Hackathon Data Definitions

Well Name

Wells with similar names are on the same pad. For example, the Cameron 1H and Cameron 2H are 2 horizontal wells on the same pad. Wells with similar names have been completed at the same time. These are masked names and trying to search for these on the internet will not yield useful results.

 # Stages

This is the number of stages that the well was completed with. Each stage consists of setting a plug, firing perforating guns, and pumping the fluid, proppant, and any additives required for the stage. All of the stages on one well are normally the same length (it is very abnormal to vary stage lengths within one well).

Estimated Average Stage Time

Before frac, the time the stage will take to complete is estimated by dividing the total volume of slurry that the stage requires by the average rate that the slurring is pumped at. The unit for this column is in minutes.

Actual Average Stage Time

After frac, the time it took to complete each stage is determined and an average value for the well is calculated. An example of why a stage would take longer than planned is if there is an issue at surface and the pumps need to be shut down mid stage. In that case, extra fluid and pump time will be needed to get back into the stage and reinitiate the fracture. Sometimes, a stage will take less time than expected and this could happen if the pumps are able to pump the slurry at a rate higher than initially planned for. When the design is pumped at a higher rate, the slurry is pumped downhole faster, and the time it takes to complete the stage is shorter than planned for. This data isn't available pre-frac but it can be used to determine how accurate the estimated average stage times are based on fleet type, target formation, and other well features that are known before frac.

Frac Fleet

Represents which fleet /crew performed the frac.

Fleet Type

Zipper fleets pump slurry downhole on one well at a time while Simul fleets pump slurry downhole on two wells at the same time. Zipper fleets can achieve higher rates than simul fleets (typically zipper rates are ~25% greater than simul rates).

Target Formation

This column represents which layer of rock is being frac'd. All wells in the 'Longhorn' formation will be targeting rock that is similar in TVD and rock properties.

Field Area

This represents where the well is placed geographically. All wells that are in the 'CPE' area are located near one another and wells in the same field area and same formation will be targeting rock that has very similar rock properties.

Ambient Temperature

This is the average temperature in degrees Fahrenheit for the days that the well has being frac'd. Ambient temperature can affect the efficiency of the pumps.

Grid

Shows the number of kWh this well consumed during frac. If there is a 0, this pad did not use grid energy. Any grid power used to power surface equipment is not included in this value.

Diesel

Shows the gallons of diesel this well consumed during frac. If there is a 0, this pad did not use diesel energy to frac the well. Any diesel used to power surface equipment is not included in this value.

CNG

Shows the MMBTUs of compressed natural gas consumed during frac. If there is a 0, this pad did not use CNG to frac the well. Any CNG used to power surface equipment is not included in this value.

Fuel Type

Represents what type of fuel the fleet used to frac the well. Diesel fleets only consume diesel fuel, DGB fleets consume a mixture of diesel and CNG, Turbine fleets only consume CNG, and grid fleets only consume grid power.