Practical Use of Flexible Liner Transmissivity Profiling Results Carl Keller (*FLUTe*) What is a *FLUTe* profile? <u>Answer</u>: A map of the transmissivity distribution in a borehole obtained with a liner. The liner installation The liner descent rate multiplied by the hole cross-section is the flow Using the "total transmissivity" curve: Water Addition hose Liner head measurement rate out of the hole. A change in the liner descent velocity occurs when a Liner on reel (inside out) Transmissivity from 20-23.8 m flow path is sealed. The change in flow rate is the flow into the flow path $= 4.47 - 3.0 \text{ cm}^2/\text{s} = 1.47 \text{ cm}^2/\text{s}$ (a bed or fracture). That flow rate change over that interval of the hole determines that flow feature's transmissivity. Surface casing **Measured flow rate Transmissivity over 0.3m Transmissivity over 0.3m Total Transmissivity** $\Delta \mathbf{H}_{\mathbf{L}}$ Other information: Initial H_{RH} with liner below indicated depth (linear scale) (log scale) Fractures $m^3/m/s$ cm^{2}/s cm²/s cm^2/s Total borehole 0.0006 0.0004 0.0002 0.01 0.001 transmissivity **Original water** $5.06 \text{ cm}^2/\text{s}$ Optional in hole pushed 10 transducer into formation

The transmissity calculation



Flow rate into the fracture, $\Delta Q = A(V_1 - V_2)$, where $V_1 > V_2$ 100 $T = \Delta Q \ln(r_0/r_w)/(2 \pi \Delta H_{BH})$ in the interval Z_1 to Z_2 ,





Conductivity = $1.47 \text{ cm}^2/\text{s}/3800 \text{cm} = 3.9 \text{e}-04 \text{ cm/s}$



