby injection wells. The Oklahoma earthquake was felt in neighboring states and caused significant damage, resulting in gas leaks, injuries, and school closures.

The United States Geological Survey (USGS) is currently developing new methods to evaluate the hazard of induced-earthquakes, i.e., earthquakes caused by injections wells, due to the rapid changes in earthquake rate witnessed in producing states over the past few years. According to the USGS, research shows that much more of the nation faces a significant chance of having damaging earthquakes over the next year. The USGS website recognizes that induced-earthquakes impact public safety and the national economy.

The induced-earthquake safeguards currently utilized by the Commission have proven insufficient, as evidenced by the trend of earthquakes in the Greeley area. The Commission relies on the Colorado Geological Survey (CGS), which relies on USGS data, to provide information regarding the existence of faults near proposed injection well locations. According to the USGS website, there are no faults identified in the Greeley area, despite the three induced-earthquakes that have occurred over the past two years. Furthermore, Expedition has not provided 3-D seismic or other reservoir information that the federal government recently recognized to be necessary to fully analyze seismic risk associated with injection wells. The Environmental Protection Agency's (EPA's) study released last year expressly cautions: "The [Commission] Director should take early prudent action to minimize the potential for injection-induced seismicity rather than requiring substantial proof of the causal relationship." (<https://www.epa.gov/sites/production/files/2015-08/documents/induced-seismicity-201502.pdf>, p. 37).

One of Expedition's proposed injection well locations is only 265 feet from I-76, a heavy-traffic interstate highway that is owned by the state and utilized for interstate commerce. Upon information and belief, the requisite state authorities have not received notice of the proposed injection well locations. In addition, Expedition's proposed injection well locations are located one mile from Keenesburg, which is inhabited by approximately 1,200 people.

Furthermore, the area in which Expedition proposes to drill two additional injection wells already has too many injection wells. According to the Commission's database, there are 15 existing or proposed injection wells within a 15-mile radius of Expedition's proposed injection well locations. For comparison, there are 15 injection wells within a 15-mile radius of the three earthquakes that already rocked Weld County near Greeley. Permitting Expedition to add two more injection wells near Keenesburg would unnecessarily increase a significant risk to the area.

2.Recoverable hydrocarbons

The Commission's rules and regulations expressly prohibit the use of reservoirs with hydrocarbon recovery potential for the injection of produced water, flowback water, used workover fluids, and gas plant waste ("water and waste"). The Commission's rules and regulations also expressly prohibit the waste of recoverable hydrocarbons.

Expedition proposes to inject water and waste into ten formations, including the Lyons Formation, but has provided no information to establish that hydrocarbons will not be recoverable therefrom. The advent of horizontal drilling and continued technological advances by the oil and gas industry make it possible to not only reach the deeper formations, but also make it increasingly likely that economic production will occur therefrom. The deepest proposed formation in Expedition's applications is approximately 10,000 feet; horizontal wells are routinely drilled economically to that depth and deeper in the United States. (See, e.g., the Marcellus and Utica Shale basins).

### 3. Constitutional and civil violations

By Commission policy, the injection volume approved for injection wells is a one-quarter mile radial volume. This means that water and waste injected by Expedition into its proposed injection well locations, subject to approval by the Commission, would be injected into the pore space owned by Guttersen. This prevents Guttersen from utilizing its pore space, which constitutes a constitutional taking of Guttersen's land without just compensation. Likewise, Expedition's proposed injection activities would give rise to civil liability, were Guttersen and other pore space owners within one-quarter mile of the proposed locations to choose to pursue it. If the Commission permitted Expedition's proposed injection well locations, it would be complicit in Expedition's constitutional and civil violations.

### 4. Necessity

As established, there are already a dangerously high number of proposed and existing injection wells in the area in which Expedition proposes to locate two additional injection wells. Also as established, injection wells are an unnecessarily risky enterprise in light of their inducement of earthquakes. Further, it is well-known in the oil and gas industry that technology exists which provides for alternative means of handling water and waste, such as onsite reuse and recycling, that does not pose a significant risk of earthquakes or potential waste of recoverable hydrocarbons. Accordingly, permitting two more injection wells on or near Guttersen's ranch would be unnecessary.

### Conclusion

For the foregoing reasons, Guttersen respectfully requests that Expedition's proposed locations for the EWS 4 and EWS 4A injection wells be denied.

In the alternative, Guttersen requests a public hearing regarding Expedition's proposed locations for the EWS 4 and EWS 4A injection wells. Their proximity to a state-owned interstate highway, the Town of Keenesburg, and Guttersen's ranch, combined with the known causal relationship between injection wells and earthquakes, the density of existing injection wells in the area, and the likelihood of hydrocarbon recovery from Expedition's ten proposed formations necessitate a robust analysis by the Commission, the Colorado Department of Transportation, and various other stakeholders. Likewise, a full recognition of due process is necessary in this case.

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12/08/2016

This is a public comment, submitted on behalf of Cervi Enterprises, Inc. ("Cervi"), to the Form 2s (Applications for Permits-to-Drill) and Form 2As (Oil and Gas Location Assessments) submitted by Expedition Water Solutions Colorado LLC ("Expedition") for the proposed EWS 4 injection well in Township 2 North, Range 63 West, Section 18 (NW/4SE/4) and the proposed EWS 4A injection well in Township 2 North, Range 63 West, Section 17 (NE/4NW/4).

Cervi, like Guttersen Ranches, LLC which has also objected to Expedition's proposed injection well locations, is a large surface and mineral owner in Weld County, with a significant portion of its land located near Expedition's proposed locations. Further, Cervi, along with hundreds of thousands of other Colorado residents, regularly drives on I-76, which is located just 265 feet from Expedition's proposed injection operations. Cervi, along with other Colorado residents, will be directly affected and aggrieved if the Commission were to approve Expedition's proposed injection well locations.

Cervi is aware of a large number of injection wells already in the area, and believes that the addition of two more injection wells at the proposed locations is unnecessary and would pose a significant risk to the environment and public health, safety, and welfare.

Cervi is familiar with the substantial amount of truck traffic created by injection wells utilized to deliver the produced water, flowback water, used workover fluids, and gas plant waste from wells in the area to the injection wells. Additional such truck traffic is undesirable in the area.

Cervi is also familiar with the earthquakes caused by the increased density of injection wells in Weld County. Three earthquakes have shaken the Greeley area in the past two years due to the approximately fifteen (15) injection wells in the area. While no earthquakes have been recorded in the area near Cervi's land yet, Cervi is aware of approximately 15 injection wells in the area at present. The addition of two more injection wells to the area poses unnecessary and unwelcome risk.

Cervi is also familiar with the potentially devastating consequences associated injection-induced earthquakes. A magnitude 5.0 earthquake that shook Oklahoma this month was felt in neighboring states, caused damage to buildings and infrastructure, created gas leaks, and required school closures in the interest of safety. These impacts can be avoided, or at least mitigated, in the area by minimizing additional injections.

Cervi is also familiar with existing drilling practices that permit operators to economically recover oil and gas from formations as deep as the formations that Expedition proposes to inject produced water, flowback water, used workover fluids, and gas plant waste at the proposed injection well locations. Cervi does not believe Expedition should be permitted to pollute such formations at this time, as they may be available and necessary for oil and gas production now or in the future.

Cervi is not familiar with any actions taken by Expedition to mitigate the risks associated with its proposed injection wells, or to verify the information provided to the Commission and to the public in its application materials. For example, Expedition has not provided any 3-D seismic or other information to analyze the risk of injection-induced earthquakes in the area. Similarly, Expedition has conducted no downhole testing in the area, and provided no basis for its assertion that the proposed formations have total dissolved solids measurements in excess of that which would be deemed suitable for drinking water. Until the proposed formations are proven to be undrinkable and hydrocarbons are proven unrecoverable, the Commission cannot permit Expedition to pollute them.

For the foregoing reasons, Cervi objects to Expedition's proposed injection well locations and requests that the Commission deny Expedition's request to locate injection wells in the area. In the alternative, Cervi demands due process, inclusive of notice to interested parties and public hearing, so as to permit interested parties, such as the Colorado Department of Transportation, the Town of Keenesburg, Cervi, Guttersen, and other residents of the area, to be heard.

Total: 2 comment(s)