

M. J. Hunt Report Report

**D.1.5 Finding the tortuosity.** In Section 5 we also derive a formula to deduce the flow path in the reservoir. The case wave shown in Figure 5.1 has a dimensionless amplitude times frequency and 25. Mathematically, the path (arc) length is the straight-line path multiplied a factor  $\frac{2}{\sqrt{1+2^2}} \sqrt{1+2^2} (1+2^2)$  whose value is around 1.38.  $\tau$  is the complete elliptic integral of the second kind (Abramowitz and Stegun, 2008). The tortuosity I find is at the lower end of values computed for other channel turbidites (Dybdal and Gjelten, 2008).

**D.1.6 Finding the connectivity.** I have found the connected area  $A_c$  from the pressure analysis (Section D.1.4 above). I also know the gross rock volume  $V=Ah$  from the BP seismic analysis (see Table A.6). I assume that the disconnected area is resolved at the limit of the seismic interpretation with an average thickness  $h_L = 10$  ft (see Section 5). Then the connected volume is  $V_c = Ah - (A - A_c)h_L$ . The connectivity is  $V_c/Ah = 1 - (1 - A_c/A)(h_L/h)$ . I find the values shown in Table D.4.

This is an upper bound on connectivity: I use the upper bound on permeability and the lower possible bound on thickness at the periphery of the field. The average thickness in the connected region varies

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