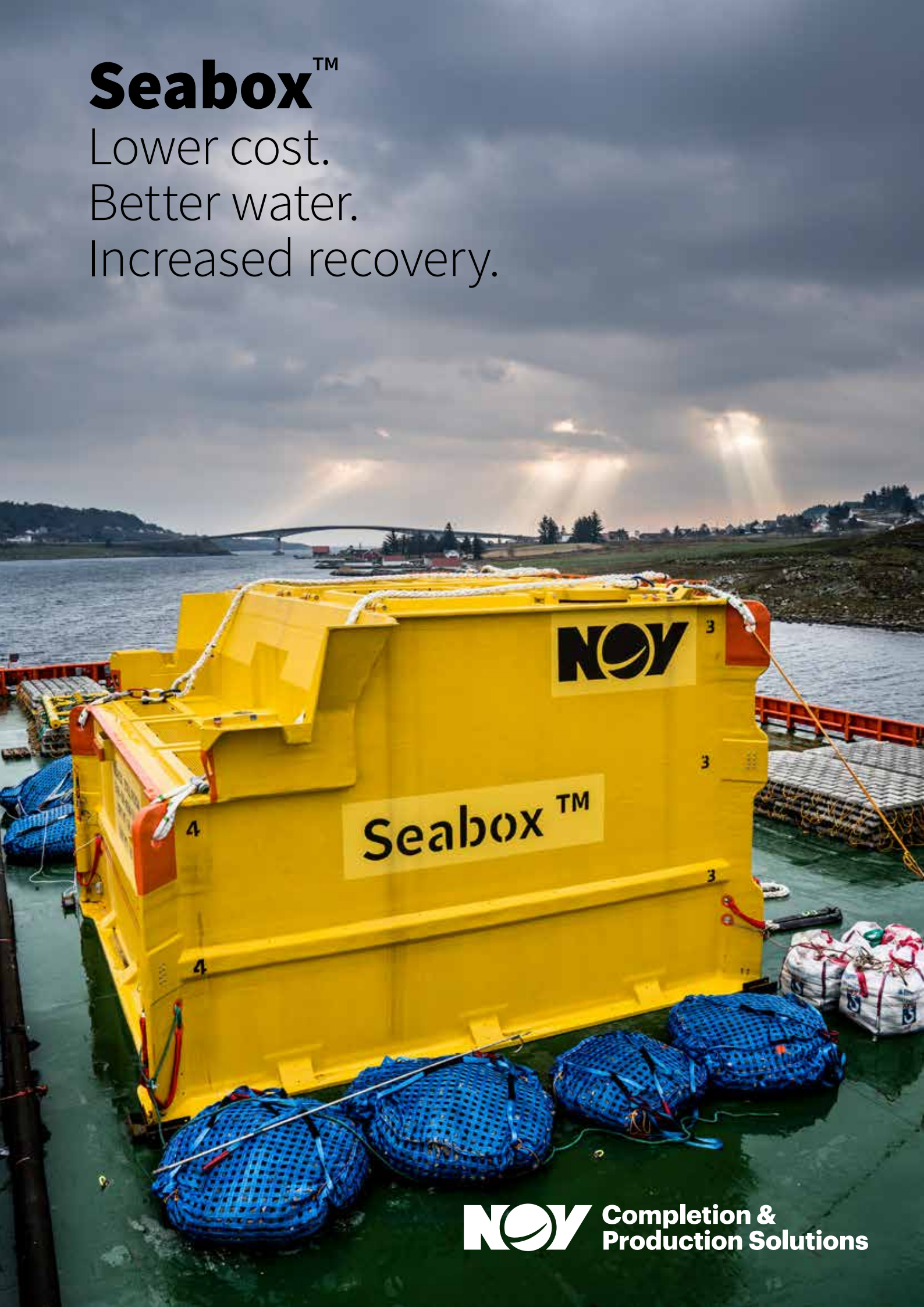
Seabox™

Lower cost.
Better water.
Increased recovery.



NOV Completion & Production Solutions

All the water you need.
Where you need it – when you need it.

When operators look to maximize oil production and recovery from oil reservoirs, in new developments or mature fields, getting sufficient volumes of water with the right quality is essential. This places strict demands on the water treatment facilities used in offshore oil production. These water treatment facilities take up valuable space and increase CAPEX on a platform or FPSO. The Seabox subsea water treatment module is the new and definitive response to this challenge. By placing water treatment on the seabed, NOV provides superior flexibility by allowing operators to adapt production to updated reservoir intelligence and moving all water treatment subsea.

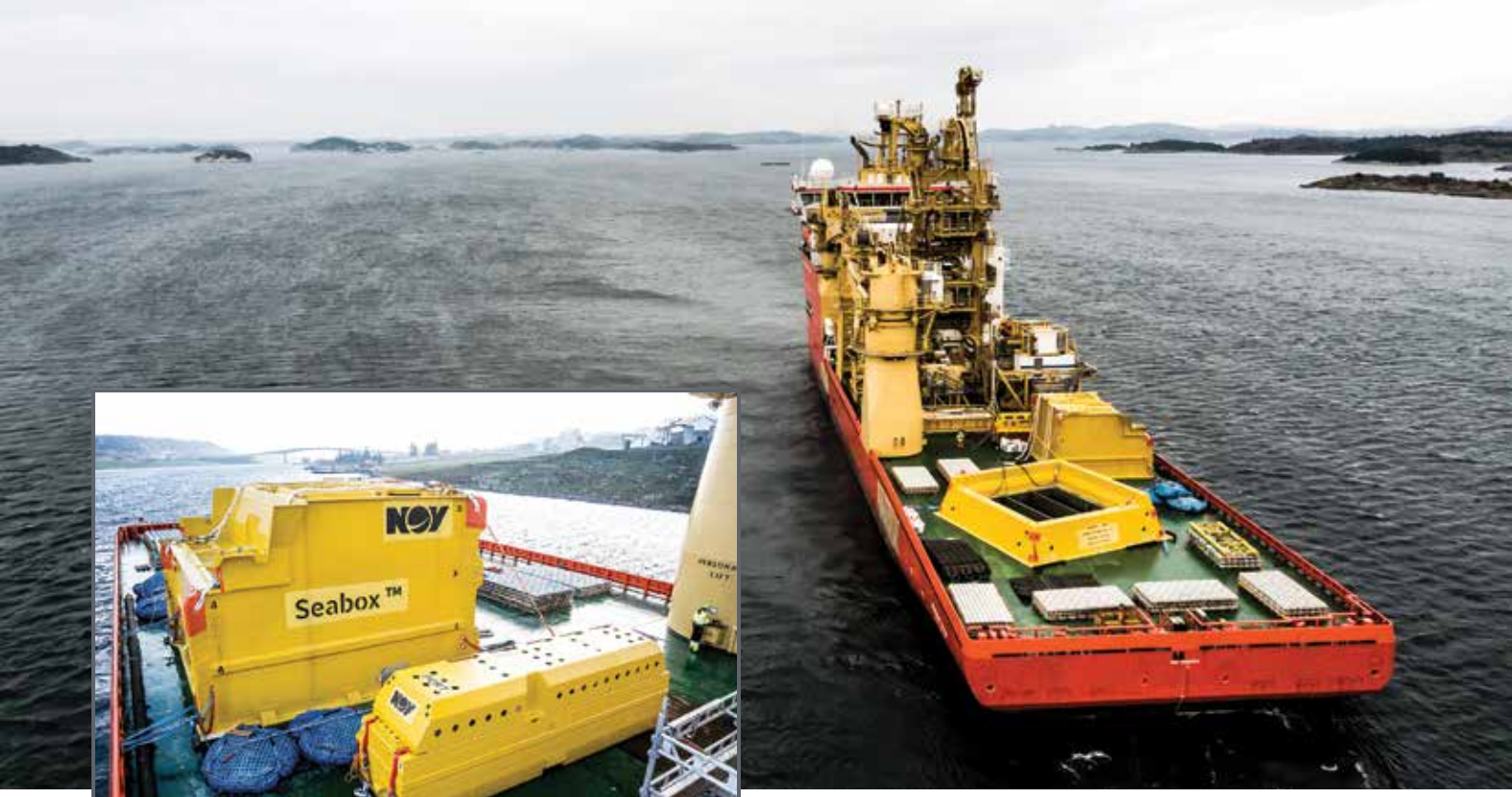
We put water treatment on the seabed, where the 8 m x 8 m x 8 m Seabox with a capacity of 40,000 bpd can treat surrounding sea water to superior quality water for normal water injection. The Seabox module is based on the principles of electrolysis and gravitational separation. It utilizes electrochlorination and hydroxyl radicals to eliminate bacteria, decompose organics and includes a large settling chamber for removing 99% of inorganic particles greater than 24 µm.

Depending on reservoir requirements, the Seabox can be combined with ultrafiltration (UF) and nano/reverse osmosis (RO) membranes to become a subsea water treatment and injection solution capable of producing any quality water. We call this solution the SWIT™ technology.

SWIT technology - Combining the Seabox with ultrafiltration and nano/ Reverse Osmosis membranes

The UF takes out all suspended solids with an absolute filtration of 0.1 micron. The water from Seabox and UF is well suited for matrix flooding, avoiding fracturing of reservoir, and preserving injectivity in tight formations. Combining Seabox, UF and nano/RO membranes modifies the chemistry of the water, removing sulphate to prevent scaling or reducing salinity to enhance oil recovery. Thus, SWIT provides tailor-made water quality to exact specifications where the longevity and reliability of the UF and membranes are ensured by the superior water supplied by the Seabox.

Combined with complete, maintenance-free operations on the seabed, the advanced technology requires no change of membranes for more than two years of continuous operation with all membranes functioning at full capacity.



Seabox is a strong challenger for traditional solutions for both green and brownfields that require additional reservoir pressure support and improved sweep of oil through water injection. The applications range from standalone fully integrated water treatment and injection subsea solutions, to a combination of Seabox at the seabed and topside. The system is qualified for water depths down to 3,000 m, and can be adapted to water shallower than 50 m.

Furthermore, the technology can also be adapted as an add-on to existing topside water treatment facilities to face well-known challenges such as bacterial growth and erosion of process equipment. This contributes to significant operational cost savings and better operating conditions for downstream process equipment.

When partnering with NOV, Seabox operators also gain access to extensive reservoir knowledge and advisory capabilities. We have broader process knowledge regarding water treatment than any other supplier. That means that operators can ask us more questions and consider produced water treatment and injection water processing significantly earlier than usual. We leverage decades of knowledge and experience to advise about the entire production stream, from reservoir management over fluid treatment and chemistry to processing and pipeline systems, whether topside or subsea. And once the dialogue and planning process is complete, we can supply a winning solution in terms of reliability, safety, and cost.

When it comes to water processing and management, NOV combines the expertise of an engineering house with the production knowledge of one of the largest suppliers of oil production equipment in the world into a single point of contact.

Solutions	Flooding Regime	Technology	Sediment Size (µm)	Intervention Interval
 Seabox™	Water Flooding	Electrochlorination Solids Settlement Hydroxyl Radical Treatment	≤ 24	4 - 5 years
 Seabox™ and UF	Matrix Flooding	Ultrafiltration (UF)	≤ 0.1	2 - 2.5 years
 Seabox ™, UF and Nano/RO	Low Salinity Low Sulphate	Reverse Osmosis (RO)	NA	2 - 2.5 years

Corporate Headquarters
7909 Parkwood Circle Drive
Houston, Texas 77036
USA

Seabox Headquarters
Lagerveien 8
4033 Stavanger
Norway

XXXXX_ENG_V02

NOV Completion & Production Solutions

seabox@nov.com nov.com/seabox