

Decommissioning platforms and pipelines in
the Asia Pacific region: challenges and
opportunities

Andrew Palmer

Bold Island Engineering (Singapore) Pte Ltd

issues

legal

environmental

technical

financial / tax

political

legal issues

OSPAR requires structures to be removed (but does not say how, allows derogations, and does not make clear exactly how 'structure' is defined)

national legislation defines what constitutes abandonment, empowers authorities to require action, but does not say what the action ought to be (e.g. in UK section 29 of Petroleum Act 1998 empowers authorities to require a decommissioning programme to be prepared, submitted, and carried out)

legal issues

international law (UN law of the sea, UN conventions on dumping, IMO guidelines): review article by Robert C Beckman Director, Centre for International Law (CIL) National University of Singapore

UNCLOS

Art. 60 (3) ... Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.

possibility of action under common law

get professional advice (preferably from someone who is knowledgeable already, and is not using you to pay for his learning curve)

legal issues

If an operator abandons a platform or a pipeline, what continuing liabilities does he have?

If an operator transfers ownership to another user, can he persuade the second user to take over liability? Or can he persuade some government agency to take over liability?

This is a big issue with any re-use option, such as converting an existing gas pipeline to carbon capture and storage service

environmental issues

possibility of environmental pollution by oil, metals, plastics

impact on fishing (but trawling/dragging is far more destructive than structures are)

environmental impact of recovery

timescale (10 years? 100? 1000? 10000?)

get professional advice (from someone without extreme views); discuss issues with interested parties

platform abandonment has become a live and controversial issue:

Shell Brent Spar

The original plan was to tow the SPAR from the UK sector of the North Sea to the North Atlantic and to sink it in place in 2000 m

Environmental activists seized on this, and organized campaigns and boycotts (particularly in Germany and the Netherlands)

“The energy minister, Tim Eggar, yesterday said Greenpeace’s campaign against dumping the Spar 7,000ft deep in the North-east Atlantic was “completely misleading”. He told BBC Radio 4: “I think the media themselves recognise they were conned.” Greenpeace UK’s head of science, Susan Meyer, said the organisation was obliged to own up as soon as it discovered its error. “I don’t regret being honest, and I still feel extremely comfortable about the stance Greenpeace took against dumping this structure at sea,” she said. “We’re owning up to a minor mistake.””

Eventually a compromise was reached: part of the structure was made into a quay in Norway, and the rest was scrapped and recycled



What was originally intended would have cost
£20M

What was done cost £60M

It was never demonstrated that the original plan
would have caused significant environmental
damage

Maureen platform (steel gravity structure)

towed from UK sector to Norway and scrapped

Ekofisk tank (concrete)

one of the first fields in the North Sea (1973)

the reservoir is in chalk, and reduction in pressure caused the chalk to compress and the tank to sink several m relative to the sea

a barrier wall was constructed around the tank



It has been agreed that the Ekofisk tank can be left in place

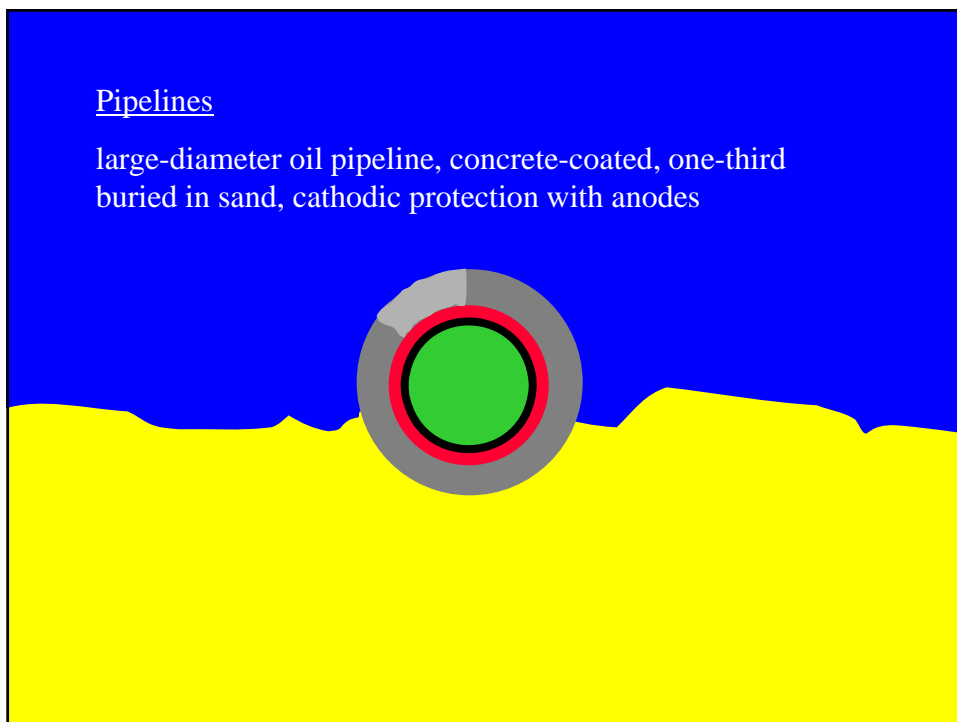
OSPAR Decision 98/3 allows disposal in-place of concrete installations

The concrete TP1 TP2 and MCP01 platforms will also be left

The owners of the Ekofisk I, the Phillips Norway Group, A/S Norske Shell and Norpipe Oil AS, arrived at the recommended Disposal Scenario in accordance with the assessment criteria laid down in the Norwegian Petroleum Act of 1996. The recommended Disposal Alternatives are consistent with applicable Norwegian petroleum legislation. They are also consistent with certain international guidelines and conventions – OSPAR decision 98/3 and the 1989 IMO Guidelines – which will be considered by the Norwegian Authorities when making its decision on Ekofisk I disposal. After an overall evaluation, the licensees recommend that the Ekofisk Tank and its Protective Barrier Wall be adequately marked for navigation purposes and left in-place. This is consistent with both the IMO Guidelines and OSPAR Decision 98/3, which allow certain redundant offshore facilities – including concrete structures – to be left in-place when the Authorities find that such a result is preferable to re-use, recycling or final disposal on land.

Pipelines

large-diameter oil pipeline, concrete-coated, one-third buried in sand, cathodic protection with anodes



do nothing

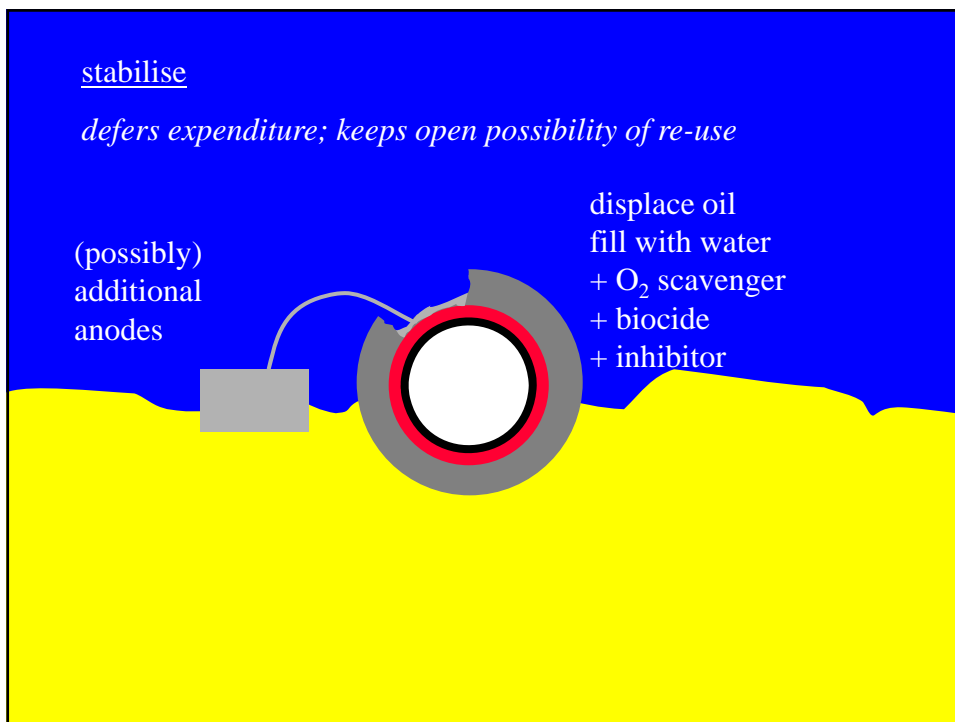


stabilise

defers expenditure; keeps open possibility of re-use

(possibly)
additional
anodes

displace oil
fill with water
+ O₂ scavenger
+ biocide
+ inhibitor

stabilise and bury (if not buried already)

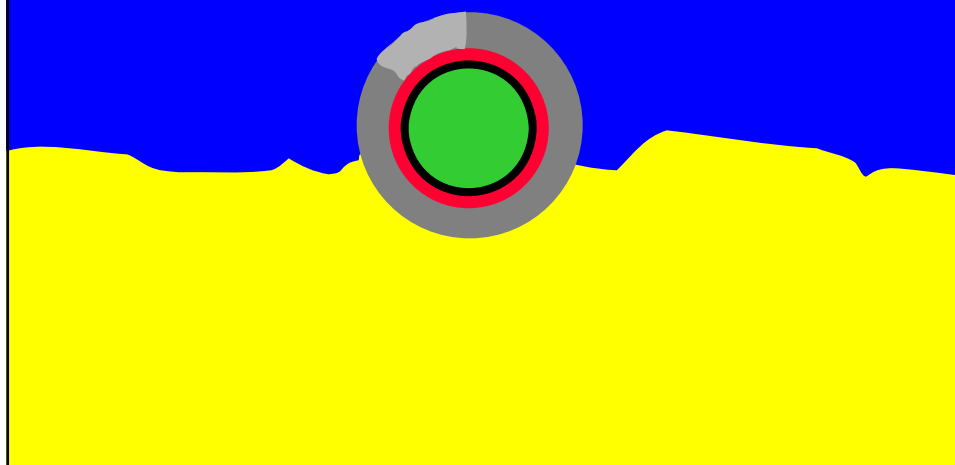
defers expenditure (perhaps for ever)

displace oil
fill with water
+ O₂ scavenger
+ biocide
+ inhibitor



re-use in place (water, carbon dioxide capture and storage)

opportunities very limited; system still has to be decommissioned some day



recover for re-use

has been done very occasionally for pipelines

not usually technically attractive, because line is wrong diameter, wrong wall thickness, wrong material, partially corroded, partially fatigued, etc.

attractive on environmental/sustainability arguments

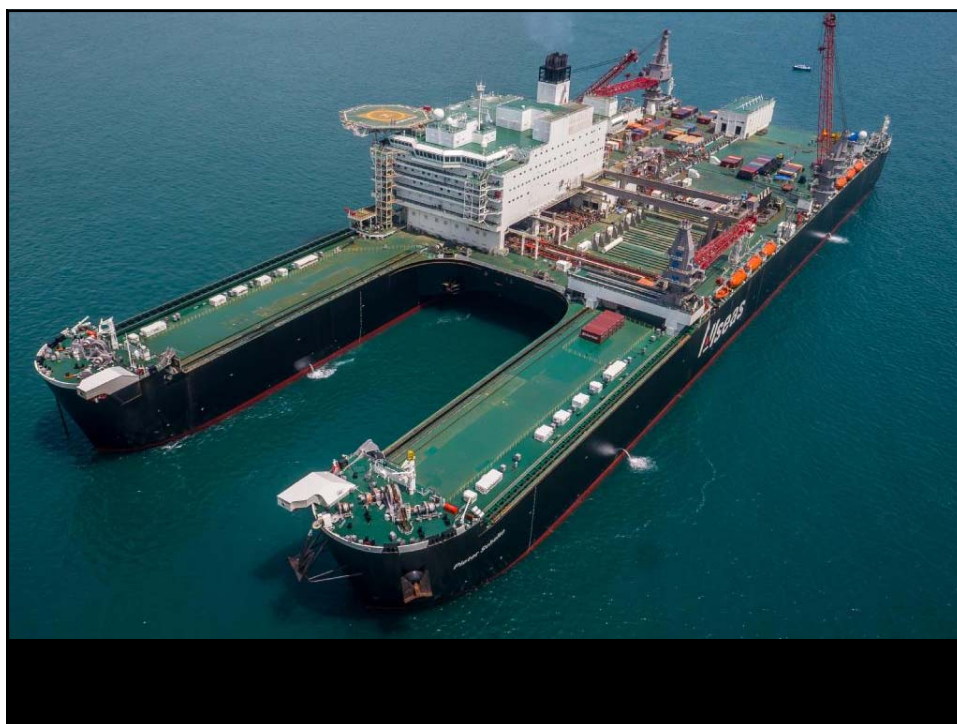
possible re-use of existing lines for carbon dioxide

recover for scrap

technically feasible

attractive on environmental/sustainability arguments

expensive: the value of the scrap (carbon steel \$400 /tonne, CRA \$1600 /tonne) is not remotely enough to pay for the cost of recovery



Opportunities

2000 structures in Asia Pacific

600 structures more than 25 years old

ESTIMATED DECOMMISSIONING COSTS

Table 7

Weight range	Weight range average	No. of offshore installations	Cost/tonne, \$US	Avg. cost/ platform	Cost/ platform range
tonnes				\$1,000 US	
35-300	211	49	3,600	760	37,220
>300-1,000	818	191	3,800	3,108	593,704
>1,000-2,000	1,556	201	4,000	5,913	1,188,473
>2,000-3,000	2,553	146	4,000	10,467	1,528,226
>3,000-4,000	3,568	58	4,200	14,986	869,165
>4,000-6,000	4,905	63	5,500	26,978	1,699,582
>6,000-10,000	7,933	48	6,000	47,598	2,284,704
>10,000-102,500	21,900	63	7,500	112,500	7,087,500
Total		819			15,288,575*

*Assumes complete removal of offshore facility and no well P&A costs.

Thank you for your attention