



Flow Rate Project

A project to evaluate the
change in AS 2985

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Linking Health with Industry

A bit of background

- Coal Services Pty Ltd
- Department of Primary Industries (DMR)
- Standing Dust Committee – CS Health experts

The problem

- AS2985-1987
 - flow rate 1.9L/min
- AS2985-2004
 - flow rate 2.2L/min
- No change to OEL for silica or dust proposed to coincide with AS change

The project

- Research question
 - What is the effect of a change in the flow rate on the amount of silica collected during a sample
 - in real work situation – unknown factors



The Methods

- 60 side-by-side paired samples
- Each pair 1.9L/min and 2.2L/min, on same person
- Randomly allocated L/R side
- Four months
- Stoppages



The Project ctd

- Used our usual equipment, under normal conditions;
- Dust samples were weighed in CS Health labs
- Silica was analysed at the Work Cover Authority's labs



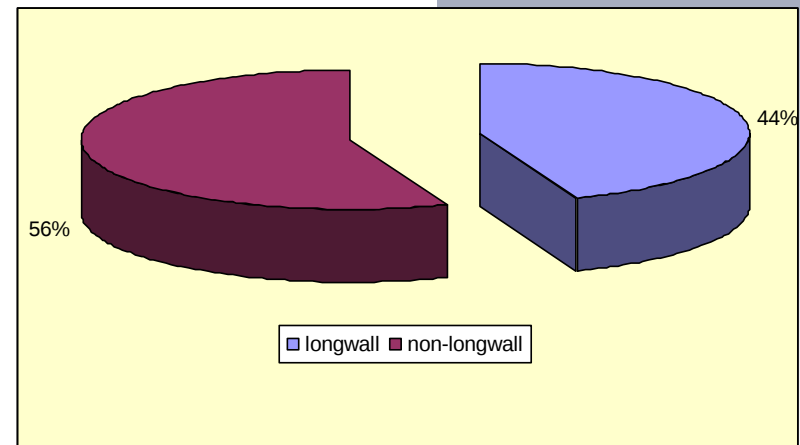
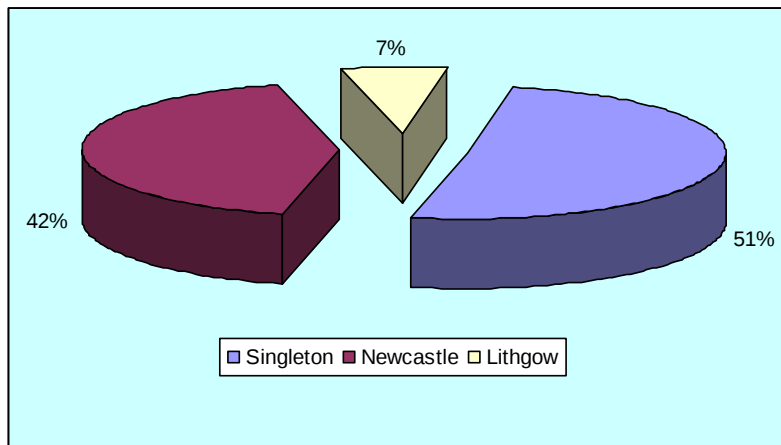
Some data

57 pairs; 15 mines; 3 districts

Mine Name	Mining Type	District	Annual production
Beltana	Longwall	Singleton	5,792,456
Dartbrook	Longwall	Singleton	3,879,690
United	Longwall	Singleton	3,526,471
Ulan	Longwall	West	3,416,765
Newstan	Longwall	Newcastle	3,406,873
Glennies Creek	Longwall	Singleton	2,427,375
Baal Bone	Longwall	West	1,872,650
Angus Place	Longwall	West	1,143,775
Newpac No 1	Non-longwall	Singleton	n/available
West Wallsend	Non-longwall	Newcastle	3,265,978
Myuna	Non-longwall	Newcastle	1,546,689
Munmorah	Non-longwall	Newcastle	778,685
Mandalong	Non-longwall	Newcastle	585,534
South Bulga	Non-longwall	Singleton	464,121
Chain Valley	Non-longwall	Newcastle	404,641

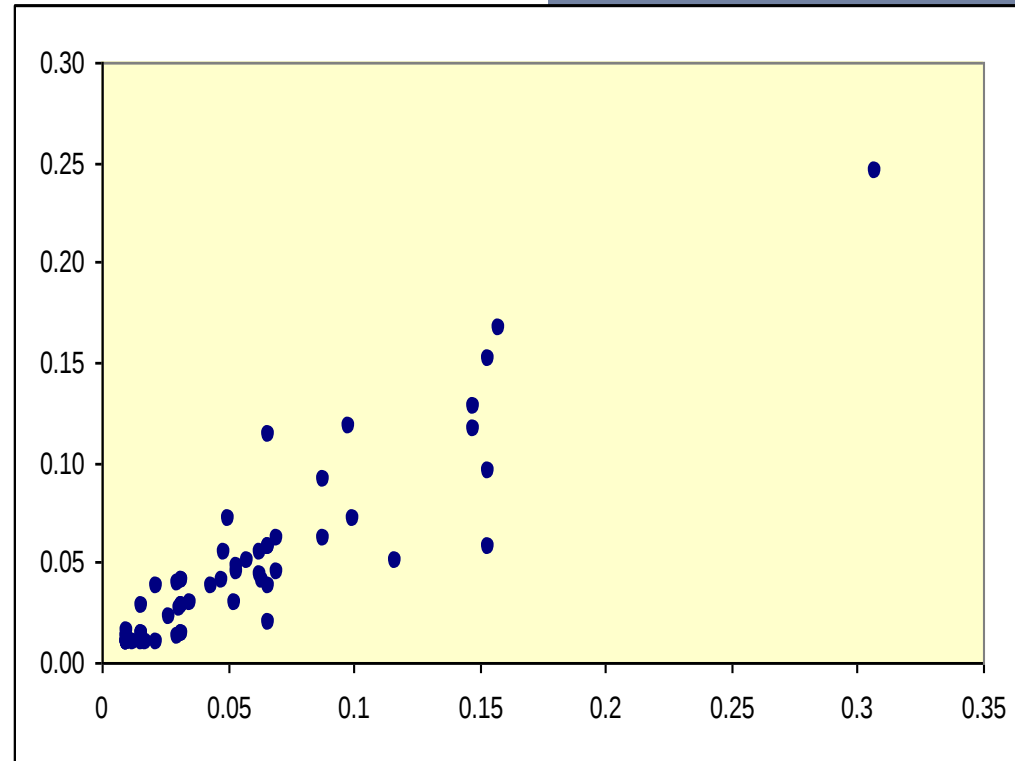


Mining region and type

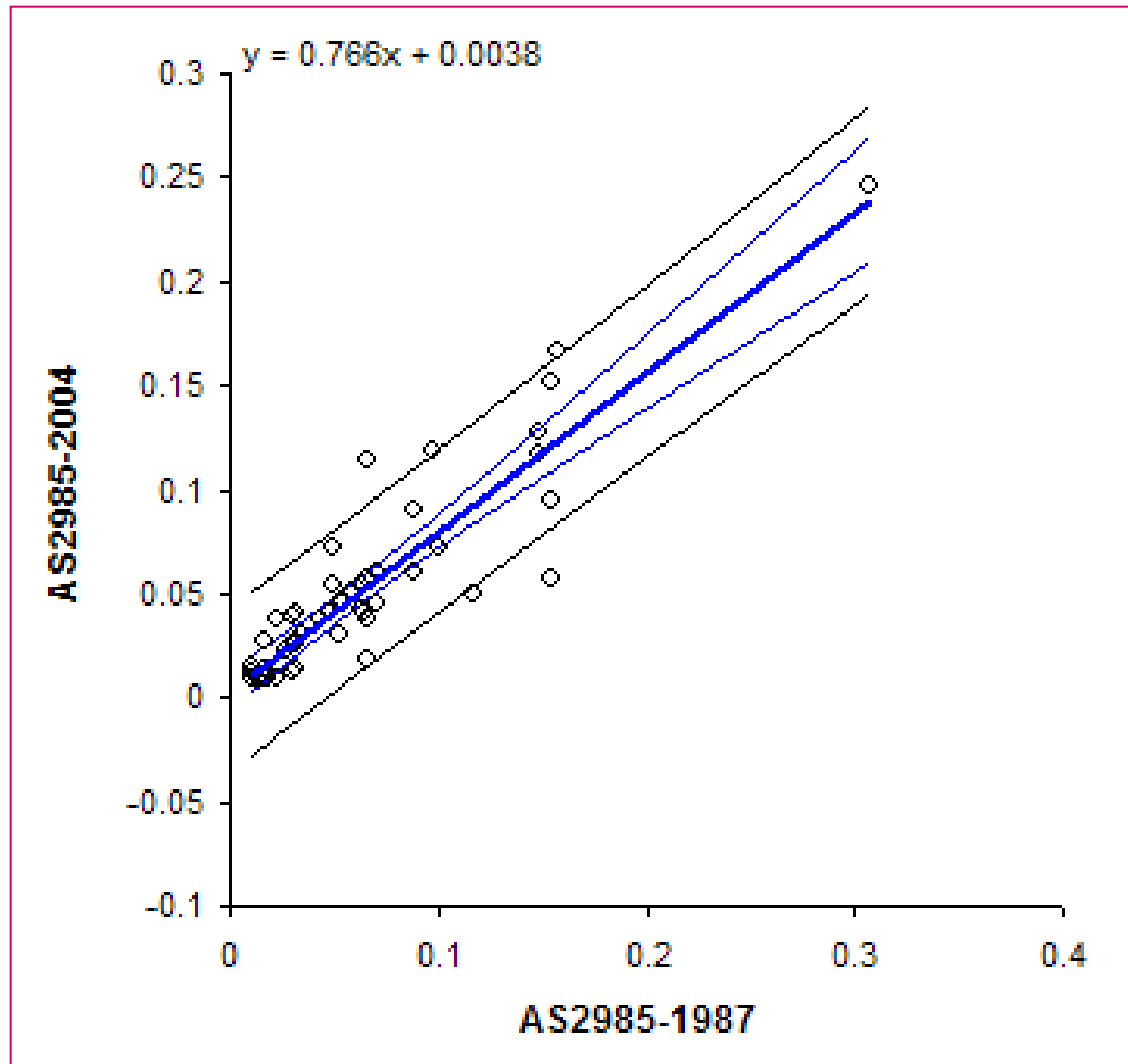


Analysis

- Scatter plot to see if there may be a relationship



The Result



- Linear regression
 - $Y = aX + b$
 - $b = 0.0038$
 - 95% CI
 - Slope(a) = 0.7660
 - $Y = aX$



The (indicative) equivalences

- Silica
 - 0.15mg/m³ at 1.9L/min is equivalent to
 - 0.12mg/m³ at 2.2L/min
- Coal dust
 - 3.0mg/m³ at 1.9L/min is equivalent to
 - 2.5mg/m³ at 2.2L/min



With thanks to

- CS Health's environmental monitoring group, especially
 - Glenn Goodwin, Gary Mace and Steve Bevan, for all of the sampling
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- Coal Services Health and Safety Trust for financial support.
- Sharon Buckley for assistance in the presentation of the data.

