

20/20 Vision of Your Operations

Creating an Operational Twin of Completions Operations

SPE ATCE Fluids Management Group – September 5, 2024







What is the Problem?

- Engineering & Operational Planning disconnected from field operations
 - Tubing force analysis (TFA) performed prior to operations but the information is not shared with CT or E&P field operations
 - *Only referenced in the event there is a problem*
 - Scheduling is based on availability and not ability
- Field operations utilize inherited practices and rules of thumb in place of proven technology
 - High-viscosity sweeps in HP horizontal wells
 - Circulation Periods and Short trips
 - RIH – POOH speeds
 - Pounds of plug parts in 5-gal buckets
- Data captured but not shared in the CT unit
 - Primarily used post-job or post-failure, combined in the office
 - Downhole tool data
 - Flowback data
 - Fluid rheology, (chemicals, rates)
 - Previous well info – drilling, frac, plug info



Fluids Management

Fluids Management in Completions

- CHEMISTRY

- 5 gal Bucket

- 330 gal Tote

- 4,000+ gal ISOs

- WATER

- Frac Pond w/ Transfer Pump

- Vac Truck and tanks



Fluids Management in Completions

- APPLICATION
 - Bucket Dumping
 - Tote-over-tank
 - Mixing Plant
 - Automated Chem skid
 - Stand-alone
 - Mixing Plant



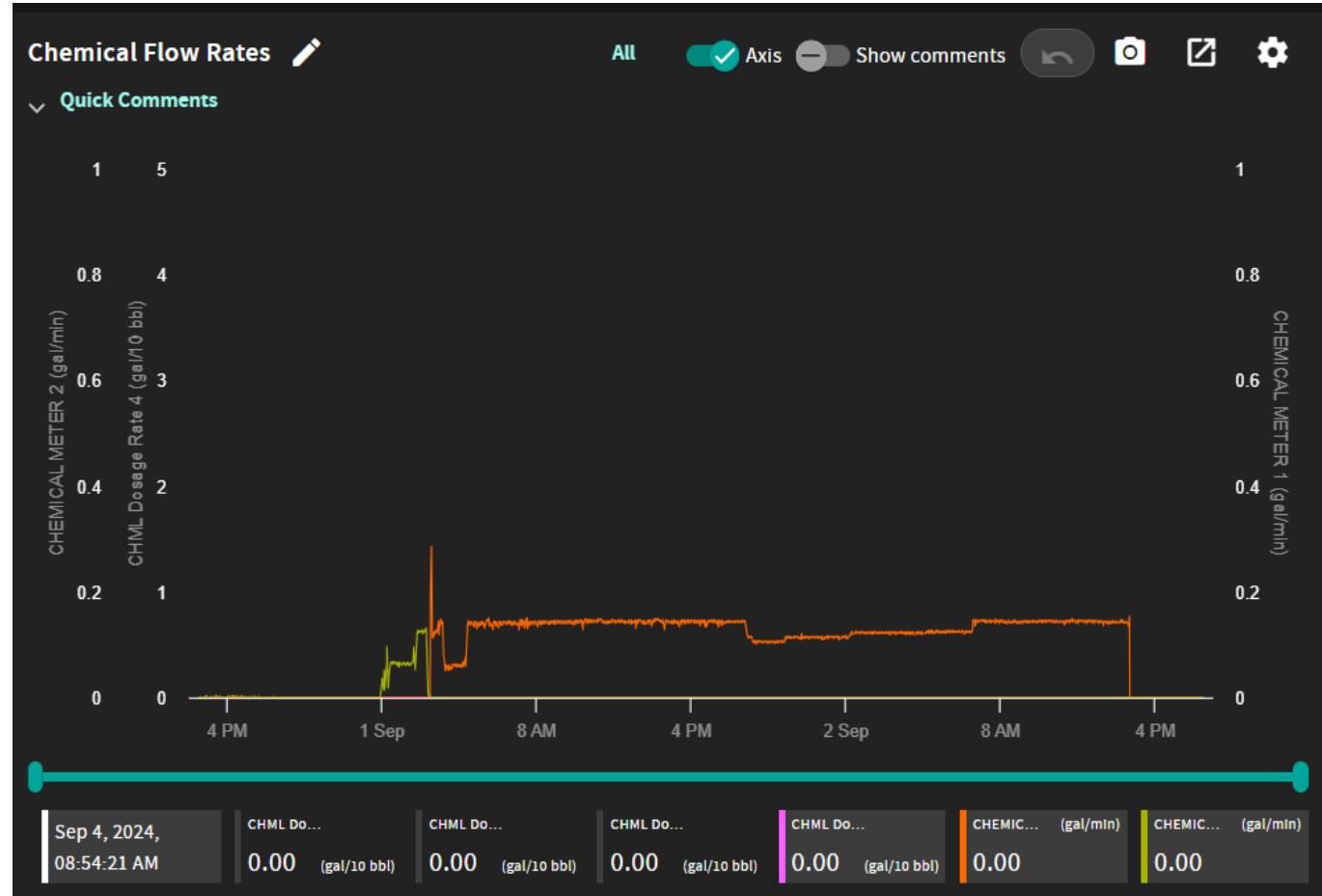
Fluids Management in Completions

- PROBLEMS:
 - Inconsistent Inputs
 - Expensive to Sensor
 - Difficult to Sensor

 - Measurement of volumes?
 - Water Testing?

Fluids Management in Completions

- SOLUTIONS:
 - Establish a Baseline for operational success measurements
 - Quantify actual dosages and volumes pumped
 - Compare Chemistries
 - Compare Service Companies
 - Adhere to established SOPs & Best Practices





What's the Whole Picture?

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- Well Drilled
- Displaced with fluid
- Completed and recirculated fluid
- Drilled Out and recirculated fluid
- Turn on Production of the well
- Immediately start treatment with H₂S Scavengers

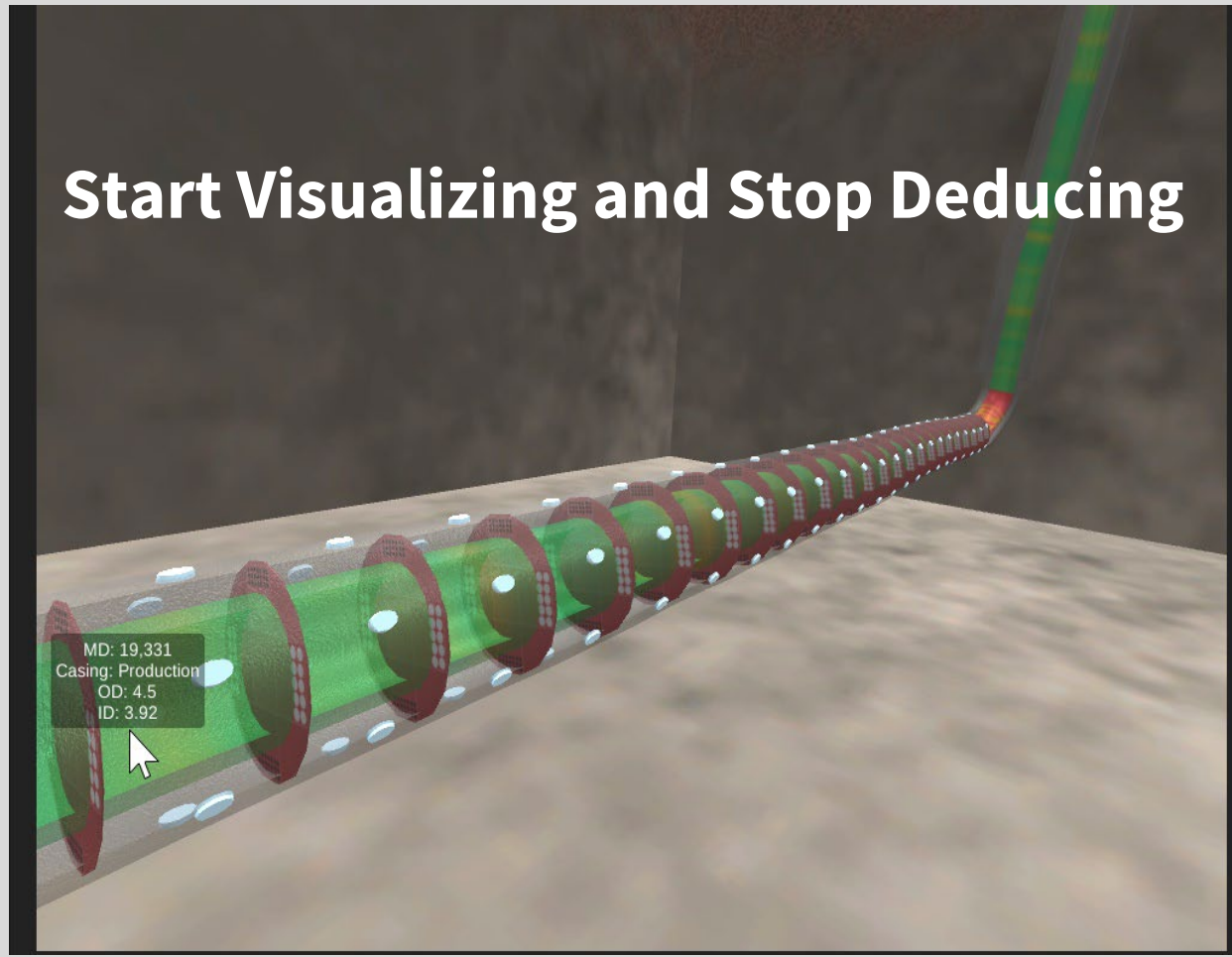
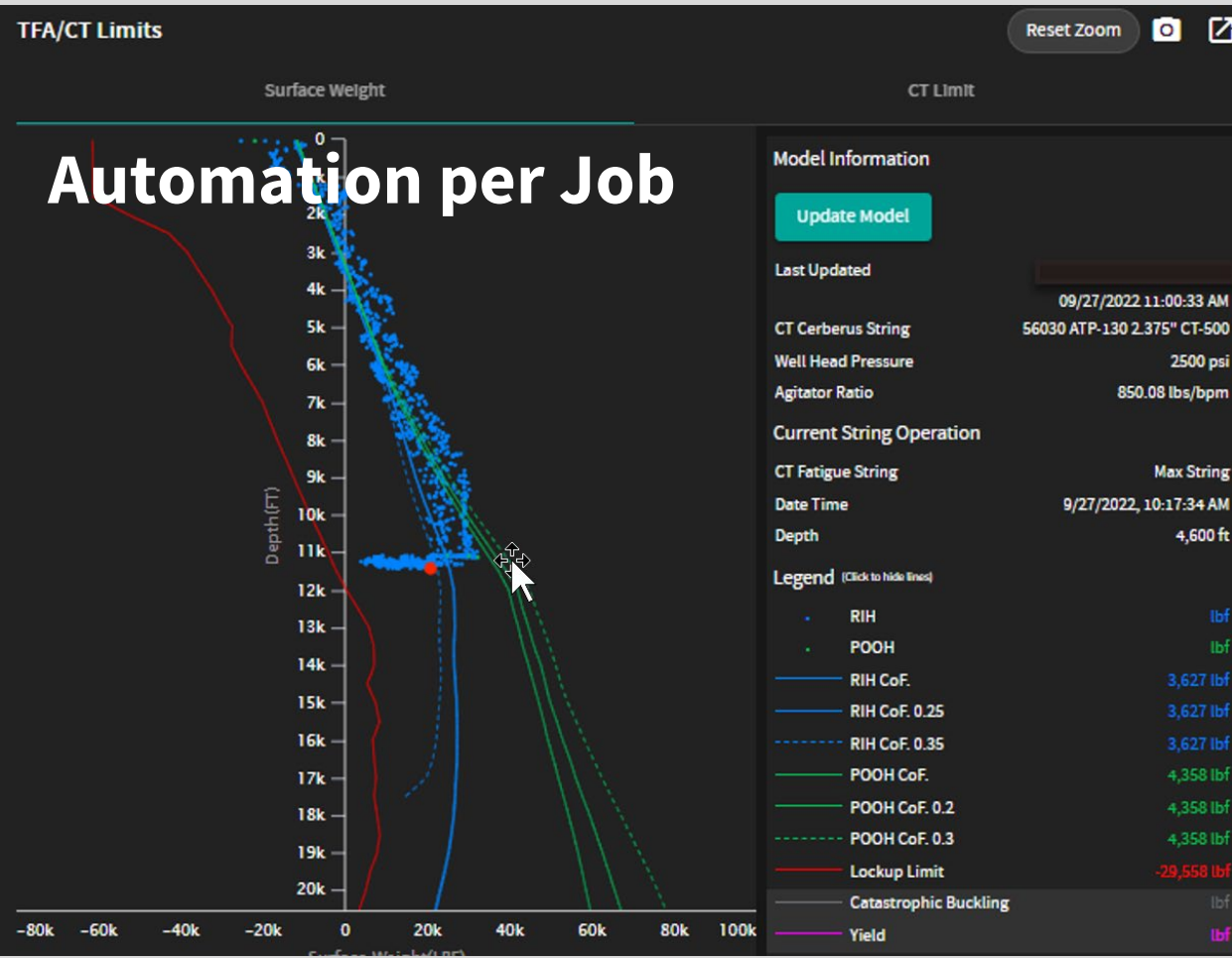
WHY?

WHY?

- When did you introduce biocides?
- Did you quantify the biocides?
- Did you follow a recommended treatment of dose on past experiences?
- How did you confirm that what you did worked?
- Who within your other division (drilling, production, completions) did you follow up with?
- How often are you?

- By providing the full picture in, one can remove confirmation biases and accelerate their efficiencies. Collaborate and confirm.
- One more thing to automate without having to use "AI".

Digital but Disjointed



QUESTIONS?