

The Atlas D Missile Site 4 trichloroethylene (TCE) plume is the largest TCE plume in the nation.

Trichloroethylene is a known carcinogen and is a cause of birth defects.

This dialogue is intended to explain the map of the trichloroethylene (TCE) plume which originated at the Atlas D Missile Site 4 eighteen miles west of Cheyenne, Wyoming. It is important to understand the location of the Atlas D Missile Site 4 Trichloroethylene ground water contamination plume in relation to Terry Ranch.

The Atlas D Missile Site 4 is just South of I-80. *The (TCE) plume emanating from it is now 12 miles long and 3 miles wide, according to the Wyoming Department of Environmental Quality. Atlas Site 4's TCE concentrations in the groundwater exceeds 240,000 parts per billion, well above Safe Drinking Act limit of 5 parts per billion.*¹ As a matter of fact, the TCE at the site is 48,000 times the safe drinking water limit.

It is quite possible that the TCE plume will turn South and follow the Lone Tree Creek geology to Terry Ranch and its Upper Laramie aquifer recharge area . The TCE plume has advanced 12 miles in 60 years towards the Ranch. The TCE plume is within 6 miles of the Northern border of Terry Ranch and the highest capacity water producing well on the Ranch. Judging from the historic rate of travel it could take 30 years, plus or minus, to get to Terry Ranch.

As a practical matter, the geology in the area is complex, and the presence, location, nature, and extent of lenses of highly permeable material, fractures and solution holes are never completely understood.

*However, buried paleo-drainages that generally mimic the surface topography exist, such as the drainage pattern of Lone Tree Creek. These paleo-drainages represent preferential groundwater flow pathways.*²

If this is true, then the TCE plume would likely follow the Lone Tree Creek pathway and travel to the Terry Ranch. While the City of Greeley's staff considers the Brule Member of the White River geologic formation a confining impermeable geologic formation that might impede downward seepage of the TCE plume into the Upper Laramie (Terry Ranch) formation, it would be a mistake to do so. *It would likely be incorrect, however, to simply consider the Brule a confining unit throughout the Site 4 study area.*³

The US Corps of Engineers (USACE) has been trying to model the trajectory of the TCE plume but is having difficulty producing a reliable model because of the complexity of the geological formations. Note the USACE Expanded Study area which covers the area between the East end of the plume and the Northern border of Terry Ranch. The expanded study area indicates that USACE believes the plume could possible head south to Terry Ranch. It is hard to ignore the US Corps of Engineers' good judgement. However,

¹ STATEMENT OF THE HONORABLE JOHN BARRASSO, A UNITED STATES SENATOR FROM THE STATE OF WYOMING, Cleaning Up Our Nation's Cold War Legacy Sites, Homeland Security digital Library March 29, 2017, page 4

² US Army Corps of Engineers, Final Area-Wide Remedial Investigation Report Former Atlas D Missile Site 4, P XIV

³ US Army Corps of Engineers, Final Area-Wide Remedial Investigation Report Former Atlas D Missile Site 4, P 5

Adam Jokerst, Deputy Director of the Greeley Water Department, seems more than willing to ignore this good judgment.

Considering the interesting surprises that lurk in underground geology, the City of Greeley should not invest in or depend on the Terry Ranch as its future source of water for Greeley Citizens. Greeley Citizens deserve the right to vote on this most important issue.