Gas Recovery Cleanout Process

What is it?

- A process for utilizing pipeline gas as the carrying fluid during the cleanout phase of a new well completion.
- Gas returns from the well are not vented or flared to the atmosphere, but are sold directly into the pipeline.
Completion Process

- Drill
- Log
- Stimulation/Flowback
- Meter/Pipeline Setup
- Completion Rig/Gas Recovery Cleanout
- First Delivery

Conventional Cleanout Process

1. Air
2. Compressor
3. Compressed Air
4. Well
5. Gas, Water, & Sand
6. Temporary Lined Flowback Pit
Gas Recovery Cleanout Process

Weatherford Package
Weatherford Package

Gas Recovery Cleanout Process

Benefits:
- Less than 10ppm O₂ concentration
- Reduce risk of down hole fire
- Recovers and monetizes gas that would otherwise be vented

Disadvantages:
- Increased Cost (~$4,000/day)
- More equipment on location
- Combustible gas in surface piping
Gas Recovery Cleanout Process

Phase 1: FTC Completions in Colorado
- Eight wells frac’d with a x-linked gel, eliminating N2 issues
- All wells were connected to a COP operated gathering system
- Net Sales = 16.068 MMCF (~2.0 MMCF/well)

Phase 2: DK Standalone Completions in New Mexico
- Ten wells frac’d with slickwater, eliminating N2 issues
- Connected to third party gathering systems
- Proved that 10ppm O2 specs could be met
- Net Sales = 60.222 MMCF (~6.0 MMCF/well)

Gas Recovery Cleanout Process

Phase 3: MV/DK, DK Standalone, & FTC Completions
- 100+ wells
- Incorporated wells completed with N₂ energized frac’s

Results:
- MV/DK discovered to be the most profitable formation for the gas recovery cleanout system (~14.5 MMCF/well)
- Developed a process to get the N₂% down for the pipelines

Net Sales = +1.2 BCF (~14.5 MMCF/well), as of 3/2010
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Rigs utilizing gas recovery cleanout:

- Drake #24 – Johnny Knight/ JD Griffith (2007)
- Drake #26 – Andy Jackson/ JD Griffith (Nov. 2008)
- Aztec #378 – Ronnie Rivera/ Vic Montoya (May 2009)
- Aztec #448 – Vic Montoya/ Wayne Shenefield (Dec. 2009)

Steps Forward

- Continue letting the pipeline companies know when we are using a gas recovery cleanout many wells in advance.
- Apply for amendments in rules and regulations regarding royalties and date of first delivery.
- Integrate new gas recovery cleanout packages as they become available with Weatherford, as well as other vendors.
- Purchase Williams designed metering skids for District Tools.
Williams Metering Skid

Questions

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