

Tetra-Axial DGF™

Further than innovation.
 Your goal, our commitment.



Oil rig, Russia - Photo credit: David Mark.

Nxo Engineering provides compact, automated and reliable solutions for the **Oil & Gas industry** with its innovating accelerated flotation technology. NxO's solutions are conceived to:

- (1) meet our clients specific quality requirements with the minimal operation costs.
- (2) ensure operational safety in the oilfields (H₂S management).
- (3) respect environmental regulations.

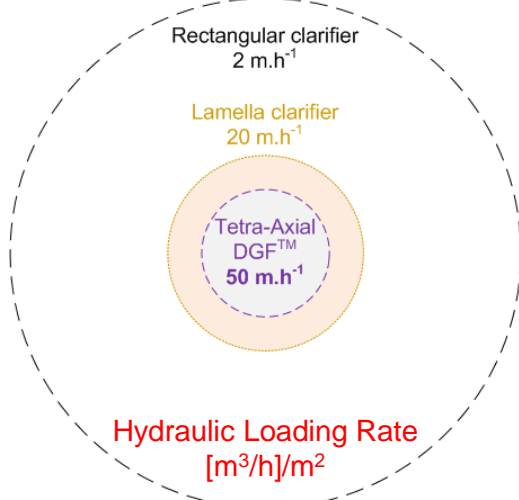
Nxo's engagement philosophy has resulted in an unique know-how build-up during the last 8 years on the field.

Water injection

Water-flooding technologies rely on the efficiency of removing contaminants that could plug the reservoir and/or damage injection equipment. Despite the water source, i.e., seawater, river water or produced water (PW), the Tetra-Axial DGF™ outperforms classical treatment procedures by offering 7 major advantages:

- Plug-and-play devices
- Reduced energy consumption
- No clogging issues
- Low maintenance costs
- Low footprint requirement
- Wide range of oil and solids removal
- Improved water loss control (<1%)

Footprint analysis



Produced water reuse

As countries implement more stringent regulatory standards for discharging PW (30 mg.L⁻¹, oil and grease limit), Oil & Gas producers study the strategic opportunity of treating it for irrigation and/or recycling purposes. The Tetra-Axial DGFTTM plays a key role as a compact treatment unit that reduces oil, gas and solids contents in a unique reactor, generating cost savings and maximizing profitability by:

- Maximum oil recovery (< 20 mg.L⁻¹)
- O₂ and H₂S removal (< 0.05 mg.L⁻¹)
- Biological particles extraction [SRB]
- Oil-coated solids (SS) removal
- Colloidal matter elimination

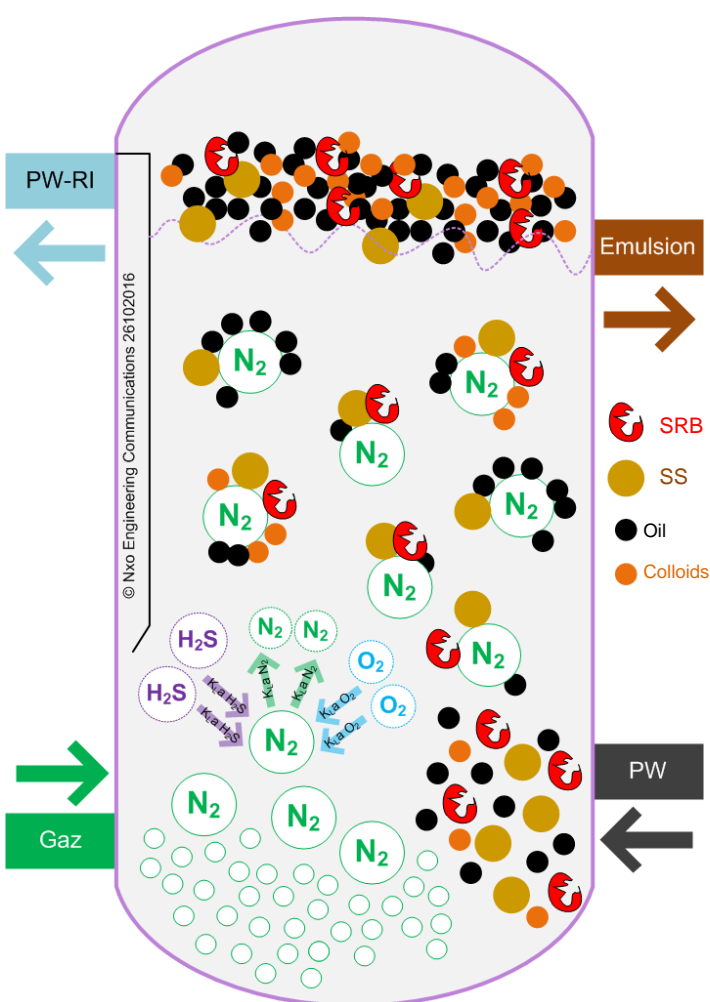
Offshore

In offshore operations, surface and occupancy are restrictive factors. Oil rigs producers place emphasis on produced water re-injection (PW-Ri) as the only viable reuse option to avoid discharge to sea.

Injecting roughly pre-treated seawater into a well with an unacceptable level of solids loading is very costly (pumps degradation, pore plugging and injectivity decline, application of higher pressures, creation and growth of unwanted fractures, flushing, etc.).

In this matter, and prior to the NF membranes stage, the Tetra-Axial DGFTTM positions as a single PW pre-treatment reactor which, along with the previous benefits, has no internal moving parts (robustness and reliability), easily retrofits existing resources improving their return on investment (ROI) and protects your production asset by restraining H₂S development responsible of:

- Reservoir souring
- Pores clogging (FeS₂ flocs)
- Safety hazards to people on the field
- Anaerobic corrosion of the equipment
- Scale buildup (permeability issues)



Tetra-Axial DGFTTM

SRB (sulfate-reducing bacteria)

SRB oxidize organic matter by reducing sulfate to sulfide (H₂S), the principal agent in disastrous effects. It contaminates gas and stored oil, precipitates FeS₂ that plugs injection wells and promotes steel anaerobic corrosion. H₂S is extremely toxic if inhaled, easily escapes from contaminated waters and accumulates under poorly ventilated conditions.

Additional related and confirmed Nxo's solutions:

Nxo's NanoFiltration (NF) skids

Sulfate removal is a central part of ensuring that injection and production wells remain free of barium and strontium scale, which would precipitate if untreated seawater was injected (stuck downhole pumps, plugged perforations and tubing strings, choked flowlines, frozen valves, etc.). Removing it from seawater prevents down-hole scale buildup in the well and reservoir, increases productivity, prevents reservoir souring, reduces equipment corrosion and assists in maintaining reservoir permeability.

Sulfate removal membrane solutions compliant with offshore specifications

Contact us to study your project and to recommend you an asset that will primary cutoff your expenses and target a reasonable ROI. Determining the ROI indicator, which is totally free, will consider techno-economical factors and capital/operational expenses [CAPEX and OPEX]. Nxo's transparency policy remains at its core value, along with our commitment of supporting our clients to reach their financial goals.

Oil & Gas



Desalination



Biomass



Agro-industry



Electronics



Mining



Pharmaceutical



© Nxo Engineering Communications – 10/2016 – Photo credits: Nxo Photo Library / David Mark.

#invisiblefactor

Nxo Engineering SAS 20 000 €

Headquarters: 8, rue du Porche (34660) Cournonsec – FRANCE

Off. +33 (0)7.81.54.88.22 / +33 (0)9 52 75 44 80

SIRET: 823 601 778 00017 – BNP Paribas Pérols

E-mail: cesar.narvaez@nxo-e.com – Webpage: www.nxo-e.com

