KIVI Offshore

PLATFORMBROKERS.COM
PRODUCTION FACILITIES FROM ONE OFFSHORE FIELD TO ANOTHER

This presentation is about

RE-USE

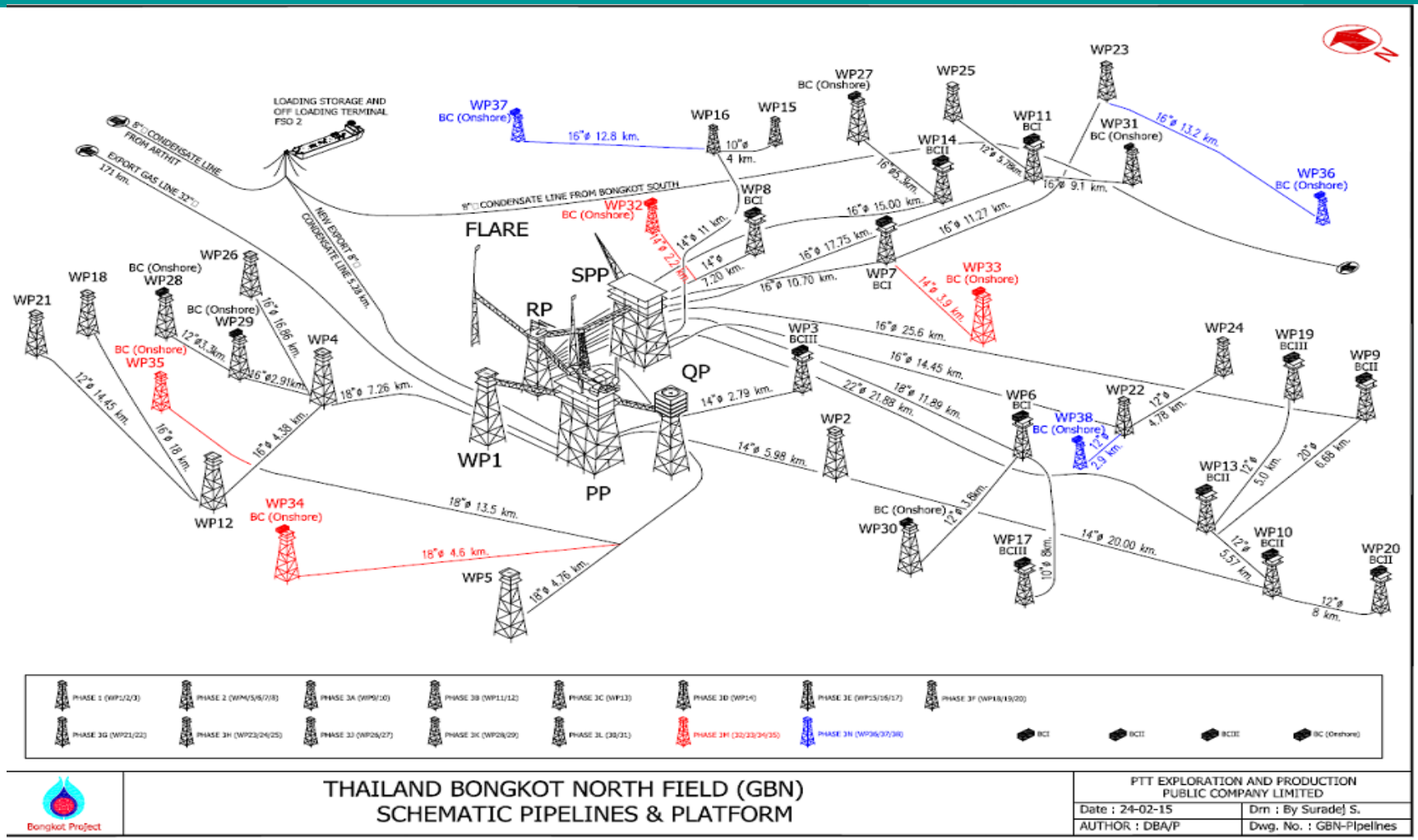
and

FDDV

by

Thor Sterker

What we do for a living ?



Cost estimate of 700++ platforms

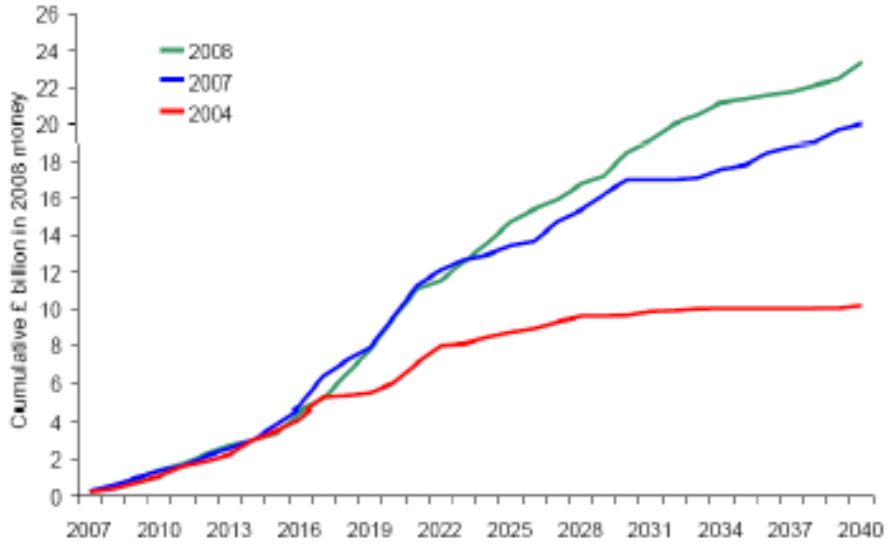
What is driving cost up ?

Regulator want…
- Decommissioning Security Assurance
- Compliance with Legislation
- Create jobs & plow money back into society
- Spend decommissioning money in N-Sea

Operators want..
- Compliance with Laws & PSC agreements
- Sustainable operations
- Protect their Reputation
- Funds to discharge liability
- Ultimate control how the money is spend
- Highest HSEQ performance
- No risk or surprises at the end of field life

Industry want..
- Get on with the job NOW !
- To do the job in lean times (fill in work)
- Share Risks and Rewards (not EPRD contracts)
- Redeploy resources from cancelled projects

Figure 10: UKCS Decommissioning Costs 2007 – 2040



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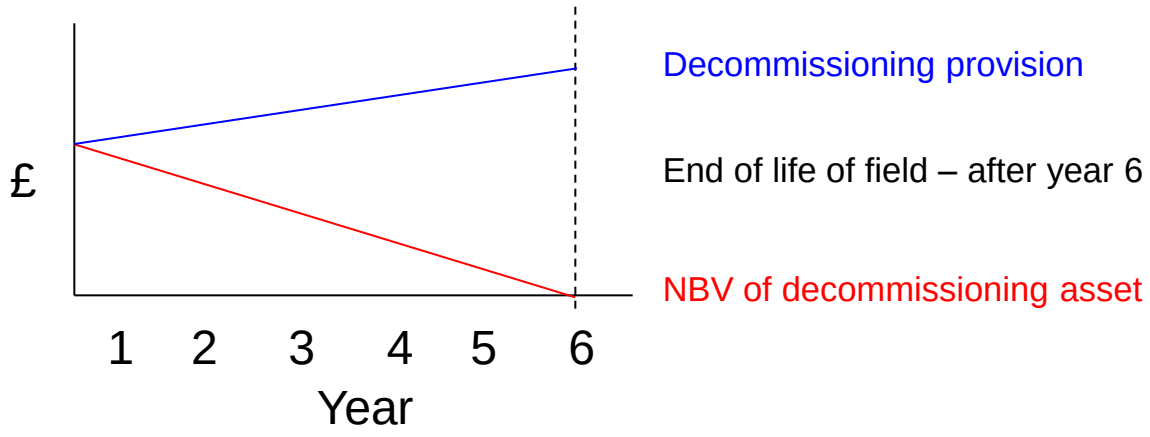
There should be funds for asset retirement liabilities !

Amount capitalised within **fixed assets** is **depleted** (depreciated) as part of the cost of oil and gas properties on the same (unit of production) basis as other oil and gas assets. This means that the cost of decommissioning is expensed to profit and loss over the life of the field, rather than in one big hit after the field has stopped producing.

- Initial **provision grows** over time as **discounting 'unwinds'** - see example later

- ***Key idea*** *is that by the time the field dries up, asset is down to 0 and provision is up to the full cost of decommissioning, in the money of the day when this takes place.*



Annual reports of 11 of the major oil companies (Shell, Chevron, Exxon and so on).

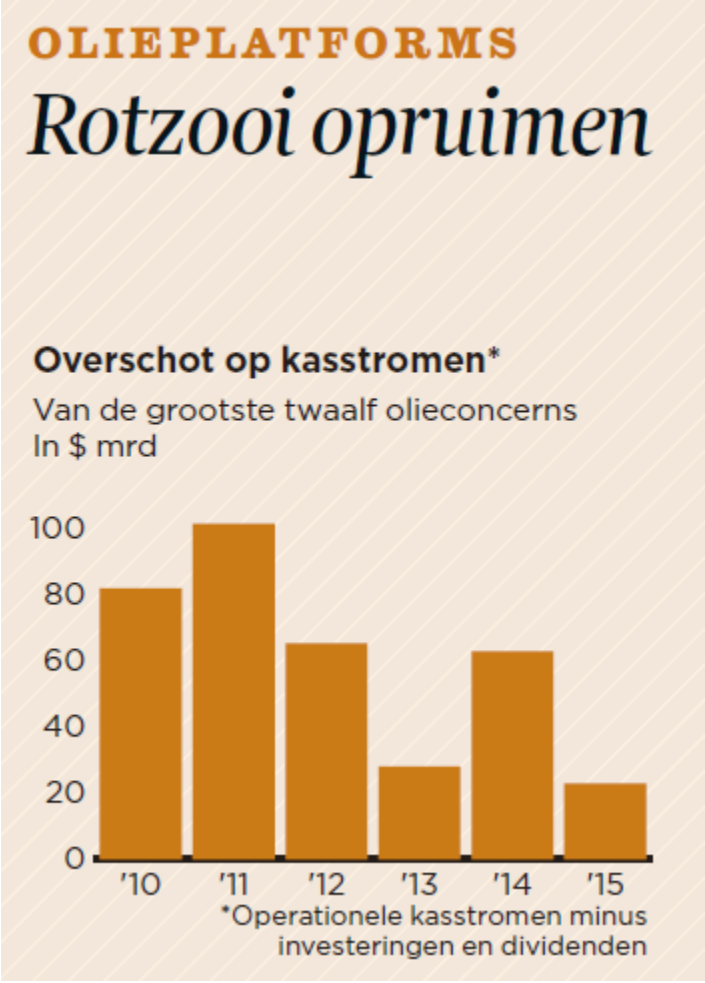
Asset retirement obligation, sometimes named decommissioning provisions:

In 2004: $ 27 bn (on the balances of these oil majors)
In 2009: $ 79 bn
In 2014: $ 144 bn
In 2015: $ 160 bn

So there is a massive increase in a decade. But can they pay?

Cash and cash equivalents on the balances of these same 11 oil majors:

In 2004: $ 55 bn
In 2009: $ 76 bn
In 2014: $149 bn



Bron: Financieel Dagblad

So…. we must drive cost down

Need real actions not management of speech solutions

- Re-use of platform topsides
- Re-use of jackets or parts
- Re-use of proven methods
- FDDV concept
- ?
- We have another 85 ideas and improvements

History of re-using decommissioned facilities

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Netherlands

1. Fixed platforms removed: 20

- Q/1 Helder - B reused
- K/ 9c-A
- K/10-C - reused
- K/10-V - reused
- K/11-B - reused
- K/11-FA-1
- K12-A - reused
- K/12-E - reused
- K/13-A
- K/13-B
- K/13-C
- K/13-C
- K/13-D - reused
- L10/G - reused
- L/10-K - reused
- L/11-A - reused
- P/12-C
- P/14-A - reused
- Q/4
- Rijn P/15-B

2. Re-used: 11 (55%)

CASE STUDY: Topside Refurbishment

USED TOPSIDE

VERIFICATION BODY

- *3rd party Verification Authority*

FABRICATORS

- *Refurbishment procedure*
- *Refurbishment activities*

ENGINEERING CONSULTANTS

- *Engineering activities*

REFURBISHED TOPSIDE

CASE STUDY: Topside Refurbishment

3 MONTHS

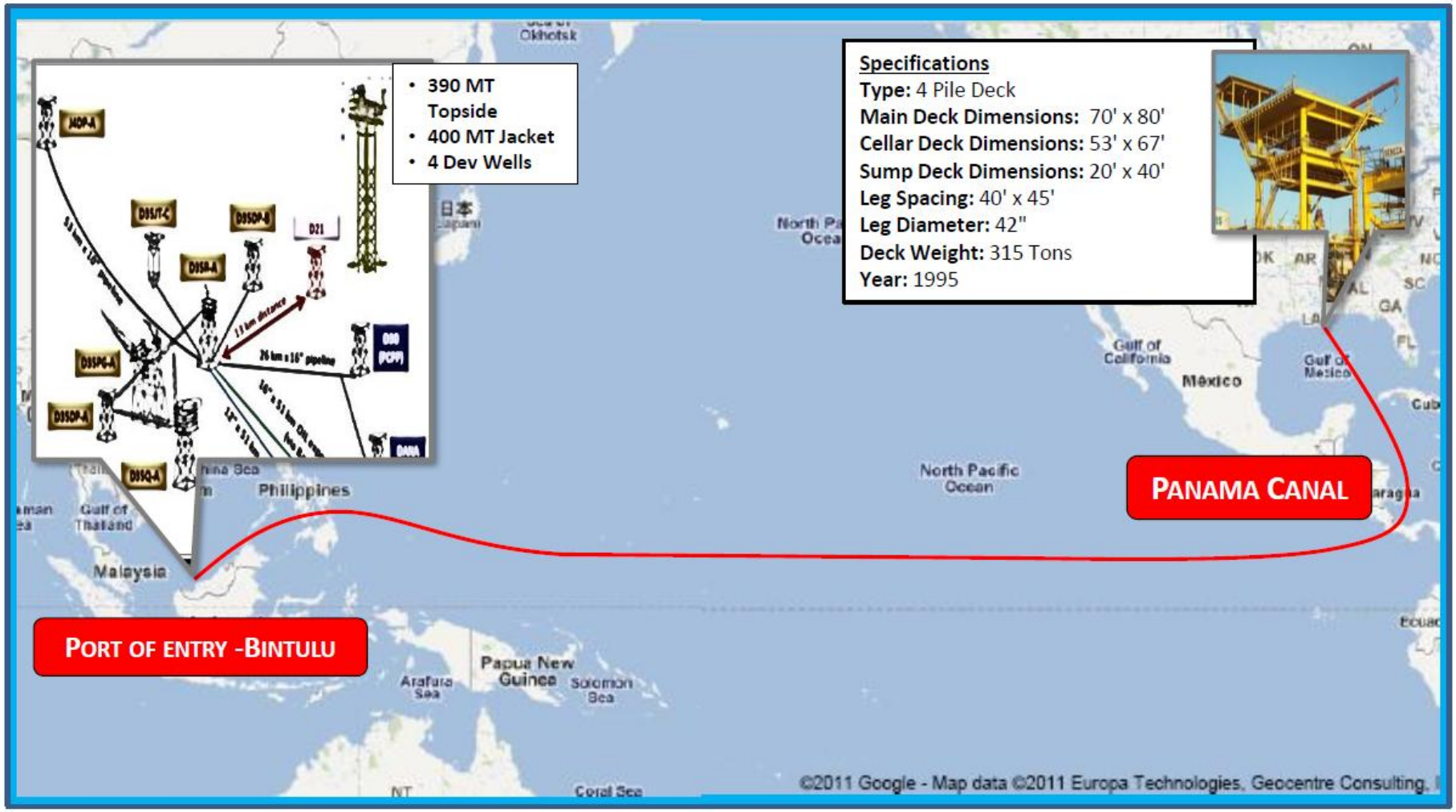
5 MONTHS

6 MONTHS

PROJECT CASE STUDY- MY

Jacket

CASE STUDY: Transportation



ARRIVAL AT LOCATION

INSTALLED, COMMISSIONED & FIRST OIL ON 31-12-2012

Assume:

1600 Ton, jacket and piles, 700 Ton topside, 280m Ton process equipment, Year 2016

New build cost;

• Engineering and procurement	US$ 12 M.
• Fabricate Top + Jacket+ piles	US$ 5 M.
• Transport & Installation (K1)	US$ 7.5 M.
• Total	US$ 24.5 M.

Re-use existing facilities

• Decommission	US$ .2M.
• Preparations	US$ .5M.
• Remove and transport	US$ 6M.
• Refurbish and test	US$ 3M.
• New Jacket	US$ 1.2M
• Transport and install	US$ 7.5M.
Total	US$ 18.4M.

First oil / Gas **6 months ahead of schedule !**

Jacket reuse ?

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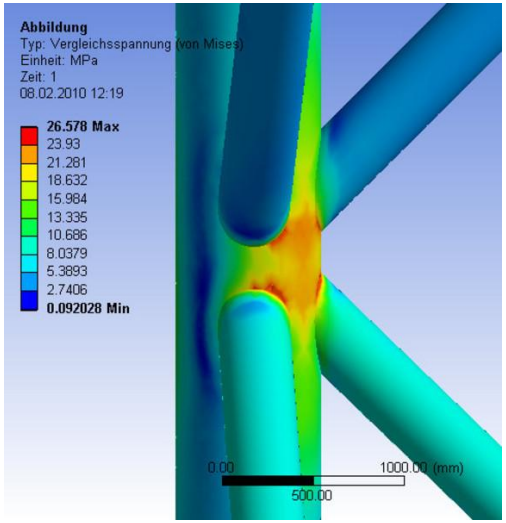
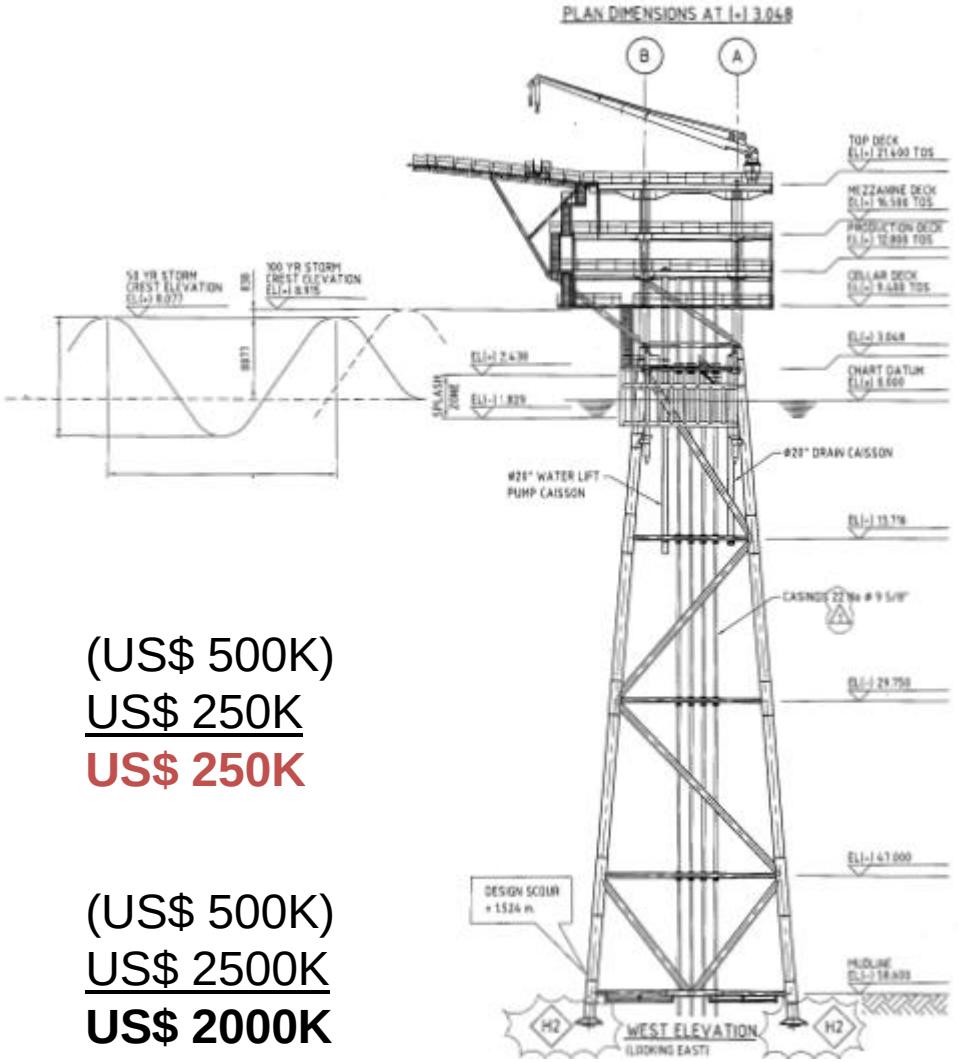
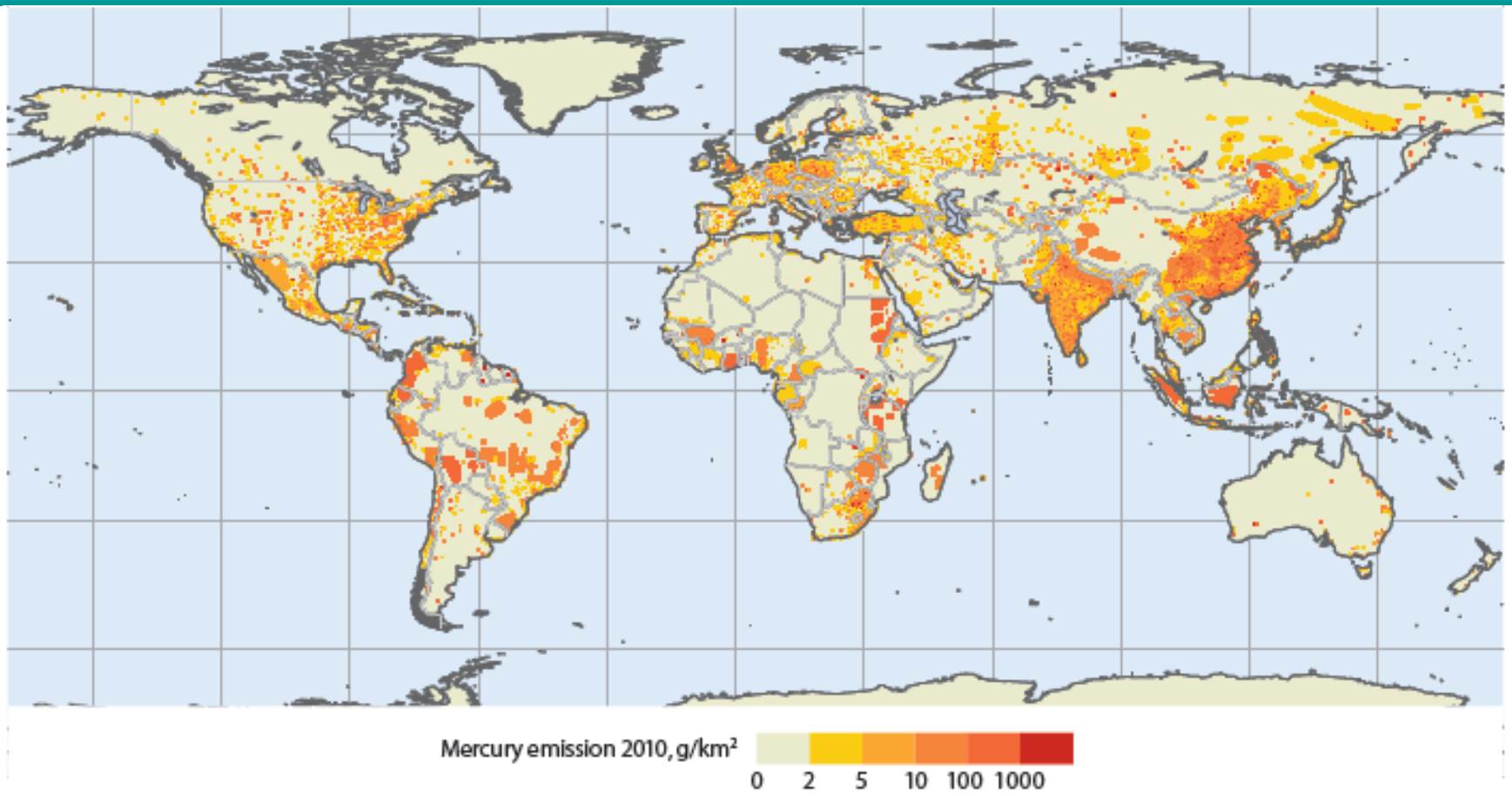




Scrapping cost 1000T * US$ 500/T	(US$ 500K)
Scrap value 1000 T * 250/T	US$ 250K
Loss	**US$ 250K**
Dismantling cost 1000T * US$ 500/T	(US$ 500K)
Re-use tubulars 1000T * US$ 2500/T	US$ 2500K
Value gain	**US$ 2000K**

However,
it contains Hazmat
such as Mercury

The greatest proportion of anthropogenic mercury emissions to the atmosphere comes from Asia, which contributes about 50% of the global total.



Global distribution of anthropogenic mercury emissions to air in 2010.

If nor re-used - Contaminated North Sea oil production and storage tanker end up on the beach in Bangladesh October 2016.

Source: NGO Shipbreaking Platform - Maersk owned FPSO North Sea Producer

Solution ?
Convert hazardous waste into green waste

Floating Decontamination and Disposal Vessel concept

FDDV concept

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Idea is to convert idle Deepwater Drilling Units into FDDV

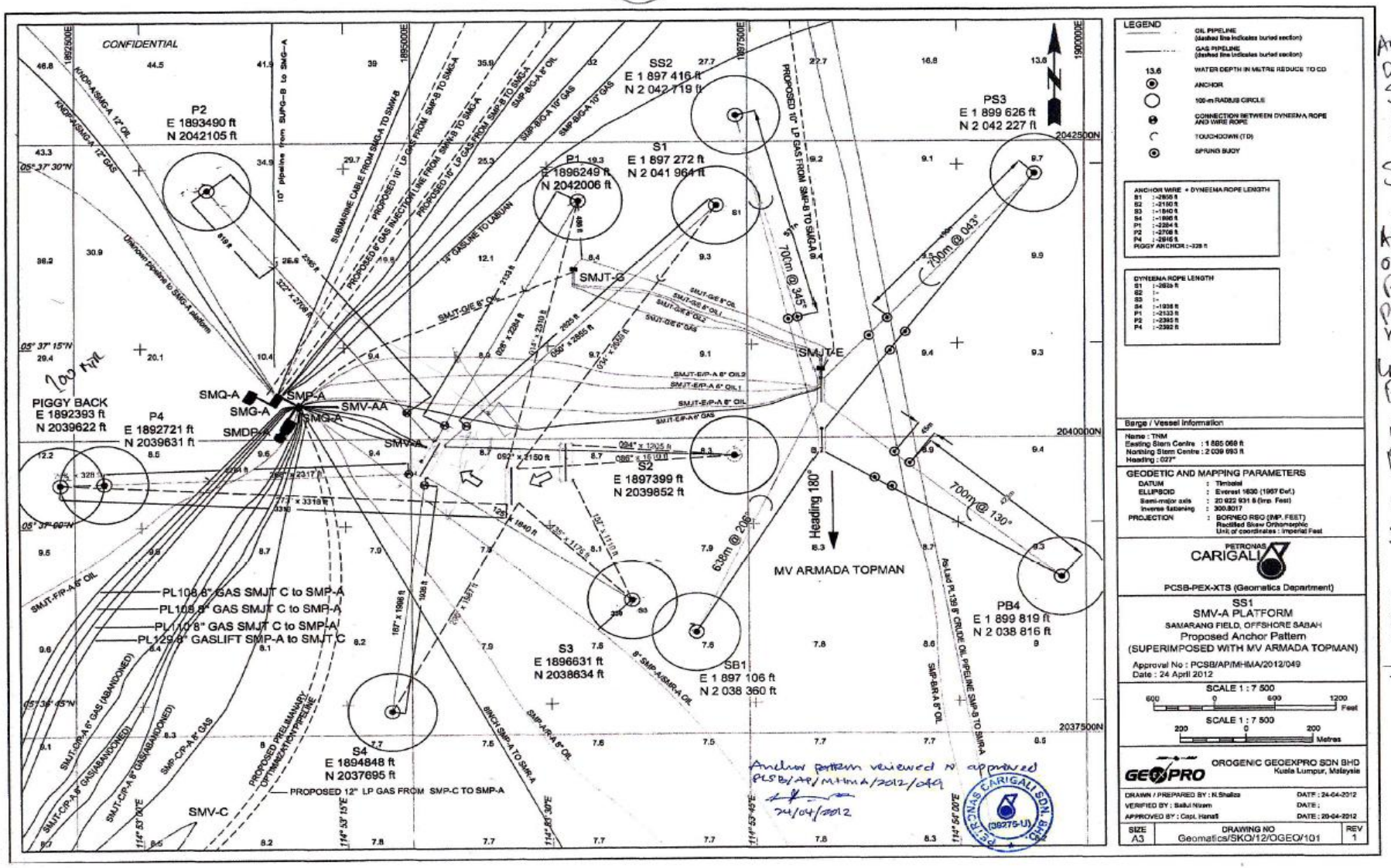
FDDV decontamination techniques

Vacuum Distillation.

Acid cleaning

Chemical decontamination

WHY DP ?


CONFIDENTIAL
P2
E 1893490 ft
N 2042105 ft
SS2
E 1 897 416 ft
N 2 042 719 ft
PS3
E 1 899 626 ft
N 2 042 227 ft
P1
E 1896249 ft
N 2042006 ft
S1
E 1 897 272 ft
N 2 041 964 ft
SMJT-G
SMJT-E
PIGGY BACK
E 1892393 ft
N 2039622 ft
P4
E 1892721 ft
N 2039631 ft
SMQ-A
SMP-A
SMV-AA
SMG-A
SMDP-A
SMV-A
S2
E 1897399 ft
N 2039852 ft
Heading 180°
MV ARMADA TOPMAN
PB4
E 1 899 819 ft
N 2 038 816 ft
S3
E 1896631 ft
N 2038634 ft
SB1
E 1 897 106 ft
N 2 038 360 ft
S4
E 1894848 ft
N 2037695 ft
SMV-C
PL108.6" GAS SMJT C to SMP-A
PL105.8" GAS SMJT C to SMP-A
PL110.8" GAS SMJT C to SMP-A
PL129.6" GASLIFT SMP-A to SMJT C
PROPOSED 12" LP GAS FROM SMP-C TO SMP-A
LEGEND
ANCHOR
100-m RADIUS CIRCLE
TOUCHDOWN (TD)
SPRING BUOY
Barge / Vessel Information
GEODETIC AND MAPPING PARAMETERS
PETRONAS CARIGALI
PCSB-PEX-XTS (Geomatics Department)
SS1
SMV-A PLATFORM
SAMARANG FIELD, OFFSHORE SABAH
Proposed Anchor Pattern
(SUPERIMPOSED WITH MV ARMADA TOPMAN)
Approval No : PCSB/AP/MHMA/2012/049
Date : 24 April 2012
SCALE 1 : 7 500
GEOPRO
ORIOGENIC GEOEXPRO SDN BHD
Kuala Lumpur, Malaysia
DRAWN / PREPARED BY : N.Shaliza
VERIFIED BY : Saiful Nizam
APPROVED BY : Capt. Hanafi
DRAWING NO
Geomatics/SKO/12/OGEO/101
REV 1

"FDDV" (Floating Decontamination and Dismantling Vessel)

- Solves a lot of practical issues, HSE problems, Permitting and Licensing headaches
- Classed and certified to decontaminate platforms, FPSO's, pipelines, seabed, deep draft ships & vessels
- Tackle the Haz-Mat problem in situ, at the beginning of the pipeline not at the end.
- All hazardous operation under Owners Safety Management System
- Containment - process facilities are kept intact and can be decontaminated as one complete system
- No need to train Onshore Yard personnel how to deal with Hazardous Materials in India, Pakistan, Bangladesh
- Only need to train a select group of skilled laborers / engineers working on the FDDV
- Decontaminated platforms classed as Green waste.
- No need to worry about Trans Frontier Shipment Reg's (Compliant with Basel & Hong Kong Convention)
- No need for dedicated onshore Decontamination, Dismantling, Disposal Yard.
- No special planning permission issues for the onshore decontamination facilities.
- More (any) yards would now be able to accept an platform which is certified "free from.." – less congestion
- Re-use of topsides and equipment becomes more feasible as there is no liability issue with handing over a Clean Platform / equipment
- No Risk to Health, Safety & Environment as a result of the presence of Mercury (and other contaminants)
- ZERO emissions (other than emissions from FDDV engines)
- No Reputation Damage
- Use FDDV to prepare platform prior to HLV arriving in field – thus reducing risks of delay to high value asset
- Pre-cutting of Topsides and jacket foundation piles
- Pre cleaning / removal of contaminated drill cutting piles on seabed
- More reasons spring to mind

Funding to perform feasibility study

Because of its efficiency and its capability to operate in international waters it can work continuously in waters from ASCOPE members, therefore Co-funding of the FDDV Feasibility study by Operators of the eight (8) ASCOPE member States eases the financial burden

Together with Universiti Technologi Petronas (and others to be identified) we intent to perform a feasibility study to prove the concept and to be able to estimate the cost efficiency and HSE benefits. This feasibility study would take approx 12 months with as small dedicated team of 4 to 6 fulltime Scientists / Naval Architect, Process – Facilities Engineers / Chemist / Environmental engineer.

At this moment and time we estimate that the budget for the entire feasibility study to be around US$ 400k. to prove the FDDV concept.

Plan is to organize a workshop with all stake holder to formulate the definitive concept study deliverables in Q3 2017, describing , schedule and finish date of the study and resources required to perform the study.

Per Ascope members that would be around US 75,000= (plus or minus 15%)

Others are welcome to join the Group

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It takes courage to step out for others to follow
Decommissioning is not for the timid

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Thank you for your attention

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