Drillsafe

29 August 2007

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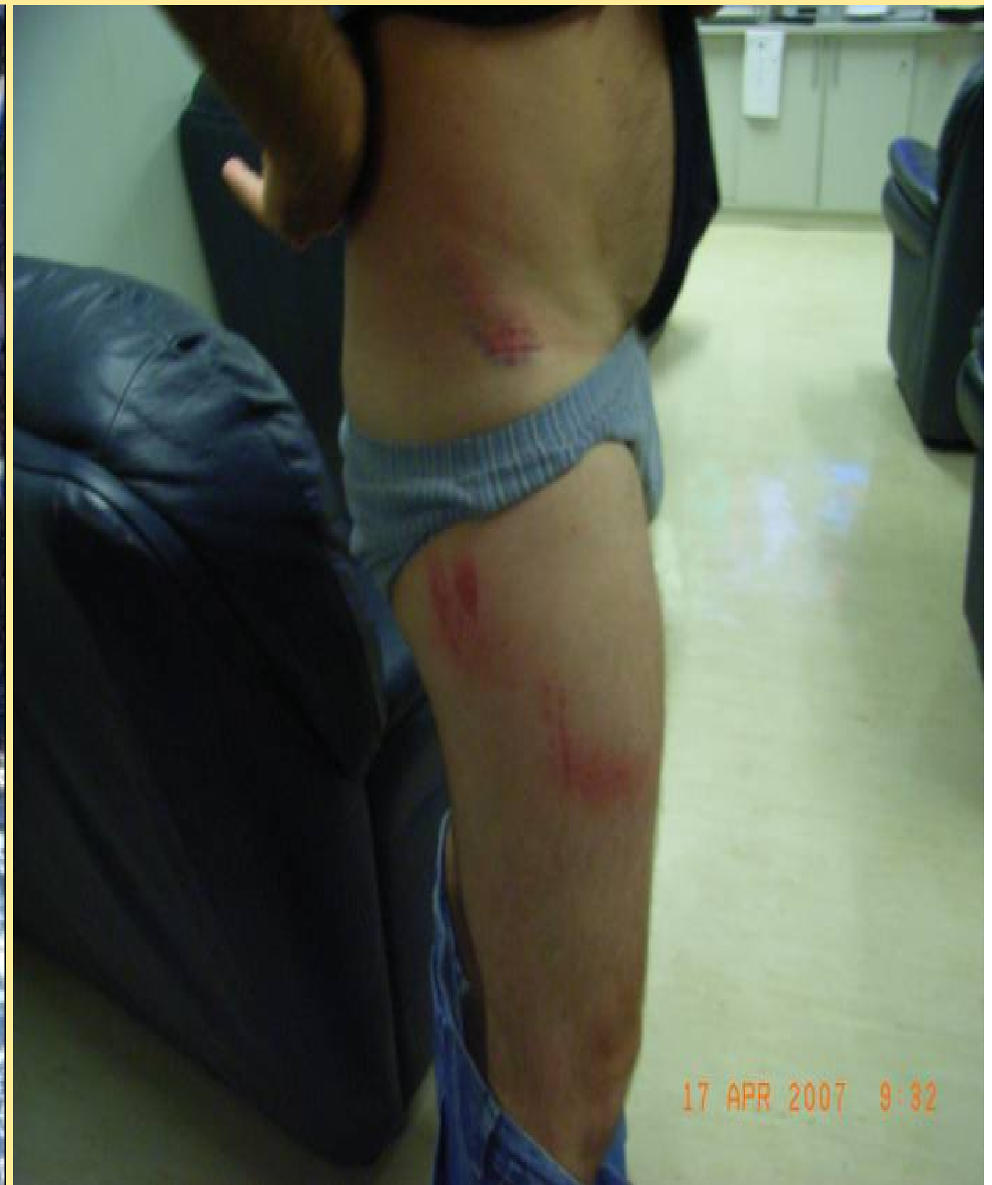
Health Safety Environment

Background

Significant challenges with offshore support vessels

- 25% of exposure hours
- 70% of recordable injuries
- Incident 17 April 2007: Broken chain during Anchor handling
- Minor injury to crew member (bruising while taking evasive action)
- Potential consequence: significant injury or fatality
- Detailed incident investigation using “Tripod”

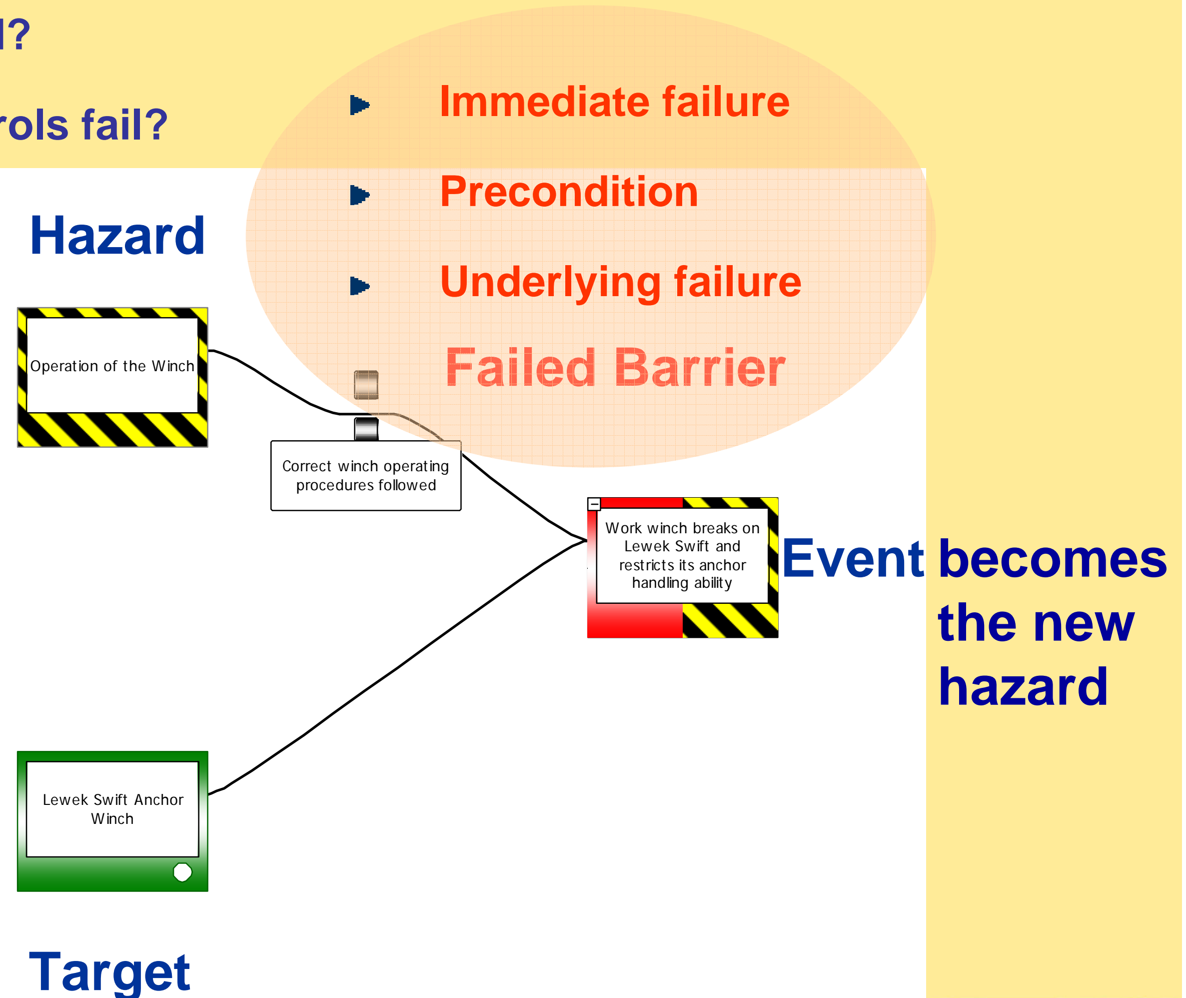
Location of the injured person



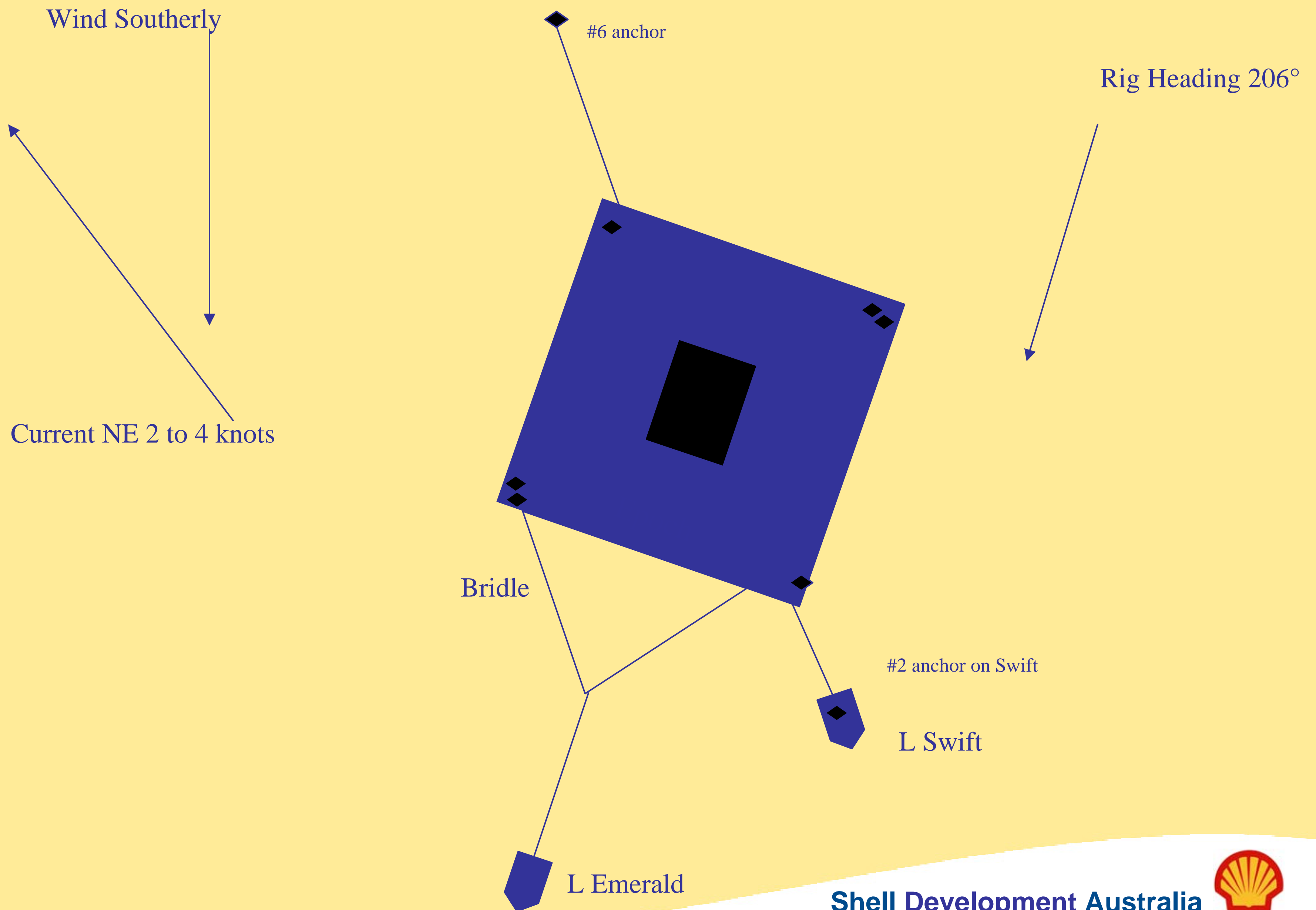
Event 1: Winch breaks on Lewek Swift

Incident modelled using “Tripod”:

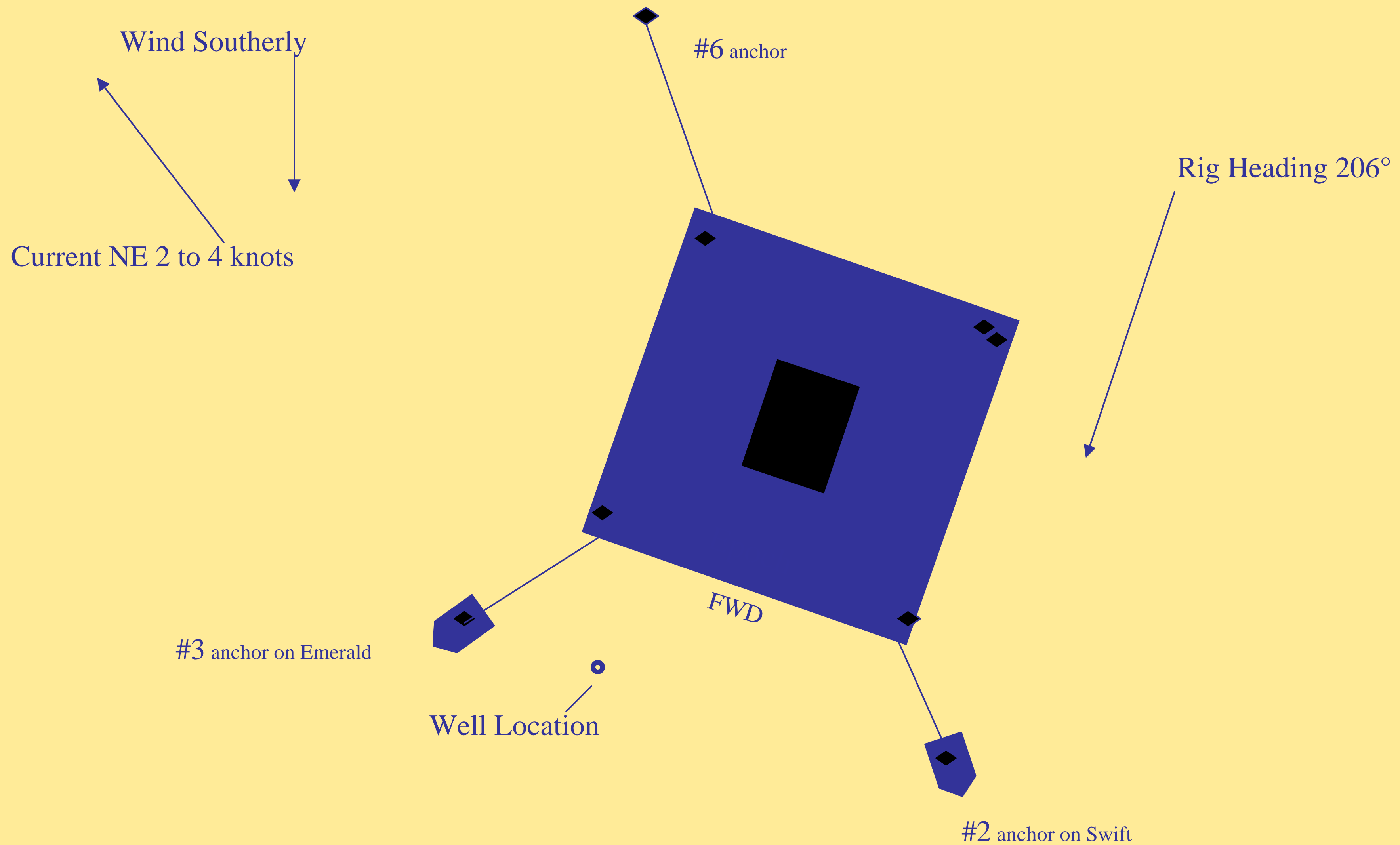
1. **What happened? (sequence of events)**
2. **What barriers / controls failed?**
3. **Why did those barriers / controls fail?**



Initial anchor handling set up



Modified anchor handling set up



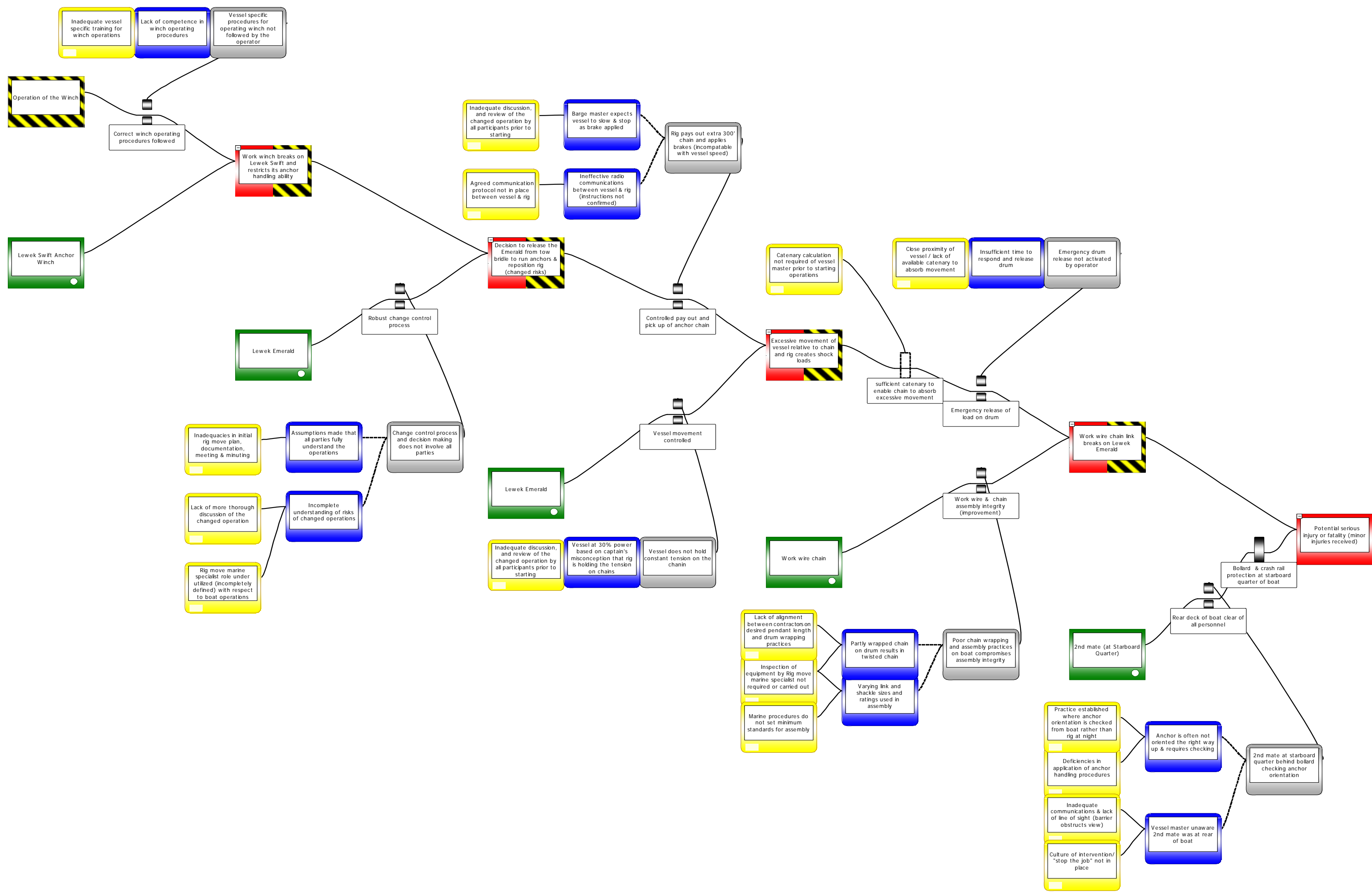
Sequence of events

- Event 1: Winch breaks on Lewek Swift
- Event 2: Decision to remove L.Emerald from tow bridle to run anchors (repositioning of rig required)
- Event 3: Excessive movement of vessel relative to chain and rig creates a shock load
- Event 4: Chain breaks on L. Emerald
- Event 5: Injury to 2nd officer (High Potential)

Failed Barriers

- Event 1: Winch operating procedures
- Event 2: Change control process for the operation
- Event 3: Vessel movement controlled
  Controlled payout/pickup of anchor chain
- Event 4: Sufficient catenary to absorb loads
  Emergency Release of Drum
  Integrity of work wire assembly (improvement)
- Event 5: Rear deck clear of all personnel
  Effective barrier- bollard protection/ crash rail

Detailed Tripod Analysis Tree



Shell Development Australia

Actions taken – support vessels

- Vessel operators trained in winch specific operations
- Catenary calculations to be made by vessel master
- Anchor chain to be off the drum and minimum standards set for vessel pendant assembly
- Shell Marine Captain to do vessel equipment inspection prior to use
- Procedures enhanced to improve anchor orientation
- Additional process step to verify deck is clear of personnel
- Re emphasize “stop the job” message

Actions taken – rig move operations

- Earlier Rig move meeting scheduling > 24 hours, involve both masters; minuted; checklist followed
- Content of rig move meeting improved
- Early issue of documentation ahead of rig move meeting
- Master and barge captains to agree any changes to operations
- Communication protocol agreed and documented
- Rig to verify anchor orientation
- Improvements to rig anchor chain drum braking mechanism

Outcomes

► Robust actions implemented by marine contractor to address root causes & improvements

► Strong support & steps implemented by drilling contractor to strengthen rig move operations

► Three successful, incident free rig moves