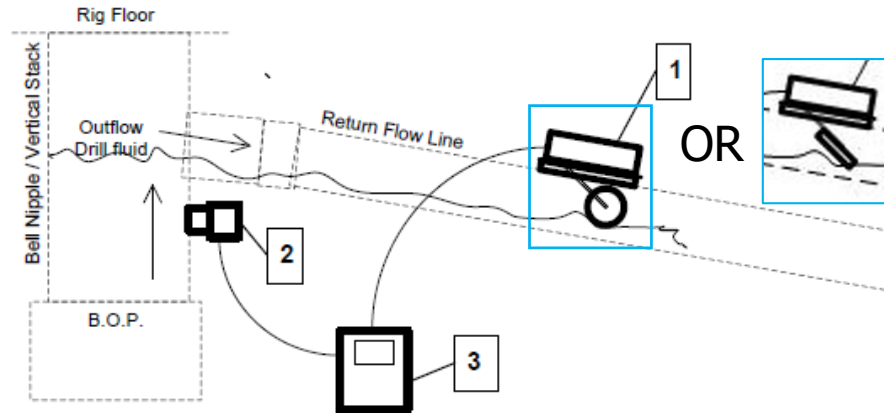


Flow Out with AFH (Annulus Flow Height)

INPUTS FROM 2 SENSORS, 1 FLOW OUT READING (% OR GPM)

Flow Out Measurement Challenge:

- For ANY sensor type on flow line location - loses sensitivity on low flows, momentary changes, flowback



Bell Nipple Sensor (can use one or both Density @BN probes)

- One 3-inch diameter probe flushed at the bell nipple / vertical stack
- Best location to see smallest changes in outflow
- Best location to characterize flowback curve shapes distinguishing amongst normal pumps-off, extra flow peaks (burps), ballooning, and low flow micro influxes.

Flow Line sensor : Encoder-type, Radar-type, RFM



- **Earliest indicators of well anomaly warning signs**
- **See micro and momentary influx and loss which are invisible to most flow line sensors**
- **Track flows down to zero**