



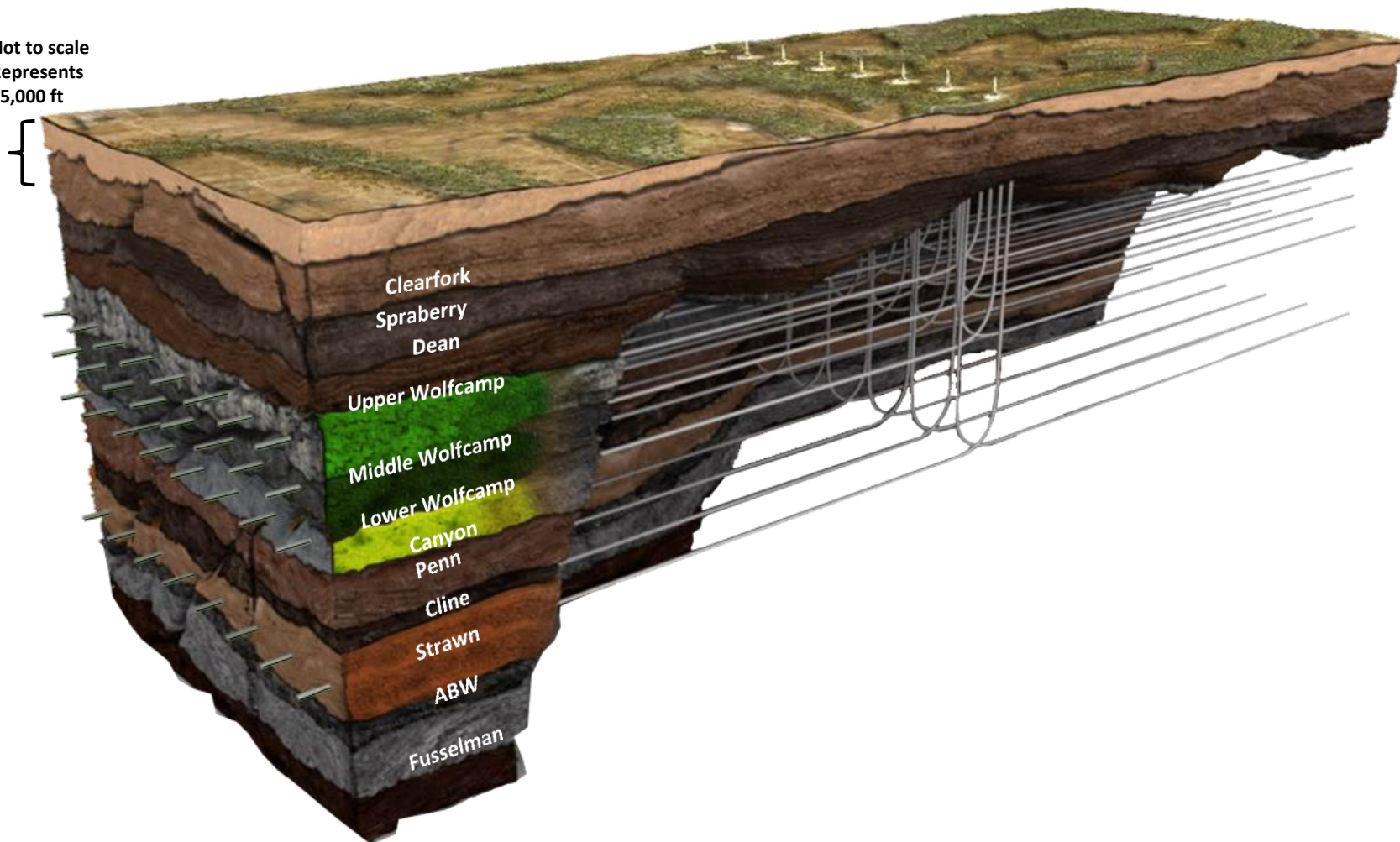
## Recycling and Conservation

May 22, 2014

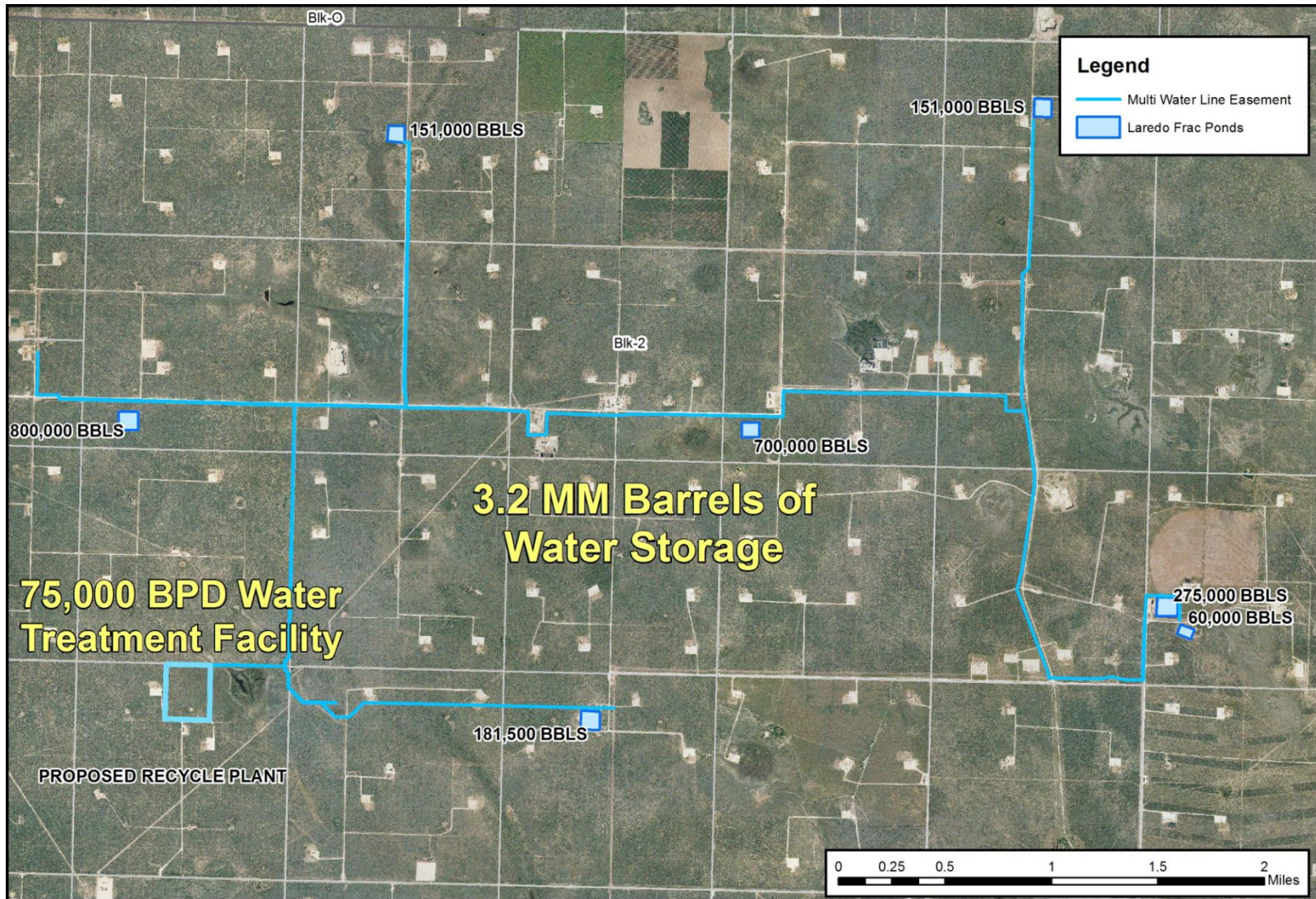
Kieran Barrows – Facilities Engineer  
Chip MacLaughlin – Water Resource Engineer

# Stratigraphic Display of 4 Stack Development

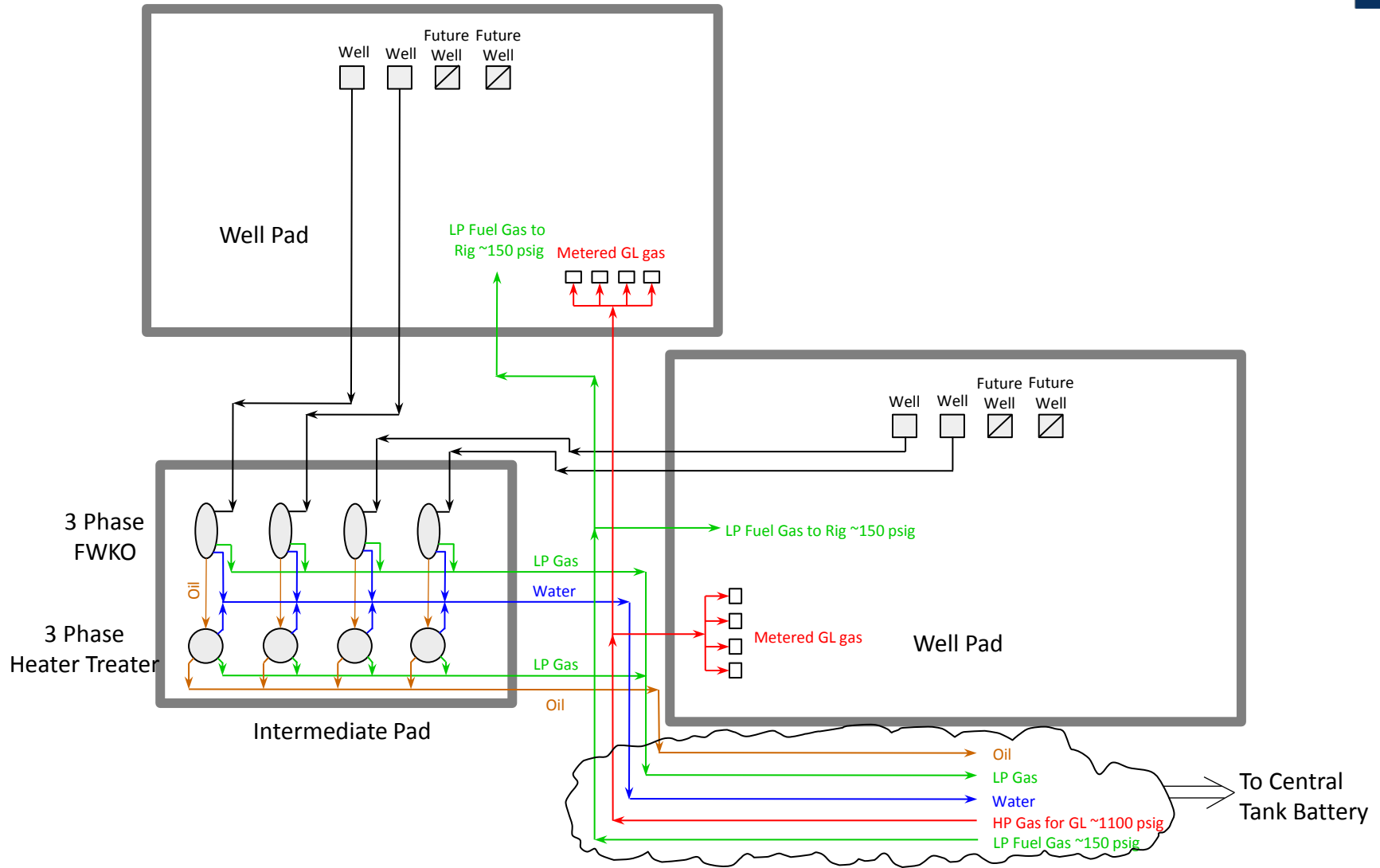
Not to scale  
Represents  
~5,000 ft



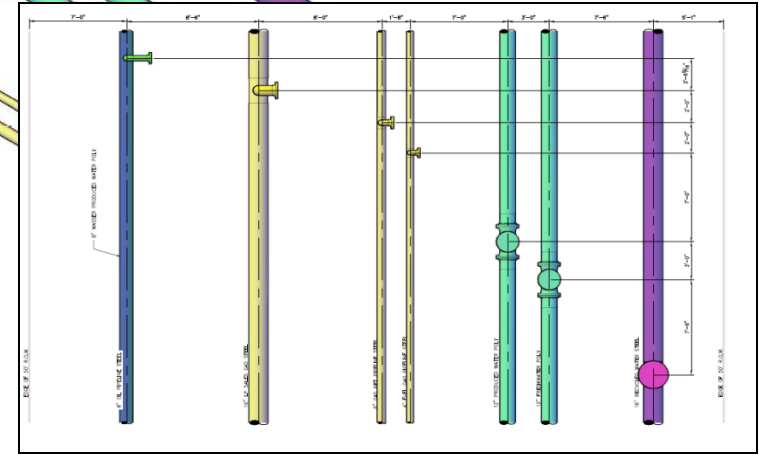
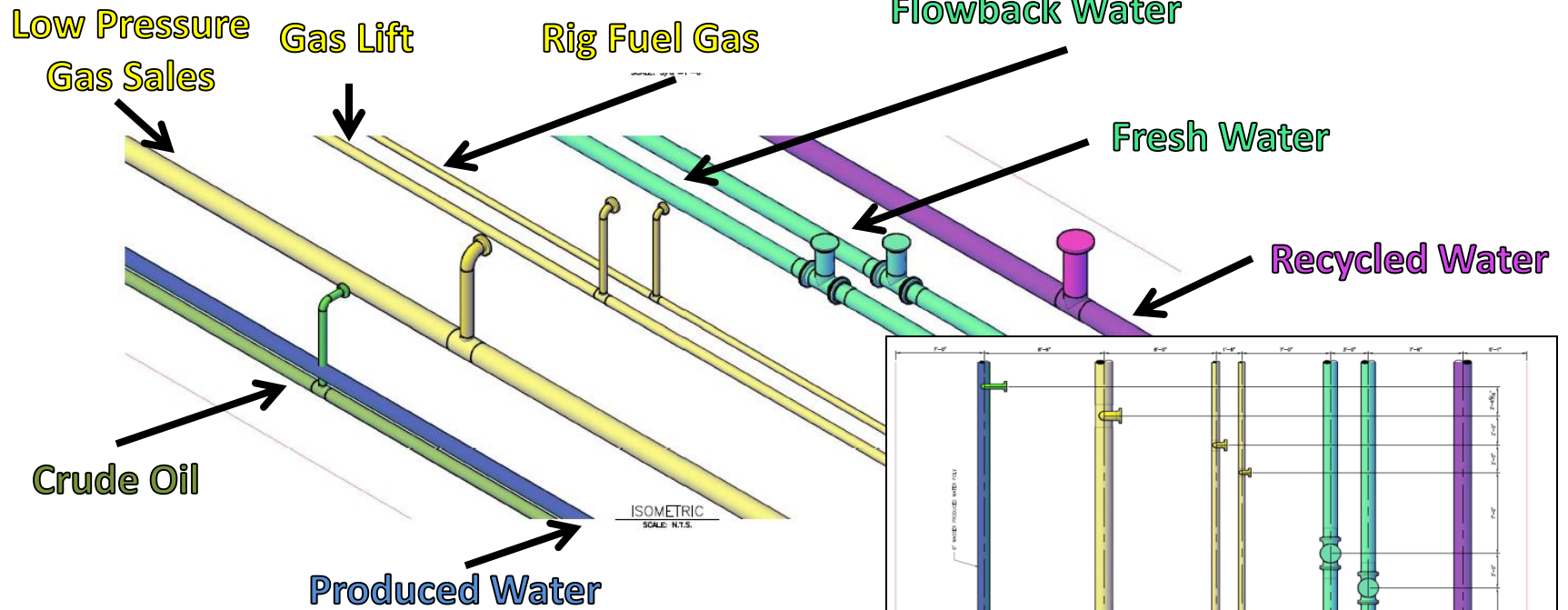
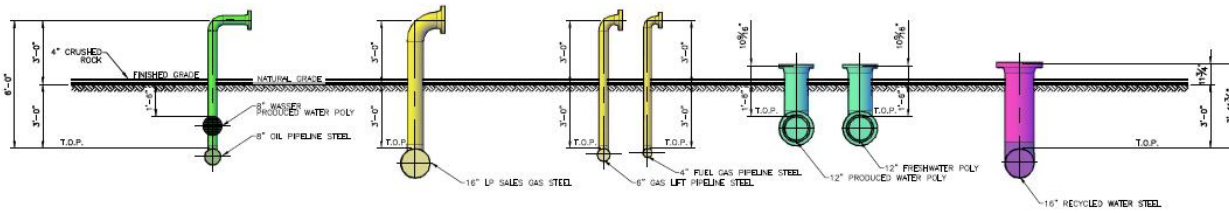
# Integrated Water Resources/Facility



# 4 Stack Pad and Facility Layout



# Typical Production Corridor



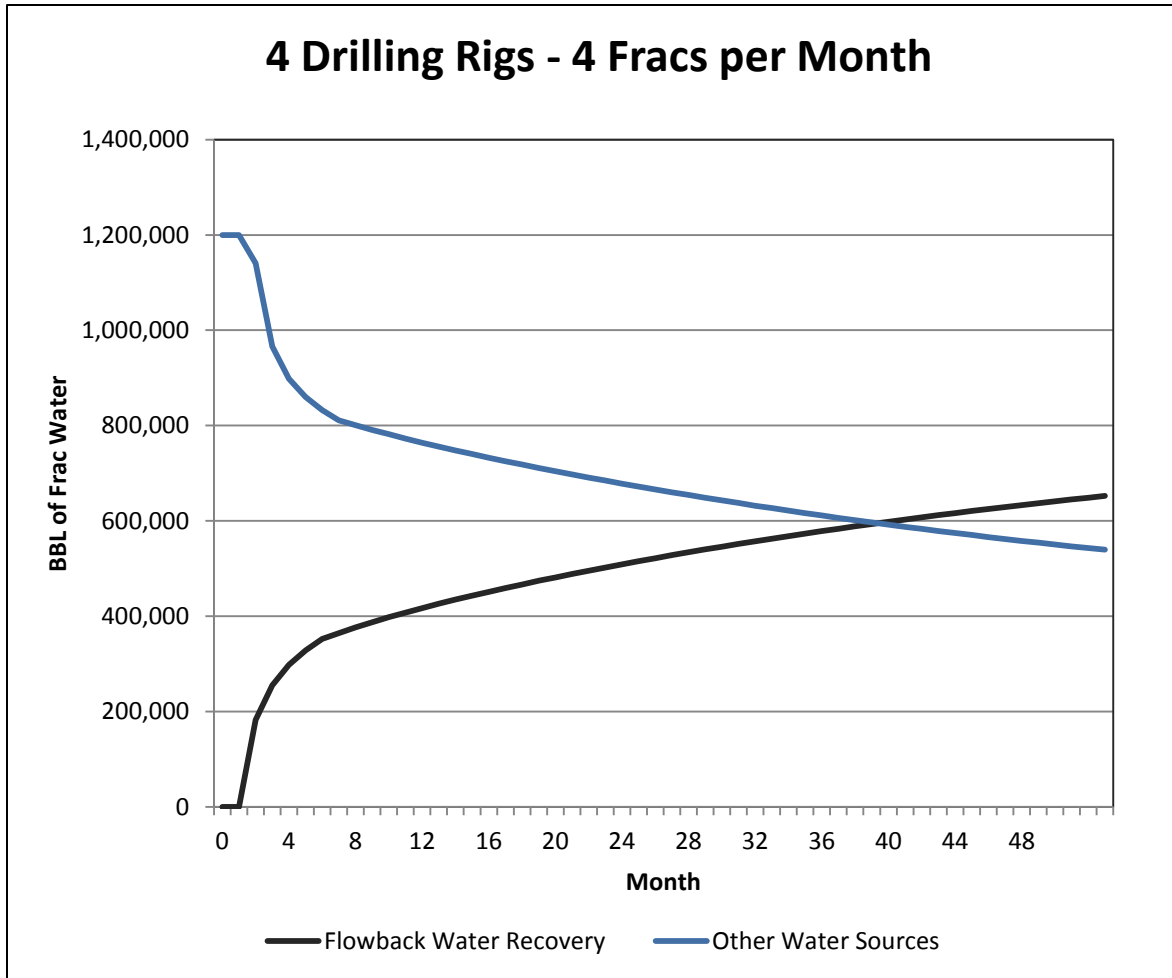
## Water Resource Requirements for 4 Stack, 4 Rig Development Corridor

---

- **Average Frac Rate (per well): 100 bbl/min**
- **Total Water Used (per well): 300,000 bbl**
- **Average Drill Time (per well): 25-30 days**
  - **7500' Laterals**
- **1 Rig for 4 Stack Lateral Water Usage:**  
**1.2 MM bbl/month/pad**

# Recycle Water Availability

## 4 Drilling Rigs - 4 Fracs per Month



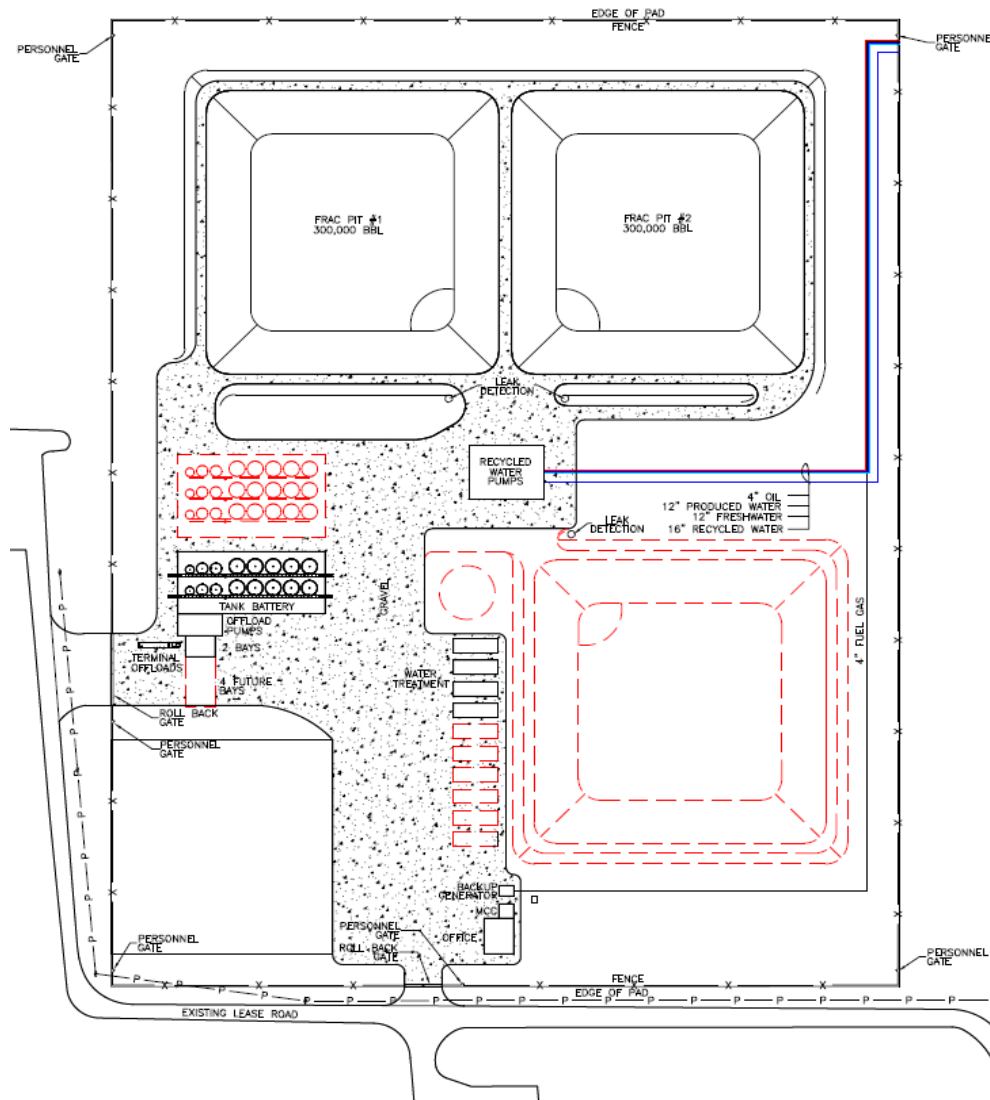
### Water Sources:

- Brackish Waters
- Flowback water
- Produced Water
- Fresh Water

### GOAL:

**A 50% reduction of fresh water usage by 4Q 2016.**

# Recycle Plant Treatment Facility



## 75,000 BPD at Capacity

- 34 Acres
- 75,000 BPD via 12" pipeline and truck unloading
- 825 HP pumping capability
- Qty. 3 – 300,000 bbl double lined pits with leak detection
- SCADA connected
- Water treating to slick water frac standards



# Closing Thoughts

---

Laredo is striving towards the goal of 100% use of flowback and produced water for drilling and completing operations.

To achieve a sustainable water supply system to support exploration and production efforts, water resources must be viewed in an integrated fashion, including

- Development of water pipelines in production corridors
- Connection of multiple high volume frac pits across large production areas
- Recycle facility connectivity to production corridors
- Development of non-potable water resources