

Cimarex Water Reuse

Prepared for the
FOURTH MEETING in 2017 of the
WATER AND NATURAL RESOURCES COMMITTEE

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New Mexico Institute of Mining and Technology

Socorro

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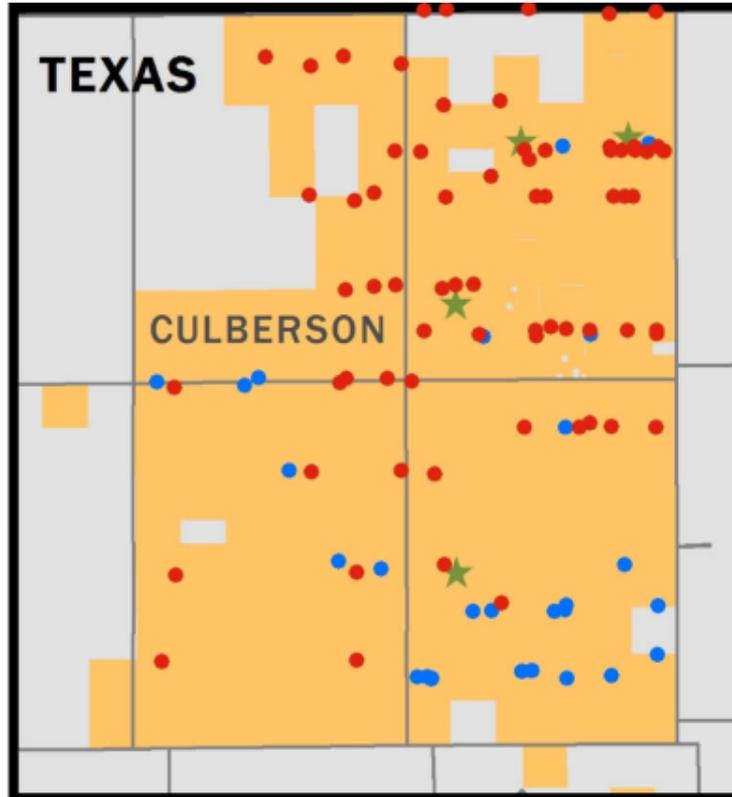
Summary

- The Goal
- Reuse Backstory
- Current Reuse Process
- Conclusions

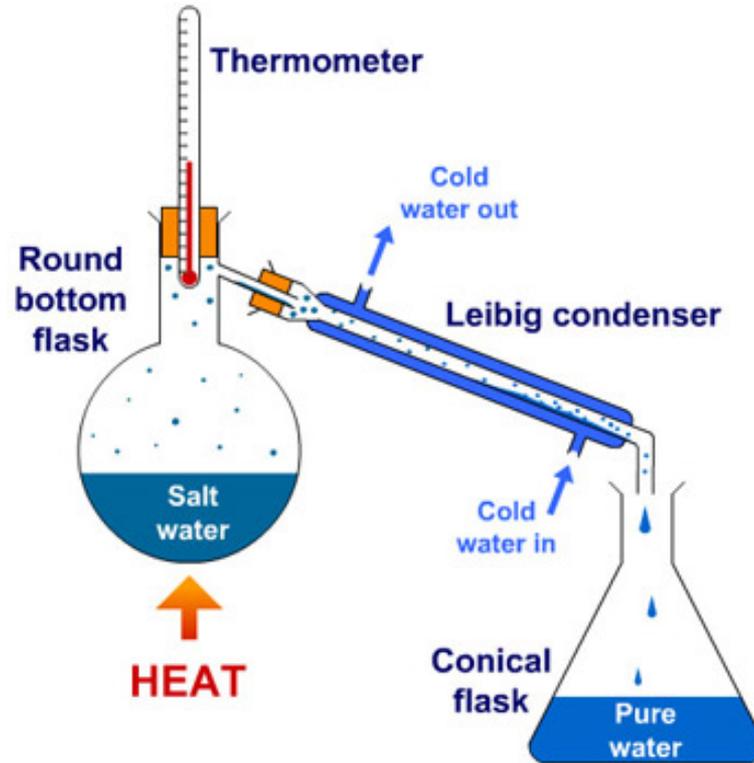
The Goal

Develop long term water sourcing and disposal solutions for
development projects

Reuse: Area



Reuse 2013-2014: Process



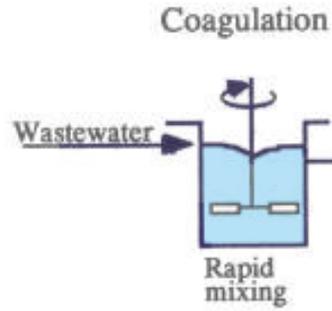
Reuse 2013-2014: Volume

	Reuse Volume (bbls)
Distilled Water	840,000
Heavy Brine	130,000
Total	970,000

Reuse 2013-2014:

- Pros
 - Removes Total Suspended & Dissolved Solids
 - Provides concentrated brine water
 - Complies with current Texas regulations
- Cons
 - Capital Outlay/Long-Term Contracts
 - High processing costs/bbl
 - Low yield of distilled water
 - Concentrated brine water
 - Disposal of solids
 - Fixed location facility

Reuse 2015: Process



Reuse 2015: Volumes

	Reuse Volume (bbls)
Produced Water	464,000

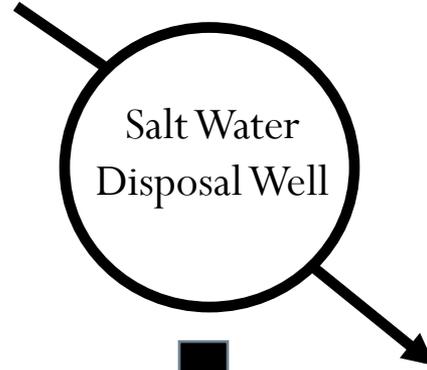
Reuse 2015

- Pro
 - Removes Total Suspended Solids
 - Complies with current Texas regulations
 - Lower processing costs/bbl
- Con
 - Capital Outlay/Long-Term Contracts
 - Disposal of solids
 - Fixed location facility

Reuse 2016-?: Goals

- Water Quality
 - Control Total Suspended Solids > 25 microns
 - Control Bacteria
- Operational
 - Flexible process rate
 - On-Demand system

Reuse 2016-?: Process



Reuse 2016-?: Pitfall



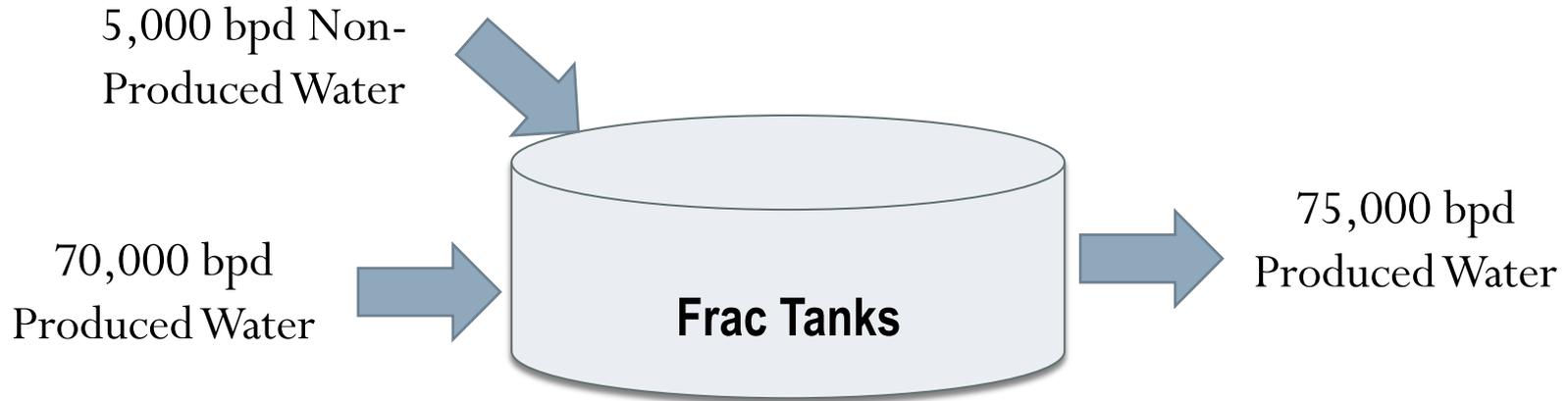
Empty Pit = 4.5 days
340,000 bbls of Water

Reuse 2016-?: Pitfall



Empty Pit = 18.2 days
1,364,000 bbls of Water

Reuse 2016-?: Cimarex's View



Minimize the use of Non-Produced Water

Reduced environmental liability

Reuse 2016-?: Volumes

Year	Reuse Volume (bbls)
2016	4,000,000
2017	6,100,000
Total	10,100,000

Reuse 2016-?:

- Pros
 - No Capital Outlay/Long-Term Contracts
 - Less operational “maintenance” cost
 - Reduced environmental liability
- Cons
 - Field or Hydraulically limited to water production
 - Disposal of solids
 - Balancing act with production operations

Conclusions

- Reuse is an evolving process
- On-the-Fly filtering works