

Cumulative Effect of Policy Changes on 2nd Mining Bleeder Designs

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Bleeder Designs

- When designing any system or structure, there are many, many things to take into consideration.
- “ . . . *There are known knowns; . . . We also know there are known unknowns; . . . But there are also unknown unknowns . . .* “
 - With apologies to *Donald Rumsfeld*

Bleeder Designs

- *When designing 2nd mining systems, and their working parts, commitments are made very early in the process that depend on what we know . . .*
 - *Health & Safety Regulatory Requirements?*
 - *What is MSHA's (current) POLICY?*
 - *Surface ownership/ subsidence rights;*
 - *Potential contaminant issues (CH₄, CO, CO₂, etc.);*
 - *Strata Stresses (over/ under, horizontal stress)*

Bleeder Designs

- *Since 1969, the standard has been “ventilate or seal”*
 - *But --- how?*
- *Since the 1970's there has been tension in defining what a bleeder is and how it should work.*
 - *“ . . Dilute, render harmless, remove . . ”*

Bleeder Designs

- Up until about 2005, the bleeder system was a ‘black box’ that performed three functions:
 - Continuously dilute and carry away;
 - Protect active section or workings; and
 - $\leq 2\%$ for air exiting the bleeder system.

Bleeder Designs

- And there were few who entered the system:
 - Only Experienced miners measure/ maintain/ adjust to comply with The Act, MSHA Standards, Vent Plan;
 - Everyone else stays out of the inner workings;
 - MSHA can go anywhere in the bleeders they want to go.

Bleeder Designs

- Bleeder regulations (30 CFR 75.334 and 75.364) have not changed since 1996
- **What HAS changed are**
 - technology,
 - interpretations and
 - policies.

Bleeder Designs

- **Change**: accurate & reliable O₂ detectors replaced Flame Safety Lamps UG
 - 19.5% has been the standard where miners work or travel since 1970 – but in the late 1990's it became easier to be more accurate & precise to measure O₂ UG.
 - MSHA rarely approves remote detection because of the requirement to “examine ventilation controls”.

Bleeder Designs

- Change: ~2005 through 2013 MSHA made gradual changes to it's policies that
 - 1) Required dilution of CH4 *in the rubble zone*
 - “*mixing chambers*” and “*mine-foreman’s entry*” are now entered AND
 - Methane levels must be below 4.5% - and at times >3.5%
 - 2) Prohibiting the use of belt air reduced airflows and pressures available to LW, working sections & pillared areas

Bleeder Designs

- Change: ~2005-2013 in MSHA policies . . .
 - 3) reduced intake air flows into the bleeder system
 - Limited introducing intake w/o creating a 2.0% CH₄ airway;
 - 4) Required extensive examinations of entire bleeder perimeter with few exceptions
 - Which increases exposure (Ground Control, Pumping, etc.)
 - 5) Defined PLAN ISSUES/ Ineffective Bleeder as
 - Where > 4.5% methane (sometimes >3.5%);
 - Where < 19.5% oxygen (miners travel);
 - Water in travelways over a few inches depth;
 - Coal Dust on rock dusted surfaces

Impact of Plan Litigation on Bleeder Designs

- Change: It is extremely difficult to successfully challenge or get a meaningful review on Plan Issues beyond the District Manager
 - “MACH MINING, LLC, v SECETARY OF LABOR (MSHA)”, 2009
 - “PRAIRIE STATE GENERATING COMPANY LLC v SECRETARY OF LABOR (MSHA)” 2010
 - ALJ is to **only consider facts the DM actually was presented/relied on** to make a decision
 - Standard of the ALJ review: was the DM “arbitrary or capricious” in his decision?
 - Remember, with judicial deference, MSHA is automatically “THE Expert”

Other Changes in Policy & Interpretations . . .

- **Change: Interpretations of drilling distances have been integrated into Vent Plans**
 - What were once 50-ft drilling limits have sometimes become 200-ft limits
 - What were once 200-ft drilling limits have become much greater distances
 - What constitutes “surveyed workings” has been changed in some cases – especially where ‘rib cuts’ have been or may have been taken

Other Changes in Policy & Interpretations . . .

- **Change: Interpretations of what is “mining under bodies of water”**
 - Where once limited to large bodies and streams, now can be interpreted as mining under rather small bodies of water – sometimes even if assumed from upper workings’ contours

What is the *Cumulative Effect*?

- **Reduced size of a mining district**
 - Shorter panels to reduce open areas and reduce maintenance costs;
 - Shorter/ fewer panels to reduce the time exposed to weathering and ground closure forces;
 - More development for less 2nd Mining
 - More equipment/ section or LW moves

What is the *Cumulative Effect*?

- More “internal flow paths” required to be open (sometime monitored); More bleeder entries and barriers
 - Results in fewer pillars mined on retreat;
 - Results in more places to be examined and then more places to ventilate and support;
 - Higher air flows required
 - Higher likelihood of spon com in some seams

What it Means – *Bottom Line*:

- **More exposure/ risk**
 - Moving equipment
 - Traveling certain areas/ maintaining bleeders
 - Changing interpretations/ lack of predictability for design and planning
- **Reduced Recovery from a given reserve**
 - Our old “rules of thumb” need significantly revised
 - Increases & Inflates mineral taxes
 - Reduces value of the insitu reserve

What it Means – *Bottom Line*:

- **Revised definitions of “lost coal”**
 - What was once mineable is no longer mineable
- **Revised definitions of “recoverable reserves”**
 - Direct effect on the mine’s reserve numbers
 - And potential mine life for capital purposes
- **Reduced flexibility in bleeder design**
 - One-size-fits-all “cookie cutter plans”
 - Less adaptability for spon com prone seams & methane drainage system

What it Means – *Bottom Line*:

- **Revised planning parameters**
 - Pillar design, roof, rib and other ground control design issues to facilitate access
 - Revised timing parameters
 - Life-of-mine
 - When to start new access mains or new mines
- Over all long term, corporate planning for equipment, long-lived items

What it Means – *Summary*:

- Higher design level and control of ventilation flows
- Planning/ scheduling is MORE of a premium
- Following a plan becomes MORE critical
- Capital Planning is challenged
- Increased liability from coal owners for “lost coal claims”

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Thank-you for your kind attention

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