

# SUT/MASTS Workshop

## Decommissioning and Wreck Removal

Similarities & Differences: Closing the gap  
between Decommissioning & wreck  
removal

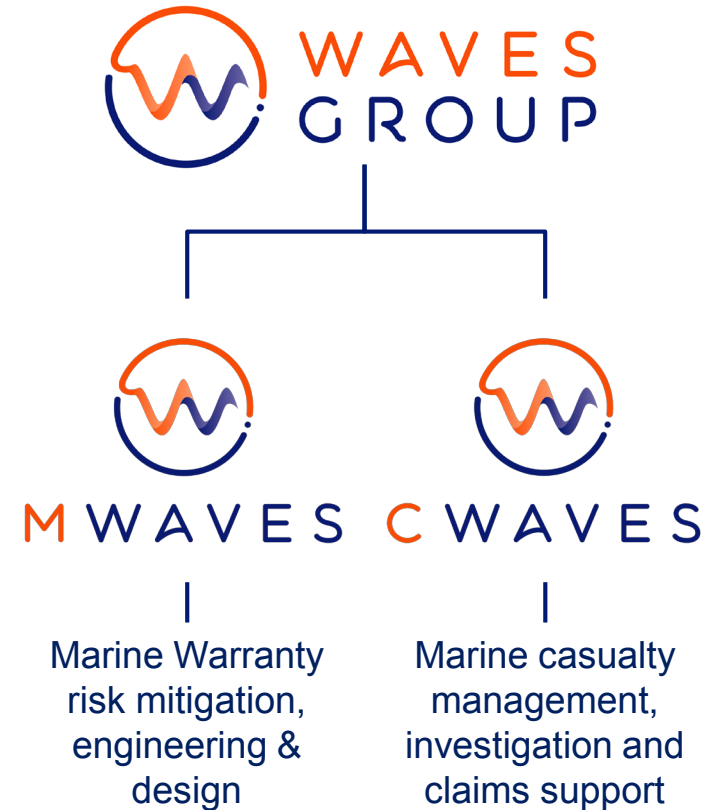
Nigel James

October 2017

[www.waves-group.co.uk](http://www.waves-group.co.uk)

# Introduction

- **Completely independent** marine and engineering consultants, established in 2005, based in London & Aberdeen;
- We provide professional & specialist consultancy services to the offshore energy and shipping industries;
- Waves Group; incorporates sister companies Mwaves and Cwaves.

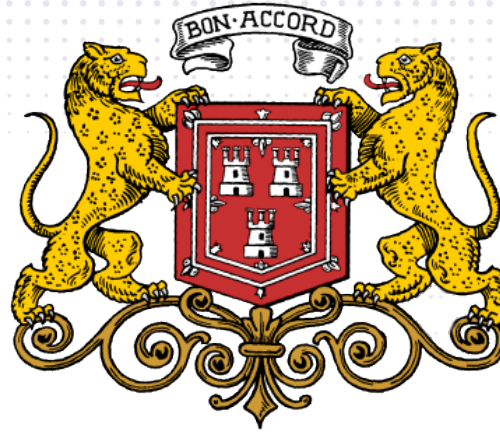


- Naval Architects
- Master Mariners
- Marine Engineers
- Structural Engineers
- Maritime Civil Engineers

## Associate Consultants:

- Fire experts
- Metallurgists
- Marine Biologists

- USP; superior quality marine consultancy & engineering solutions, for the primary benefit of our Clients.







Salvage & Wreck  
Removal



Casualty & FFO  
Investigation



Expert Witness &  
Opinion



Marine Warranty  
Surveys



Decommissioning  
Support



Marine & Offshore Energy  
Engineering



A technical and operational comparison around a series of different cases:-

- Location and the limited options available;
- Project planning & site operations;
- Project safety & the risks;
- Hot tapping & oil removal;
- Scuttling & jacket placement.



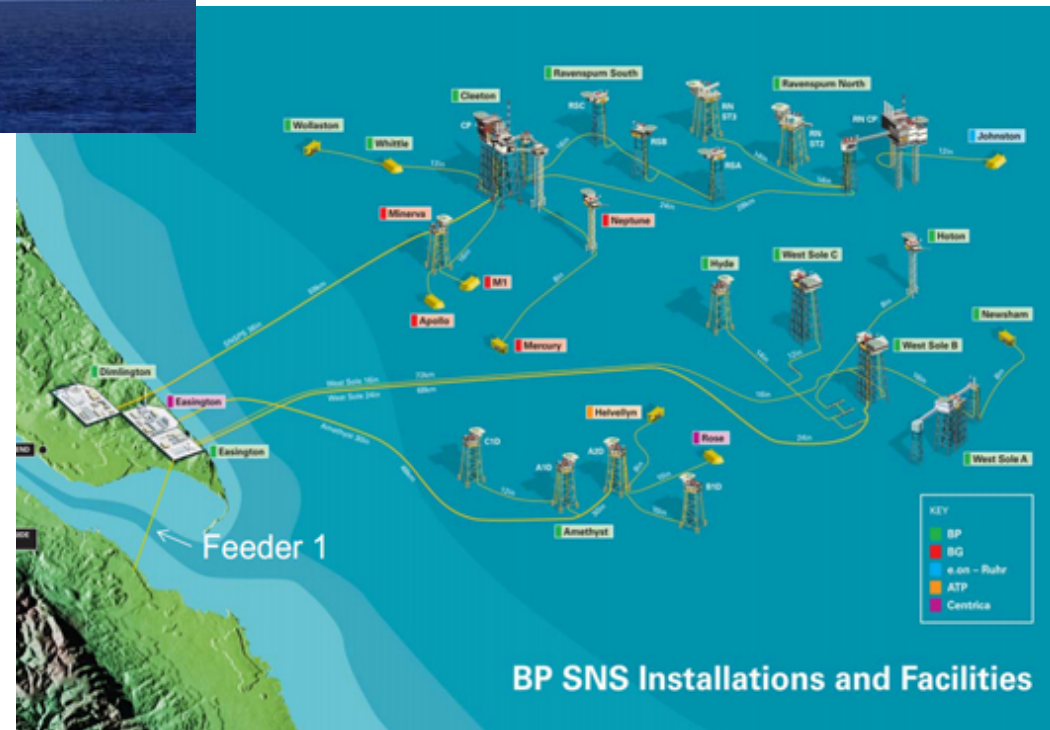




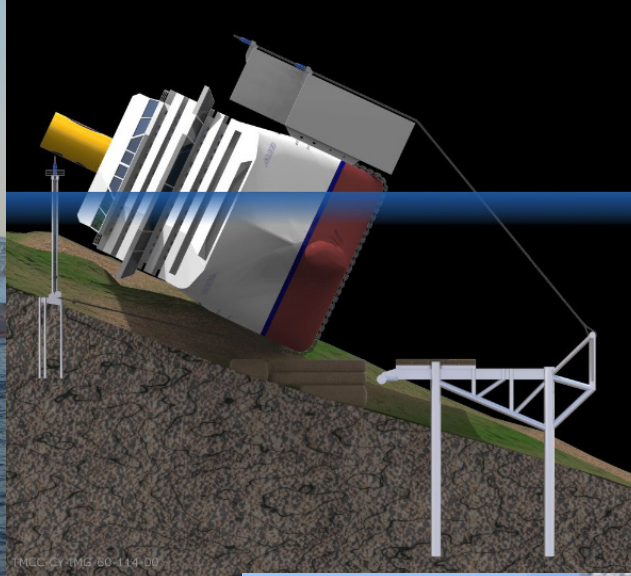


The pre-planned locations for commercial operations and productivity with limited options available ...

Decommissioning was probably not the primary driver when installed on location.











The technical and operational considerations:-

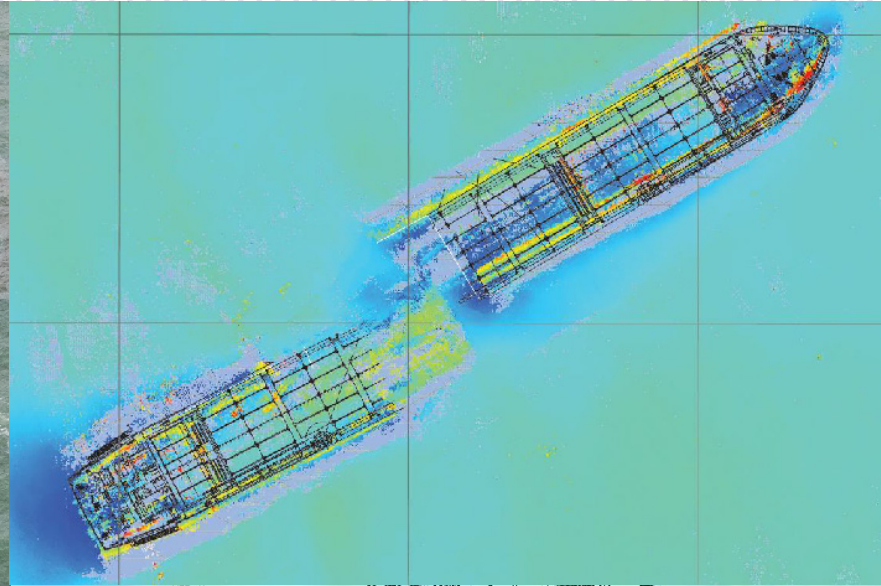
- Location and the limited options available;
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- Scuttling & jacket placement.





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# Incident, Analysis & Removal







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# Planned Operational Phases







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# Planned Operational Phases



The pre-planned operational phases are similar to a wreck removal, however even with extensive planning project flexibility is required.

The weather and other operational factors influence the site operations e.g. safety and access...









The technical and operational considerations:-

- Location and the limited options available;
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- Project Safety & the risks;
- Oil removal & hot tapping;
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# Project Safety and Risks

Project safety and the risks are similar, but not exactly the same, in decommissioning and wreck removal operations:-

- Health & Safety Risks;
- Environmental Risks;
- Reputational Risks;
- Commercial Risks;
- Technical Risks;
- Schedule Risks;
- Risks may be project and/or operations specific!

RISK ASSESSMENT MATRIX				
SEVERITY PROBABILITY	Catastrophic (1)	Critical (2)	Marginal (3)	Negligible (4)
Frequent (A)	High	High	Serious	Medium
Probable (B)	High	High	Serious	Medium
Occasional (C)	High	Serious	Medium	Low
Remote (D)	Serious	Medium	Medium	Low
Improbable (E)	Medium	Medium	Medium	Low
Eliminated (F)	Eliminated			



# Project Safety & Risks

Category	Decommissioning	Wreck Removal
Planning Time	Extensive	Limited
Analysis	Detailed	Experienced
Regulatory	Structured	Fractured
Contractual	Project Specific	BIMCO
Operations	Pre-Planned	Flexible
Environment	Known	Unknown
Consultation	Proactive	Reactive
Asset Integrity	Stable	Unknown
Removal	Agreed	Negotiated
Completion	Clear	Debatable

# Project Safety and Risks

Specialist risk mitigation, decommissioning engineering, casualty management and investigation expertise for the offshore energy and marine industries.

## Risk Mitigation, Engineering & Design

- Marine Warranty Surveys;
- Decommissioning;
- Offshore Engineering;
- Transport & Heavy-Lift;
- Surveys, Inspections & Audits;
- Port & Harbour Development;

## Casualty Management & Investigation

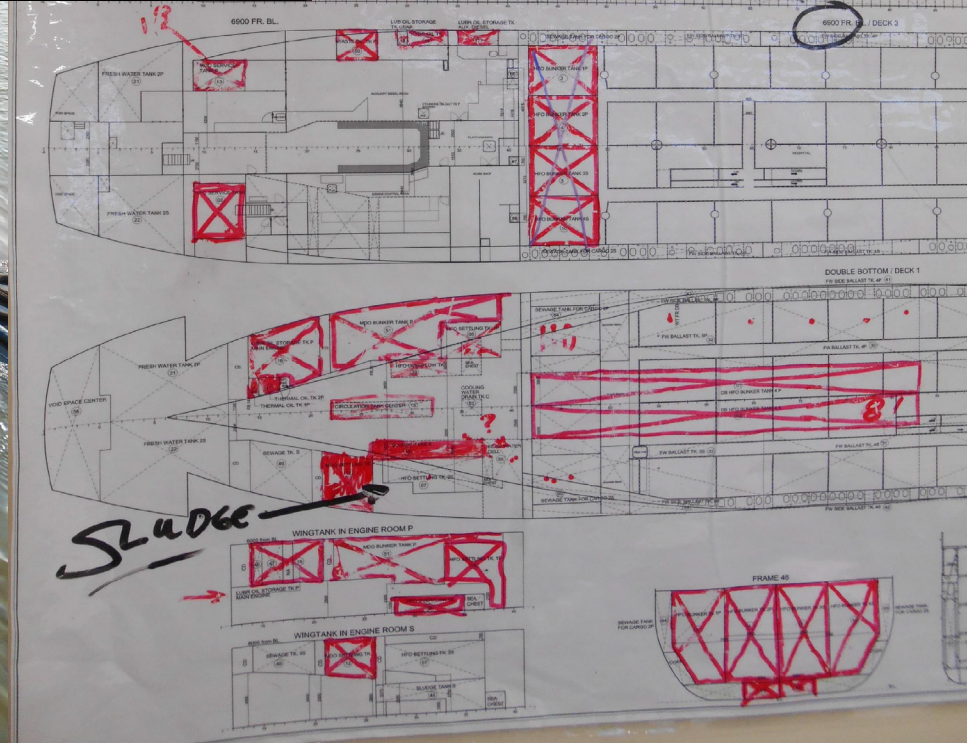
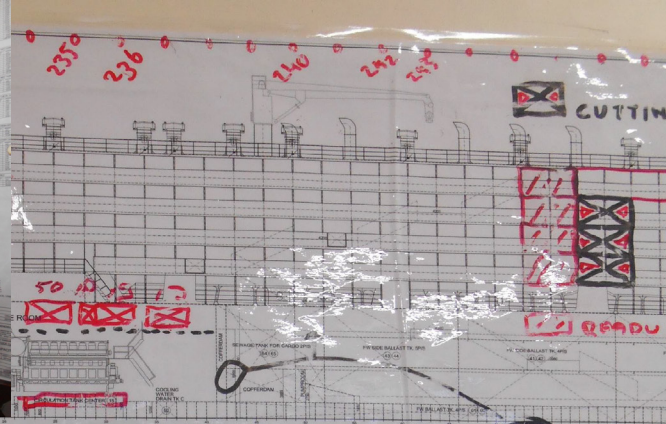
- Casualty Response & Investigation;
- Claims and Litigation Support;
- Salvage and Wreck Removal;





The technical and operational considerations:-

- Location and the limited options available;
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- Hot tapping & oil removal;
- Scuttling & jacket placement.





# Hot Tap Equipment

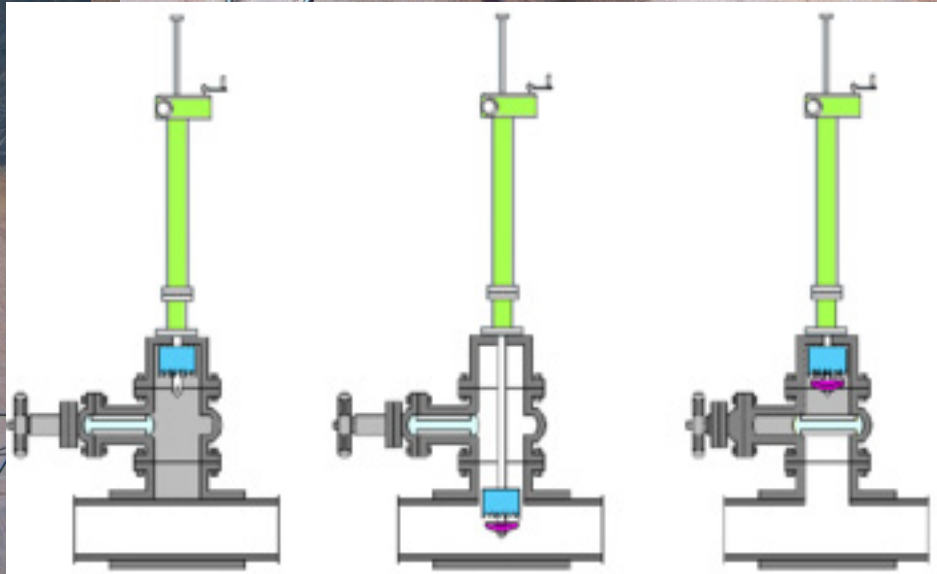
Drilling and  
tapping



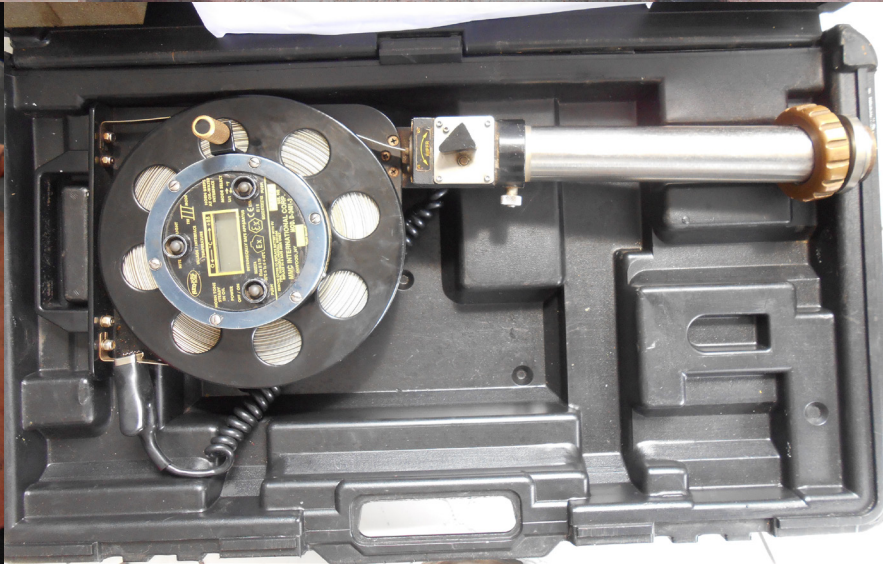
Pumping and recovery



# Hot Tap Operations













The technical and operational considerations:-

- Location and the limited options available;
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# Scuttling of the German Fleet

**Admiral Ludwig von Reuter**; commanded the Imperial German Navy's High Seas Fleet when it was interned at Scapa Flow at the end of WWI and on 21<sup>st</sup> June 1919 he ordered the scuttling of the 74 vessel fleet...



"All his ships hoisted the German flag, the seacocks, portholes, watertight doors, hatches and torpedo tubes were opened the ships began to sink with a tremendous hissings of steam, spouts of water and huge gurgling..."



# Scuttling & Removal

Scuttled 1919 & some were removed in 1939



*Kaiserin* successfully raised, her eight air-locks secured by a web of guy-wires.  
(Fox Photos)

# "Atlantik Confidence"



In a very detailed and considered judgment which followed extensive expert evidence and argument on both sides during a six week hearing, Teare J agreed with Cargo Insurers and concluded that the sinking was a deliberate scuttling: HFW

The judge considered that *"whilst the improbable can happen it is difficult to accept that three improbable events (an accidental fire, an accidental flooding of the engine room caused by the fire and an accidental flooding of two double bottom tanks on the portside caused by the fire) may have occurred in rapid succession to each other."* HFW





Alternative disposal for upper jacket sections:-

- Similar scenario to scuttling;
- Preserve marine growth & corals;
- On-going habitat for marine life;
- Reduce risks associated with transport and dismantling on shore;
- Other advantages?
- What are the disadvantages?



## Methodology

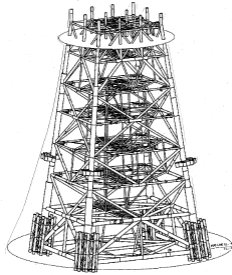
- Remove jacket sections to approved derogation level;
- Jacket sections to be lifted and placed on seabed in vicinity of jacket "footings";
- Placement sites to be clear of working pipelines etc;
- Field layout to be carefully considered and pre-planned for placement;
- Natural field evolution and structural deterioration.



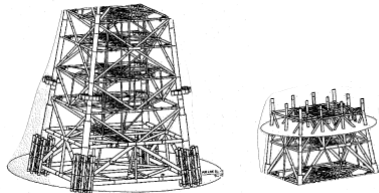


# Jacket Placement

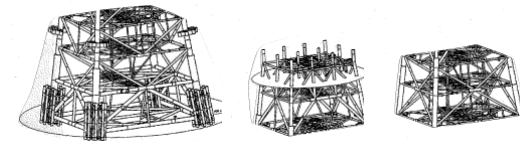
Stage 1  
Jacket  
following  
Topsides  
removal



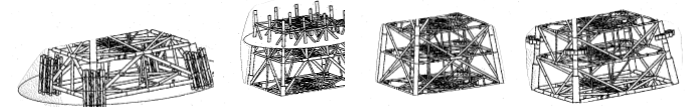
Stage 2  
Upper Jacket  
section  
placed on  
sea bed



Stage 3  
Middle  
Jacket  
section  
placed on  
sea bed



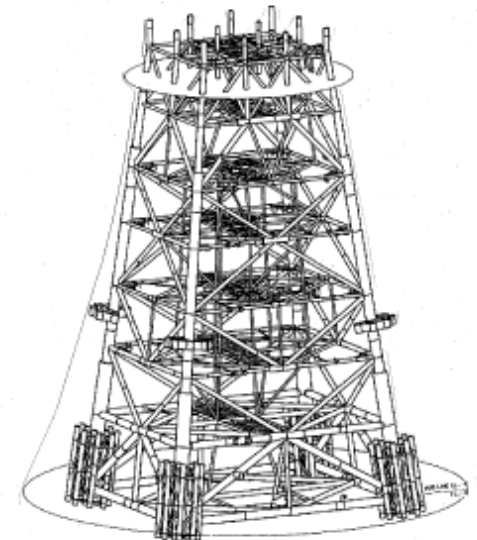
Stage 4  
Lower Jacket  
section  
placed on  
sea bed



- Operational advantages?
- Environmental advantages?
- What are the disadvantages?
- Who are the stake holders involved?

# Jacket Placement

- Advantaged, disadvantages & discussion points?
  - Eliminates transport of cut sections to shore and to dismantle them.
  - Possible to increase the size of the cut sections as they do not have to be lifted clear of the water.
- Increased crane vessel time offshore for placement;
- Seabed survey required to identify sites for placement of sections;
- Additional studies required to:
  - Ensure no interference with other assets;
  - Identify natural collapse mechanisms;
  - Engage with other stakeholders;
  - Environmental considerations;
  - Fishing considerations;
  - Regulatory obligations;
  - Others..?





DISCUSSION & QUESTIONS?

Thank You

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