



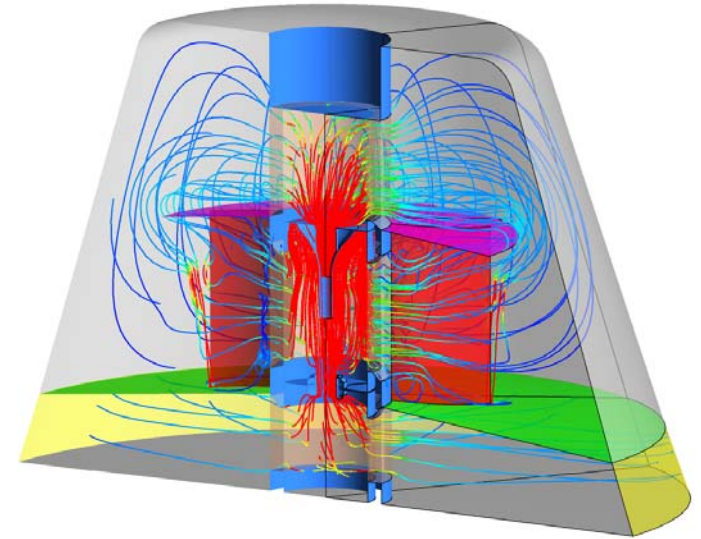
SWIT: Subsea Water Treatment for Increased Oil Recovery

by
Well Processing AS
August 2009

Well Processing AS

- Based in Stavanger, Norway
- We work as an engineering partner and can supply:
 - Subsea treatment units
 - Treatment designs
 - Complete subsea injection systems

➔ www.wellprocessing.com



Introduction

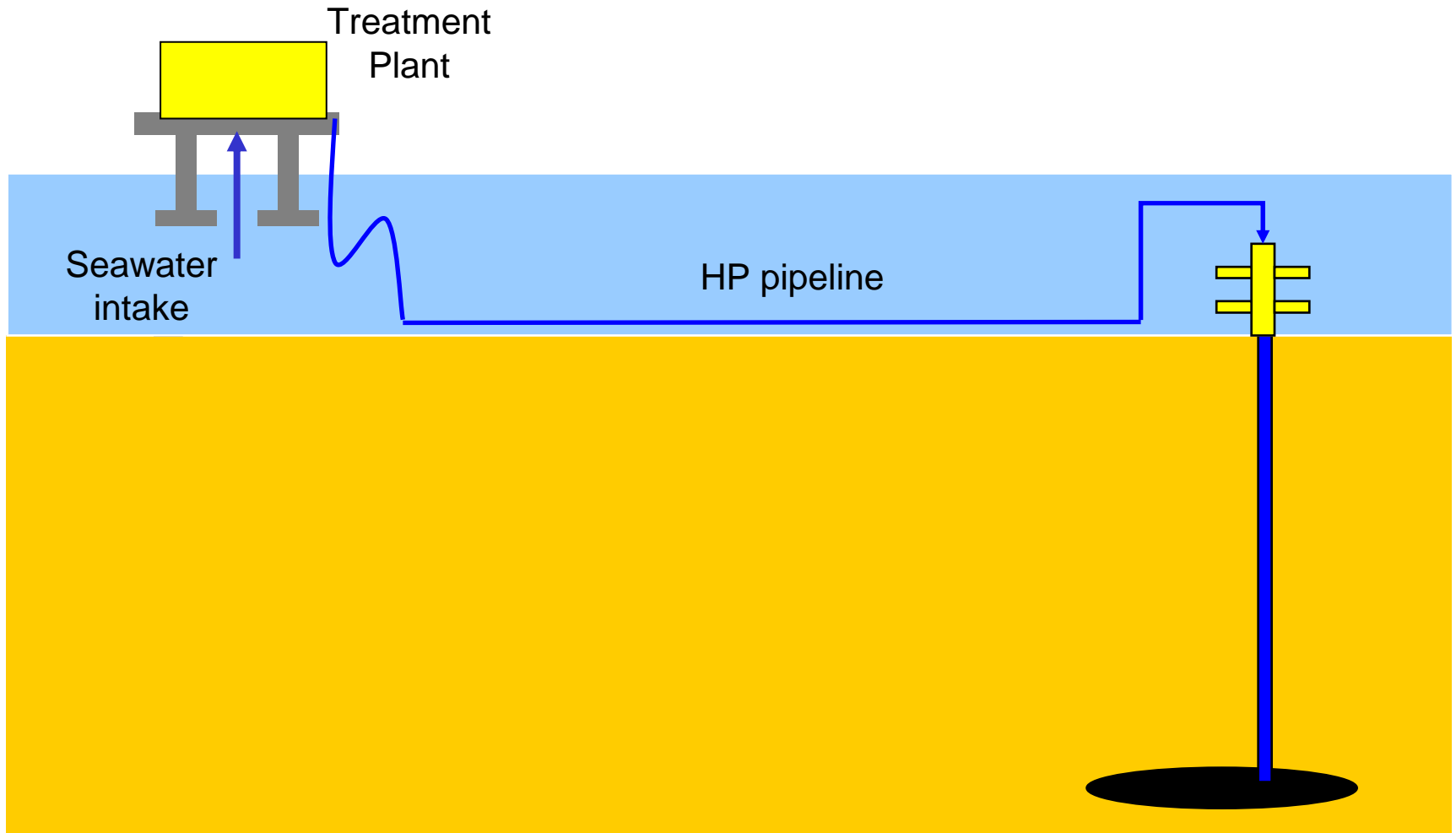


- Injection of treated seawater from topsides is the most common method for Increased Oil Recovery (IOR) :
 - Maintains reservoir pressure
 - Drives the oil to producing wells
 - NOTE: Treatment is essential for long-term protection for the reservoir

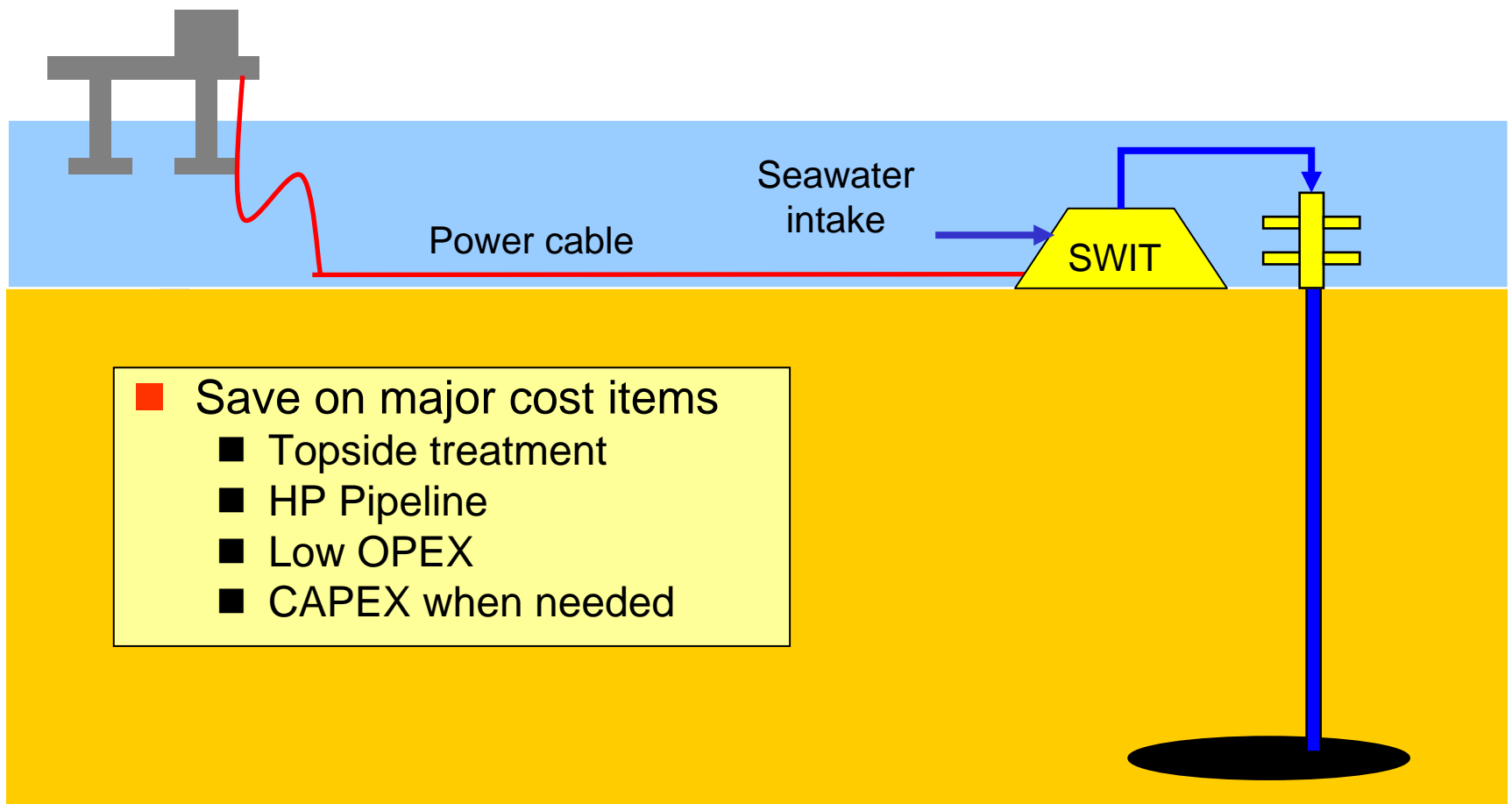
- Well Processing offers the new SWIT technology that allows treatment systems to be placed on the seabed

- Injection may then be done with significantly reduced cost
 - Increasing recovery from existing subsea fields
 - Making exploitation of new fields more economical
 - Making marginal fields viable

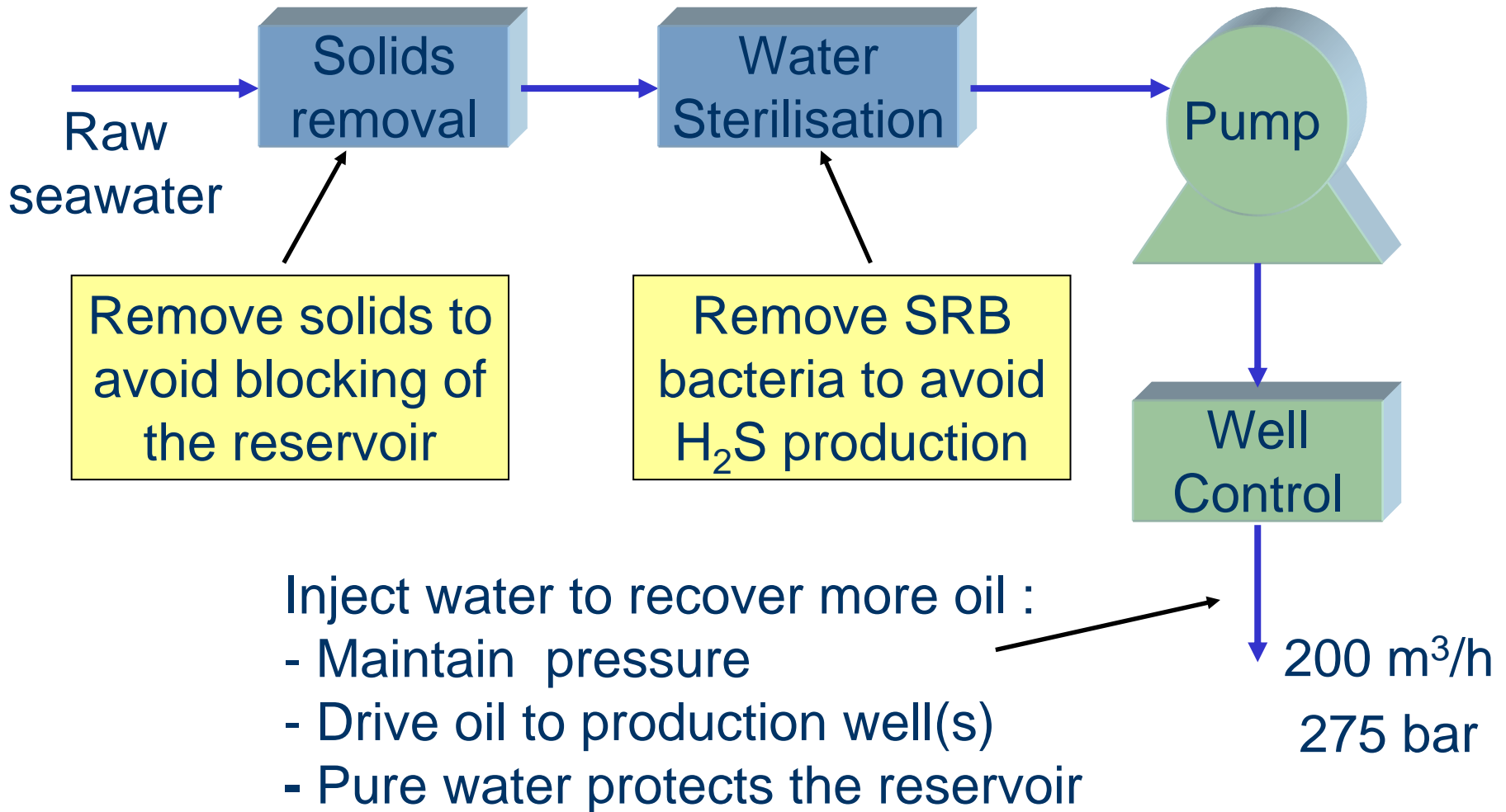
Base Case -Topside Treatment



SWIT Enables Seabed Based Water Treatment

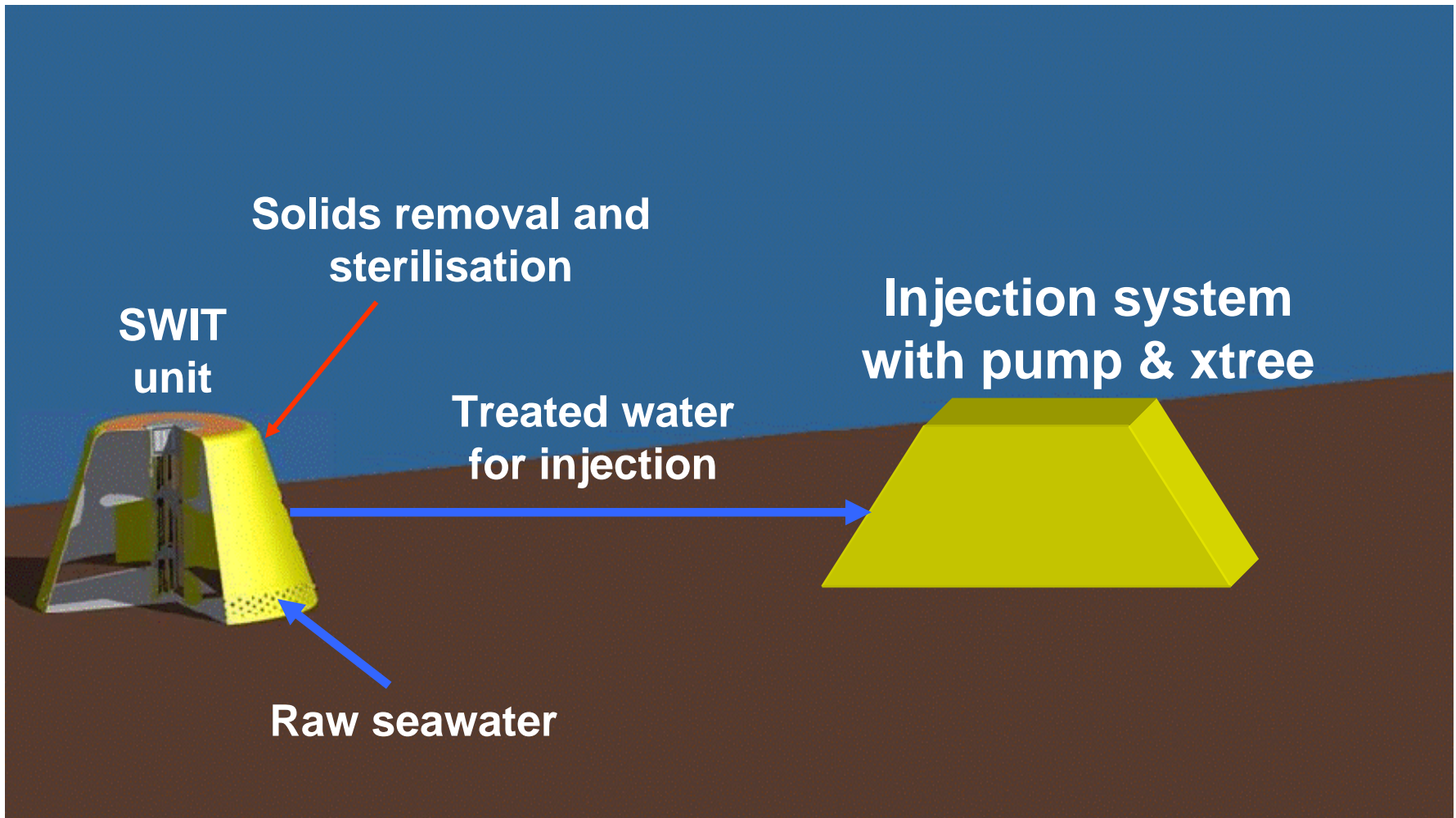


SWIT Removes Solids and SRB Bacteria

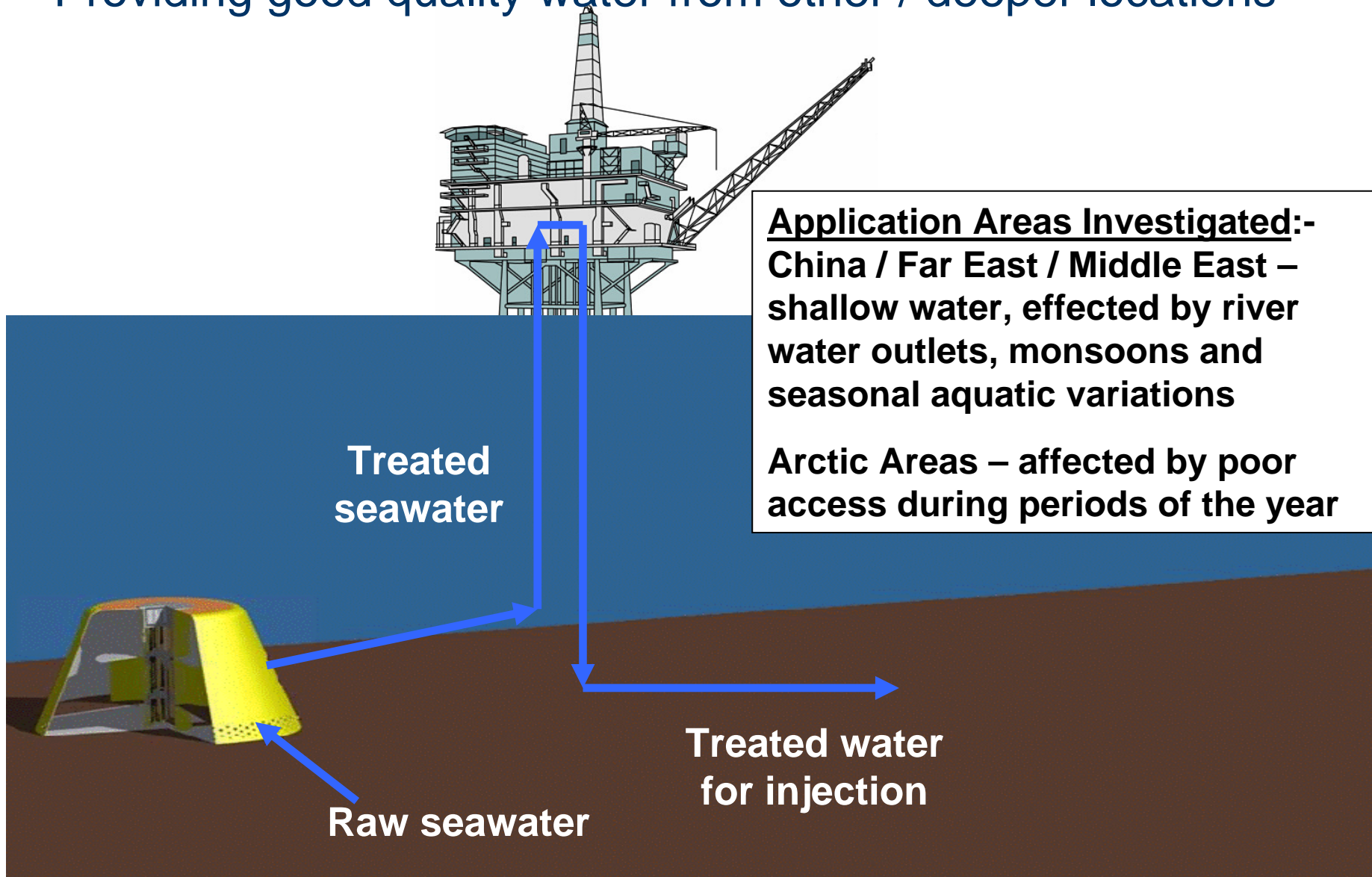


Potential Application I:

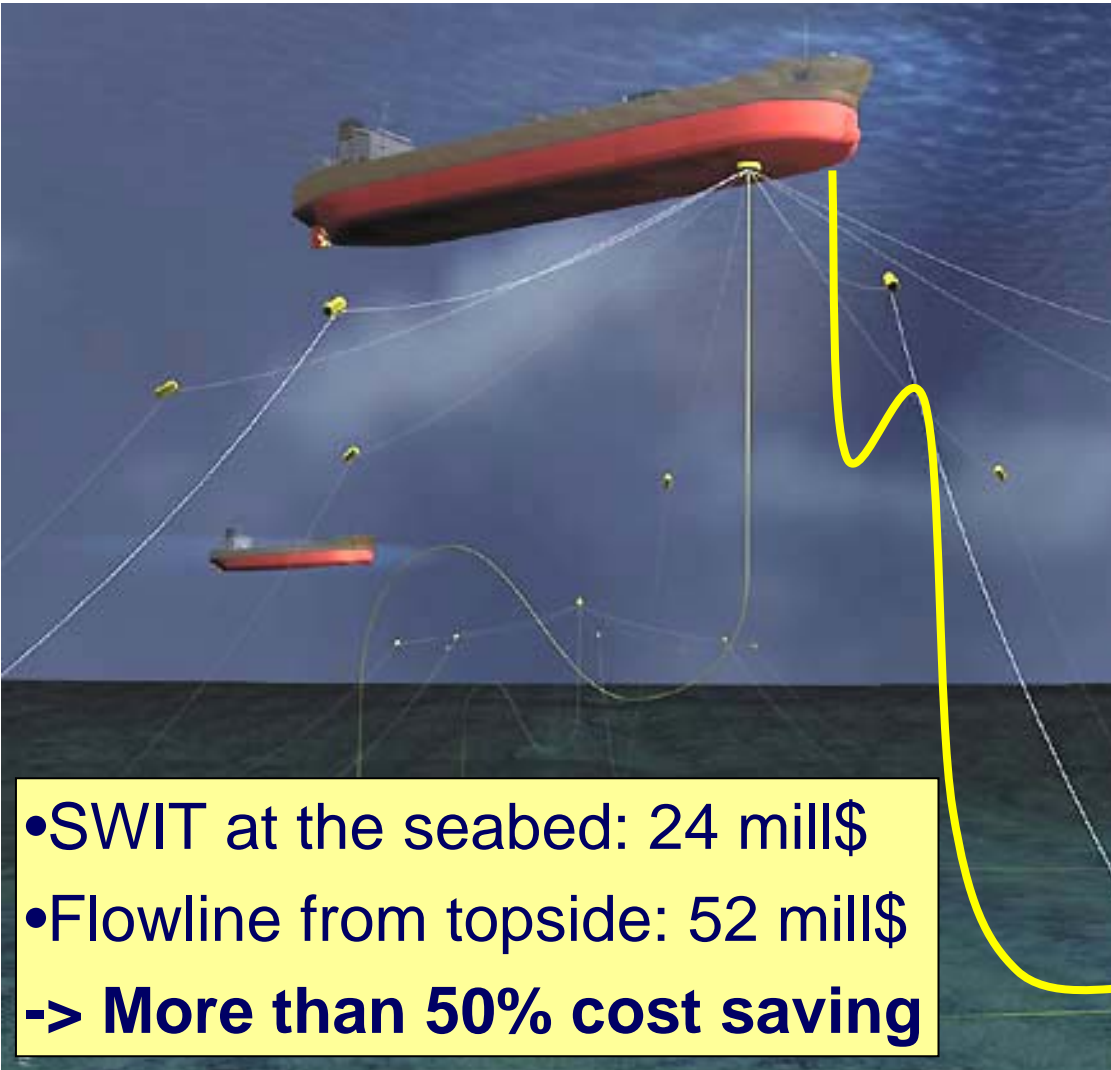
- Providing good quality water to an injection system



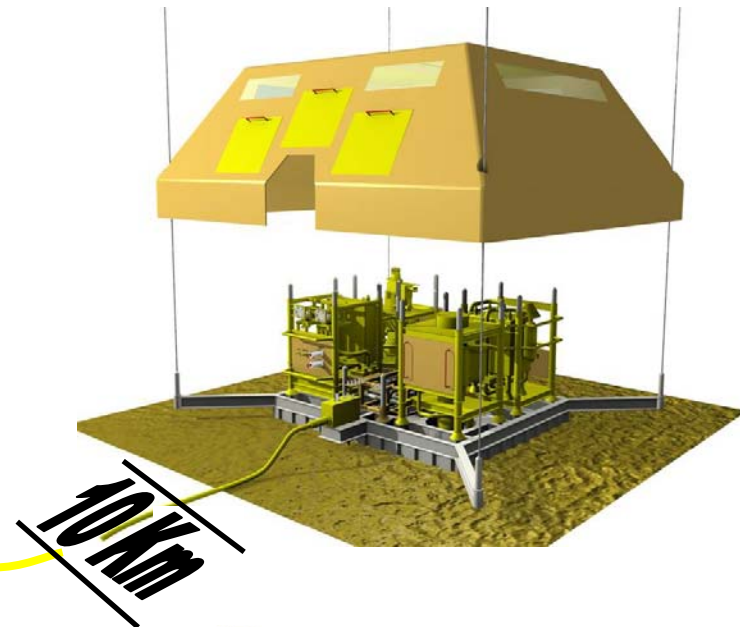
Potential Application II: Providing good quality water from other / deeper locations



Application III: Fully Integrated System for Water Injection to a Satellite Field



- 30,000 BPD
- 275 Bar
- 2.5 MWatt
- Power cable only



SWIT Benefits

- SWIT can be a very favourable alternative to topside treatment:
 - High quality injection water can be expected
 - Flexibility in field waterflood design
 - Reduced cost, weight, and space topsides
 - No flowlines
 - An easy add on at any stage of field life



➔ Lower Cost per Barrel Injected