Drainage area (Ae)

The area around a producing or injecting well where reservoir fluid is forced moving by the well operation.

In other words, the area, where reservoir fluid is moving along the streamlines which either stem from injecting well or end up at producing well.

For homogeneous reservoir it can be estimated as:

(1) $$A_e = \frac{V_e}{h_e \, \phi_e}$$

where

V_e	drainage volume
$h_e = \text{const}$	effective formation thickness
$\phi_e = \text{const}$	effective porosity

It is often related to drainage radius r_e as:

(2) $$A_e = \pi \, r_e^2$$

which can be is misnomer for other shapes of drainage area.

See also

Physics / Fluid Dynamics / Percolation

Petroleum Industry / Upstream / Subsurface E&P Disciplines / Field Study & Modelling / Drainage (fluid flow)

[Drainage volume V_e] [Drainage radius (r_e)]