

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”

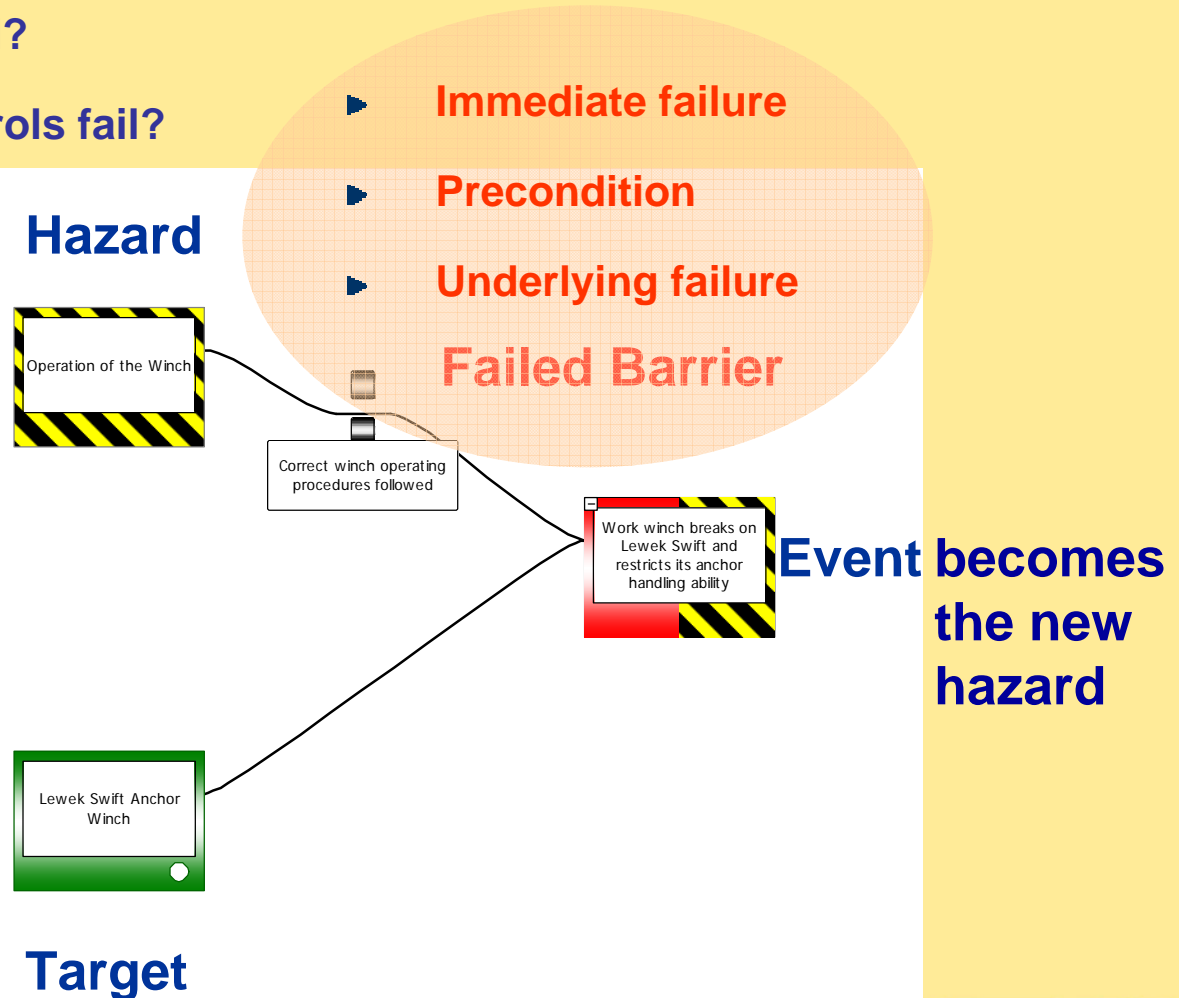
Location of the injured person



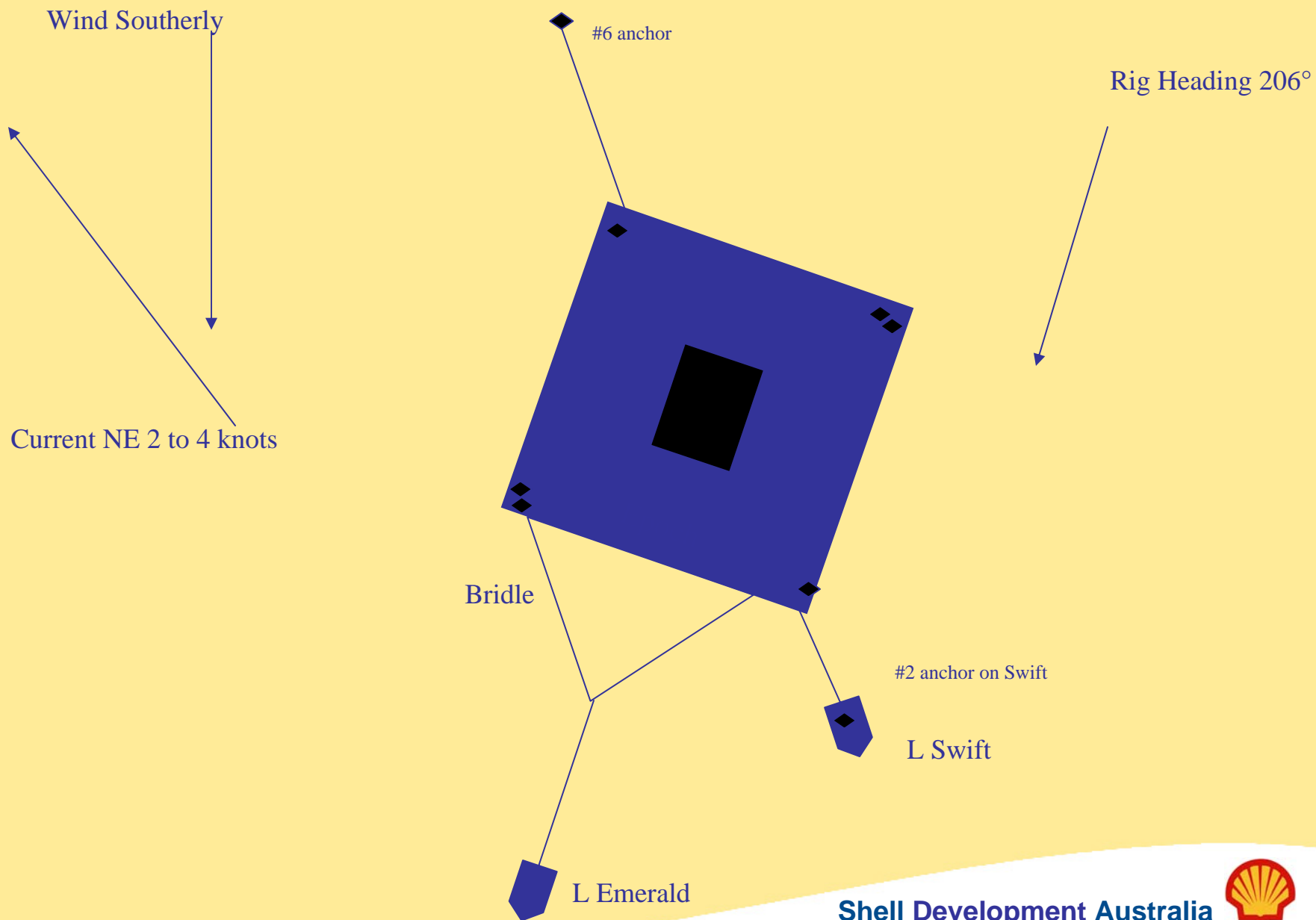
Event 1: Winch breaks on Lewek Swift

Incident modelled using “Tripod”:

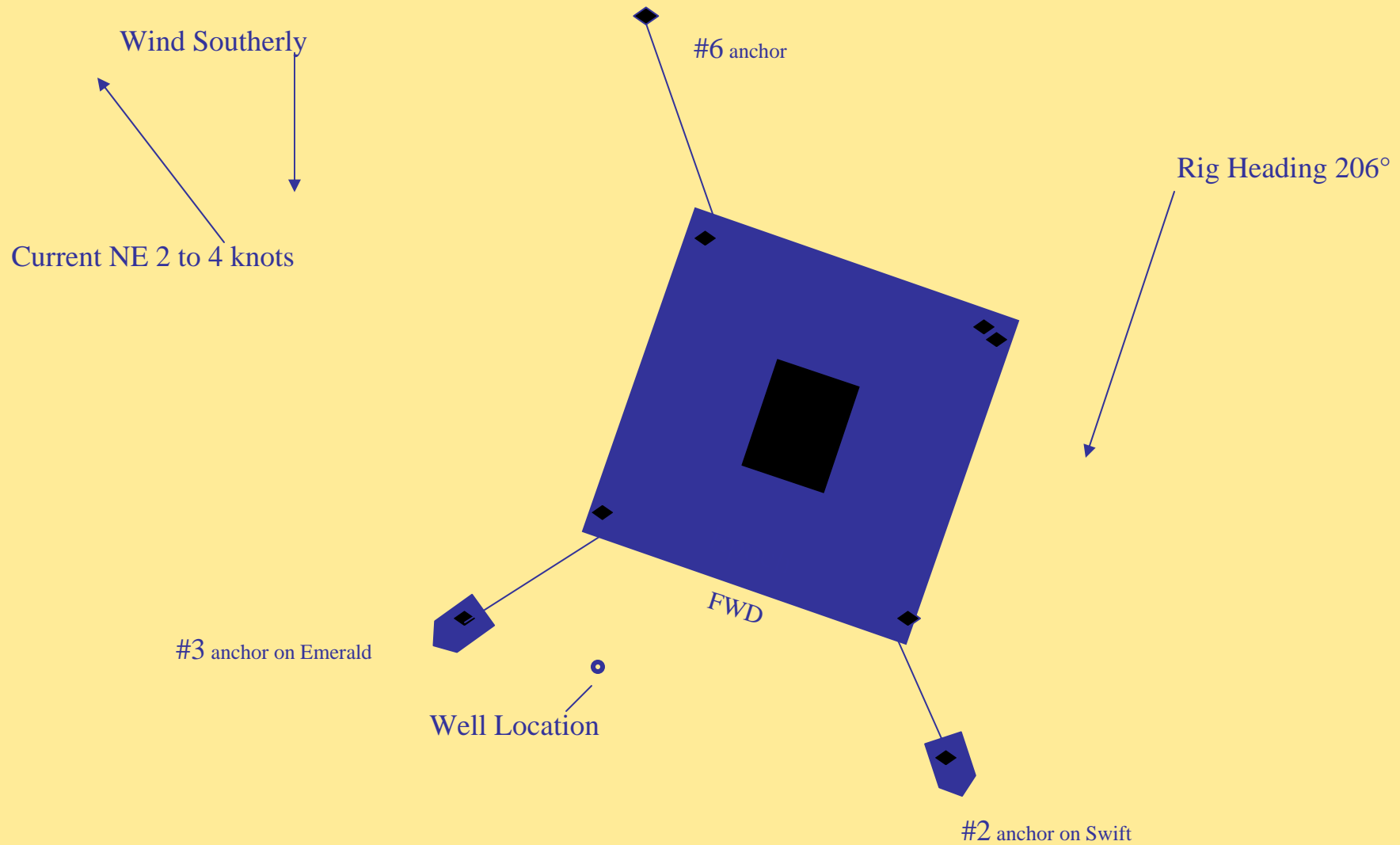
1. What happened? (sequence of events)
2. What barriers / controls failed?
3. Why did those barriers / controls fail?



Initial anchor handling set up



Modified anchor handling set up



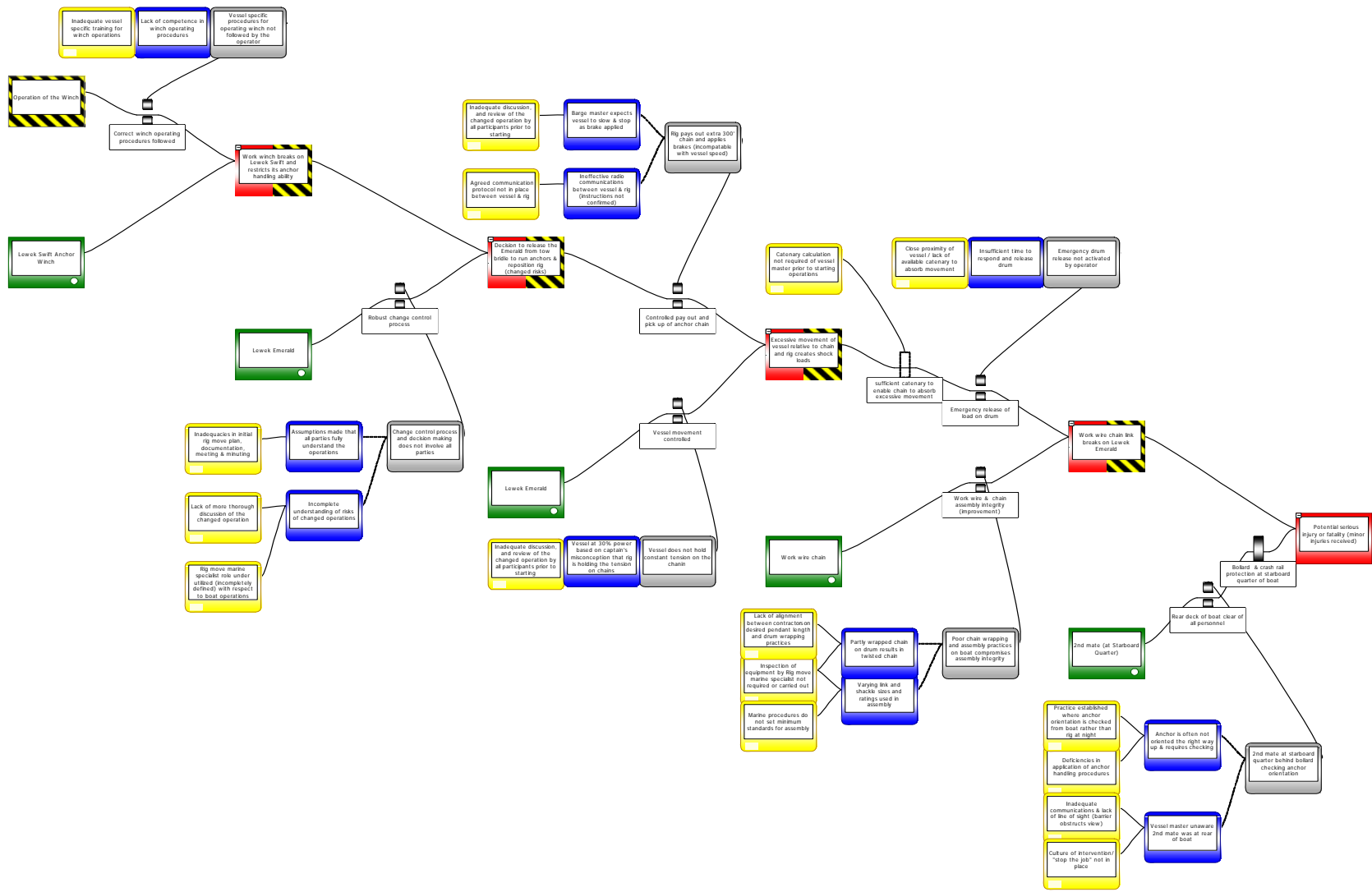
Sequence of events

- ▶ 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



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