GENERAL EXAMPLE – BELT AIR TO FACE AND NORMAL SHEARER CONTROLS

(0.2MG/M3)(12% QUARTZ) + (0.6MG/M3) (3% QUARTZ) + (0.6MG/M3)(3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 2.0 MG/M3

INTAKE	BELT	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	18 **MICROGRAMS**	**18** MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

100 MICROGRAMS QUARTZ = 5.0% QUARTZ
2000 MICROGRAMS TOTAL

COMPLIANCE WITH 2.0 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

10 = 2.00 MG/M3 STANDARD
5

This example indicates compliance with the dust standards, but since it is exactly on the allowable limits for both total respirable dust and quartz, an operator would begin dust reduction measures.

Submitted by Link Derrick
May 22, 2003 public hearing, Grand Junction, CO

AB14-HEAR-6D

AB18-HEAR-6D

BELT AIR TAKEN AWAY FROM FACE

(0.2MG/M3)(12% QUARTZ) + (0.6 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.2 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	18 MICROGRAMS	40 MICROGRAMS	82 MICROGRAMS

82 MICROGRAMS QUARTZ= **6.8%** OUARTZ
1200 MTCROGRAMS TOTAL

COMPLIANCE WITH 1.2 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

10 = 1.47 MG/M3 NEW STANDARD – SHEARER DUST COULD BE SIGNIFICANTLY HIGHER
6.8

HOWEVER

(0.2MG/M3)(12% QUARTZ)+ (1.2 MG/M3) (3% OUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.8 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	***36*** MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

COMPLIANCE WITH **1.8** MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

The most feasible dust control measure would be to direct the belt air away from the face. This would direct the crusher and tailpiece discharge dustaway from the working face. **By** removal of **this** dust, **the** standard reduces because of that fraction of the sample that is removed is lower in quartz. The shearer dust could now be doubled and still result in compliance. However, this is against the practice of the "lowest possible exposure".

ADDITIONAL DUST CONTROLS ON SHEARER

(0 2MG/M3)(12% QUARTZ) + (0 4 MG/M3) (3% OUARTZ) + (0.4MG/M3)(10% OUARTZ) = 1.0 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	12 MICROGRAMS	40 MICROGRAMS	76 MICROGRAMS

76 MICROGRAMS QUARTZ= 7.6% OUARTZ
1000 MICROGRAMS TOTAL

COMPLIANCE WITH 1.0 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

10 = 1.32 MG/M3 NEW STANDARD -- SHEARER DUST COULD BE SIGNIFICANTLY HIGHER
7.6

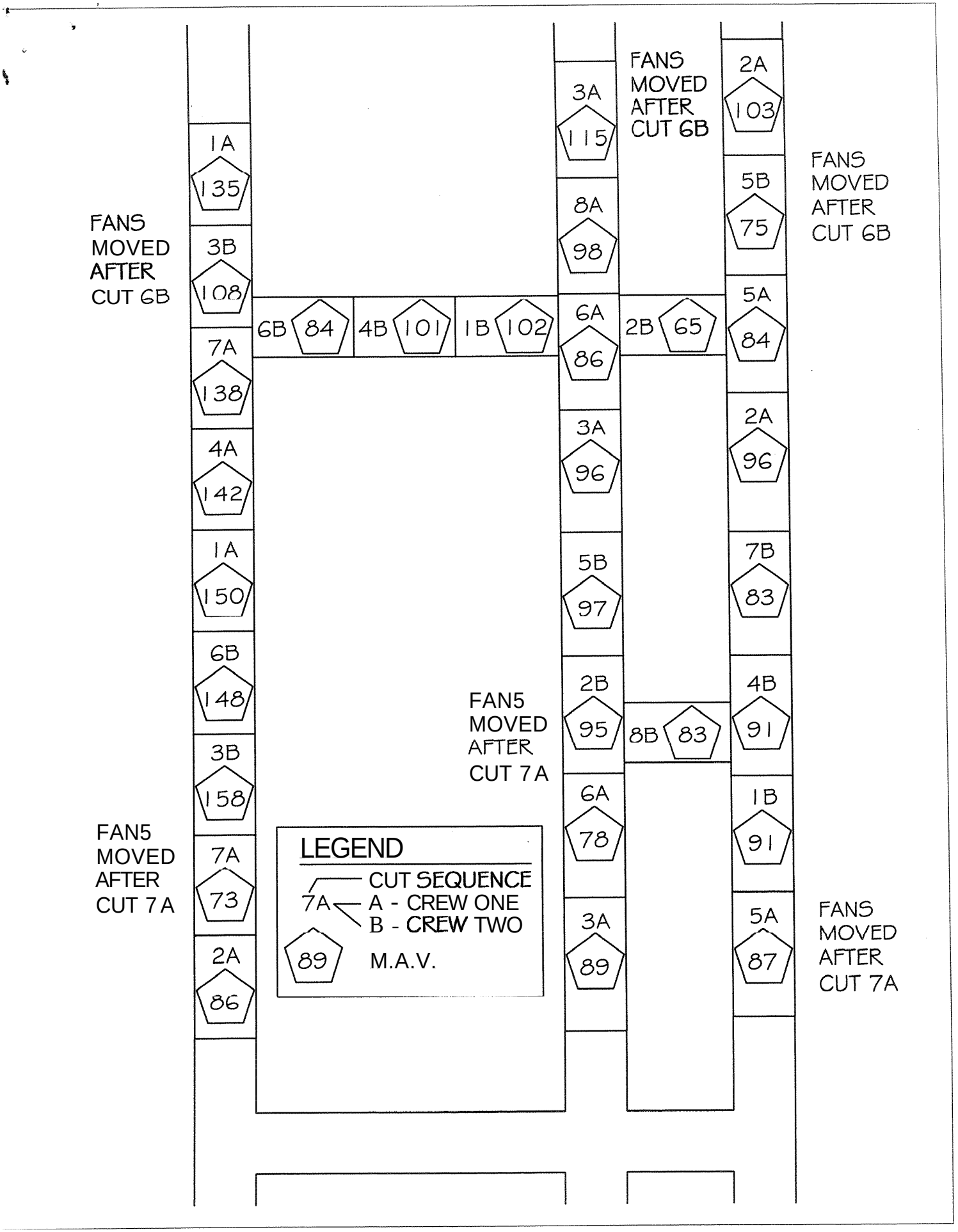
HOWEVER

(0.2MG/M3)(12% QUARTZ)+ (1.2 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% OUARTZ) = 1.8MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	36 MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

COMPLIANCE WITH 1.8MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

Additional dust control measures are taken at the shearer, which further reduce the shearer dust levels from 0.6mg from 0.4mg. However, that only lowers the the standard even further from 1.47mg/m3 to 1.32 mg/m3. This could keep lowering as additional measures are taken.
The actual dust levels at the shearer could be tripled and still be in compliance with both **standards.**


FANS MOVED AFTER CUT 6B
FANS MOVED AFTER CUT 6B
FANS MOVED AFTER CUT 6B
FAN5 MOVED AFTER CUT 7A
FAN5 MOVED AFTER CUT 7A
FANS MOVED AFTER CUT 7A
1A 135
3B 108
7A 138
4A 142
1A 150
6B 148
3B 158
7A 73
2A 86
6B 84
4B 101
1B 102
3A 115
8A 98
6A 86
3A 96
5B 97
2B 95
6A 78
3A 89
2B 65
8B 83
2A 103
5B 75
5A 84
2A 96
7B 83
4B 91
1B 91
5A 87
LEGEND
CUT SEQUENCE
7A
A - CREW ONE
B - CREW TWO
89
M.A.V.

HYPOTHECICAL EXAMPLE OF THE LOWERING OF THE QUARTZ STANDARD

GENERAL STATEMENTS

1. (2.0 MG/M3) (1000 MICROGRAM) = 2000 MICROGRAMS/M3
   (1.0 MG/M3)

2. 2000 MICROGRAMS X 5% = 100 MICROGRAMS OF QUARTZ

ACTUAL RECENT SAMPLE

1. 0.5 MG/M3 OF TOTAL DUST WEIGHT
2. 12% OF QUARTZ
3. 0.833 STANDARD
4. 500 MICROGRAMS OF TOTAL DUST X 12% QUARTZ
   = 60 MIROGRAMS OF QUARTZ
5. THIS IS 25 % OF TOTAL DUST ALLOWED AND 60 % OF QUARTZ MAXIMUM LIMIT.

GENERAL EXAMPLE – BELT AIR TO FACE AND NORMAL SHEARER CONTROLS

(0.2MG/M3)(12% QUARTZ) + (0.6 MG/M3) (3% QUARTZ) + (0.6MG/M3)(3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 2.0 MG/M3

INTAKE	BELT	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	18 MICROGRAMS	18 MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

100 MICROGRAMS QUARTZ = 5.0% QUARTZ
2000 MICROGRAMS TOTAL

COMPLIANCE WITH 2.0 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

10 = 2.00 MG/M3 STANDARD
5

BELT AIR TAKEN AWAY FROM FACE

(0.2MG/M3)(12% QUARTZ) + (0.6 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.2 MG/M3

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24 MICROGRAMS	18 MICROGRAMS	40 MICROGRAMS	82 MICROGRAMS

82 MICROGRAMS QUARTZ = 6.8% QUARTZ
1200 MICROGRAMS TOTAL

COMPLIANCE WITH 1.2 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

10 = 1.47 MG/M3 NEW STANDARD – SHEARER DUST COULD BE SIGNIFICANTLY HIGHER

HOWEVER

(0.2MG/M3)(12% QUARTZ) + (1.2 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.8 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	36 MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

COMPLIANCE WITH 1.8 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

ADDITIONAL DUST CONTROLS ON SHEARER

(0.2MG/M3)(12% QUARTZ) + (0.4 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.0 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	12 MICROGRAMS	40 MICROGRAMS	76 MICROGRAMS

76 MICROGRAMS QUARTZ = 7.6% QUARTZ
1000 MICROGRAMS TOTAL

COMPLIANCE WITH 1.0 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ

1.0 = 1.32 MG/M3 NEW STANDARD – SHEARER DUST COULD BE SIGNIFICANTLY HIGHER
7.6

HOWEVER

(0.2MG/M3)(12% QUARTZ) + (1.2 MG/M3) (3% QUARTZ) + (0.4MG/M3)(10% QUARTZ) = 1.8 MG/M3

INTAKE	SHEARER	SHIELDS	WEIGHT
24 MICROGRAMS	36 MICROGRAMS	40 MICROGRAMS	100 MICROGRAMS

COMPLIANCE WITH 1.8 MG/M3 TOTAL WEIGHT
COMPLIANCE WITH 100 MICROGRAMS QUARTZ