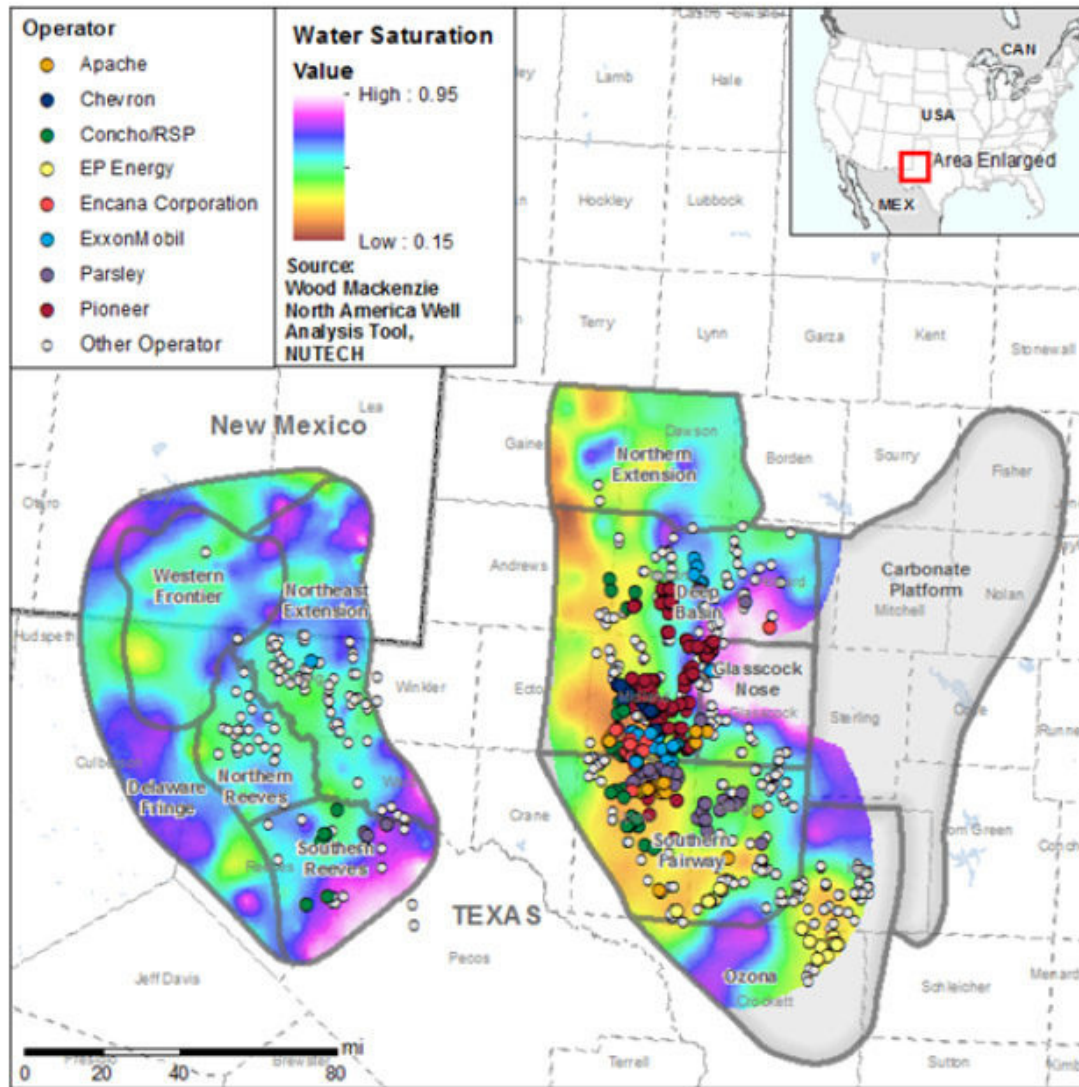


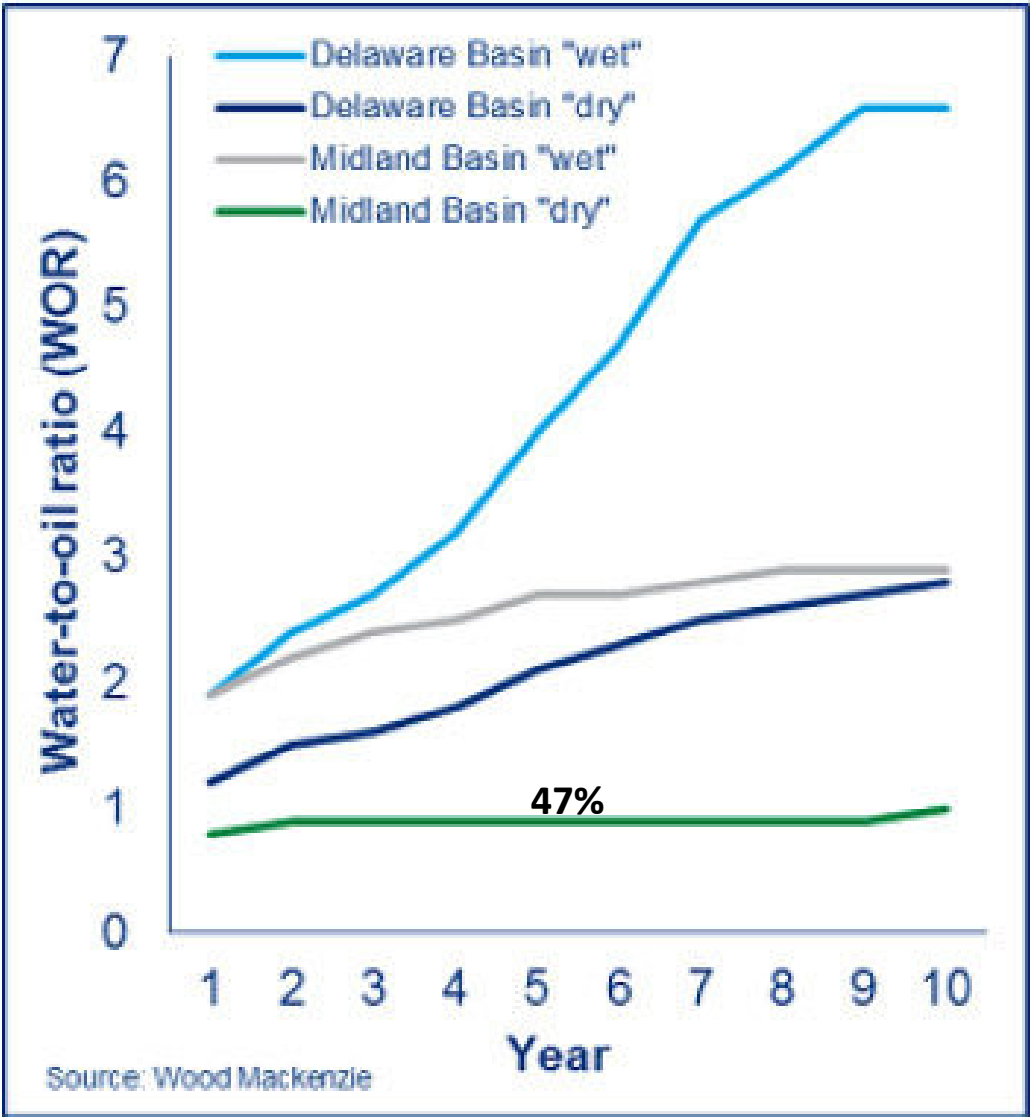
L'ELIMINATION DE L'EAU
DANS LE BUSINESS DU SHALE OIL

Philippe Labat

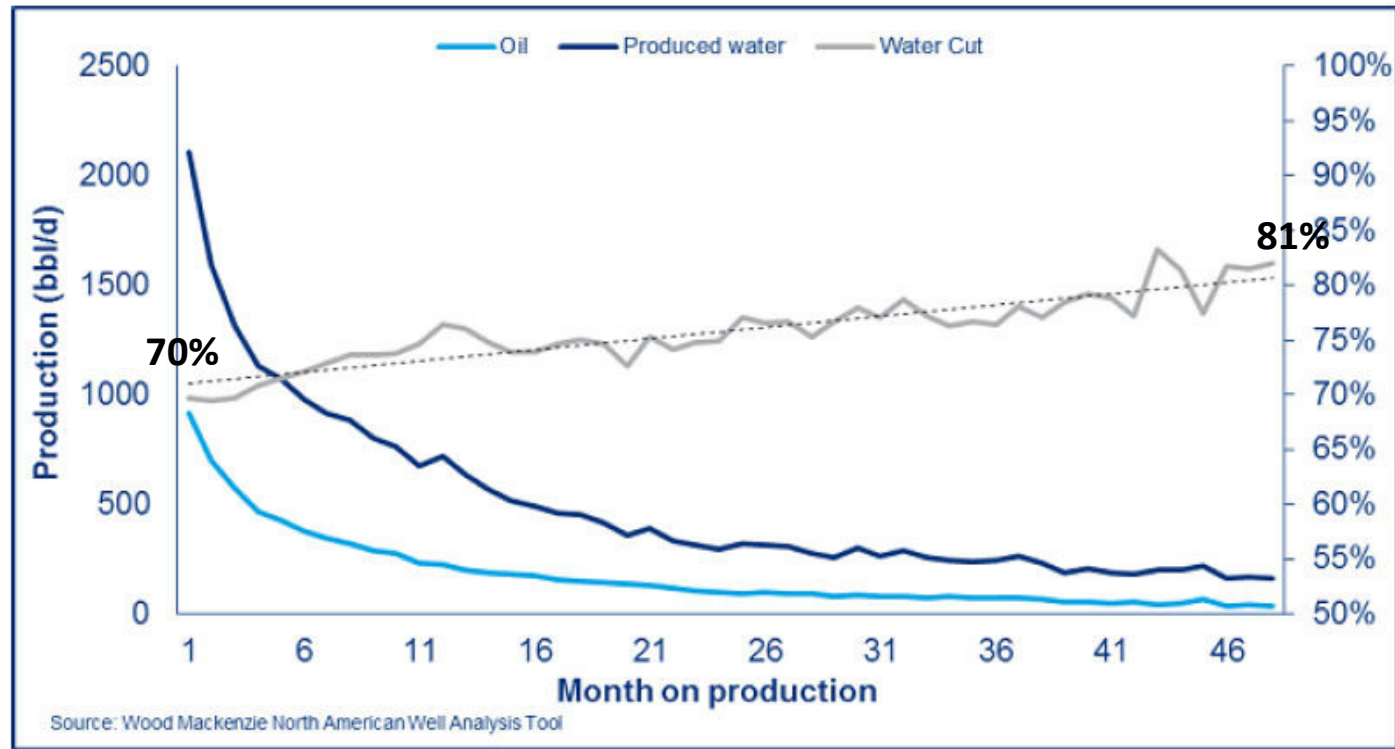
Réunion ASPO 09 octobre 2018

Water saturation in the Delaware and Midland basins for Wolfcamp B bench wells





Average oil and water production for New Mexico Delaware Basin Wolfcamp wells drilled since 2014



More than 2 billion bbl of produced water comes from the Permian, and flowback water has increased 300% since 2016, but Rystad's vice president of shale research said the water treatment market has not grown at a similar rate. Speaking at an information

O&G Journal, juin 2018

Rystad projected growth in the Permian water disposal market through 2021, with a possible record-high 8.4 billion bbl next year.

O&G Journal, juin 2018

2016 : 2 millions de barils/jour

2018 : 5,5 millions de barils/jour

2022 : 23 millions de barils/jour (prévisions Rystad)

Basin	Water Sources	Water Disposal	Water Reuse	Trucking
Bakken	Plentiful	Good	Limited	Frequently
Eagle Ford	Fair	Good	Limited	Frequently
Marcellus / Utica	Plentiful	Very Limited	Frequently	Frequently
Mid-continent	Fair	Limited	Limited	Frequently
Permian	Fair	Good	Limited	Frequently

Source: Dunkel 2017.

COÛT DE L'ÉLIMINATION DE L'EAU (CITERNAGE) : 1 A 3 DOLLARS PAR BARIL D'EAU

SOIT 2 A 7 DOLLARS PAR BARIL D'HUILE (WATER-CUT DE 70%)

ACTUELLEMENT, L'ESSENTIEL DE L'EAU EST CITERNEE SUR COURTE DISTANCE

LES EXPLOITANTS S'ORIENTENT VERS LA CONSTRUCTION DE RESEAUX DE PIPES-LINES
POUR ACHEMINER L'EAU VERS DES CENTRES D'ENFOUISSEMENT

CES CENTRES D'ENFOUISSEMENT SONT GÉNÉRALEMENT EXPLOITÉS PAR DES TIERS
(MIDSTREAM COMPANIES)

LES PIPES-LINES SONT SOIT POSÉS PAR LES EXPLOITANTS (PIONEER), SOIT PAR CES
MÊMES MIDSTREAM COMPANIES

SALTWATER DISPOSAL

— QUICK FACTS —



SINCE 1980

THE SALTWATER DISPOSAL INDUSTRY WAS ESTABLISHED IN 1980 AS A RESULT OF THE EPA'S MANDATE TO PROTECT SURFACE DRINKING WATER FROM THE IMPROPER DISPOSAL OF WATER BY-PRODUCT GENERATED THROUGH NORMAL OIL PRODUCTION



20 MILLION BARRELS PER DAY

PERMIAN BASIN OIL WELLS GENERATE UP TO 20 MILLION BARRELS OF WATER BY-PRODUCT PER DAY THAT MUST EITHER BE DISPOSED OF OR RECYCLED



AN ESSENTIAL SERVICE

SWD'S PROVIDE AN ESSENTIAL SERVICE TO THE OIL INDUSTRY. WITHOUT WATER DISPOSAL, THERE WOULD BE NO OIL PRODUCTION.



2 SOURCES OF REVENUE

SALTWATER DISPOSAL FACILITIES GENERATE REVENUE FROM 2 SOURCES:
1. A PER-BARREL DISPOSAL FEE THAT IS CHARGED TO THE OIL PRODUCER
2. THE SALE OF SKIM OIL CAPTURED FROM THE WATER RECEIVED



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Superior oilfield waste management services across the well life cycle

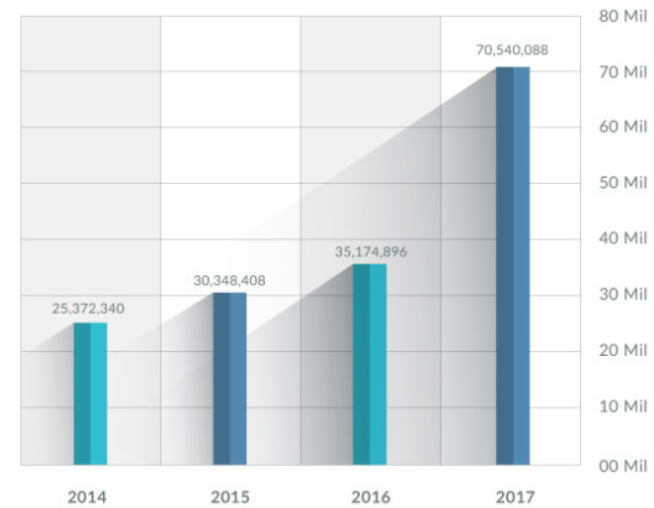


OUR BUSINESS MODEL

Our saltwater disposal facilities receive water from oil producers by tanker truck and direct pipeline. Once we receive the water, we filter it to capture any residual oil (which is sold to refineries), and then pump it deep beneath the earth's surface through multiple layers of impermeable rock. Our process is designed to prevent toxic water by-product from returning to the surface, and potentially harming surface drinking water.

RBJ & ASSOCIATES, LP

ANNUAL SALTWATER DISPOSAL VOLUME





RBJ & ASSOCIATES

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BASIC ENERGY SERVICES	80 SITES
TRINITY ENVIRONMENTAL SERVICES	26 SITES
RBJ & ASSOCIATES	24 SITES (600 000 BARILS/JOUR)
CAMBRIAN MANAGEMENT LTD	11 SITES
EAGLE FORD WATER AND DISPOSAL	6 SITES EN SERVICE, 11 EN CONSTRUCTION
COMMON DISPOSAL LLC	25 000 BARILS/JOUR
ON POINT OILFIELDS HOLDINGS	15 SITES
SAN MATEO MIDSTREAM LLC	200 000 BARILS/JOUR AU T1 2019 (5 SITES)
PINNERGY	12 SITES (400 000 BARILS/JOUR)