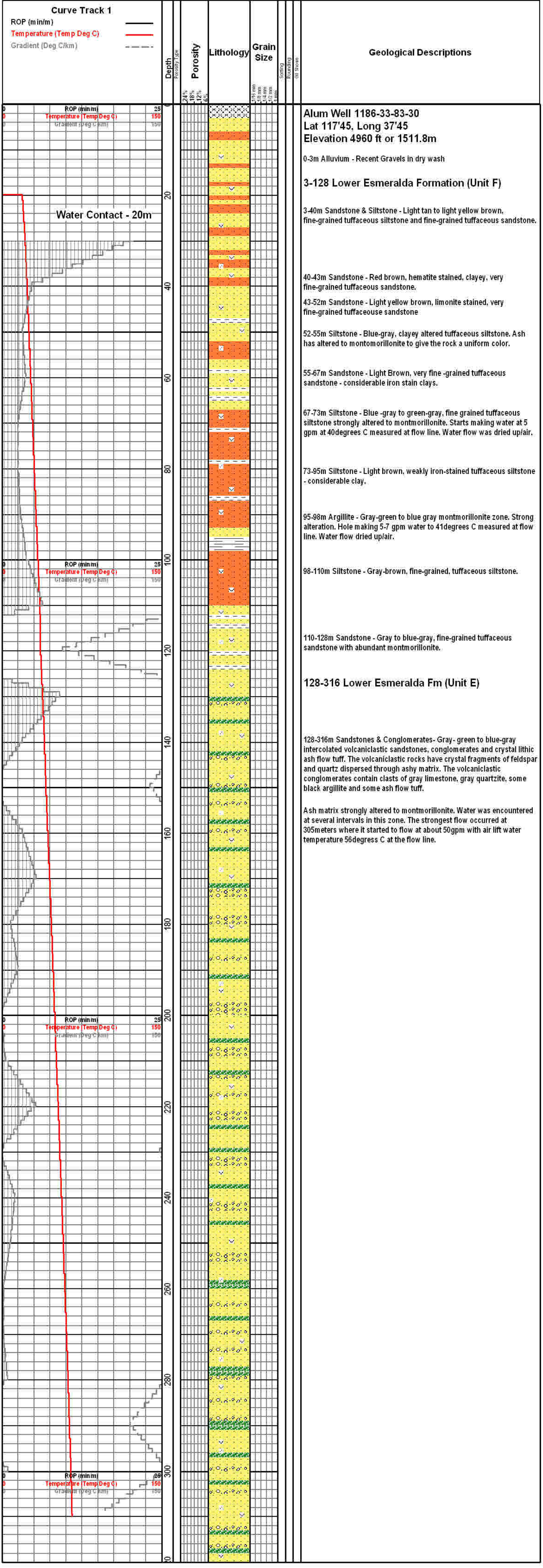

Geological Descriptions

Alum Well 1186-33-83-30
Lat 117'45, Long 37'45
Elevation 4960 ft or 1511.8m

0-3m Alluvium - Recent Gravels in dry wash

3-128 Lower Esmeralda Formation (Unit F)

3-40m Sandstone & Siltstone - Light tan to light yellow brown, fine-grained tuffaceous siltstone and fine-grained tuffaceous sandstone.

40-43m Sandstone - Red brown, hematite stained, clayey, very fine-grained tuffaceous sandstone.

43-52m Sandstone - Light yellow brown, limonite stained, very fine-grained tuffaceouse sandstone

52-55m Siltstone - Blue-gray, clayey altered tuffaceous siltstone. Ash has altered to montomorillonite to give the rock a uniform color.

55-67m Sandstone - Light Brown, very fine -grained tuffaceous sandstone - considerable iron stain clays.

67-73m Siltstone - Blue -gray to green-gray, fine grained tuffaceous siltstone strongly altered to montmorillonite. Starts making water at 5 gpm at 40degrees C measured at flow line. Water flow was dried up/air.

73-95m Siltstone - Light brown, weakly iron-stained tuffaceous siltstone - considerable clay.

95-98m Argillite - Gray-green to blue gray montmorillonite zone. Strong alteration. Hole making 5-7 gpm water to 41degrees C measured at flow line. Water flow dried up/air.

98-110m Siltstone - Gray-brown, fine-grained, tuffaceous siltstone.

110-128m Sandstone - Gray to blue-gray, fine-grained tuffaceous sandstone with abundant montmorillonite.

128-316 Lower Esmeralda Fm (Unit E)

128-316m Sandstones & Conglomerates- Gray- green to blue-gray intercolated volcaniclastic sandstones, conglomerates and crystal lithic ash flow tuff. The volcaniclastic rocks have crystal fragments of feldspar and quartz dispersed through ashy matrix. The volcaniclastic conglomerates contain clasts of gray limestone, gray quartzite, some black argillite and some ash flow tuff.

Ash matrix strongly altered to montmorillonite. Water was encountered at several intervals in this zone. The strongest flow occurred at 305meters where it started to flow at about 50gpm with air lift water temperature 56degress C at the flow line.