

Adam Jokerst

From: Adam Jokerst
Sent: Tuesday, December 15, 2020 3:32 PM
To: Kristin Zasada
Cc: John Gates; Dale Hall; Edward Clark; Thomas Butler; Brett Payton; Michael Fitzsimmons; Roy Otto; Sean Chambers; Harold Evans
Subject: RE: follow-up question regarding mineral rights

Councilwoman Zasada,

Thank you for allowing us time to research our earlier diligence on the potential for oil and gas development at Terry Ranch.

Currently there are no producing oil and gas wells on Terry Ranch (which in this response includes both lands owned by the Terry Grazing Association and intervening State of Colorado lands). Our research of permits and records found 11 exploratory bores drilled on the Terry Ranch over the years, but all have been formally abandoned. This lack of development is a good indication that drillers have not located suitable hydrocarbon reserves. Longs Peak Resources currently hold four permits for wells on Terry Ranch lands, pending since 2017 and 2018, but have made no moves to develop wells even when oil prices were trading above \$70 per barrel, which is another indication of unsuitable energy resources on the ranch.

The majority of mineral rights at Terry Ranch are owned by Etchepare LLC and the State of Colorado. A minor amount is owned by the Terry Grazing Association (the surface owner) and Anadarko Land Corp. We examined mineral right leases for these owners going back to 2015 and compared the lease rates with other northern Weld County properties with known active and potential energy development. We found that lease rates on Terry Ranch were relatively very low: \$1 to \$70 per acre on Terry Ranch compared to \$110 to \$1,200+ per acre on nearby properties. Lease rates are another indication of low hydrocarbon resources.

We cannot say with certainty that there will be no future oil and gas development on Terry Ranch. There could be technological advances in the future that make it profitable to extract even low levels of hydrocarbon. However, that scenario seems unlikely today.

Were oil and gas development to occur in the future, Colorado Oil and Gas Conservation Commission (COGCC) regulations on oil and gas well design, construction, and surface activities would provide Greeley some security for ongoing protection of Terry Ranch groundwater. Terry Ranch groundwater is formally recognized by the COGCC as a drinking water supply, and as such, drillers are required to document and take additional precautions in oil well construction. Such precautions include robust well casing requirements that must extend through the groundwater and requirements that groundwater is tested prior to drilling and after completion. Reports of well casing failures leading to groundwater contamination are rare. The more likely source of water contamination from drilling is surface spills of drilling fluids, oil, and fuel. The COGCC already requires that any spill (including water) on a drilling location of one barrel (42 gallons) be reported and addressed. Moreover, COGCC can apply special conditions to drilling permits to reduce surface contamination risks. Surface contamination risk is mitigated as the Terry Ranch groundwater is confined to a deep aquifer and where in many locations layers of shale and other impervious rock overlie the aquifer. Relative to the shallow groundwater near Greeley, the deep nature of Terry Ranch groundwater provides some natural protection.

It should also be noted that oil and gas development will occur many 1,000s of feet below the Terry Ranch groundwater. Between the hydrocarbon formations and Terry Ranch groundwater are several thick layers of shale and coal bedrock that prevent contaminants moving between the oil producing zone and the groundwater. Oil and Gas development has been ongoing under the Laramie-Foxhills aquifer, which serves water to several Denver Metro

communities, since the 1960s. To our knowledge, there have been no reports of contamination to the Laramie-Fox Hills aquifer.

Additionally, were oil and gas development to occur in the future, Greeley would have options to protect potential contamination of groundwater.

- Greeley could intervene in COGCC hearings under Rule 303.j to request permits be withheld if Greeley can demonstrate drilling “presents an imminent threat to public health, safety, and welfare or the environment...”
- Greeley could intervene in the Weld County surface location permitting process to show Greeley will be negatively impacted. Although the county process cannot prevent drilling, it can alter the location of drill pads.
- Greeley could buy the mineral rights outright. Acquisition has not been pursued given the low risk discussed above, but could be in the future if oil and gas drilling on the ranch appears imminent. Staff is currently researching the potential costs of mineral right acquisition. Greeley would not be able to acquire the mineral rights held by the State of Colorado as the state is statutorily prohibited from disposing of its mineral estate.

The information we have collected gives staff and our consultants confidence that the City is well protected from future potential development of oil and gas on Terry Ranch. Please let us know if this adequately answers your questions. We are happy to provide more information if you would like.

Best Regards,



Adam Jokerst, PE

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Note: This email references four well permits on Terry Ranch. More correctly, there are permits for four well pad sites. Each site contains multiple wells.