



## COLORADO

### Oil & Gas Conservation Commission

Department of Natural Resources

1120 Lincoln Street, Suite 801  
Denver, CO 80203

#### MEMORANDUM

February 8, 2016

**TO:** Robert P. (Bob) Koehler, PhD.  
Oil and Gas Conservation Commission

**FROM:** Chris Eisinger  
Colorado Oil & Gas Conservation Commission

**SUBJECT:** Seismic Evaluation, Ursa Watson Ranch B 24AWI-17-07-95, API # 045-22801

I have reviewed the location for the proposed injection well. No published Cenozoic fault traces have been mapped in the immediate local region. Seismic data provide by a nearby operator shows cretaceous faults at depth (including in the Illes Formation) approximately 6-7 miles to the southwest of proposed injection site. Interpretations indicate these faults are limited in their depth and do not extend into the Precambrian basement >9,000' below.

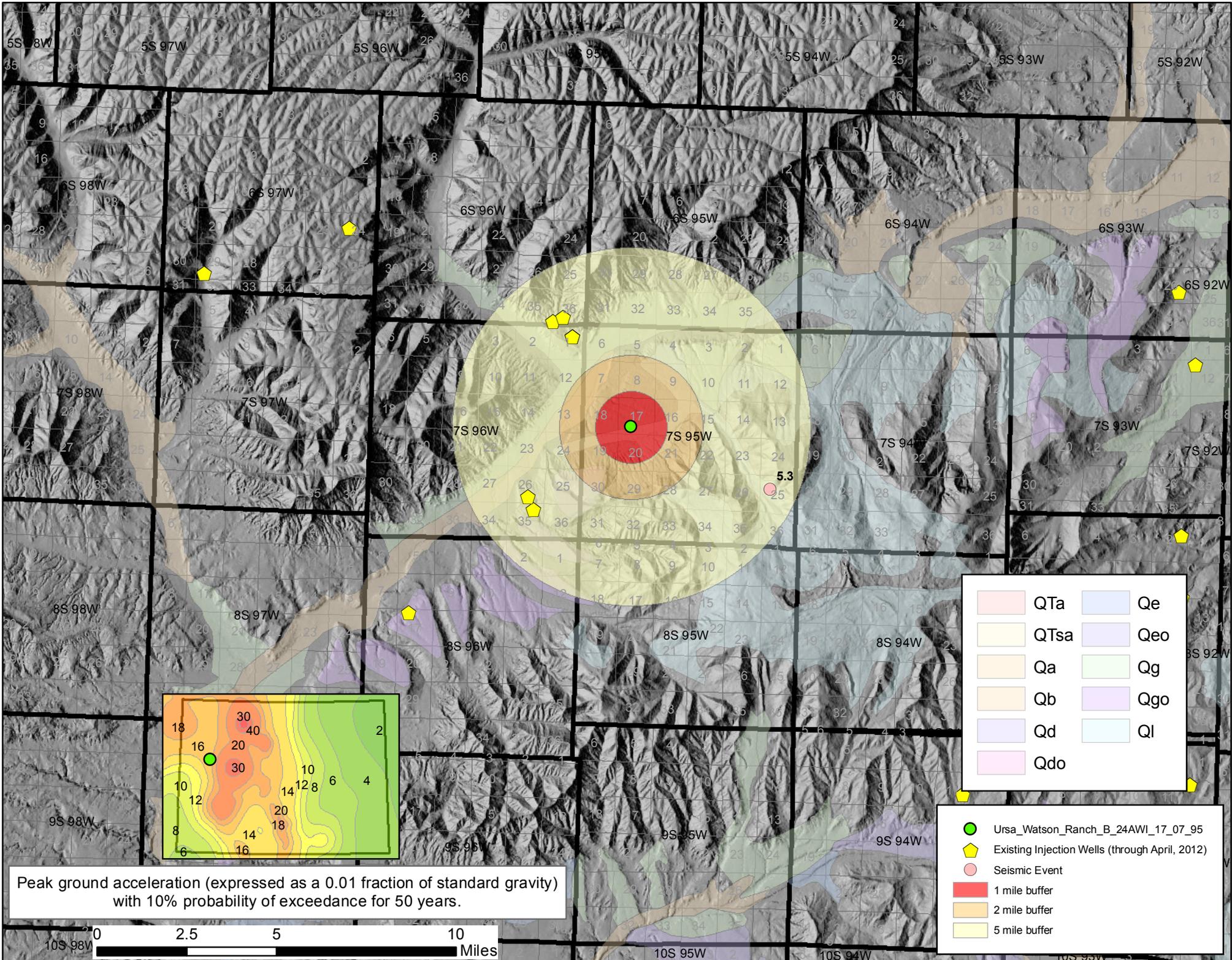
The USGS National Earthquake Hazard Map shows areas susceptible to ground shaking during fifty year intervals. This part of Colorado is an area that has been designated as being susceptible to a higher PGA than much of the State (approximately two times greater than the Front Range Urban Corridor).

The proposed injection intervals are in the Cozette and Corcoran Members of the Illes Formation – more than 9,000' above the Precambrian basement rock at this location.

There are 5 existing injection wells within 5 miles of the proposed injection well.

The likelihood of triggering earthquakes at this location appears low at the proposed maximum injection rate of 5,000 bbl/day. If any seismic activity is detected subsequent to the initiation of injection, then it would be advisable to install a local network of seismometers to determine whether activity is related to the injection, and manage injection volumes and rates correspondingly.

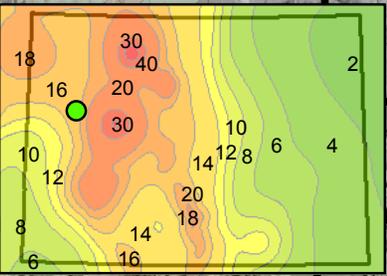




Peak ground acceleration (expressed as a 0.01 fraction of standard gravity) with 10% probability of exceedance for 50 years.

QTa	Qe
QTsa	Qeo
Qa	Qg
Qb	Qgo
Qd	Ql
Qdo	

- Ursa\_Watson\_Ranch\_B\_24AWI\_17\_07\_95
- ⬠ Existing Injection Wells (through April, 2012)
- Seismic Event
- 1 mile buffer
- 2 mile buffer
- 5 mile buffer



0 2.5 5 10 Miles