AQUA PURE TECHNOLOGIES

Frac Flowback & Produced Water Recycling Case Study

Key Benefits:

- Minimizes road usage
- Reduces CO2 footprint
- Maximizes water reuse potential
- Provides potable water for future use or land disposal at client sites

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PROJECT OBJECTIVES

- Remove suspended solids
- Eliminate colloidal solids
- Reduce suspended and dissolved iron
- Control anaerobic bacteria
- Decrease river water demand
- Reduce disposal requirements

WATER RECYCLING SOLUTION

Project Scope:

The frac project required **50,000m^3 of water** for **202 fractures** in a 6,000m deep well. However, the temporary diversion licenses allowed only **2,100m^3 of fresh river water per day**, leading to a shortfall of **10,000m^3**.

Water Source:

The client had stored **40,000m^3** of produced and frac flowback water in c-rings (4,000m^3 to 8,000m^3 capacity). Analysis revealed:

Parameter	Min Observed	Max Observed
TDS	211,000 mg/L	293,000 mg/L
TSS	314 mg/L	8,030 mg/L
pH	5.72	6.33
Dissolved Iron	<2 mg/L	22.1 mg/L
Total Iron	12 mg/L	110 mg/L
Oil & Grease	29.2 mg/L	21,500 mg/L
Bacterial Count	500 mg/L	130,000 mg/L

Treatment Process:

- **24-hour pre-treatment** to reduce dissolved iron
- **Ultra-filtration packages** deployed to maintain water quality
- Cleaned water **blended with river water** in a continuous feed process
- Water was supplied directly into the frac feed tank farm

Results:

- Peak flow: **2,100m^3/day**
- Average flow: **1,200m^3/day** (24-hour operation)
- Total cleaned water supplied: **12,350m^3**
- Wastewater produced: **200m^3** (**98.5% yield**)
- Compliance ensured through **twice-daily dissolved iron analysis**

Final Water Quality:

Parameter	Final Value
TDS	190,000 mg/L
TSS	200 mg/L
pH	5.9
Dissolved Iron	4.2 mg/L
Total Iron	4.2 mg/L
Oil & Grease	Trace
Bacterial Count	Trace

CONCLUSION

By recycling produced water, the client successfully met their water demand while reducing disposal exposure by **12,150m^3**. The filtration process demonstrated consistent performance, as illustrated by pre- and post-treatment samples.

Efficient, sustainable, and cost-effective water management is essential for responsible resource development.