

**Assessing the Technical Requirements,
Budgets and Risk
for Each Facility: Decommissioning Expenses**

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Introduction

- Removal market has now started in Norway and UK
- In Holland, few removals in the last 10 years – little experience
- This presentation discusses the main lessons learned for
 - NW Hutton
 - P15 B Platform
 - North Sea Range Platforms (BAe)

Platform Brokers

Main activity: Consultancy for oilcompanies:

- Decommission cost estimates
- Management of Removal Projects (P15B, NSR Platforms, NWHutton, Ekofisk, Frigg & Froy)
- Brokering Offshore Facilities (Camelot – SBM Panuke and Cohasset)
- Re-use studies for field development (Froy, M35)

- PB is established since 2001
- Involved in studies since 1988

Managing removal projects

Project management is about managing CTR :

- Cost
- Time
- Resources

(for a certain scope and method)

Only one can get priority, the others follow subsequently!

For removal projects, specifically risk & safety need to get high attention

Removal methods

Two established methods

1. Removal by Crane Vessel
2. Cut into pieces



Cost structure (WBS)

1. Plug & Abandonment of wells
2. Platform preparations
3. Removal, Transport and onshore recycling
4. Subsea clean-up
5. Overheads

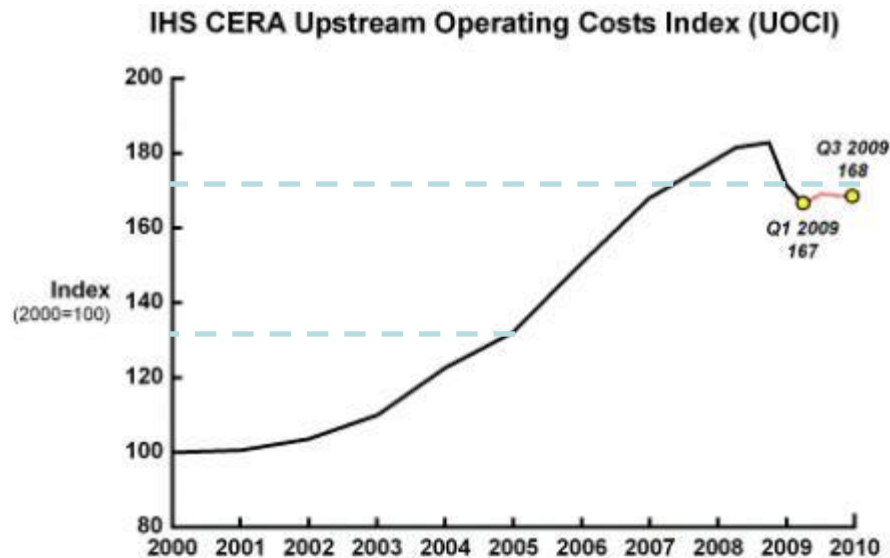
EU study in 1996 estimated the following:

Platform	Cost (million ECU)

Note:
Includes P&A of wells

Cost (2)

- But costs have gone up dramatically in the recent years
- 40% cost increase in 4 years time



Source: IHS Cambridge Energy Research Associates.
91116-2

Time

1. Plug & Abandonment of wells:
 - 7-14 days per well
 - Availability of rig
2. Platform preparations
 - Hazardous waste requires specific waste stream to specialized disposal companies (NORM, Asbestos, Mercury etc.)
3. Removal, Transport and onshore recycling
 - Summertime
 - Weather downtime risk
4. Subsea clean-up
 - Leave in-situ for the time being
5. Overheads
 - Project organization

Time

Historically, oil companies try to postpone the removal as long as possible.

Opportunity: future tie-in, cash flow

Risk : deteriorating platforms results in additional costs



Resources

Project organization

	Activity	Department
1	P&A of wells	Drilling
2	Platform Preparations	OPS
3	Removal, transport and onshore recycling	Construction
4	Subsea clean up	Subsea
5	Overheads	HSE, Planning , Cost reporting, Doc control, Procurement etc.

Removal projects are inherent difficult to manage

Resources

1. Organization:

- oil company
- contractor

2. Crane barge operators

- Seaway HL
- Smit/Scaldis
- Heerema
- Saipem

the issue here is availability and risk,
not technology

3. Cut into pieces

- Eurodemolition
- AF Decom (UK/Norway)
- Aker Solutions (UK/Norway)

Has not been done in NL yet

4. Recycling yard availability

- Hoondert (Vlissingen)
- Hapo ('s Gravendeel)

the issue here is quayside availability
and permits/licenses, not costs

Lessons learned – NW Hutton

Scope: 30,000 tonnes

Country: UK

Waterdepth : 150 m

Cost:

1992 \$ 58 million (budget)

2005 £165 million (budget)

Time: 2008/2009 on schedule

Resources: New subcontractors

Safety: no LTI's in 865,000 offshore manhours

Risk: high risk profile and serious cost increases



Lessons learned – P15B

Scope: 2,800 ton platform

Country: NL

Waterdepth : 26 m

Cost: within budget (platform prep's & removal)

Time: 2003 on schedule

Resources: experienced
(PBC/HMC/Hapo)

Safety: no LTI's

Risk: no unidentified risks



Lessons learned - BAE

Scope: 6 platforms 400 ton

Country: UK

Waterdepth : 30 m

Cost: within budget (platform prep's & removal)

Time: On schedule, tendered March 2005 – finish December 2005

Resources: experienced
(PBC/Seaway/Prosser)

Safety: no LTI's

Risk: no unidentified risks



Positive lessons learned

1. Projects can be executed safely and on schedule
2. Small, but experienced group of contractors
3. Onshore recycling according all regulations
4. Waste Management established with EA / SEPA / SFT / VROM

Negative lessons learned (general)

1. Inherent uncertainty in removal projects – lack of (reliable) data
2. Dramatic cost increases in all area's:
 - P&A of wells
 - platform prep's
 - removal
 - overheads
3. No strategy or planning within some oil companies
4. Learning curve subcontractors

Lessons learned (2)

Specifically for Dutch platforms:

1. The smaller the oil company team, the better the project is run
2. Lack of data means inherent risk for unexpected situations – Cost up
3. Shut-in platforms are unsafe due to corrosion (grating/dropped objects)
4. Weather delays depend on the contractor equipment//method
5. Soil conditions are uncertain for pile cutting and pipeline removal
6. Old platforms will contain hazardous waste which needs specific handling.
7. Only two recycling yards with proper planning permission in NL
8. What will happen to the temporarily abandoned (exploration) wells ?
9. Number of platforms mean lack of offshore equipment in the nearby future

- After the Brent Spar project the stakeholders realized that the cost for platform decommissioning would rise;
- European Commissioning started a study in 1996 'Offshore installation Abandonment Study'
- Our study was used as a benchmark for recent projects:
 - Maureen
 - Frigg
 - NW Hutton
 - Ekofisk cat 1 + cat 2
 - Ekofisk 2/4 T
 - Indefatigable

EU cost study results

Project	1996 estimate Million \$
Maureen	60
Frig	328
NW Hutton	116
Ekofisk cat 1 & 2	391
Ekofisk 2/4T	103
Indefatigable	78

Actual costs now 3 to 4 times higher than anticipated in 1996. Why?

1. Steep learning curve for all involved: oil companies, main contractors, sub-contractors
2. Contracts placed undue risks on contractors, especially for unforeseen or unknown events
3. There is no schedule incentive for the oilco's in a removal project, such as a 'first oil date' in a construction project

Lessons learned

Positive lessons learned

1. Projects can be executed safely and on schedule
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4. Waste Management established with EA / SEPA

Negative lessons learned (general)

1. Inherent uncertainty in removal projects – lack of (reliable) data
2. Dramatic cost increases (and risks) in all area's:
 - P&A of wells
 - platform cleaning and hook down
 - Removal
 - Subsea cleanup
 - overheads
3. No strategy within some oil companies
4. Rules and regulations not suited for removal projects
5. Topsides and jackets have completely different issues:
 - The topsides are all about logistics and procedures
 - The jacket is all about technology (cutting, lifting, handling)

General:

- Increase in cost due to financial factors: inflation, interest rates, general cost increases
- Exchange rates £, \$, €
- Lack of contract strategy or unclear oil company project organization, extending project duration and costs
- Lack of as-built data needing methods to be revised and extending durations offshore
- Duration for offshore activities are increased due to :
 - Unsafe platforms (grating, caissons, dropped objects)
 - Offshore crew not making productivity
 - Delays in supply chain
 - Unsited Rules/regulations like Permit to Work
 - More weather downtime than anticipated (i.e. ‘a bad year’)
 - Non performing subcontractors

How to proceed?

1. Develop a Removal Strategy
2. Update Decommission cost estimates in money of the day!
3. Consider Economy of Scale amongst operators

PB Consultants services:

- cost estimates
- strategy advise
- project management
- feasibility studies
- client representation

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