

MultiLateral

MultiLateral™ is a multi-purpose well evaluation tool that can be utilized for:

- Multi-lateral wells or multi-fractured wells, with up to 8 drains (A drain is either a lateral hole or a vertical fracture.)
- Any configuration of drains can be analyzed
- History matching to determine reservoir parameters
- Optimization of well design parameters

Key Features:

- Results are graphically displayed with multiple plots:
 - Rate vs. Time (Semi-log)
 - Rate vs. Time (log-log)
 - Cumulative Production vs. Time
 - Rate vs. Cumulative
- Gas or oil production forecasts
- Reservoir forecasts for a constant rate or constant pressure
- Either homogeneous or naturally fractured reservoirs can be modeled
- Cartesian and Cylindrical coordinates systems for describing drains
- Hierarchal data entry to reduce data errors and users input time

Proven and Improved through years of use in JTI Projects Worldwide

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JTI SOFTWARE: METHODS AND FEATURES

MultiLateral™ is a practical tool that can be used for stand-alone evaluations or as a screening tool for more in-depth studies.

The image displays three overlapping screenshots of the MultiLateral software interface, showing different configuration screens.

Top-Left Screenshot (General Tab): Shows the 'MultiLateral Input Screen' with tabs for General, Fluid, Reservoir, Well, Decline, Forecast, and History. The 'General' tab is active. It displays 'Reservoir ID: NoHist_Arps_BP2' and 'Case ID: Dr2_Case154'. Under 'Decline Curve Analysis', 'Arp's and Fetkovich Decline Curve Analysis' is selected. The 'Decline Exponent (b)' is set to 0.3, and the 'Decline Coefficient' is 0.0 1/years. A checkbox for 'Calculated by program' is checked. The 'Num. of Back Pressure Changes' is set to 2.

Top-Right Screenshot (Reservoir Tab): Shows the 'MultiLateral Input Screen' with the 'Reservoir' tab active. It displays 'Reservoir ID: Hist_Const' and 'Case ID:'. The 'Reservoir Pressure' is 8600 psi, 'Drainage Area' is 640 acres, 'X/Y Ratio' is 1, 'Net Pay Thickness (h)' is 12 ft, 'Horizontal Permeability (Kh)' is 50 md, and 'Ver/Horiz. Permeability Ratio' is 0.1. Other fields include 'Fracture Length (ft)' (0.18 fraction), 'Fracture Spacing (ft)' (0.25 fraction), 'Fracture Width (in)' (248 in), and 'Fracture Conductivity (d/Msc)' (0).

Bottom Screenshot (Well Tab): Shows the 'MultiLateral Input Screen' with the 'Well' tab active. It displays 'Reservoir ID: Hist_Arps_BP2xy' and 'Case ID: Dr2_Case74'. The 'Coordinate System' is set to Cartesian. The 'Number of Drains' is 2. A note states: 'N.B.: The data in the grid below is updated after you change rows.' The grid below shows the following data:

Drain #	Elevation, ft	Rw, ft	Fracture	Skin	XStart, ft	YStart, ft	XEnd, ft	YEnd, ft
1	10	0.33	1	0	0	100	0	500
2	6	0.33	1	0	0	0	500	500

Below the grid are two graphs: 'Areal View of Drains' and 'Horizontal View of Drains'. The 'Areal View of Drains' shows a 2D plot of the well and fracture locations. The 'Horizontal View of Drains' shows a 2D plot of the well and fracture locations. The 'JOSHI' logo is visible in the bottom right corner of the window.

MultiLateral™ forecasts include a transient solution coupled with decline equations for the depletion period to give a forecast that is rigorous and flexible to account for various drive mechanisms.