Subsea Power Cables:

Lessons Learned – A Marine Warranty Surveyor’s Perspective

7th November 2019  Capt. Chris Sturgeon
Thoughts

The historical insurers in marine markets are pulling capacity from their traditional hull markets and see cables as a possible opportunity. Less experienced insurers for cables might benefit from the guidance of relevant expertise.

Insurers might consider direct appointment of MWS.

How hard does the market have to be for insurers to support the MWS when push back from developers and contractors is prevalent, and increases the risk?
Presentation

Red Penguin & Penbridge Marine

Market influences
- The power cable market - context
- Losses
- Contributory causes?

Project Environment
- Phases
- Pressures
- Cable in context
- Risk Awareness

Lessons Learned
- Cause & effect
- Recent Experiences
- Summary

Anchoring Prohibited
Red Penguin Reorganisation

Services

- Project Assurance
- Asset Management
- Expert Services
- Marine Warranty Survey (MWS)
A new company

Formalising an informal working arrangement between

Red Penguin and Cambridge Marine

Chris Sturgeon  Master Mariner
Colin Campbell  Master Mariner
Danny Wilson  Master Mariner
Richard Goldring  Principal Engineer

The same people

A different brand
What could possibly go wrong?
CAR Claims 2002 - 19

83% of claimed costs

- Cable claims 83.2%
- Collision 0.6%
- Electrical 4.5%
- Foundations 9.5%
- Fire 0.3%
- Lightning 0.3%
- Blades 0.3%
- Assembly 0.8%
- Deductible 0.8%
CAR Claims 2002 - 19

BREAKDOWN OF COSTS

- Vessel Charges = 65%
- Special Machinery (Third Party) = 1%
- Site Works (contractor labour) = 16.5%
- Materials = 5%

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CAR Claims - Cables

- Average claim cost: EUR 2,500,000
- Inter-array cable damage: EUR 1,500,000 – 10,000,000
- Export cable damage: EUR 8,500,000 – 30,000,000

- 57 of the last 60 construction projects have experienced cable claims
- Vessel costs a major contributor (EUR 80,000 – 170,000 p/day)
Offshore – Standby / WoW

Wave Height

Wind Speed
Key Issues

• Deskilling of cable manufacture
• Deteriorating QA in cable factories
• Inadequate forward planning
• Year round marine operations
• Lack of installation skills
• Market forces affecting long term investment
• Poor performance of MWS
• Undiminished loss record
Market in context

Cable lengths and Oil prices

- HVDC cables
- Offshore wind export cables
- In Service (2019) Fibre Optic cables
- Inflation adjusted oil price
MWS SoW  Key risk points in a project

Project Schedule

- Pre Contract Award
  - Development
  - Procurement
- Post Contract Award
  - Cable Design & Type Test
  - Manufacture
  - Engineering Design
- Risk Inception
- Load
- Installation
- Commissioning
- Operation
Role of MWS

Insurers’ Expectation

- Joint Rig Committee (JRC) Code of Conduct for MWS JRC2010/010
- Fundamental objective of the MWS is to reduce risk to an acceptable level in accordance with best industry practice
- Acting as an independent third party reviewer
- Possessing relevant skills and experience
- Noting insurers’ interests
- Reviewing the project arrangements, suitability and monitoring compliance
- Provide written approval (CoA) & make recommendations (Assured to comply with)

Some Assureds’ Expectations

- Low cost
- Augment / replace internal risk control
- An unwanted necessity (but it ticks a box)
- Typically engaged on a Consultancy contract
- Expect to have some control over MWS’s work and impact
- Engage as late as possible to defer the cost
Manufacturing Issues

Type approval test (TAT), QC/QA, experience, consistency 24 hour monitoring?

Cable manufacturers make cable:

Control of loading, transportation and installing cable ensures the continued viability and efficiency of the production line...

If the manufacturer does not load, ship or install cable:

Are the project contract responsibilities clear?

How is transfer of risk managed?
Damage during loading

Joint in load port?
- Factory jointers
- Low risk operations
- Delay

Leave in stow and joint at sea?
- Field jointers
- Higher risk operations
- Contract issues?
- Delay
- Weather risk
Installation – Focus Points

• Planning, planning & planning
• Risk control
• Experience & competence
• Tests and trials
• Contingency planning
• Operations
• Implement plans and procedures
• Manage change
• Identify root cause of incidents
Technical impact of losses

Failed Shore End Landing - HVDC Interconnector:

- Investigation of cause
- Cost of rectification engineering & planning - 8 months
- Delay > 6 months - ship time, support vessels
- Weather impact
- Consents and permits impact
- Negotiation, dispute resolution
- Schedule delay
- Complete installation works
- Additional rock protection and trenching
**Claim:** Circa EUR 10,000,000

**Damage:** 132kV Export Cable and submarine joint

**Cause:**
Lifting frame was incorrectly hooked up to manoeuvring points and not lifting points
Manoeuvring points failed dropping the cable and frame

**Lessons Learned:**
Operators were not familiar with the frame and its safe operation
The lifting points were not clearly colour coded, which is good practice
Claim: Circa EUR 10,000,000

Cause:
Small weather front which was un-forecast came through the area giving unexpected direction and wind speed. The barge was in survival position, but was not able to survive the almost-beam-on winds and swells from this unexpected system.

Damage:
Significant damage to Export cable & Plough

Lesson Learned:
MWS provided strong recommendations to consider seeking shelter, Barge Master decided to continue
Lessons Learned

- Appoint a MWS with relevant & extensive experience; it’s a false economy to go cheap
- Get MWS involved earlier in the project schedule; at least from engineering design review
- Let the MWS do their job; it can help everyone!
- Don’t sweat the small stuff; there’s lots of it…
- Confirm project teams’ understanding of distinction between contract requirements and policy conditions
- Communication: It’s good to talk – be frank
- Plan for the worst: It costs less at the desk.
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Thank you