Green Flowback Process

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Background

In the early days, oil was the primary saleable commodity.

The associated gas was vented or flared to the atmosphere.
Methane Emissions

• The venting of methane is 23 times more damaging than the CO$_2$ produced by burning the natural gas.

• Special approval is needed from MMS for venting or flaring for offshore operations.

• An operator’s policy states that the corporation "will conduct its operations in a manner that respects the natural environment."
The Green Flowback Process is a well completion system that maximizes the recovery of saleable hydrocarbons during the completion phase of a drilling operation.
How it works

• Temporary staged frac plugs are drilled via coiled tubing, snubbing or workover rig.

• Produced fluids and plug cuttings enter flowback system.

• Large solids are captured and removed from fluids.

• Produced fluids enter manifold and separator system for rate and pressure control.

• Sand particles are then captured and removed from produced fluids.

• Hydrocarbons are separated and directed to sales line.

• Hydrocarbons are sold during entire drilling process.
Benefits

• Recognized by Gas Star Program
  – No Flaring – No Venting
  – Reduced Methane Emissions
  – Environmentally Friendly

• Able to sell Hydrocarbons during completion drillouts
  – Capture and remove large produced solids
  – Capture and record produced hydrocarbons
  – Comprehensive well testing to predict well and field productivity
Benefits

• Eliminates well shut-in time
  – Reduces debris fallback on top of BHA
  – Reduces plugging of hydraulic manifold
  – Reduces differential sticking of BHA

• Minimal or no formation damage
  – Eliminate loading hole with kill fluid
Gas STAR Partner Experience

- Upper zone flowed for two years.
  - Upper zone BHP now at 4,200 psi.
- Lower zone below a composite bridge plug.
  - Lower zone BHP at 11,500 psi.

- *How could they safely and efficiently remove the bridge plug?*
IPS Solution

• Analyzed well conditions and determined snubbing unit was the appropriate solution to drill out bridge plug.

• Incorporated Green Flowback Process to sell gas while tripping pipe and drilling bridge plug.
IPS Solution

• Tripping – gas produced 2 mmscf/day.

• Drilling – gas produced at 5 mmscf/day.
Customer Value

• Well was not shut in or loaded with fluids.

• No formation damage.

• Sold gas through entire process.

• 23 mmScf sold – not flared or vented.
Natural Gas Star partners currently using this completion method

Over 99 completions

Over 60 completions

Over 20 completions

Over 20 completions
Contacts

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