## Feature descriptions

- \*\*treatment company\*\*: The treatment company who provides treatment service.

- \*\*azimuth\*\*: Well drilling direction.

- \*\*md (ft)\*\*: Measure depth.

- \*\*tvd (ft)\*\*: True vertical depth.

- \*\*date on production\*\*: First production date.

- \*\*operator\*\*: The well operator who performs drilling service.

- \*\*footage lateral length\*\*: Horizontal well section.

- \*\*well spacing\*\*: Distance to the closest nearby well.

- \*\*porpoise deviation\*\*: How much max (in ft.) a well deviated from its horizontal.

- \*\*porpoise count\*\*: How many times the deviations (porpoises) occurred.

- \*\*shale footage\*\*: How much shale (in ft) encountered in a horizontal well.

- \*\*acoustic impedance\*\*: The impedance of a reservoir rock (ft/s \* g/cc).

- \*\*log permeability\*\*: The property of rocks that is an indication of the ability for fluids (gas or liquid) to flow through rocks

- \*\*porosity\*\*: The percentage of void space in a rock. It is defined as the ratio of the volume of the voids or pore space divided by the total volume. It is written as either a decimal fraction between 0 and 1 or as a percentage.

- \*\*poisson ratio\*\*: Measures the ratio of lateral strain to axial strain at linearly elastic region.

- \*\*water saturation\*\*: The ratio of water volume to pore volume.

- \*\*toc\*\*: Total Organic Carbon, indicates the organic richness (hydrocarbon generative potential) of a reservoir rock.

- \*\*vcl\*\*: The amount of clay minerals in a reservoir rock.

- \*\*p-velocity\*\*: The velocity of P-waves (compressional waves) through a reservoir rock (ft/s).

- \*\*s-velocity\*\*: The velocity of S-waves (shear waves) through a reservoir rock (ft/s).

- \*\*youngs modulus\*\*: The ratio of the applied stress to the fractional extension (or shortening) of the reservoir rock parallel to the tension (or compression) (giga pascals).

- \*\*isip\*\*: When the pumps are quickly stopped, and the fluids stop moving, these friction pressures disappear and the resulting pressure is called the instantaneous shut-in pressure, ISIP.

- \*\*breakdown pressure\*\*: The pressure at which a hydraulic fracture is created/initiated/induced.

- \*\*pump rate\*\*: The volume of liquid that travels through the pump in a given time. A hydraulic fracture is formed by pumping fluid into a wellbore at a rate sufficient to increase pressure at the target depth, to exceed that of the fracture gradient (pressure gradient) of the rock.

- \*\*total number of stages\*\*: Total stages used to fracture the horizontal section of the well.

- \*\*proppant volume\*\*: The amount of proppant in pounds used in the completion of a well (lbs).

- \*\*proppant fluid ratio\*\*: The ratio of proppant volume/fluid volume (lbs/gallon).

- \*\*production\*\*: The 12 months cumulative gas production (mmcf).