D.1.5 Finding sinuosity. In Section 5 we also derive a sinuosity to deduce the flow path in the reservoir. The sine wave shown in Figure 5.1 has a dimensionless amplitude times frequency ε=0.75. Mathematically, the path (arc) length is the straight-line path multiplied a factor $\frac{2}{\pi}\sqrt{1+\varepsilon^2}E(\varepsilon^2/(1+\varepsilon^2))$ whose value is around 1.14. E is the complete elliptic integral of the second kind (Abramovich and Stegun, 1970). The tortuosity I find is at the lower end of values computed for other channel turbidites (Dykstra and Kneller, 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_t = 10 ft (see Section 5). Then the connected volume is: $V_c = Ah - (A - A_c)h_t$. The connectivity is $V_c/Ah = 1-(1-A_c/A)(h_t/h)$. I find the values shown in Table D.4.

This is an upper bound on connectivity: I take the upper bound on permeability and the lower possible bound on thickness at the peripheries of the field. The average thickness in the connected region varies between 69 and 89 ft, see Table D.5, close to that encountered at the well (93 ft). Technically, the pressure analysis finds a mobility, or a permeability times thickness. In my analysis and that of Dr. Gringarten, this is assumed to be the height near the well (93 ft) in the radial flow period. However, as evident from the seismic interpretation, Figure 4.5, the height away from the well is lower. In our connected domain, this means that the mobility is slightly lower away from the well. However, this value still exceeds the base-case mobility determined in the Gringarten report, using a mid-range

Gringarten, this is assumed to be the height near the well (93 ft) in the radial flow period. However, as evident from the seismic interpretation, Figure 4.5, the height away from the well is lower. In our

High case rock compressibility	88	88	87
Mid case rock compressibility	89	89	88
Low case rock compressibility	90	90	89

Table D.4. The connectivity for the full range of fluid and rock compressibilities. Note that a high compressibility leads to lower connectivity, since the pressure response moves slower.

Connected thickness (ft)	Fluid properties		
	High (Core Labs)	Middle (Schlumberger)	Low (Intertek)
High case rock compressibility	89	84	84
Mid case rock compressibility	81	76	76
Low case rock compressibility	74	69	69

Table D.5. The connected thickness for the different ranges of fluid compressibilities.

[redacted]