

ESal[™] Technical WorkflowLowers risk and enhance outcomes with each step

Stage I Screening

- Determine potential of reservoir for wettability alteration
- Empirically–based computer analysis of your assets

Stage II Laboratory

- Confirm screening results
- Quantify wettability in your reservoir
- Determine optimal salinity

Stage III
Deployment

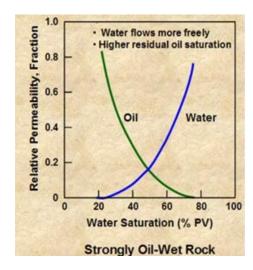
- Water Resources Evaluation
- Design injection water chemistry
- Generate water source or water treatment specifications
- Support and Quality Control



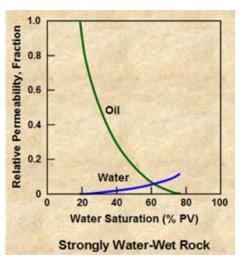
HOW DOES IT WORK?

- Wettability (relative permeability) controls hydrocarbon recovery.
 - Better Wettability = Improved sweep efficiency.

Hydrocarbon flows easily



Water flows easily

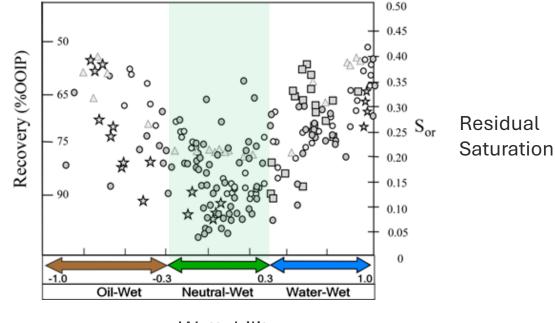






WHAT SHOULD YOU KNOW ABOUT WETTABILITY?

- The <u>most hydrocarbon recovery</u> is at neutral wettability.
- Highest hydrocarbon and lowest water production
- You can <u>improve wettability</u> with water chemistry.
- The method is practical and predictable.



Wettability



Selected Wyoming Fields Screening 90 Screening Score 70 60 50 40 20 10 10 19 28 Field

Queen Sandstone ESal Score

Lynn

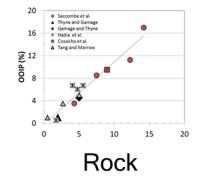
Example Map Only

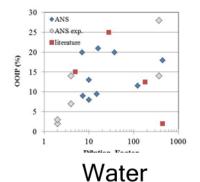
NM

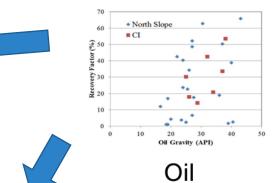
Capitan Reef Area

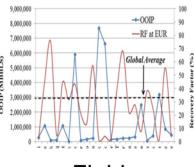
Queen Grades to Limestone here, e.g. Cherry Canyon, Word

Empirically-based Screening Tool









a ESal

Legend

Permian Basin

Queen Control

57 - 62.5

62.5 - 68

68 - 73.5 73.5 - 79 79 - 84.5

> 1:1,704,189 Map Projection of WGS 1984

Example Map Only

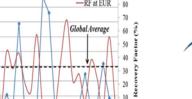
25 miles

> 84.5 For Structure Maps Datum is the Surface

Queen Age Outcrop

Capitan Reef Location Queen Total Score <= 40.5 40.5 - 46 46 - 51.5 51.5 - 57

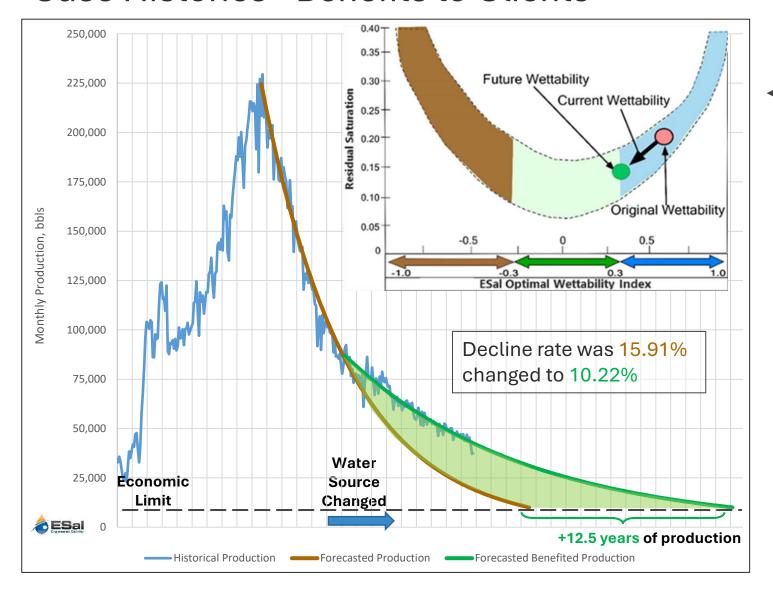
Excellent	92-100
Good	78-91
Average	60-77
Marginal	50-59
Not recommended	<50



Field



Case Histories - Benefits to Clients





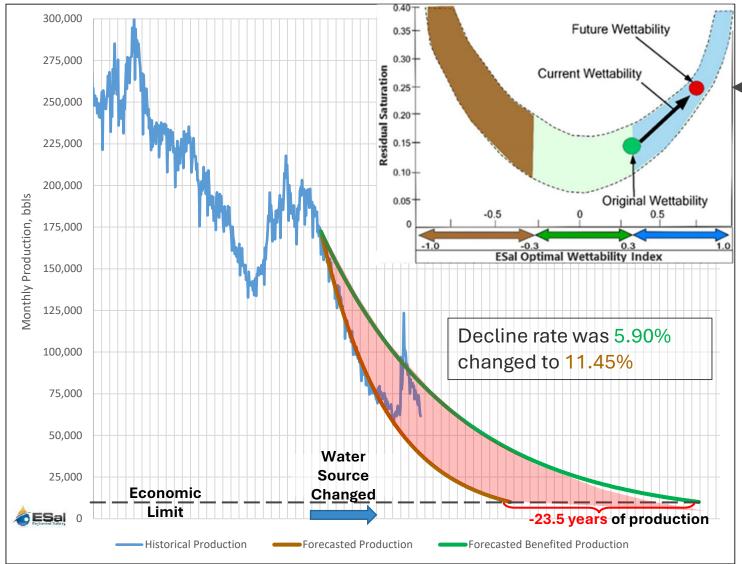
Predict Recovery with RightWater® Technology.

Better Wettability:

- Extend property life = 12.5 years
- Recover **1,900,000** more barrels (to date)
- Additional EUR: **4,900,000 barrels**
- Increased property value by \$50 million @
 \$40/bbl
- \$1.62 per incremental barrel (CAPEX+OPEX)

Confidential

Case Histories – Avoid Wettability Formation Damage



ESal Testing

Avoid **Wettability Damage** with RightWater® technology.

Wettability Damage

- Reduced property life = 23.5 years
- 5,000,000 barrels left behind to date
- Total loss **= 16,000,000 barrels**

Confidential



Example

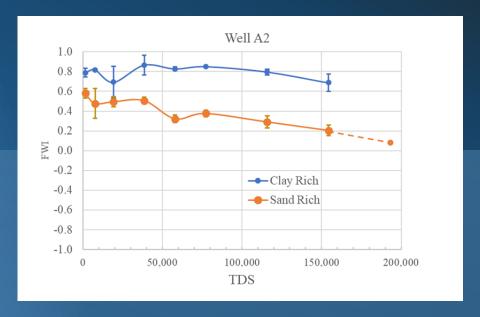
GOM Field

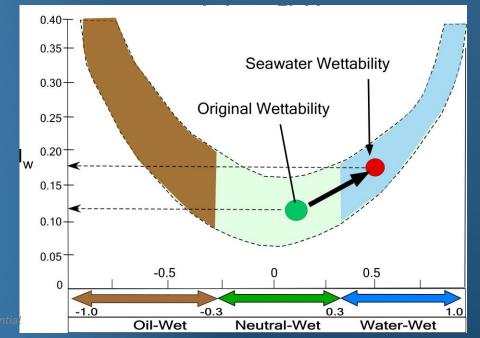
Waterflooding with RightWater® will provide an additional 10–15% recovery (41 to 66 MM bbl).



Translate lab tests into field solutions











Example

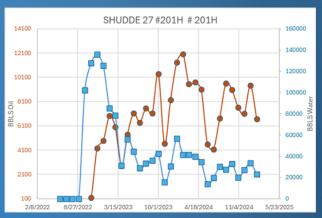
NM field

Improve oil recovery by 20%, lower water cut, reuse produced water

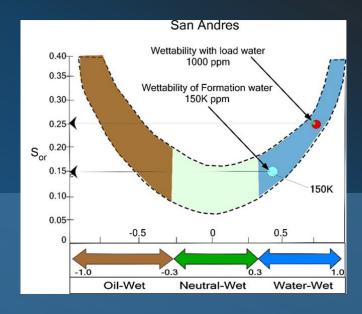


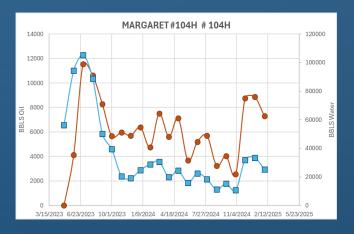
Translate lab tests into field solutions





Av W/O = 8.9Av IP90 = 14,780 bbl





Av W/O = 5.6AV IP90 = 19,470 bbl



Ultimate US Conventional Market

