

Fracture traces and lineaments

Linear features defined by aligned surface depressions, gaps in ridges, soil tonal changes, variations in soil moisture, aligned springs and seeps, surface ponds, abrupt changes in valley alignment or changes in vegetation type are referred to as fracture traces (less than 1.5 km in length) or lineaments (greater than 1.5 km in length). Fracture traces and lineaments are typically straight, are unaffected in their alignment by topography and are considered to be controlled by vertical to near vertical fracture zones. These zones may have high permeability and porosity and thus, are often targeted during ground water exploration. Spiller (1979) suggested that wells located on mapped fracture traces in the Ramseyburg member produce more water than wells not located on fracture traces. He further suggested that yields of fracture trace and non-fracture trace wells in the Pen Argyl member did not appear to differ significantly.

No lineaments have been identified within the study area from satellite imagery (Kowalik and Gold, 1976). Several fracture traces based on mapping of photo-linear features were identified within the study area by Poth (1972) and Spiller (1979). All of the fracture traces were northwest trending (Figure 8). Comparison of orientations of fracture traces with structural features (Figure xx) shows that they are perpendicular to the structural fabric in the area with the exception of a weakly developed joint set to which they are parallel. The lack of coincidence of fracture trace orientations with a prominent element of the structural fabric and the observation that, in many cases, the mapped fracture traces extend across thick unconsolidated deposits suggests they are unlikely to represent bedrock fracture zones. The mapped fracture traces are more or less parallel to the slope of the area and in some cases may represent post glacial drainage development and colluviation in unconsolidated deposits.