

**GOLD FIELDS**



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**KDC**

**K4 Sub Vertical Rock Winder  
Overwind occurred 17 Jan 2010**

Presented to AMRE Safety Seminar on 19 April 2011

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- Introduction
- Sequence of events
- Shaft layouts
- Slack and tight rope information
- Photos after the incident
- Photos of the repairs
- Time schedule of the repairs
- Testing of dynamics by TAS and simulation
- Remedial actions
- Questions



**Date:** 17 January 2010

**Time:** 19:38 (Sunday)

**Description of Incident:**

The under lay skip of the Sub Shaft Rock Winder was pulled in to the jack catches and detached the winding rope. The overlay skip came out of the guides below the box.

This is similar to an event that occurred in September 2001

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- Lightning during the afternoon of the 17 th resulted in trip outs on Fans, Winders, Pumps and Fridge plants.
- The first electrician could not reset the sub vertical winder and called for assistance.
- The second electrician also experienced problems and requested assistance from the acting foreman.
- In attempts to reset and synchronize the winder the deceleration cards (position cards) were pulled and bridge pieces were inserted into the safety circuit.
- The upward movement of the underlay conveyance resulted in an overwind.

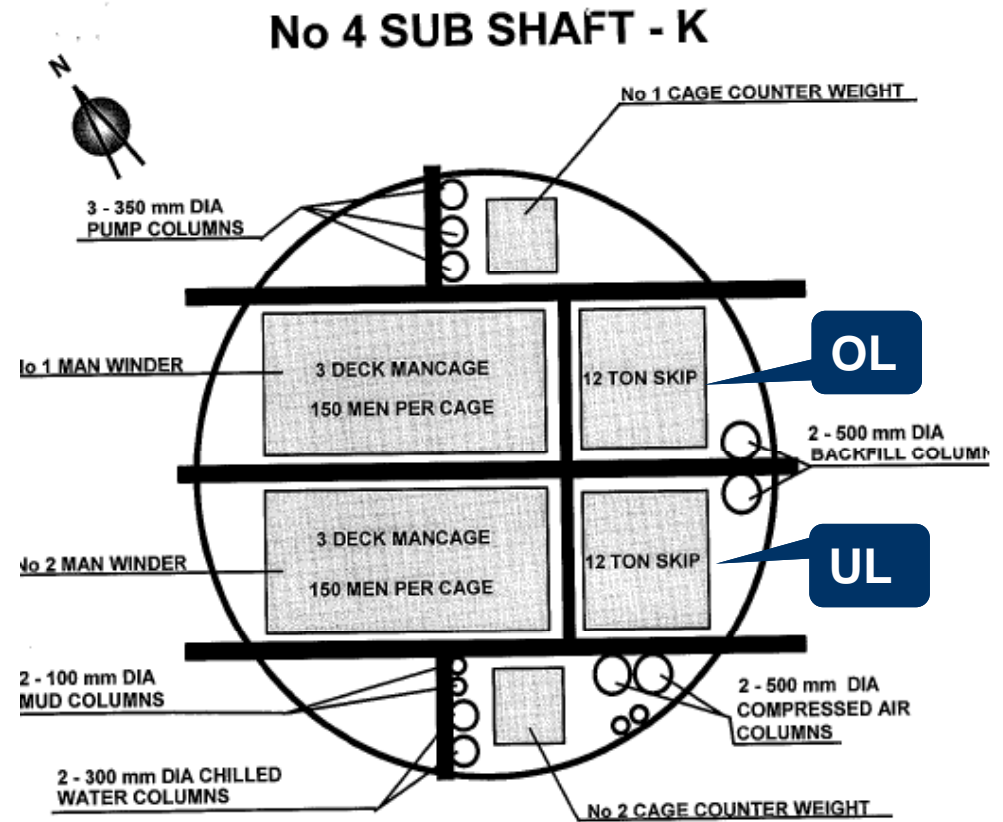
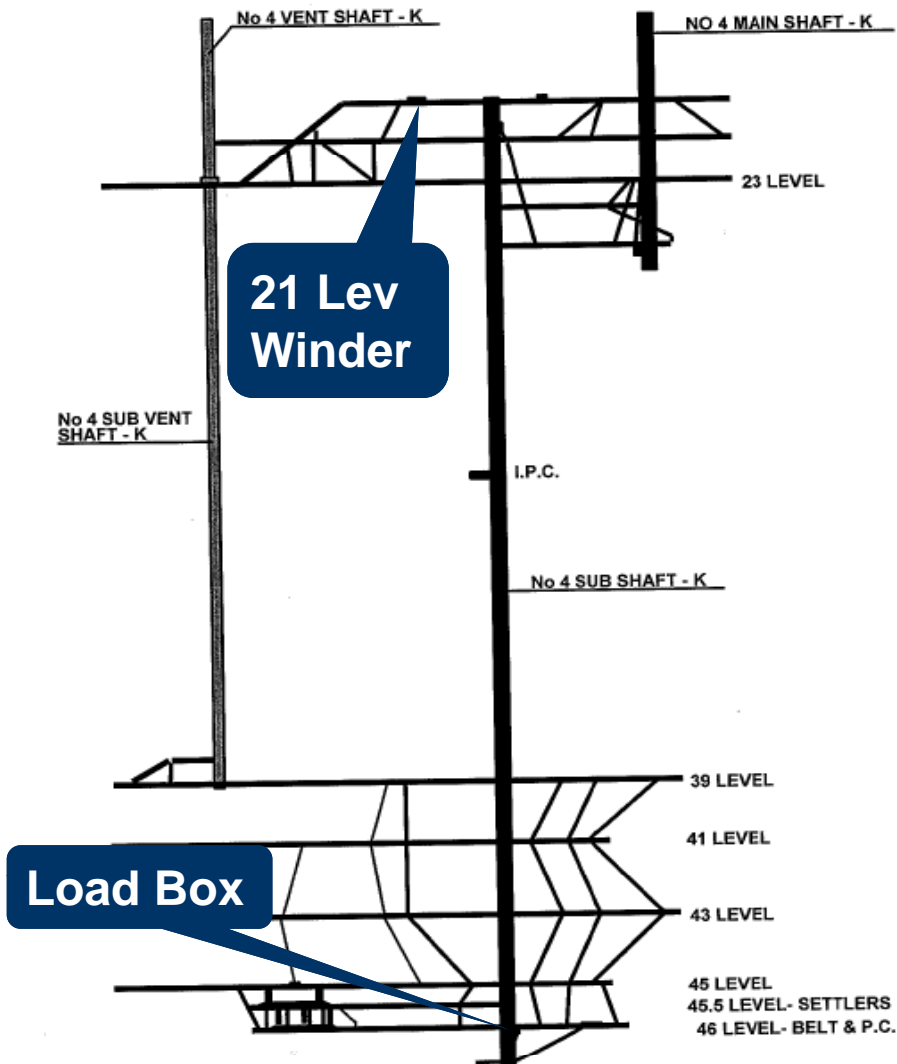
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# 4 SHAFT KLOOF

# Shaft layout



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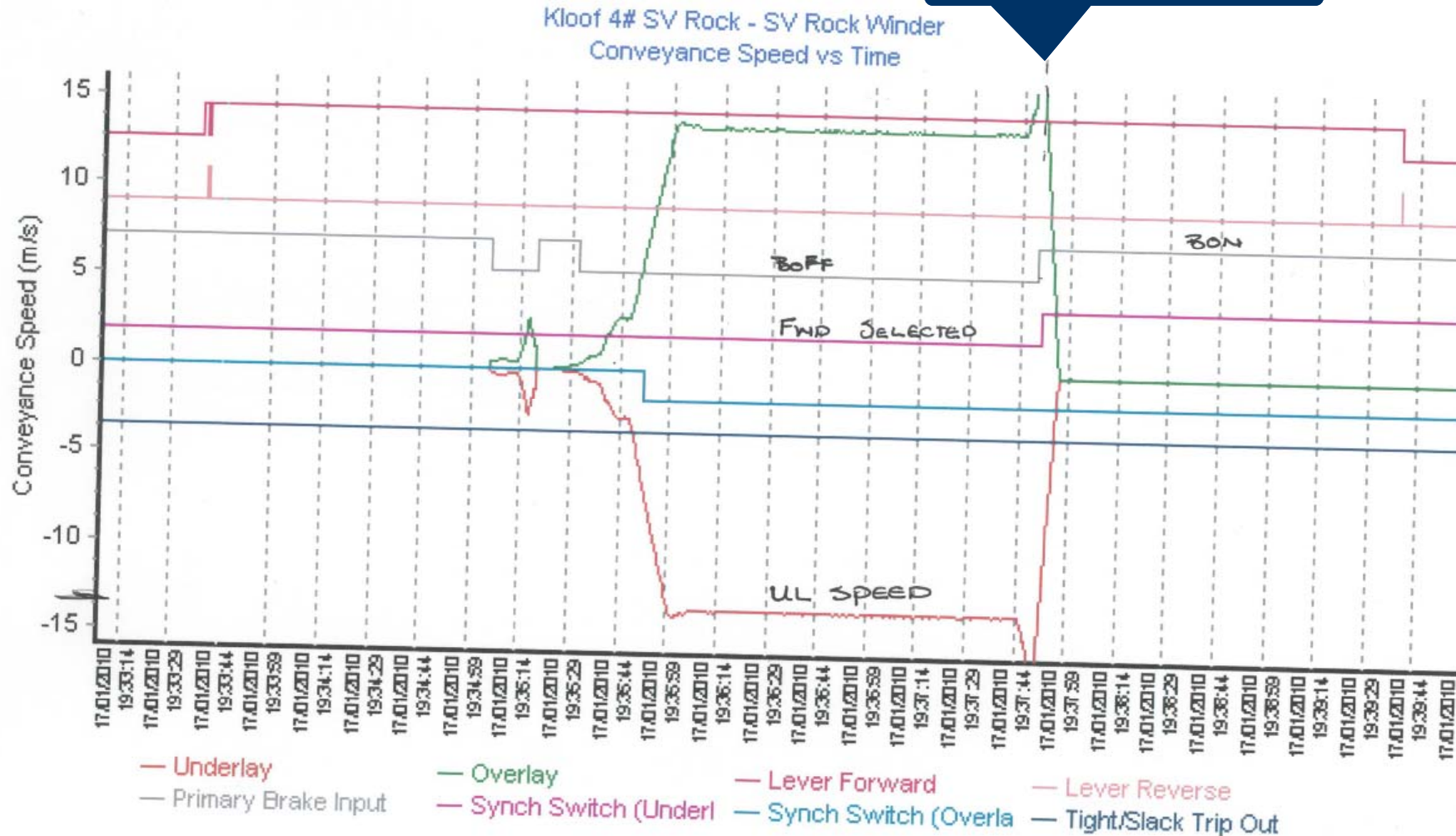
# 4 SHAFT KLOOF

## Control solutions Slack and Tight rope system



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Ultimate overwind



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## 4 SHAFT KLOOF

Bridle on top of jack catch



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**4 SHAFT KLOOF**

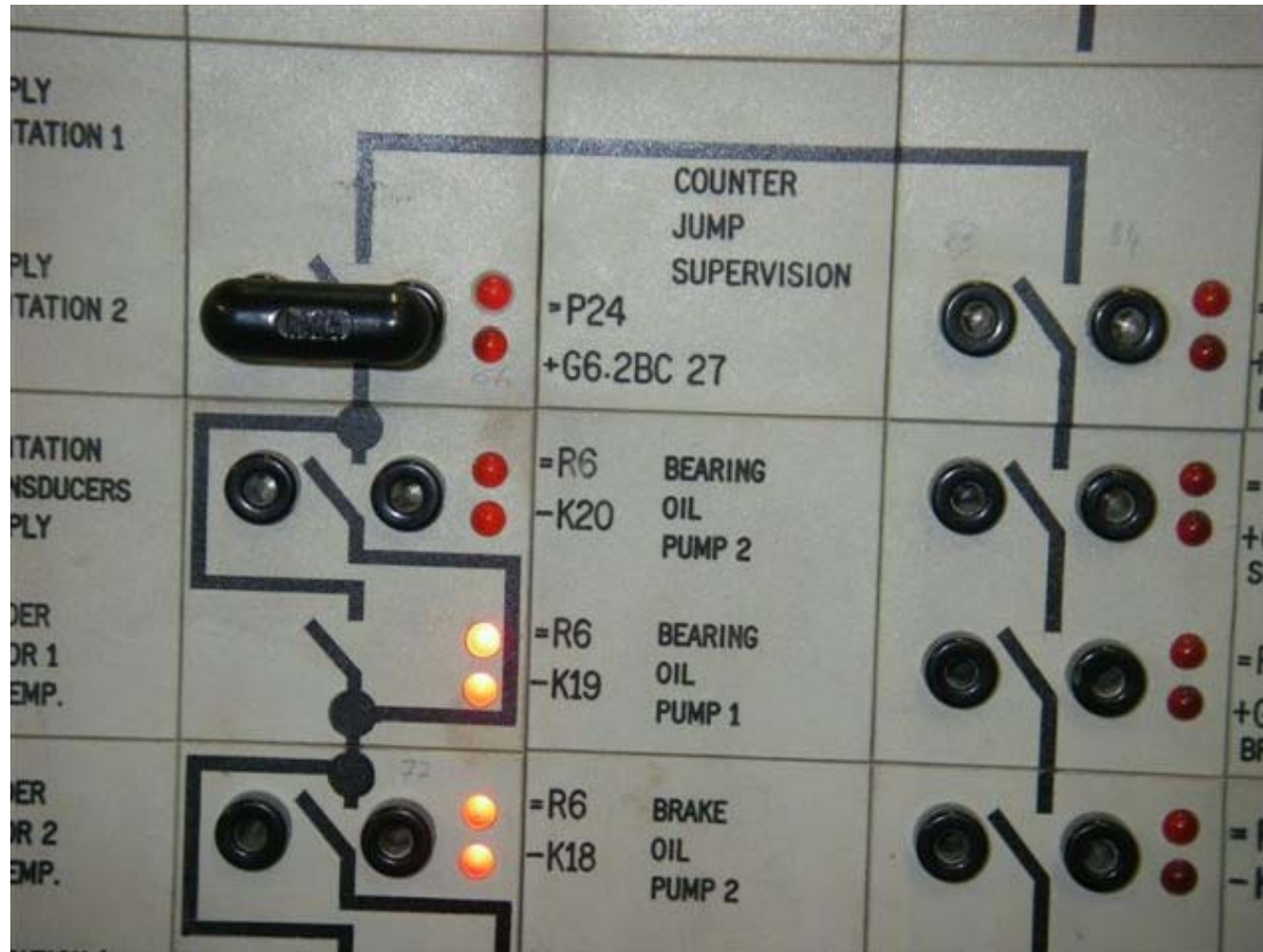
**Sheared bolts on support beam**



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Deceleration cards removed



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**SKIP IN HEADGEAR SECURING AND DAMAGES**



SKIP IN BOTTOM AND INSPECTION OF SKIP



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**FITTING OF ROPE CENTRING CROSSHEAD**

## 4 SHAFT KLOOF

## Photos of the repairs



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**FITTED CROSSHEAD**



- TAS simulations done. (Dynamic run-in)
- Winder did not slow down.
- Confirmed bridging of circuits.

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TAS was conducted on 18 December 2009 and the winder was found in order on all the safety circuits.

Weekly and Daily maintenance was done.

Dynamic test was conducted in required times.

Yearly exam was conducted in December 2009 but not yet recorded in the machinery record book

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- Install UPS to prevent loss of memory
- Install synchronizing switch.
- Risk assess and implement safe synchronizing speed @ 2.5m/sec
- Install flashing light in cabin to warn driver about synchronization
- Reinforce safe production rules on bridging.
- Draw up procedure for synchronizing.

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## Questions / Comments

